PROFESSIONAL VS. PERSONAL NEEDS: THE EFFECTS OF WORK HOUR REDUCTION ON THE LIVES OF SURGERY RESIDENTS

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Abstract

While nobly caring for and looking after their patients’ welfare, surgery residents undoubtedly encounter mental strains and physical challenges while balancing the professional and personal aspects of their lives. The question the thesis explores is: Will the reduction of surgery residents’ work hours enable these novice physicians to lead more fulfilling personal lives without compromising their professional competence in caring for their patients?

Statistical data on the number of hours a surgery resident works and the number of cases these residents handle per week, other tasks for which they are responsible and the skills they must learn within four or five years of residency demonstrate the pros and cons of their current work conditions. These data further demonstrate correlations between such strict work conditions and incidence of misdiagnosis, patient death, complications, rate of recurrence, frustration for both the residents and patients, and a reduced rate of medical graduates applying to medical school and of residents finishing surgery training. Moreover, these data analyze through the utilitarian moral theory the impact of such work conditions on both surgery residents and their patients within the medical specialty of surgery.
Various studies conducted within the past decade on the educational system embodying surgery residency programs reveal the need to modify surgery residents’ hours thereby increasing time residents can sleep, read, and spend personal time with their families and friends. Modifying surgery residents’ work hours, as these various studies demonstrate, by scheduling these residents on-call days farther apart permits more time for residents to attend educational opportunities that will enhance their careers, interact with patients and colleagues, and spend personal time away from the hospital. Hence, scheduling certain hours of surgery residents’ daily schedule into different professional activities will continue to promote the quality and skill by which they must care for patients while they balance their professional and personal lives.

This thesis shows that balancing professional and personal lives and reducing professional and personal stressors are possible for surgery residents to lead more fulfilling and healthier mental and physical lives. Nevertheless, several factors must be considered and evaluated before establishing a consensus within surgery residency programs. Directors and staff members of surgery residency programs, staff members of surgical departments, attending physicians, chief physicians, and surgery residents must continue to work together in establishing a residency program that will inspire surgical residents to lead fulfilling careers in the field of surgery and empower them to promote the well-being of patients at the highest possible standard.
DEDICATION

The research and writing of this thesis is dedicated to everyone who helped along the way, especially my mentor Dr. Gladys White, my husband Willie, and my sister Maria-Zenaida, and to those who supported my endeavors, especially my parents, my parents-in-law, and my friends and colleagues at Georgetown University.

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CHAPTER 1

THE DILEMMA: AN ELITE PROFESSION VS. A NORMAL SOCIAL LIFE

Within the field of medicine a specialized group of novice physicians—surgery residents—enjoy membership in an elite company of intellectuals, yet experience physical and mental challenges of a complex curriculum and a stressful schedule. After having fulfilled specific and demanding academic requirements substantiating acceptance into a surgical residency or training program these medical graduates, committed to four or five years of rigorous diagnostic and technical training, sacrifice their personal lives in serving the most number of people needing medical care. The constant struggle to find balance between their personal and professional lives further underscores the difficulty and challenge of perfecting technical skills to care for patients within a physically and mentally strenuous program.

Using the utilitarian principle and aiming to do the most good for a large number of people, the field of surgery trains surgical residents always to care thoroughly for the most number of patients. However, their quest to promote their technical and professional quality compromises their personal life and scapegoats them, and eventually their patients, within the complex system of surgical training. This thesis, using the utilitarian principle, examines how the surgical residency system can benefit the most number of surgical residents in order for them to do
the most good for the most number of patients. Likewise, it examines the various options and poses possible alternatives for enabling surgery residents to find balance between their conflicting personal and professional lives, during the four or five years of transition into autonomous and certified surgeons.

The years of surgical residency are crucial in completing the socialization of surgery residents and in establishing the moral values of such novice physicians. Moreover, surgery residents must learn, seek, and skillfully utilize every possible avenue for curing patients, prolonging lives, and maintaining patients’ quality of life under threatening physical and mental conditions and circumstances.

The years of residency are also the period of transition in which these novice physicians learn to accept responsibility for and realize the effect of their decisions and actions on their patients’ well-being. Such years of integrating information and knowledge gained from medical school into actual medical practice obviously present surgery residents with an incomparable stage of simultaneous personal and professional adjustment and integration. Moreover, such distinctive years mark surgery residents’ consciousness of their status and purpose in the world of medical science and in the field of surgery as they impact the physical and psychological status of countless patients. During this important stage of their training, the utilitarian principle applied by the residency system to educate each surgery resident as comprehensively as possible in treating as many patients as thoroughly
as possible presents evident competing priorities between the needs of residents and those of patients.

Certified and seasoned physicians involved in the designing, planning, and implementing of surgical residency programs over the years have witnessed the physical and psychological ordeal surgery residents undergo. In 2003, these bona fide and senior physicians have primarily proposed and implemented weekly shifts of no more than 80 hours, compared to shifts requiring residents to work a minimum of 80 hours per week prior to 2003 (Vanderveen, Chen and Scherer 2007, 761). While reports show an improvement in the surgery residents’ quality of life (i.e. more time to sleep, read, and spend with family members in addition to the decreased technical mistakes during duty and decreased rates of automobile accidents), the decrease in hours seems to undermine the time needed for them to master the diagnostic and technical skills of becoming professional surgeons. Once again, the struggle to find a reasonable balance between the professional and personal aspects of their lives confronts surgery residents and suggests the need for further introspection and adjustments to the general design and implementation of the surgical residency program.

Seasoned surgeons have detailed through literary works and surgery conferences the pros and cons of the 80-hour-or-more weekly shifts and of surgery residents once living in the hospital premises. In addition, numerous surgical residents as well as bona fide surgeons have spoken about the detrimental physical
and mental effects of the surgery residency program. They have suggested that the ACGME (Accreditation Council for Graduate Medical Education) coordinate with surgery residency program directors, surgery ward staff members, and surgery residents in designing and implementing a surgery residency curriculum which promotes educational opportunities for surgery residents and maintains superb standards for patient care. In doing so, the personal and professional needs of surgery residents can be dissected more thoroughly, evaluated more clearly, and hopefully realized and met more appropriately by the surgery residency curriculum.

Since the surgery resident is the central character around which surgery residency programs are established focuses on delivering the highest standard of care to those needing surgical intervention, a comprehensive assessment of a surgery resident’s personal and professional identity, characteristics, goals and hopes is of utmost significance throughout the years of surgical training. In assessing the identity and characteristics of surgery residents, the ACGME and those involved in designing the surgery residency curriculum and program must generally consider the level of knowledge surgical residents have attained during medical school and their potential to integrate their didactic knowledge into clinical practice and operative measures. Likewise, the ACGME and surgical residency program coordinators and directors must also recognize the goal of every surgery resident to be as skilled and as perfect a surgeon as can be and therefore,
identify the best possible way surgical residency programs can support, guide, and enable these dedicated intellectuals to achieve such a great feat.

In relation to the group of surgery residents, the ACGME and associates must be mindful of three important groups of people with whom surgical residents are primarily in contact and who constantly affect the demeanor and disposition, personal and professional perspective, and overall experience of surgery residents in transition to becoming professional surgeons. These groups include the residents’ family members, medical affiliates (i.e. attending physicians, chief residents and other superiors in addition to peers and colleagues within the residency program), and patients. With their own intentions and goals in relation to those of surgery residents, each of these groups will undoubtedly have certain expectations, demands, and requirements of surgery residents’ personal and professional time. In addition to the inherent challenges of relating with patients and maintaining personal relationships, surgery residents have realized the stringent requirements of maintaining superb standards within a hierarchal system evident within surgery residency programs. More surgery residents are realizing that the utmost challenge throughout their years of surgical training to becoming bona fide surgeons is maintaining their mental and physical well-being despite conflicts from professional interactions with medical affiliates, fiduciary associations with patients, and individual ties within personal relationships.
The professional affiliates of surgery residents, especially attending physicians and chief residents, are also goal-oriented individuals striving to fulfill requirements and obligations within the field of surgery. The ACGME requires these highly-trained surgeons to present, teach, and perform with surgery residents a certain number of surgeries in addition to writing examination questions, planning presentations, coordinating classroom-related activities and weekly schedules, and evaluating the overall performance of those residents (Weinstein 2002, 1275). Chief residents, for example, are accountable for resolving the clinical and technical errors of surgery residents for whom they are in charge while fulfilling the clinical and surgical tasks assigned to them by attending physicians. With several years of surgical training behind them and with a larger scope of responsibilities, chief residents regard the consequences of their actions and decisions to be far more significant than those of surgery residents under their tutelage. Moreover, chief residents are responsible for upholding superb standards and strict requirements integral to the surgical residency curriculum to which surgery residents must comply.

While working under the tutelage of attending physicians, chief residents, and other medical affiliates above them in the hierarchy of surgery and in the world of medicine, surgical residents must also learn to behave personably, yet maintain a certain degree of professionalism toward their many patients. An increasing percentage of surgery residents have acknowledged that simply developing the
technical skills and manual finesse of performing a surgical procedure is not adequate in caring for a patient. Furthermore, an increasing percentage of surgery residents hope for and recommend more clinical opportunities to hone their bedside manners and to talk with patients. In fact, studies have shown that several surgery residents enjoy late night or graveyard shifts due to the opportunity of being able to spend more time with patients (Boon and Turner 2004, 223).

As surgery residents have less time to spend with their patients as they ideally would like, a steadily increasing number of patients throughout the years have expressed the seeming pragmatism, indifference, and callousness of surgeons. Some surgeons have admitted the failure or the lack on the part of surgical residency programs to integrate socialization skills during the years of training surgery residents on diagnostic and technical skills. The same group of surgeons voicing such a concern likewise understands yet regret patients not following their medical recommendations and advice. Moreover, they understand why patients trust the medical establishment less and do not care about the woes and ordeals of physicians, especially of surgeons and surgery residents who seem to treat patients as numbers in a processing line.

Outside the department of surgery and apart from the world of medicine, surgery residents like other human beings maintain relationships fundamental to their personal lives and circumstances. While family members (especially parents, spouses, and children) and the closest personal companions and friends of surgery
residents understand and have anticipated the demands of having a relationship with a surgeon in training, the percentage of failed marriages and terminated relationships has been the most prevalent amongst surgery residents compared to non-surgical residents (Broquet 2006, 406). Those with whom surgery residents are in relationships generally are willing to sacrifice much for the dream of their child, sibling, spouse, parents, boyfriend or girlfriend, or partner of being part of a dynamic and heroic field. Nevertheless, there are also limitations to how much they, who do not know or cannot fully comprehend the demands of the specialty of surgery, can sacrifice.

While surgery residents encounter competing priorities with different levels of interactions and relationships with the three distinct groups of people, they resort to what seems to be most significant to their commitment and entrance into the field of surgery. Hence, they concentrate most of their efforts and time on perfecting their manual skills through seeing, assisting in and performing as many surgeries as possible. Even the accuracy of a pre-operative diagnosis and the extent of post-operative care become less important than the surgical resident’s manual performance in the operating room. Not being able to recognize and confront the majority of conflicts of working with different groups of people, surgery residents simply place the advancement of their surgical techniques at the core of their professional training. Thus, surgery residents sometimes undermine the essential purpose of participating in a dynamic joint effort to produce not only
bona fide surgeons but also dynamic physicians and individuals within the incomparable world of medicine.

Since surgery is a medical specialty known for giving physicians instant gratification and patients a “quick fix” by the scalpel, the psychological and ethical aspects of the doctor-patient relationship are frequently overlooked. Fortunately, medical school curriculums and 50% of surgical residency programs now require, respectively, a course in medical ethics and emphasize the ethical facets of clinical work (Boon and Turner, 221). Furthermore, surgery has the reputation of being physically and academically the most rigorous and the most difficult rotation in which to specialize. Surgery residents---mostly men---proudly thrive in being able to function on stress, sleeplessness, and pragmatism (Musunuru, Lewis et al 2007, 164). These residents anticipate and expect to decide and conclude complex medical situations by choosing one complicated medical intervention over another in a split second. Unfortunately, several surgery residents also cultivate over the years an attitude of arrogance desperately concealing ignorance and fear of not knowing as much as they hope to know or as much as their superiors expect them to know.

Most medical graduates who decide to become surgeons and commit to 4 or 5 years of surgical residency begin their training with heroic aspirations of manually “fixing” everyone. Several graduates in surgical residency now realize that the choice between an elite professional versus a normal social life is basically not the
dilemma that arises during four or five years of surgical residency. The quandary at the core of surgical residency has originated from the displacement of surgery residents and their basic needs for both personal growth and professional advancement through relationships with their affiliates, loved ones, and patients as central to the program.
CHAPTER 2
THE WOES OF A CONFINED AND TRAINED HERO

Medical graduates who have decided to commit and enter surgical residency are generally excited and proud to have decided to travel an “incomparable and unusual” road to becoming noble, bona fide, and world-class surgeons. They are, however, aware that to become such surgeons is not the immediate goal of the surgical residency program. As children, most of them have dreamt of becoming physicians since a medical doctor denotes someone noble who is part of a dynamic establishment and renowned institution. Hence, surgery residents at the beginning of surgical training are typically ready and excited to experience the personal, professional and mental transition into thinking, making moral judgments, and acting as novice physicians, honing their manual skills and determining possible surgical interventions for each patient. Those interested in and admitted to one additional year of research within the surgical field commit to five years of surgical training instead of the traditional four years.

Having satisfactorily completed four academically challenging years of medical school, having passed their medical boards, having earned the title of “M.D.”, and having been accepted to surgical residency, surgery residents look forward to incorporating basic medical skills and theories into clinical practice. Although they mainly have forgotten a significant amount of the “blizzard of facts”
attained in medical school, they understand the importance of reviewing and re-establishing such knowledge as if they have always been second nature (Eva, Reiter, Rosenfeld and Norman 2004, 602). Moreover, the years of surgical residency are reputedly the important stage towards becoming a full-pledged physician in which their socialization skills will be completely integrated into clinical and professional advancement. In four or five years of surgical residency, they intend to master as quickly as possible all surgical interventions and strategies to promote the well-being and survival of countless patients, strangers under their care, despite the harshest physical circumstances. While becoming highly-skilled in diagnosing a problem, they will perform impressive manual and technical maneuvers that will consequently eradicate the “problem” from patients and rectify the patient’s well-being. These surgical residents training to be seasoned surgeons picture and strive towards a noble and exciting life worth living.

While surgery residents begin their training eager to obtain new pieces of medical information, utilize new medical techniques, and hone new technical skills, they gradually realize with some disappointment that residency is another phase of schooling, a glorified four or five years of medical school. Moreover, they realize the rules and confines to which they must adhere in fulfilling specific requirements. While medical school required them to read and absorb several chapters of various textbooks each week in conjunction with laboratory work, surgery residency requires them to observe, assist in, and perform a certain number
of surgical procedures per quarter and a certain number of cases each year. In addition, they must attend rounds to exercise their bedside manners and grand rounds to participate in surgical seminars and present surgical cases while they also need to spend a few hours in various surgical clinics and departments at nearby or affiliated medical centers.

As another “school system”, surgical residents constantly work with two groups of professional affiliates in the department of surgery in addition to nurses and patients. Attending physicians head the operating room and have the final decision on a case requiring surgical intervention. Attending physicians usually assign surgery residents to perform a pre-operative evaluation of the patient before surgery and to note post-operative assessments about the patient after surgery. While performing a surgery, attending physicians may also asks surgery residents several questions regarding the cause, etiology, post-operative treatment and prognosis of the patient who needs to undergo the procedure. They may also instruct surgical residents regarding certain manual or technical skills and determine to what extent surgery residents can participate in the surgical intervention.

The chief surgical resident is a senior surgery resident in his final year of surgical training and one who, according to his superiors, has attained a high degree of surgical expertise and overall professionalism among his peers. The chief resident answers directly to the head of the surgery department and to several
attending physicians. As the direct supervisor of surgical residents, the chief resident plays a major role in assigning surgical cases to the surgical residents, scheduling their shifts (including their on-call schedules, days off, grand rounds, and clinical site visits), and evaluating their progress. Surgery residents must report all problems, complications, and progress to and ask questions primarily of the chief resident who is accountable for any clinical or technical errors surgery residents make (Eva, Reiter, Rosenfeld and Norman 2004, 603).

Surgery residents, in addition, also work with several surgeons with teaching credentials giving the residents opportunities to participate in and observe different clinical case settings. These full-fledged surgeons also evaluate the progress and surgical performance of surgery residents. These surgeons occasionally ask their nurses, medical transcriptionists, secretaries and clinical staff to evaluate surgery residents’ socialization skills and bedside manners.

While surgery residents deem the technical aspects of training professionally stimulating and dynamic, certain work conditions and constraints render surgical residency physically and personally taxing. Surgery residents, for example, are on-call every fourth night and in some hospitals and some surgery residency programs, they are on-call every other night. Moreover, they are scheduled for a day off only every fourth night and usually are on-call status despite being off that day or that evening. The long 60-80 hour shifts consequently result in surgery residents rarely being away from the hospital or surgical department and less time
for sleeping, resting, spending time with family or loved ones. Surgery residents who work 80 or more hour shifts per week average from 3-5 hours of sleep each day while those who work 60-80 hour weekly shifts average 4-6 hours each day. Surgery residents whose shifts have been reduced from 80-120 hours to 60-80 hours have reported having gained an average of 5-6 more hours resting, reading, or attending social functions and events (Frey 2003, 2185). Families (i.e. parents, spouses, fiancés, and live-in partners) of surgery residents likewise noted similar additional hours.

Most, if not all, surgery residents when they start residency basically aspire to be the best surgeon, a hero who will cure and physical repair the world, at the end of their surgical training. Although the competition with peers and fellow surgical residents is initially not apparent within the residency program where everyone undergoes a standardized curriculum, the fierce competition to observe, handle, and perform the most numerous and most interesting surgical cases are evident. Just as any person who aspires to be a hero or to become someone great, most surgery residents by the second or third year of their training seek to be exceptional in the department of surgery. With superior standards and high expectations from their superiors and eventually of themselves, these residents regard simply passing and completing surgical residency training as oftentimes not enough to becoming bona fide surgeons.
Surgical residents indeed encounter countless frustrations and disappointments during the course of their training, mainly personal and psychological. A few surgery residents have commented on patients’ extreme circumstances with which they must work and try to resolve. Often they feel doing their best through the implementation of heroic efforts is not enough, since life or death are the only options available to countless patients. Statistics of how many patients survived a surgery and/or how long patients survived post-operative circumstances represent the only measure of surgical residents’ progress and success. Furthermore, the attending physicians and chief residents under which surgical residents work are almost always quick and unwavering with criticisms yet sparing with praise. As a result, a few surgery residents believe the exclusive professional environment with no room for mistakes to which they are exposed encourages them to demonstrate pragmatism and arrogance.

While the frustrations of working under the scrutiny of their superiors continuously pervade their professional environment and progress, surgery residents in the first to third year of training likewise experience disappointment within the milieu in which they hope to build fiduciary relationships with their patients. Since surgery is a specialty known not to have much, if any, room or use for slow, emotional, theoretical, and indecisive professionals, surgery residents find themselves needing to comply with the fast-paced and brisk encounters with several patients. Surgery residents in their last two years of training and certified
or independently-practicing surgeons believe not much reason exist for communicating with patients except to present these strangers with a diagnosis and a brief overview of the surgical procedure to be performed, and to assess their physical condition after the surgery. When asked if they would have wanted to spend more time with their patients, several of these residents and surgeons replied that they would have been willing if the program emphasized the need to do so.

With much less time to spend with their family and close friends, surgical residents unfortunately cannot talk about their concerns with individuals outside the professional or surgical arena. Moreover, they cannot talk in depth about their “sentiments” with other physicians who are also part of the very objective and indifferent world of surgical science. When they are spending personal time or are off from their shifts, surgery residents cannot wholly relate with their family members, friends, or loved ones about their frustrations and discontent. Rationalizing that those with whom they have relationships outside their field cannot understand their ordeal, surgery residents remain silent and helplessly tolerate their frustrations, fears, and indifference. The surgery residency program, therefore, often creates a barrier between them and their loved ones and encourages surgical residents to become a group of professionals whose identities as surgeons are estranged from their corresponding personal identities.

Although surgery residents experience the evident frustrations and shortcomings of training to be certified surgeons, they recognize the inherent
advantages within an exclusive field that has rejected countless intellectuals. For example, they enjoy the exclusivity especially during the first two years of talking in sophisticated and specialized medical terminology and phrases (Musunuru, Lewis et al 2007, 166). A few surgery residents admit that even scrubbing before a surgery, i.e. thoroughly washing ones arms, hands, and fingers through a surgically-approved method has become a celebrated ritual of pride. There is also the unsurpassed opportunity to train under and work with renowned surgeons and predecessors who have established a standard of excellence trademark in the surgical arts and sciences. Furthermore, countless surgical residents view their frustrations and shortcomings intact in the surgical training curriculum as part of a normal process, a “rite of initiation” to becoming bona fide physicians and surgeons. Hence, they believe the future rewards of being a certified surgeon who belongs to the reputedly noble, prestigious, and exclusive world of medicine compensates mostly for the difficulties, frustrations, and failings of their years of surgical training.

The area of morality and ethics comprises a major and significant component in the field of surgery. Moreover, it is a vital element difficult to teach and to learn since surgeons learn to demonstrate ethical and moral judgments properly only after several years of interacting with various patients with different medical conditions. Rationally seeking other forms of medical intervention and refraining from surgical intervention whenever necessary is a decision-making skill a large
percentage of surgery residents have difficulty learning and practicing (Biller et al 2006. 275). Surgeons and especially surgery residents eager to exercise their manual talents often decide that surgical intervention is the only and utmost solution to a medical condition that can even be terminal. Perfecting manual and technical skills and patronizing quick physical repairs, surgical residency programs promote surgery residents’ tendency towards surgical intervention as the main option for treating patients.

Medical students who have chosen to become surgeons must be willing and committed to the intricacies of the science and art of surgery. As novice physicians, they must be fully aware that becoming a hero, like becoming a professional surgeon, should not be the immediate goal of surgical training. If they believe it can be an immediate goal, they will be bound to experience frustrations and disappointments due to the limits of protocols and dependence on their instructors and predecessors. Several experienced surgeons, throughout years of practice, have realized and acknowledged that “surgery is a passing phenomenon,” in which the surgeon will “surely outlive his usefulness, to become master of a dead art.” More medical heroes have historically originated from a surgical specialty since the surgeon “seeks to overwhelm and control the body” while internists and non-surgical physicians “strive with pills and potions to cooperate with that body.” Nevertheless, even experienced surgeons know that surgery continues to evolve and therefore is not an exact science. In fact, the most
experienced surgeons throughout the years have realized that surgery is a dynamic art which embodies more than diagnostic and technical skills but a specialty which demands comprehending and reacting to the profound physical and psychological details about patients. Only if and when surgery residents and surgeons master and find such a balance, do they truly exhibit heroism.
CHAPTER 3

ADAPTING TO THE ROLE OF HEALER

The years of surgery residency define the period of transition from life as a medical student to that of a bona fide, autonomously-practicing, and certified physician in the field of surgery. While the use of various textbooks, manuals, cadavers, and anatomical models (i.e. models of skeletons, skulls, hearts, etc.) characterize the didactics of four years of medical school, interactions with patients and teamwork with other physicians within clinics and hospitals demarcate the four or five years of surgical residency. While medical students learn and review several case studies presented through textbooks written a few years ago, surgical residents evaluate and analyze current cases as they and their colleagues attempt to cure actual patients with whom they interact and who are under their care.

In ascertaining the development and advancement of medical graduates into the best possible surgeons within four or five years, the surgical residency curriculum requires surgery residents to fulfill certain academic and technical criteria. From the basic technical skills of drawing blood and interpreting laboratory results, evaluating patients via a history and physical evaluation and diagnosing patients’ conditions---skills they learned during the last two years of medical school during clinical clerkship---surgical residents must further develop such skills in treating patients while they adjust to thinking and acting as certified physicians. The surgical residents, henceforth, must make the full transition from
medical students within a classroom environment into professional surgeons who are board certified to practice within a clinical and hospital setting. Once medical graduates begin surgery residency they also experience an apparent change in both their professional and personal lives which have become even more distinct from their routines as medical students. In addition to certain requirements they must fulfill and protocols to which they must adhere, surgery residents must develop technical and manual expertise in accordance with clinical skills they must develop and bedside manners they must demonstrate towards patients.

Through a history and physical or “H & P” evaluation, surgery residents learn to finalize a diagnosis after compiling and assessing physical information on patients more thoroughly and comprehensively than when they first learned to perform a history and physical evaluation during the last two years of medical school. As clinical clerks in medical school, they simply learned the basic protocols of asking which symptoms patients or doctors who posed as patients were experiencing and the duration and severity of those symptoms. From such basic inquiry, they were able to list potential diagnoses from which they studied and reviewed both the similarities and differences between related conditions. Surgery residents, on the other hand, perform comprehensive history and physical evaluations assessing patients’ conditions fully, leading to a conclusive diagnosis, and correlating to a therapeutic plan. Performed pre-operatively, a history and physical examination, or H & P, is a head to toe evaluation of patients in which
time (minutes, hours, days, etc. specific symptoms have been experienced), anatomical location (the part of the body in which symptoms are physically occurring), severity and type of symptoms (fever, nausea, sharp or blunt or persistent pain, etc.), and possible causes are examined in detail for the diagnosis to be in accordance with pre-operative measures, surgical procedure, post-operative treatment plans, and prognosis (Kohn, Corrigan, and Donaldson 2000, 55). In performing a History & Physical, surgery residents must also be cautious of symptoms not physically visible or palpable, in addition to being visually attentive to the physiologic conditions patients physically display. In addition, surgery residents must assess and integrate information from the History and Physical evaluation to any laboratory tests and technological examinations performed on patients. Laboratory tests consist of various blood and fluid screening methods in the cellular and molecular level as well as different technological exams (EKGs, X-rays, MRIs, CAT Scans, etc.) as the other half comprising the key to a conclusive diagnosis and treatment plan. Ultimately surgery residents conclude with a definitive diagnosis by incorporating all the medical information compiled from all of the above measures of assessment to patients’ medical history (i.e. the previous experience of such symptoms or any related conditions) and family history (i.e. any family members who have experienced and have been diagnosed with any related conditions). Surgery residents must consider all possible treatment plans and therapeutic methods and several alternatives to the most
practical and effective treatment subsequent to a definitive diagnosis and prognosis. From all possible treatment methods, surgery residents must learn to determine the most effective treatment that will increase the chance of a cure and decrease the chance of a relapse or recurrence.

Working and interacting diligently with medical affiliates, especially those with more clinical knowledge and surgical experience, is vital for surgery residents training to become certified surgeons perfecting their clinical and technical skills. As trainees, surgery residents no longer just listen to more experienced surgeons, who are their primary mentors and instructors, as they had during years in medical school. As medical students, they were merely onlookers and observers who had no privilege of and role in establishing a diagnosis, determining a prognosis, and designing a treatment plan. Furthermore, as medical students they mainly relied on case studies and lectures regarding patients who have either been cured, are still chronically ill, or have died. As surgical residents they have become an essential part of a team of medical professionals constantly consulting and relating with one another regarding various patients who may benefit from surgery, have undergone a surgical procedure and may or may not have been completely cured, or are ready and willing to undergo all possible treatment plans suggested by a surgeon or a group of surgeons. Surgery residents obviously do not have as much professional experience as chief residents and attending physicians; however, the knowledge and experience they have acquired in medical school enable them to ask intelligent
questions and offer useful suggestions pertaining to surgical treatment of patients. For instance, they know the difference between a differential versus a conclusive diagnosis and have enough experience and training to suggest several modes of treatment in relation to a definitive diagnosis. Surgery residents realize that seeking professional autonomy too quickly from medical affiliates with much more experience has several disadvantages due to their immense need to absorb and take advantage of the depth of knowledge that their more-experienced colleagues can impart to them. For example, those with more professional experience than they know other methods of establishing a diagnosis in addition to performing standard assessment measures such as laboratory tests and a History and Physical. Thus, they learn to collaborate interdependently with other surgeons and medical affiliates in the field of surgery and to appreciate the teamwork and interdependency between certified surgeons and residents.

Surgery residents, like other residents in other medical specialties, encounter actual patients daily and therefore interact, communicate, and relate with live people. Thus, they simply do not read or learn about the medical conditions of people and patients whom they never encounter and who are merely subjects from textbooks or case studies. Since residency is the stage in their professional training in which they are assigned patients, surgery residents during the four or five years of training develop a sense of responsibility for their patients’ well-being and
accountability for their judgments and actions in relation to the conditions of their patients.

Surgery residents have the opportunity to incorporate methods of clinical assessment in relating to their patients. For example, a History and Physical evaluation does not merely develop and hone resident’s clinical and diagnostic skills but can also cultivate their social and ethical abilities in establishing personal rapport with patients. Performing a History and Physical pre-operatively on patients provides opportunity for residents to spend some time assessing the personal well-being of their patients. As they communicate their plans for their patients’ well-being, surgery residents unconsciously seek the trust of their patients in order to establish a collaborative effort in executing a comprehensive and hopefully, effective treatment plan. Furthermore, the History and Physical assessment of patients is one of the opportune times residents learn, if they have not already learned, to listen to their patients concerns, fears, and expectations.

Surgery residents during years of surgical training undergo and experience changes in their personal and professional lifestyles as they interact and work with their superiors and affiliates in the medical profession and establish trust defining a fiduciary relationship with their patients. Surgery residents spent most of their four years in medical school attending class, studying copious chapters and manuals, preparing for and taking examinations, and being away from their families except during vacations. Surgery residents attest that they undergo a more stressful and
complicated personal phase in their lives during the four or five years of surgical residency. They primarily realized that during residency they have less time to study, eat, go out, and spend with their family and friends that they had when they were in medical school. They are either on-call every other day or every fourth day and have day offs only every fourth day or after the end of 60-80 hour shifts (Byrnes et al 2006, 340). Their superiors and everyone involved in guiding, supporting, and “raising” them to become bona fide surgeons schedule numerous conferences, surgeries, rounds, etc. for them to attend and from which to gain professional insight and experience. Needless to say, surgery residents cannot question, change or object to their schedules unless their superiors deem another activity pertaining to their training more significant. With very little time between such activities and between traveling from one medical facility to another, surgery residents have very little or rarely enough time to sleep, rest, read, eat, etc (Veasey et al 2002, 1119). Moreover, they must be flexible to any emergencies and deviations from their already rigid schedules; hence, they have no choice but to relinquish or delay personal luxuries, such as eating and sleeping, due to unforeseen emergencies and/or surgical cases. Surgery residents also realize within a few months of starting training that surgery residency embodies a full-time position which actually pays only minimum wage under rigorous physical and mental conditions and often necessitates unpaid overtime.
Although surgery residents, especially those who are married and/or have children, would like to spend more time with their families, a considerable amount of their time is undoubtedly spent in medical facilities. Those with successful marital relationships have spouses who understand the demands of the surgery residents’ career, although those spouses are mostly not in the medical profession or are not physicians (Frey 2003, 2186). Therefore, such spouses also fulfill most of the personal and family responsibilities of surgery residents. A large portion of surgery residents perceive the four or five years as short-term, a period which is not permanent and which will yield worthwhile professional gains and benefits that compensates for the personal time they simply needed to compromise and sacrifice. Most surgery residents have stated that the amount of work, the number of patients, and the long hours filling their schedules, especially the first two and a half years, just do not leave them any time to be restless or to worry about not spending time with their families and loved ones or engaging in leisurely activities (Byrnes et al 2006, 341). A good percentage of these residents also mentioned that since they work almost twenty-four hours, seven days a week they feel they are transient family members within their own families and homes. When they are not working, are not on-call, or are away from a medical facility, they simply have no time but to compensate for time they were not able to fulfill basic physical requirements of resting, sleeping, eating, etc. Sadly, time away from work leaves very little time to engage in personal activities with family members, friends, and
loved ones. Several surgery residents have realized they no longer have control over their schedule inside the hospital and moreover, rarely have time to spend outside the hospital. Furthermore, they have realized that the positive or negative energy they acquire during the long hours inside the hospital or clinical setting impacts their social and personal attitudes outside the hospital. For example, they experience the most difficulty relating to their spouses, children, and other family members when they have had a complicated case that warranted several hours of discussion within the department of surgery. However, they do not experience the same tension with their spouses or those they relate with personally after they have encountered straightforward cases not requiring several hours of discussion with colleagues (Frey 2003, 2185-2186).

As explicated, surgery residents establish fiduciary relationships with their patients in the effort to restore their patients to wellness and maintain their well-being while they build professional relationships within the specialty of surgery through interaction and teamwork with medical affiliates. In addition to learning the integration of academic knowledge and clinical skills through the mentorship and instruction of their superiors and more senior medical affiliates, surgery residents have also realized and considered the impact that their personal and family backgrounds and social interactions have on the fiduciary relationships with their patients. Hence, the integration of the personal and social circumstances of surgery residents to professional interactions with medical affiliates and fiduciary
relationships with patients have been noted significant in the development of certified physicians in the field of surgery.

As surgery residents establish fiduciary relationships with patients, the need to exercise humanity and know patients as human beings in pain and with concerns, hopes, and fears that must be understood and addressed become more evident during the four or five years of residency. Studies have shown that surgery residents who are more mindful and sensitive of their personal, family, and social interactions and relationships are more caring towards the personal concerns of their patients (Whalen 2007, 141). They are the residents who value and regard the comfort of their homes, the company of loved ones and the world outside the surgical wards and medical facilities as places of treat and sources of positive energy. Moreover, they constantly bear in mind that their patients are also children, spouses, parents, friends, or valued colleagues as they are. Hence, comprehending the relationships and obligations of patients reminds these surgery residents of their own personal responsibilities and moral obligations to those with whom they have relationships external to their profession as well as to their patients. Having a personal perspective of their patients likewise enables them to acknowledge their human dignity and worth equal to those of their patients. Hence, they demonstrate utmost care for their patients in the manner that they would want their loved ones and themselves to be medically cared for.
Studies also show that surgical residents more caring towards their patients’ personal needs and concerns in addition to the surgical and medical needs of those patients are also the ones who know that medicine does not embody their entire existence (Broquet 2006, 407). They believe that placing surgery at the center of their lives does not guarantee them becoming superb surgeons but that it will foster an obsession with the specialty of surgery. On the other hand, always making their career the top priority can establish them as superb surgeons but they will fail to see how factors outside their profession can enrich their experience as they continue to mature as physicians in the field of surgery (Whalen 2007, 142).

Surgery residency is the personal experiences of different medical graduates who chose to master the art of “dissecting, overwhelming, and controlling the human body” in hopes of heroically healing strangers with whom they will have formed fiduciary relationships (Selzer 2001, 92). It is both an academic process of relating and working with medical affiliates who have also committed themselves to a lifetime of caring for others while developing technical skills and furthering knowledge from medical school. It is equally a process of manually learning “to unravel and control the mysteries of the body” through such relationships. Henceforth, it is the process of residents experiencing a complex professional phase while undergoing a unique time in their personal lives in which they allow both medical affiliates and patients to help them find their niche within a highly specialized professional environment. The years of surgical training therefore
embody a complicated professional and personal developmental process entirely different from the academic experience surgery residents have undergone in medical school. Medical graduates who chose to specialize in surgery after four or five years of training must emerge not only into bona fide surgeons but also exemplify personally and socially intact individuals who can empathize with numerous patients and work with different groups of medical affiliates.

Surgical residents realize through the years of surgical training that becoming superb clinicians and surgeons and mastering the art and science of healing result from their ability to learn through relationships with colleagues and patients. As healers they must be receptive to understand and unravel the complexities of the human body despite technical and scientific difficulties and challenges. Only in undergoing such a process can they as physicians in the field of surgery heal patients thoroughly. To become a healer in the utmost sense is an art and processing of education requiring the integration of knowledge and technical skills in treating patients and the interdependent affiliation with medical staff in the field of surgery. Becoming bona fide surgeons is a process in which residents learn to be superb healers who simply do not become heroic figures but who undergo challenges and obstacles while working with other surgeons in utilizing as many resources the world of medicine can provide in restoring and maintaining the health and well-being of countless others. Hence, completely mastering the art of healing will enable surgery residents to become the noble people and heroes they
initially aspired of becoming when they began residency. The four or five years of training within the field of surgery enable them to apply facts, information, skills, and knowledge acquired from medical school, to perform more comprehensive medical evaluations of patients, and to use surgical intervention to treat and hopefully, cure patients. Moreover, the years of residency teach them to be interdependent with their more-experienced superiors and affiliates as they aspire and strive to be bona fide surgeons.
CHAPTER 4
RAISING A PHYSICIAN: A FAMILY’S SACRIFICE

The personal and physical sacrifices, academic and financial support, in addition to the personal and academic influence and encouragement of the parents and guardians of surgery residents and other physicians play a major role as surgery residents train to become certified surgeons. The process from the moment surgery residents decided to become physicians is also the accomplishment of parents and guardians who “raised” surgeons and/or physicians. When medical residents attended premedical studies during college and later applied to and entered medical school, their parents or guardians have mainly provided the emotional support and backbone during the difficult academic and personally stressful process of obtaining a medical degree. The emotional support and understanding of parents, guardians, or spouses of surgery residents remain significant for surgery residents striving towards their professional goals during the four or five years of training. Moreover, the family members sacrifice spending time with the surgery residents with the expectation that these novice physicians will become bona fide surgeons and respected medical professionals.

Most parents and guardians of surgery residents have understood since the residents were attending medical school that they will rarely be able to spend time with their children who have been in the process of becoming doctors. They proudly share in their children’s academic accomplishments and efforts and
support their children’s dreams and goals of being part of a noble, dynamic, prestigious, and exclusive profession and institution. Most family members see the title of “Medical Doctor” or M.D., the financial rewards, and the social regard for physicians worth the sacrifice demanded by the complex process and academic curriculum embodying surgery residency programs. The majority of parents with children in surgery residency see the medical profession as a highly respected institution in which they are investing, while their children are completing the four or five years of surgical training. Approximately three-fourths of parents with children attending medical school sold properties; more than one-half of parents of medical school students have taken out loans; and approximately one-third have consented to their children applying for loans during the four years of medical school (Smart, Nelson and Doherty 2005, 183). Proud of and awed by the professional accomplishments of surgery residents, most parents and family members regard the years of surgery residency paramount for these novice physicians’ initiation into a highly-respected profession and elite institution.

Several parents of surgery residents have stated that their greatest challenge had been maintaining the personal support since the residents were students who were physically away during medical school. Furthermore, the parents and family of these novice physicians usually pay for a large portion of expenses, such as board and lodging and other personal expense, usually not covered by loans and scholarships on which the majority of medical residents relied to pay for their
medical school tuition and matriculation (Smart, Nelson and Doherty 2005, 183). Some parents of surgery residents also recall their support for their other children who were not attending medical school and who did not incur such expenses to be much less. They admitted that they treated the surgery residents as special since they understood the immense physical and mental ordeal during medical school and moreover, during residency (Musunuru, Lewis et al 2007, 167). Most parents of novice physicians conveyed their occasional regret in having even less personal time with the surgical residents during the four or five years of residency than when these residents were in medical school. During or after residency, most of the medical residents have totally separate and distinct lives from their family members who have supported them throughout the years. During or after the four or five years of training, surgery residents marry, accept fellowship assignments and professional opportunities away from home, and lead new lifestyles typifying their medical careers.

Approximately one-third to almost one-half of surgery residents marry during the years of residency. Like most parents of surgery residents, spouses of surgery residents also feel that the prestige and salaries residents will gain after finishing residency and becoming certified surgeons will entirely compensate for their personal sacrifices. They also regard having overcome the challenges of seeing a spouse undergo and complete surgical residency to be a great accomplishment on their part. Since the spouses of these novice physicians understand not being able
to spend much personal time with the surgery residents, they willingly fulfill most of the surgery residents’ family and personal responsibilities, especially to the children (Center et al 2003, 3166). A few conflicts occasionally arise between couples when the surgery residents’ schedule cannot accommodate time for residents to attend important family events such as family reunions, birthdays, their children’s games, etc. However, couples in which one or both spouses are surgery residents find ways to compromise, plan, and coordinate vacations, holidays, and personal time around a demanding surgical training schedule.

Like most novice physicians, i.e. medical graduates who have not completed residency, surgery residents or trainees marry after completing residency than during residency and medical school (Biller et al 2006, 278). However, more surgery residents marry shortly after graduating from medical school than during the years of residency. Studies and surveys have demonstrated that novice physicians, such as surgery residents, want to begin their married lives before residency so that they can confront personal challenges with their spouse from the start of residency. On the other hand, studies have shown that novice surgeons who marry after completing their residency believe that they, after overcoming and surviving the challenges of residency, have less professional stressors with which to contend and therefore, can spend more time addressing personal concerns in the marriage. In a study, thirty percent of the one hundred ten spouses who married surgeons after the completion of surgery residency have commented that the four
or five years of surgery training helped them realize and confront obstacles of having an intimate relationship with a novice surgeon learning to cope with professional conflicts (Center et al 2003, 3164). These different studies demonstrate that novice physicians in the field of surgery marry shortly after medical school, during surgery residency, or after residency based on how well they and their partners can deal with the challenges a medical career in the field of surgery will constantly present to their personal relationships (Center et al 2003, 3165).

Some studies conducted sought initially to demonstrate that surgery residents have more success in their marriages when married to someone with a career in the health field, while other studies sought to prove surgery residents more successful in their marriages when married to someone with a career outside the health professions (Center et al 2003, 3166). Nevertheless, these studies all prove that how well the surgery residents’ spouses know and understand these novice physicians and vice-versa mainly affected the success of the marriage. Studies do show marriages between two surgery residents were professionally compatible since the couple understood each other’s professional frustrations and shortcomings. Nevertheless, extensive professional competition and mainly lack of personal time with the family, especially the children, usually create a competitive and authoritarian environment in raising the family. Further studies report surgical residents married to other physicians not in the field of surgery
prove to have the most successful and fulfilling marriages, since both spouses know the others’ professional circumstance yet one of the spouses have more time to focus on family life and events outside the hospital (Frey 2003, 2186). Surgical residents married to those with careers in the medical profession but who are not physicians, likewise, enjoy an equally fulfilling marriage as those married to other physicians who are not surgeons. For example surgery residents, often male surgery residents, married to nurses also have highly successful marriages since the partners who are nurses understand and reflect the personal and professional aspects of both family and medicine (Smart, Nelson and Doherty 2005, 201). The study further shows that surgical residents married to someone completely not in a health-related field usually encounter personal problems at the beginning of their marriages due to conflicts presented by entirely different professional interests (Nevertheless, these marriages are often as successful or even more successful than marriages between two physicians with one spouse not in a surgical specialty or between a couple both in the medical field yet one spouse is not a medical doctor. Studies further reveal that marriages between surgical residents or physicians and non-physicians can be highly successful provided these couples have known one another well and for a significant period of time before marrying (Vanderveen, Chen and Scherer 2007, 761). The same studies also reveal that surgery residents who marry shortly after medical school and who have known their spouses for several years have highly-successful marriages. Moreover, surgery residents who
marry after completing residency and who have experienced their spouses’ emotional support throughout residency undoubtedly have highly-successful and personally fulfilling marriages. Having known one another well before marrying, according to studies, reflects the essential opportunity for couples in which a partner is a surgery resident to have adjusted to the various professional challenges, in addition to the personal difference, they have considered (Vanderveen, Chen and Scherer 2007, 764).

While a good number of non-surgical residents are able not to have their professional schedules greatly impact their social lives, surgical residents have almost no choice but to succumb to a new lifestyle due to the professional rigors and demands of surgical residency. Surgery residents, compared to non-surgical residents, have been absent during personal occasions (Smart et al 2005, 205). There have been incidences in which surgery residents often feel the brunt of not being able to spend time with their families as they attend to patients or extend their hours due to the need of one or two more resident physicians within the surgical ward. There have also been a few occasions, such as deaths and serious illnesses among family members and friends, in which surgery residents were rarely able to be with loved ones who needed medical and personal attention, compared to the number of times these novice physicians rendered medical care to various patients. They trust that their parents, spouses, friends, family members, and loved ones continue to understand and forgive their inability to control their
professional circumstances. Likewise, they trust that these same people with whom they are in a personal or intimate relationship continue to realize and understand their enormous responsibility of having countless lives under their care. Surgery residents want to be assured that they will always have a personal niche within their family and social circle during and after the four or five years of professional training. Moreover, they want reassurance that their families, friends, and loved ones can and will always be the personal refuge to which they can retreat every time they are not inside a medical facility and not at work (Selzer 2001, 189).

In the medical world where physicians constantly expect surprises and emergencies and work under unpredictable schedules and situations, surgery residents regard their family, friends, and loved ones to be the constants with whom they can always find personal and social sanity and peace away from their professional frustrations. Several surgery residents have expressed the experience, thought, and awareness of having been raised in a close-knit family that enables them to maintain their sanity and optimism during the long hours inside medical facilities. Some residents commented on their religious upbringing and how worshipping or going to church every week enabled them to relax and find psychological rest from the challenges of surgery residency. Some surgery residents related how their spouses and children’s continued understanding and commendation of their heroic efforts to save lives through their work in the field of
medicine provides constant inspiration for them to complete their residency program. These surgery residents further explained that knowing the world outside their profession continues to exist for them to “come home to” helps them to overcome the seemingly endless hours within a confined professional environment (Selzer 2001, 205).

As previously explained, the professional relationship among surgery residents and the interdependent professional relationship between residents and medical affiliates with more technical experience significantly affects the process by which surgery residents become certified surgeons. Although several bona fide surgeons serve as the residents’ primary instructors as the surgery residents form fiduciary relationships with patients, the surgery residents’ families and personal relationships continuously play major and critical roles in these residents psychological well-being during and after surgical training. Although surgery residents spend more time with medical affiliates than they do with their family, friends, and loved ones during the four or five years of surgical residency, the personal support from those with whom they are in personal or intimate relationships remain paramount to their process of becoming certified physicians in the field of surgery.

Bona fide surgeons who mainly serve as the primary instructors of surgery residents do not regard themselves extensively, and definitely not personally as responsible for the nurturing or “raising” of these residents into certified surgeons.
They believe they are merely part of a system in which they have professional obligations and responsibilities in teaching residents as their superiors and predecessors have done in guiding them to be certified physicians in the field of surgery. Moreover, they believe surgery residents under their tutelage must undergo the same rigor once demanded of them and their predecessors within a profession, and not a personal, process and environment (Steinbrook 2002, 1300).

Studies pertaining to the professional relationships between bona fide or more experienced surgeons and surgical residents once again attest to the more important personal and psychological impact of family members, friends, and loved ones on these novice physicians’ progress during surgery residency. The personal and psychological support and influence of family, friends, and loved ones continue to buffer the frustrations and obstacles surgery residents will continue to encounter within the medical and surgical world. Hence, the surgery residents’ personal support significantly affects how well these novice physicians will personally and socially emerge from surgical training in addition to how well they develop professionally.

Surgery residents can become manually superb surgeons and clinically competent physicians without much personal and psychological support from family, friends, and loved ones. Numerous studies and reports reveal the many surgeons who were raised in abusive, single parent, and destitute families. Obviously, these physicians overcame the personal, social, and economic obstacles
and became the professionals on whom countless people entrust their well-being. Nevertheless, reports still reflect a much higher percentage of surgery residents who have been successful in communicating well with patients as those who have had immense personal support from their families or from those with whom they have personal relationships.

The aforementioned studies (Veasey et al 2002, 1122) prove the significant impact family members and personal relationships have on the quality of social skills residents demonstrate towards other medical professionals and patients. By continuing to remind surgery residents of their personal identity and place within their families and social background families, friends, and loved ones of surgery residents continue to foster these novice physicians personally and despite great geographical distance “raise” individuals to become certified surgeons within a competitive professional setting. Moreover, they “raise” individuals to empathize, work with and care for different groups of people despite such a competitive and elitist profession. Families, friends, and loved ones of surgery residents as well as the certified surgeons and medical superiors responsible for training these novice physicians must fully realize their roles in significantly contributing to the incomparable feat of empowering surgery residents’ professional development.
Admissions Committees to different surgical residency programs at various hospitals evaluate applicants’ records during medical school. These include scores on the United States Medical Licensure Examination Steps I and II, transcripts of grades during medical school, letters of recommendation by medical staff and faculty, student clinical and hospital clerkship transcripts during the third and fourth years of medical school, and any research activities in which applicants may have been involved. Hence, certified physicians, especially those who are members of surgical residency program admissions committees advise potential surgery residents to inquire about and prepare for the requirements of their surgical field of interest by the end of their second year in medical school. In 2002, the New England Journal of Medicine published the results of a survey conducted by Southern Illinois University Medical School regarding the criteria of admissions committees to surgery residency programs (Eva, Reiter, Rosenfeld and Norman 2004, 605).

The nationwide survey by Southern Illinois University Medical School reflected the criteria of admissions committees for medical graduates applying to residency programs in the field of surgery. The survey, therefore, also informs third and fourth year medical students interested in applying to surgical residency
programs about the appropriate curriculum and preparation they must fulfill to be considered for acceptance into these programs. Obviously admissions committees and surgery departments involved with surgery residency programs have several criteria in addition to the usual test scores, letters of recommendations, etc. that have been part of the application and admissions process. Directors and admissions committee board members of surgery residency programs, through the nationwide survey, revealed that the preparation especially during the third and fourth year in medical school greatly impacts acceptance into and success in surgery residency programs (Lim and Golub 2004, 2913).

Physicians and residents now advise those considering a surgical specialty to research and learn as much as possible the specific requirements surgery admission committees regard significant and/or pertinent in accepting applicants. Admissions Committees advise medical students to have two choices of specialties or surgery specialties for which to apply for comparison. Each surgical specialty has its own specific requirements although ambulatory clinical elective, general ward experience with in-house call, radiology, research, critical care, and renal medicine, ICU management, rehab experience, outpatient, and rotations in medicine for applicants to have gained enough patient evaluation experiences are considered quite important for acceptance to most, if not all, surgical specialty training programs. However, admissions committees of surgery residency programs do not advise third and fourth year medical students interested in
applying to surgical training programs to participate in “audition electives” not related to their surgical field of interest or which are held in other medical facilities outside of or not directly affiliated with their medical schools. Instead of participating in “audition electives” or auditing electives not related to their surgical field of interest, third and fourth year medical students should take advantage of learning opportunities available especially in the fourth year as it is their last chance to delve into areas of their interest and choosing (DaRosa, Bell and Dunnington 2003, 13-15).

Because surgery is a broad specialty with several subspecialties that require not only technical skills, directors and heads of surgery residency programs have established a few specific criteria in selecting applicants to their programs. These criteria are used in evaluating applicants’ potential to succeed or progress in a general surgery internship, which is required for one year before four years of surgical specialty and perhaps, later on, subspecialty training. The directors and admissions committees of surgery residency programs were therefore asked what they regard as important when reviewing novice physicians’ applications to their programs. The directors and admissions committees stated that they look primarily for applicants who are optimally interested to learn, to participate as a member of a surgical and medical team, and to advance scientific knowledge pertaining to the field of surgery mainly through research. Moreover, residents must be pleasant,
mature, self-directed or willing to take initiative to learn from and contribute to the surgical team (Weinstein 2002, 1276-1277).

Although the number of electives are often considered not as significant in the application and selection process, applicants who have spent considerable time on non-surgical electives in Internal Medicine and Medicine specialties are often preferred over those who have spent more than half of their clinical rotations in surgical electives (Weinstein 2002, 1278). They are preferred due to the range of diagnostic and therapeutic knowledge they will bring into the surgical residency. Furthermore, such applicants are known to be more able to demonstrate a balance between good time utilization and experience in varied areas complementing general surgery requirements and supporting their chosen surgical specialty later on. For example, an applicant interested in an Otolaryngology residency should have a well-rounded elective experience in critical care trauma as well as advanced rotations in medicine. Likewise, applicants to competitive residency programs such as urology are preferred to have taken a urology elective or general surgery elective. Moreover, such applicants with experiences in electives such as urology and general surgery are more favored especially if they have obtained honors in those electives.

Although directors and heads of surgery programs do not particularly require applicants to have taken a certain number of non-surgical and surgical electives, they prefer applicants who have taken electives which complement the surgical
specialty in which they are interested. Having taken electives that complement their area of interest within the surgical field, applicants can demonstrate to the admissions board that they have had enough opportunity to evaluate their goals and have shown genuine interest in the surgical field to which they are applying.

Hence, physicians involved in the selection of surgical residents generally do not prefer applicants who have focused on surgical electives during the third and fourth year of medical school, but on electives that have prepared them to deal with the patient as a whole and particularly to confront and resolve medical problems in surgical cases. Furthermore, they prefer applicants who especially during their senior year have had a broad-based experience in electives related to surgical specialties, which will prepare them well for general surgery internship or the first year of a four or five year surgical residency program.

Electives most advantageous for applicants in being accepted to a surgery residency program are those in which they can demonstrate certain potential in thoroughly caring for patients within the surgical specialty of their interest. For example, in urology, having a good background in general medicine, infectious disease, nephrology and intensive care along with a general surgical rotation are all considered beneficial. Moreover, honors in non-surgical electives/rotations as well as those in surgical rotations related to a surgical field in which a potential surgery resident is interested can be quite advantageous ((DaRosa, Bell and Dunnington 2003, 18).
Physicians involved in the selection of surgical residents in addition to preferring applicants with broad-based experiences also value a positive letter of recommendation or summary from a general surgeon or surgical specialists, such as urologists or gynecologists. Such a letter in which general surgeons or surgical specialists demonstrate enough knowledge of evaluating and conveying applicants’ potentials within a surgical specialty can make a difference for applicants to be invited to an interview at a program. This is especially true if the person who is evaluating the candidate knows the person who wrote the letter of recommendation or rotation summary. Good evaluations and letters of recommendations especially from physicians in surgical specialties who have mentored or worked with applicants during their clinical clerkship present for admissions committees a precise evaluation of the potential of applicants. The field of urology, for example, has become very competitive for residency selection. Evidence of strong basic science skills and a broad background during medical school is important. Early contact with the Division of Urology is also important because this will help in developing a relationship with the Division members that would be beneficial for students applying to urology programs. One of the strongest aspects of interview selection in urology is a letter from someone known in the field of urology recommending a student for a specific urology program. Therefore, as general advice, the most important aspect is to develop a relationship with a
urologist so that they can help in the selection of residency programs along with a letter of recommendation (Broquet 2006, 406).

As general advice applicable to medical students contemplating, interested in, or en route applying to a surgical residency program, admissions committees advise these students to seek out research opportunities as early as their second year in medical school and for them to start thinking about where their interests lie. Research is an important part of the surgical specialty which the residency experience does not cover in depth but which is advantageous for surgery residents. Research is regarded as one of the best ways applicants demonstrate interest while having the opportunity to be more acquainted and familiar with staff members of surgical specialties. Although entering residents are not expected to have done research in medical school and there are no specific requirements for publications in order to be accepted into most surgery residency programs, most surgical specialties have become very competitive so that having had experience and interest in either basic science or clinical research is considered positive in reviewing applicants (Lim and Golub 2004, 2914).

Admissions committees for selecting applicants to surgery specialties prefer residents with the potential to publish two research papers and to present at least two surgical topics which they are researching over a five year residency period. Applicants who have published at least one research paper or have had research experience have a better chance of being accepted to surgery specialty program
since the competition of being admitted has become greater over the past five years. Hence, admissions committees strongly prefer applicants who have at least spent time engaged in research activities. Applicants who have published research are clearly rated higher in the review process.

As for board examination scores, admissions committees favor applicants with scores over two hundred ten on the United States Medical Licensure Examination Step One (USMLE I), which is taken before the third year of medical school when students start clinical and hospital clerkships. By that time, applicants or medical students interested in surgical specialties are preferred to have started work on a research project. The research does not have to be a basic science project, but preferably one in which they are working somewhat independently with the guidance of a faculty person or resident. Medical students interested in surgical specialties should aim for having the research well underway by the time they begin interviewing for surgical residency programs.

USMLE scores account for at least one-sixth of the scoring system from which admissions committees select fifteen to eighteen applicants to continue in the application process and to an interview. Since surgical residency programs have a maximum of five slots per year, admissions committees have become more meticulous in accepting no more than five medical graduates among a preliminary pool of twenty-five applicants selected from hundreds. After the committees choose the fifteen to eighteen applicants, the USMLE scores become insignificant
for committees in determining the four or five new residents accepted to a surgical residency program. USMLE Part I is used as one of the initial screening criteria to determine whether or not an applicant will be granted an interview. The scores are utilized along with class rank, surgery clerkship grade, etc. The highest scores definitely contribute to applicants invited to continue in the selection process. Scores lower than 200 generally are considered indicative of students that may have difficulty passing their residency boards. For example, most otolaryngology residency programs therefore invite applicants who have scores of above 210-220. For applicants with USMLE I scores below 220, admissions committees who weight these scores will look for academic qualities that promise great potential for accepting such applicants into surgery specialty programs, such as research experience, great letters of recommendations, etc.

The problem with USMLE scores is that they are only comparable within a specific medical school group, but across different medical schools depending upon the emphasis on the USMLE will determine the USMLE score. There is a tendency in surgical specialty programs to emphasize USMLE scores. The data does not support the specific use of USMLEs ability to select who to interview. There is some vague association with the high and low ends of USMLE scores and later in-service results. Students with extremely high USMLE scores seem to do better on in-service examinations and those with extremely low USMLE scores appear to do poorly. However, with the vast majority of students that fall in the
middle, there appears to be very little or no correlation with USMLE scores and success in surgery specialty programs (Eva, Reiter, Rosenfeld and Norman 2004, 607).

Admissions Committees regard Audition electives as important only in helping applicants to know more staff within a medical specialty, in the case of applicants to surgical specialty to know surgical staff members. These electives can also work against the applicant if they are deemed inappropriate. Admissions Committees advise medical students to do audition electives only if there is a particular program in which they are very interested and need to know more about. The committees might also encourage audition electives for applicants with mediocre academic records, but who make strong impressions in one-on-one clerkships. The committees prefer to limit the number of audition electives done by senior students to one or two.

Audition electives can be an important rotation for students to participate in, however, the student should not engage in more than two “away” rotations especially for those interested in certain surgical specialties. The best strategy for applicants would be to identify a key program in which they have a good chance of matching and that they would be very interested in training at that program for at least four years. The away rotation is critical for the student to show exceptional and exemplary clinical performance and therefore preparation prior to going on the away rotation is significant. Conversely, away rotations are not necessary for
students depending on how competitive they are relative to the applicant pool (Vanderveen, Chen and Scherer 2007, 763). There are some audition electives that can be very important, especially those that last more than a month. Such additional electives at an institution can be a very powerful factor for selecting certain applicants to residency programs; however, students who do not do well or exemplary on out service elective audition electives can have a negative impact on their being selected to a surgery program on which they are interested.

Identifying with surgical specialists who have information and contacts concerning programs around the country can be quite important while applicants strive to do well on electives in their own institutions. Admissions Committees regard such a stance probably better than the risk of doing a rotation at another institution. There are specific personal reasons to do an elective at another institution. It is the best way to gauge resident satisfaction at that institution, particularly, in residency programs that are not as competitive. That experience also helps applicants to know whether they will be comfortable doing a residency at a specific institution.

Since there are definitely a few protocols by which surgery residents must abide during surgical residency, working with their superiors, i.e. chief residents and attending physicians, is one of the most important aspects of their training. Chief residents teach surgery residents about leadership and multi-tasking while attending physicians demonstrate to surgical residents the manual art of performing
surgical procedures and handling patients in surgical cases. Residents must not be too eager in gaining independence too quickly from chief residents and/or attending physicians. Since surgery residents need to practice and master surgical procedures they greatly depend on attending physicians to teach them to treat surgical procedures as second nature (Smart, Nelson and Doherty 2005, 81). Chief residents and attending physicians will also teach them specific protocols within the surgical wards and operating rooms such as the ritualistic process of scrubbing before a surgical procedure and the handling of surgical tools such as the scalpel, the needle holder, etc. (Selzer 2001, 156).

As stated previously, surgical residency program admissions committees look for applicants with the interest of treating patients comprehensively and successfully. Since patients reinforce the role of physicians and especially of those needing surgical care, bona fide surgeons advise novice physicians in surgical training to review and polish their anatomical knowledge using anatomical models and cadavers. Through the review of anatomical models and cadavers, surgery residents must treat their patients with respect and dignity not required of them when working with anatomical models or on cadavers (Selzer 2001, 158).

Surgery residency is a period of professional development rooted in medical school. Surgery residents’ potential for success begins from their interest in a surgical specialty and is a result of the curriculum they have undertaken during medical school and the continuation of those curricula at an advanced level during
the years of training. Moreover, it is the practical and clinical manifestation of surgical residents’ medical knowledge and technical skills.
CHAPTER 6
PROPOSED ALTERNATIVES HOPING TO EASE PROFESSIONAL LIFE

Due to several studies concerning the professional, physical, and personal well-being of surgery residents during the strenuous years of residency, the American Accreditation Council for Graduate Medical Education along with the directors of surgery residency programs throughout the United States have been designing and testing surgery residency program models (Barzansky and Etzel 2001, 1259). The surgery residency program at Northwestern University’s McGaw Medical Center was the first to develop four practical schemes of surgery resident rotations that program directors could adopt within their programs to meet the 80-hour work week while maintaining or hopefully enhancing resident education.

The Stretch Model, Night Float Model, Apprentice Model and Mastery or Case-Based Model represent four models that emerged from the surgery residency program committee at Northwestern University Hospital (DaRosa, Bell and Dunnington 2003, 22-23). Traditional surgery residency programs are hospital-based teams of residents who work with multiple attending physicians on various cases and who take night calls on a regular schedule, typically every third night.

In the Stretch Model, residents take call every fourth night, or less frequently, and finish their shifts early the next morning after being on-call, while they allot a maximum of six hours for transition of care. This practice or model reduces the number of work hours in the week and is probably the easiest way to fulfill an 80-
hour week; however, it has no real educational advantages other than reducing the work week and presumably allowing residents more time to read.

The Night Float Model consists of a traditional resident team system, except for a percent of the program's total residents being designated to work a permanent night shift, usually for a month at a time. On the contrary, traditional surgery residency programs assign residents to work on night float two to three months per year.

In the Night Float Model, several teams work the day shift, which includes a one hour overlap with the night team; therefore, several hours are not needed for the transition of care. Since teams working during the day would leave in the evening and take no in-house night call there is an overlap hour with teams working in the evening. The teams working in the evening shift do so six days per week, although larger surgery residency programs may be able to allow them to work only five nights per week schedule.

The Apprentice Model designates one resident to work exclusively with one or two faculty members over one to three months. Hence, under this model, residents work side-by-side with their assigned mentors in the operating room and outpatient office, and take home calls when their mentor is on call. Under the Apprentice Model, residents only care for their mentors' patients. This model requires faculty members to be selected carefully based on dedication to education and an appropriate practice profile in order to best instruct and train a surgery
resident. Moreover, this model is particularly suited to certain subspecialty areas like colorectal surgery or breast surgery and can also be used for general surgery rotations as well. Because apprentices under this program do not take regular in house night calls, constructing a work week that is less than 80 hours long is usually possible, even if the resident has to come into a medical facility or work at night once or twice a week.

In the Mastery (Case-Based) Model, patient cases are assigned to residents based on the residents’ learning needs irrespective of assignments to surgery teams and attending physicians. Proficiency, knowledge and skills associated with diseases and operations are measured by the residents’ individual progress, in addition to experience and time with patients. Proficiency is verified through formal assessments that allow residents to rotate to other surgical areas. Moreover, residents under this model are not required to scrub on operations they have mastered unless they feel the need to refresh their knowledge. Residents under this model meet each week to receive their final assignments of patients and to attending physicians for the next week. In this model, residents are responsible for making arrangements to review surgical cases with the appropriate attending physician. Residents go on rounds of their assigned patients in the morning and in the afternoons and evenings work in the clinics or operating rooms depending on their assignments for that week. They do not necessarily take regular night call, but could take call from home if cases necessitate; therefore, either in-house or
home call can work with this model. Residents would follow up on all of the patients to which they are assigned and on whom they have operated, regardless of the attending physician also assigned to the case and under which surgical specialty to which the case is assigned. Since it would be difficult for residents to follow-up on their patients in multiple ambulatory offices there are designated outpatient clinical hours, which mainly need to be based on attending physicians’ hours. Learning expectations and goals are clearly stated at the start of each surgery residency rotations and are based on mastering certain procedures and treating specific surgical cases which some teaching hospitals feel have been overlooked over the years due to time constraints (Whalen 2007, 141).

The four different models, likewise, resulted from studies conducted over the years regarding surgery residents’ call hour schedules, composite hours, call hour and composite work hour activities, etc, which are areas that have impacted the design of surgical residency programs. These areas, moreover, have been noted to have potentially aggravated surgery residents’ performances, quality of care, personal lives, etc.

Traditional work shift schedules of surgical residents have been noted as a prime factor negatively influencing education and the quality of patient care. Hence, federal and state legislators and the general public have demanded a re-evaluation of the issue. Long work/shift hours resulting in sleep deprivation affect the lives of residents profoundly; however, how it affects the quality of medical
care and if it does so negatively remains a question. Directors or those responsible for designing the traditionally long hours maintain that such hours are vital to medical education; however, studies have shown and reported throughout the years that residents are so drained by their schedules that they are rarely in the best state of mind to learn from their experiences. Moreover, many programs and institutions have been cited in the recent past for violation of residents’ work hour requirements under the scrutiny of the Resident Review Committee (RRC). In order to recommend and possibly assist program directors in making appropriate changes where necessary, in enhancing resident education and the quality of patient care, and in meeting the personal demands of residents, the Oakland Health Education Program Center for Medical Education (OHEP), a consortium of 16 teaching hospitals in Michigan, reviewed the components of general surgery residency training. Questionnaires consisting of 25 questions divided into three major sections on residents’ attitudes concerning their working hours and possible reforms were sent to all general surgery residency programs under the OHEP consortium. The first section encompassed demographic information including current work hours and on-call schedules. The second section comprised questions regarding residents’ attitudes toward the long work hours and options for change. The third section consisted of questions that enabled residents to evaluate and note their perception of the effects of limiting work hours. Ninety-two residents from
the seven participating hospitals with surgery residency programs in OHEP responded to the survey (Steinbrook 2002, 1299).

Residents reported an average of 56 with a range of 0 to 110 hours on call. Variations in the number of hours resulted from the various rotations residents were on. For example, residents were not assigned to any call on certain elective rotations. Furthermore, on-call schedules varied; alternate nights were reported by 11 per cent, every third night by 33 per cent, and every fourth night or more by 53 per cent of all residents who participated in the survey. The majority of surgical residents did express the need for major reforms and that such reforms would affect the quality of resident education (Vanderveen, Chen and Scherer 2007, 763-764). However, residents did not want to lengthen residency training beyond five years. The results indicated that the majority of residents in general surgery programs in Michigan perceived a need for reform of work hour schedules which surgical educators may have underestimated in the past. Most residents thought that long hours impaired their educational experience and at times compromised their clinical care for their patients.

A review of surgical residents' duty-hours prompted a Work Hours Assessment and Monitoring Initiative (WHAMI) that preemptively limits residents from violating "duty-hours rules." (Lim and Golub 2004, 2914): An ongoing review of work hours data for the Department of Surgery were reviewed by a monitoring team over an eight-month period at New York Presbyterian Hospital-
Columbia Campus. The monitoring team supervises residents' hours for the initial five days of each week. As residents approach work-hour limits for each week, they are dismissed from duty for appropriate time periods in the remaining two days of the week. The evaluation revealed by the data of work-hour compliance for 52 residents increased from 93% to 99% after creation of the WHAMI. Before the evaluation, an average of 9.5 residents per month (19%) worked an average of 7.3 +/- 6.4 hours over the 80-hour limit. An average monthly compliance with the 80-hour work limit was increased to 98% with introduction of WHAMI. Furthermore, a review of on-call duty hours revealed an average of 7 (14%) residents per month who worked an average of 2.4 hours beyond 24-hour call limitations which included the specific time imposed by the ACGME that these residents must sign off on their shifts. New monitoring procedures have improved compliance to 100% with 24-hour call limitations imposed by the ACGME (Vanderveen, Chen and Scherer 2007, 763-764). Compliance with the more stringent New York State (NYS) guidelines has approached 94% with noncompliant residents extending on-call hours by an average of 1.5 hours over the 24-hour limitations. These were observed mostly on "off General Surgery" rotations or out-of-state rotations. Review of mandatory rest periods contributed to an increase in the average "time off" between work periods, thereby increasing compliance with ACGME guidelines and NYS regulations from 75% to 88%, and 90% to 98%, respectively. Residents reporting less than ten hours of rest reported increased "time off" from
6.2 +/- 2.0 to 7.9 +/- 1.3 hours (p < 0.001). Internal review of surgical residents’ duty-hours at a large university hospital revealed that despite strict scheduling and the requirement of mandatory duty-hours entry, achieving the goals of meeting the duty-hours requirements and of ongoing data entry required the creation of a resident enforced, real-time Work Hours Assessment and Monitoring Initiative (Whalen 2007, 142).

An assessment of on-call activity is needed to maximize educational merit since surgical resident education is entering a critical time in which residency programs must achieve core competencies despite work hour restrictions. A time-motion study of residents’ on-call activities was performed at a university medical center and its affiliate urban hospital. "Shadow" residents concurrently recording residents’ activities and following regular residents noted that patient evaluation comprised the majority of on-call activities. Residents slept an average of only 200 minutes or three and one-third hours per night. Cross-coverage activities in which surgery residents corresponded with other non-surgical and surgical physicians accounted for 41% of patient reports and 9% of patients’ comprehensive evaluation reports. A panel of experts at the Institute of Medicine had issued a statement that medical residents must sleep after sixteen hours of duty, that they must have one full day off work every week, and at least two consecutive days off every month (Washington Post, 3 December 2008, A6). Surprisingly, the study noted that direct patient contact comprised only 7% of on-call evening duties.
Communication with all patients occupied 15% of total interaction with patients, and an average of 16 pages reporting those communications and verbal exchanges with all patients were reported each night. Furthermore, significant differences in activities existed between resident levels and hospitals. Hours of sleep when compared to the hours residents perform on-call activities account for less than one third of residents’ total daily activities. These data may be useful in improving both patient care and resident call experience (Biller et al 2006, 278).

A year-long, prospective, observational study of interns or first-year surgery residents assessed the impact of different call schedules on these interns’ performances and education through the use of sleep/operative logs and questionnaires and faculty questionnaires. The study compared residents who were on-call every third or fourth night while they were responsible for cross-coverage of various surgical services with residents who were on-call every other night. Study results reported the residents who were on call every other night experienced the greatest amount of fatigue and stress, the lowest satisfaction, and the fewest operative cases; however, errors in patient care were not different between schedules (Biller et al 2006, 279-280). Multivariable analysis revealed that the degree of participation in the operating room was inversely related to the frequency of night calls and level of fatigue post calls. Likewise, stress was related to fatigue while off call while overall satisfaction was associated with infrequency of call and operative cases performed. Faculty reported more errors with interns responsible
for cross-coverage of other surgical services and less operating room participation by residents who were on call every other night. The study, therefore, concluded that no single resident schedule optimally balances patient care, residents’ educational opportunities and residents’ satisfaction. The study also revealed that all three patterns of on-call assignments were acceptable; nevertheless, specific decisions regarding the allocation of manpower should be flexible and dependent on individual surgical service and residents’ educational needs.

The study on interns or first year surgery residents described above further investigated residents' work schedules and their attitudes toward limiting their hours through an anonymous survey in which resident work hours and call schedules was administered to over four thousand surgery residents in 2000. Of four thousand five hundred ten residents surveyed seventy-five and a half percent reported working between 61 and 100 hours each week. Seventy-one and three-tenths of the four thousand five hundred then residents reported sleeping less than 3 hours while on night call with eighty percent having post call clinical responsibilities. The reported number of hours on call declined and the reported number of hours of sleep increased as the residents progressed in their residency program. For example, third year residents were less assigned to on-call hours than second year residents; therefore, third year residents were able to sleep more. The study showed that seventy-five percent of residents, especially those who worked longer on-call hours and therefore slept less during the night, wanted limits
on their work hours. Seventy-seven and three-fifths percent of residents believe fatigue was the primary reason selected for wanting limited worked hours. Seventy-six and three-fifths percent selected more personal time to be the second reason for wanting limited worked hours while fifty-nine and four-fifths percent selected fear of compromising quality of care to be the third most important reason. Women were more concerned about fatigue than were men. Among the very few residents who did not want work hour restrictions, "additional surgical experience" was the most commonly selected reason (Biller et al 2006, 280-281). The authors concluded that most surgery residents due to working long hours and experiencing periods of little sleep want their work hours to be limited. Fatigue is a major concern among residents that want their hours limited. A very few worry or fear that such work hour limits might also limit their experience in caring for patients.

All residents in the Wright State University School of Medicine Department of Surgery residency program were required to record their daily activities during a four-week period (Veasey et al 2002, 1123-1124). Time spent at patient rounds, comprehensive evaluations of patients, laboratory data review, consults, meetings with attending physicians or patients' families, consultation phone calls, teaching conferences, medical student teaching, library time, clinical emergency department visits, on-call time, medical records committee meetings, and time in the operating room were all activities that these residents needed to report and log. The study showed that surgery residents regardless of year in residency worked an average of
eighty-three and two-fifths hours each week. Patient rounds, operating room activities, and on-call assignments were three activities comprising for most of the surgery residents' hours (Vanderveen, Chen and Scherer 2007, 760). However, if surgery residency programs deleted the hours these residents spent on educational and administrative activities, the average hours surgery residents work regardless of year in the residency program would fall below eighty hours.

Another study was conducted to ascertain the number of hours spent in the hospital in relation to the types of duties surgery residents performed while assigned to a multiple-institution, university-sponsored surgical training program (Steinbrook 2002, 1300). Surgery residents in the Wright State University program spent between sixty-eight to ninety hours in the hospital per week whereas activities related to direct patient care required forty-four to sixty-three hours of their average workweek. By comparison purely educational endeavors accounted for four to six hours of their workweek while ancillary tasks required an average of 8.5 +/- 8.5 hours eight hours of the surgical residents' workweek (Abrass et al 2001, 798). Although much variation existed among surgery programs in different hospitals, surgery residents at private hospitals were more frequently on-call compared to surgery residents at federal hospitals. There were also principal differences with the amount of time surgery residents at private hospitals compared to those at federal, government, or county hospitals. Surgical residents at private hospitals generally spend more hours in ancillary tasks, operating rooms, etc.
To compare in-hospital time uses by first-postgraduate-year (PGY1) residents during rotations in emergency medicine (EM), internal medicine (IM), and surgery (S), an observational study was conducted reporting the clinical components of residency time use. A cross-sectional, observational study of the clinical activities of EM PGY1 residents was performed while the residents were on duty during the three specialty rotations. An observer using a log with predetermined categories recorded the clinical activities. Twelve PGY1 residents were observed for a total of one hundred sixty-six hours on Surgery, one hundred fifty-six hours on Internal Medicine, and one hundred twenty hours on Emergency Medicine. These hourly amounts were representative of a typical two-week span of service on each rotation for these residents. On average, the residents spent fifty-seven percent of their time on clinical or service-oriented activities. Residents on Emergency Medicine and Internal Medicine rotations spent most of their time gathering clinical information and engaging themselves in case management and data synthesis. Within this category, Emergency Medicine residents were more involved with case discussion and review of ancillary test results than were Internal Medicine residents (i.e. thirty-four percent of Emergency Medicine residents vs. 20% of Internal Medicine residents. Conversely, fifty-six percent of Emergency Medicine residents versus eighty percent of Internal Medicine residents devoted less time in documenting these case discussions and interpreting test results (Abrass et al 2001, 801). Furthermore, surgery residents obviously had the greatest opportunity to perform
procedures and less time to review case studies and review ancillary test results. Thus, awareness of clinical activities of PGY1 rotations can help residency directors anticipate educational needs to balance the surgery residents' experience.

To assess resident satisfaction as a result of changes made to an integrated surgical residency in response to probation, the University of Connecticut Integrated General Surgery Residency, which consists of 5 hospitals, 18 rotations, and has a complement of 44 residents, was placed on probation by the Residency Review Committee (RRC) in Surgery in November 1998. Inadequate evaluation of the program, rotations, residents, and the faculty by the residents, along with inadequate documentation issues; lack of organized educational conferences, faculty involvement, responsibilities and work hours, and hospital environmental issues were among the factors the RRC substantiated the program having been placed on probation. Moreover, the morale of the residents and faculty had evidently decreased significantly. Rather than trying patchwork "fixes" of such deficiencies, the authors noted that programs should use this opportunity to re-engineer the education and training future surgeons. Task forces, including joint faculty and resident participation, were established to develop solutions after determining whether the medical facility still wanted to continue having a surgery residency program, which greatly needed the support of the hospital administration and faculty. A survey of sixty-five questions regarding the learning environment, hospital and departmental support, and balance between clinical and educational
responsibilities and overall working environment was consequently created to assess the changes made in the program. Each resident was asked to fill out three identical surveys in which a 4-point grading scale was used, one before the RRC report, and the other two at 6-month intervals after the probation announcement. The results were reflective of resident perceptions of improvement and increased satisfaction. This survey also gave the researchers a method to evaluate ongoing changes in the residency. The results reflected that probation can be a potent positive stimulus for improvement of a surgical residency and that implemented changes corresponded to areas where changes were needed most (Abrass et al 2001, 804). Surgical faculty and residents have significantly different attitudes regarding work hour restrictions. The authors surveyed voluntarily participating surgical faculty and residents in all general surgery residencies approved by the Accreditation Council for Graduate Medical Education (ACGME) regarding current hours worked, days off per month, and attitudes and opinions regarding the traditional surgical-training environment. Surveys consisting of seventeen specific questions were mailed to program directors of all ACGME-approved surgical-training programs in the United States. These surgical training programs distributed the surveys/forms to all faculty and residents who completed and submitted the questionnaires for analysis (Whalen 2007, 141-142).

From the forty-six percent of surgical-training programs that responded, a significant difference was noted between faculty and resident responses in most
categories. Most residents or eighty-seven percent reported more than eighty hours of duty per week, while forty-five percent reported working more than 100 hours per week. Only thirty percent of residents reported an average of one day per week free of clinical activities. Although a minority of residents, or forty-three percent, felt that their workload was excessive, fifty-seven percent felt that their cognitive abilities had been impaired by fatigue. A significant number or sixty-four percent of residents and thirty-nine percent of faculty members believe that duty hour restrictions should be adopted. A minority or twenty percent of residents and forty-seven percent of faculty members believe that the duration of residency training should be increased to compensate for restrictions on duty hours. Furthermore, one quarter of residents regret choosing a career in surgery. The authors commented that current duty hours for most surgical residents exceed the proposed ACGME limits. While most residents support duty hour limits, surgical faculty are less supportive. Henceforth, significant alterations in the current design and structure of surgical-training programs will be required to meet the ACGME guidelines (Whalen 2007, 142).

In summary, these studies revealed that most surgery residents prefer and performed their duties more competently when assigned to on-call schedules every third or fourth night, rather than every other night. On-call activities comprised most of surgery residents’ work hours and allowed them less time to sleep, read, etc; surgery residents’ work schedules allowed them less time than non-surgical
residents to review cases, interact with patients, or return phone calls. The next chapter evaluates alternatives in the design of surgery residents’ work hours and activities in order to improve the professional and personal status of surgery residents while striving to provide optimal quality care for their patients.
CHAPTER 7
NEW HOPE FOR A WHOLESOME LIFESTYLE

The controversy of regulating surgery residents’ work conditions has shifted from the reasons and factors necessitating the regulation of these residents’ work hours to the possible approaches for modifying and regulating their hours. Program directors, residents, hospitals, and the broad range of patients all hope surgery residency programs can modify and regulate residents’ work hours while these residents fulfill strict mandates and maintain a superb quality and standard of care. Indeed, even the future viability of the surgery residency program i.e., its ability to attract the best and most intelligent medical students into surgical fields, depends upon how surgery residency programs deal with the issues regarding surgery work hours and conditions.

The goals and requirements of surgery residency programs have significantly expanded throughout the years in order to train potential surgeons in an increasingly complex field while simultaneously limiting their hours of clinical exposure. Although these goals are attainable, several significant risks and stressors must be considered. By sharing and conferring about common experiences during such a critical time of social and professional evolution and development, both surgery residents and certified surgeons may be able to avoid errors in formulating and executing a methodology needed to achieve such goals.
For example, several surgery residency programs have realized the importance of making specific changes and additions to residents’ work environments and have continued to consider further modifications to meet certain demands and regulations. Those involved in designing surgery residency programs have also determined that some ideas, while they work very well in other teaching hospitals and within certain surgery residency programs, might not work or be as effective in other surgery residency programs or within teaching institutions (Biller et al 2006, 278). Therefore, a general guideline briefly described below strives to circumvent the potentially conflicting goals of regulating work-hours versus retaining quality education, as it further stimulates productive changes in the culture of surgical residency education. These guidelines reflect the different reasons and factors and various elements that can comprise alternative working hours and conditions for surgery residents (Biller et al 2006, 280). Certain guidelines that must be considered are as follows:

1) None of these ideas are unique to any one institution;

2) Since very few ideas will be applicable in most or all surgery residency programs, most changes will require resources than may not be traditionally available to some teaching hospitals;

3) Educational factors are usually proportional to the economic factors or amount of money involved in instituting and implementing changes;

4) Many attending physicians and surgery residency administrators might be resistant to many ideas and changes;
5) Since the medical profession and the field of surgery are dynamic, current ideas and changes will not necessarily result in permanent resolutions

Changes that are already in effect within several surgery residency programs (Vanderveen, Chen and Scherer 2007, 763-764):

1) Hiring of more nurse practitioners and physician assistants to help in maintaining patient care and overcoming the pressures of hospitals caring for and discharging patients in a timely and cost-effective fashion;

2) Specifying OFF CALL days as one of the first steps in empowering surgery residents to anticipate and claim expected working conditions;

3) Instituting more cross coverage among surgery residents to be an effective training condition for future bona fide surgeons who will eventually cover multiple hospitals, and cover for their colleagues during vacations, in-house ambulatory services, and as back-ups at the end of specific shifts;

4) Avoiding the downsizing of functional Operating Room staff due to pending Cases thus directly prolonging surgery residents’ work hours and delaying the concurrent goal of discharging patients in a timely fashion;

5) Adding Operating Room technicians to selected cases reduces or avoids the difficulty of some surgery residents’ compliance with the 80-hr work-week, especially when multiple cases necessitate more residents to be present in ward or clinical activities. Otherwise, discharges and other resident activities are again delayed and some surgery residents’ work hours are extended;

6) Enhancing information technology, although quite difficult to institute at first, allows residents to write orders for any patient from any location, e.g., the Operating Room, Emergency Room, or even from home. Moreover, enhancing information technology enables surgery residents the accessibility of inpatient charts without having the chart physically in their hands, thus allowing better continuity of care in preparing for cases, seeing clinic patients, etc;

7) Videotaping institutional core lecture series prevents the likelihood of residents missing important conferences occurring during their days off and re-emphasizin or summarizing the core of such a core curriculum during
the standard Grand Rounds conferences;

8) Adding main and fundamental lectures, specifically conferences and discussions during Grand Rounds, to web sites thus enabling surgery residents to view and/or review such useful presentations even at the comfort of their home or during quiet in-house call periods;

9) Incorporating e-mail correspondences for non-urgent issues and information and text messages for urgent, but not emergency, surgical matters thus preventing pager overload and attending physicians and chief residents engaging in “pager phone tag” with surgery residents. Residents suffer from pager overload;

10) Scheduling weekly work hour quizzes after weekly Morbidity and Mortality conferences thus evaluating residents’ knowledge of and compliance regarding current rules, policies, and guidelines pertaining to the surgical department;

11) Enforcing surgery residents to take more calls from home thus preparing them to come in from home for any concerns, since they as future bona fide surgeons and attending surgeons will not be sleeping or staying in the hospital and must understand this home-triage responsibility.

Changes and or modifications under consideration (Vanderveen, Chen and Scherer 2007, 764):

1) Modifying night float coverage schedules thus preventing overloading surgery residents’ with Operating Room cases and preventing discontinuity of care inherent when only a small group of surgery residents are assigned to cover night float hours;

2) Adding Non-designated preliminary residents (NDPs) under regulated work hours as useful workforce for many surgery programs thus decreasing hiring nurse practitioners (NPs) or physician assistants (PAs) who demand more pay and also compete for available Operating Room cases and educational opportunities. Furthermore, adding non-designated preliminary residents will enable non-surgical trainees e.g., family medicine residents, to fulfill a needed elective curriculum in surgery rotations;
3) Combining surgery services such as vascular and transplant surgery units or oncology and general surgery units thus ensuring enough surgery residents to train in different surgical subspecialities simultaneously;

4) Reducing the number of surgery cases from other surgery residency programs at affiliated medical centers or teaching institutions, which often do not provide many unique educational opportunities for surgery residents;

5) Restricting pages from Registered Nurses and non-surgical staff between midnight and six o’clock in the morning to attending physicians, thus reducing surgery residents’ work hours and not aggravating their physical and mental exhaustion;

6) Re-establishing more Registered Nurses to triage more pages thus continuing to decrease the practice of surgery residents and attending physicians giving verbal orders to Registered Nurses;

7) Scrutinizing which surgery staff members are most helpful and effective in the training of surgeons and decreasing interaction from non-essential faculty or from those not fundamentally effective in training surgeons’;

8) Discontinuing the designation of only certain surgery residents to cover certain services for a few months. For example, a pediatric surgery rotation is simply an elective for third and fourth year surgery residents not in the pediatric surgery program specifically in their third year of surgery residency; hence, more third year surgery residents must be encouraged and more second year surgery residents must be allowed to rotate in pediatric surgery. Moreover, decreasing the period during which surgery residents rotate in pediatric surgery from two months to six weeks has proven to be an adequate learning opportunity thus enabling more surgery residents to rotate in such a surgical subspecialty. Furthermore, more opportunity is available for surgery residents considering a specialty in pediatric surgery;

9) Paying for surgery residents’ Internet/hospital access from home thus encouraging surgery residents’ involvement in educational, hospital, and surgical information and activities from home;

10) Holding some teaching conferences, Grand Rounds, and other surgery residency activities, such as Operating Room schedules, in other days of the week in order to broaden the opportunity for as many surgery residents to
participate as possible;

11) Assigning attending physicians to coordinate with chief residents to formalize and supervise training sessions regarding critical tasks and protocols within the field of surgery;

12) Utilizing surgical research residents to take calls for surgery residents or to cover for surgery residents’ clinical assignments, especially when these traditional surgery residents travel, are sick, or need to be assigned in other parts of the medical facility. Lab residents uniformly have found these clinical and ward experiences to be useful in keeping current with clinical issues, as long as the schedules are planned in advance, and are not unreasonably frequent;

13) Establishing classes for surgery residents to learn about non-surgical services such as billing and scheduling or classes that will enable interaction of surgery residents and medical personnel specializing in billing and scheduling;

14) Providing some pro bono transportation for surgery residents too exhausted to drive themselves within a reasonable destination or to a public transportation location.

**Options that need more consideration** (Vanderveen, Chen and Scherer 2007, 763-764):

1) Not increasing the eighty-hour work load to a maximum work shift of eighty-eight hours will enable surgery residents to focus on educational opportunities that will polish their skills and enhance their ability to provide quality care;

2) Not eliminating certain services which will consequently reduce educational and training opportunities for surgery residents; hence, combining rather than eliminating certain surgical specialties as stated beforehand will be advantageous in training surgeons;

3) Modifying the number of surgical residents and attending physicians engaging in one-to-one mentorships, which seem only to work for some surgical training programs where the number of attending physicians is
proportional to the number of residents in the program. Nevertheless, surgery residency programs must consider that most attending physicians tend to have multiple, non-teaching responsibilities that would prevent or aggravate a valid full-time apprenticeship for surgery residents;

4) Not mandating that all surgery residents use PDAs which, like the internet, should only be used to facilitate sign-outs, data entry, evaluations, and some professional activities of surgery residents. Therefore, use of PDAs must be part of residents’ initiative and choice;

5) Avoid decreasing work hours by moving established educational opportunities to off-site locations and devising and stimulating more structured, independent learning for surgery residents while they are not physically at the hospital or medical center. Since work can be defined and regarded to be independent of location and curriculum, surgery residents can fulfill work hours by listening to a videotaped surgery conference;

6) Avoid extending years of training although such an option can be a quick reaction, since this option will further pose more difficulty in matching surgery residents to any program proposing more than 5 years of clinical training. Studies conducted by the American Board of Surgery have shown that such an alternative aggravates many residents’ commitment;

7) Not mandating research residents routinely to be on call, since their program should be focused on doing research, not taking calls. Moreover, routinely taking calls will only decrease their productivity and training;

Although there is no specific or major methodology that ultimately reflects the deal work hours and conditions for surgery residents, all the factors considered and described above are enough to modify surgery residency programs and will primarily ease residents’ stressors as they continue to maintain a superb standard of care. Surgical education is one of the social structures punctuated by periods of intense stress and continuous professional evolution, thus preventing certain work conditions from remaining stable for long periods of time. The best programs in
surgical education lead the way to necessary improvements and resources enabling as many surgery residents to adapt and learn quickly and efficiently.
CHAPTER 8
CONCLUSION

Surgery residency has rapidly evolved from a highly competitive specialty choice to one plagued by recruitment and retention concerns. The effect of "controllable lifestyle" on medical student specialty selection is undeniable. Recent trends in the National Resident Matching Program highlight the increased concern for lifestyle considerations by medical students; anesthesiology, pathology, and radiology have increased the number of residency positions offered and the percentage of these positions filled, whereas general surgery has continued to fill fewer offered positions. Furthermore, spousal opinion affects medical graduates’ choice of residency specialty programs, with many spouses being unwilling to accept the lifestyle demands of surgery residency. A complementary concern is the persistence of a substantial rate of disinterest documented in various studies among general surgery residents during and after residency. Residents who voluntarily leave surgical training consistently cite time commitment or family demands as the basis and reason for their departure. Similar factors resulting in the diminishing interest of medical graduates in surgical careers also seem to be affecting the retention rate of general surgical residents (Center et al 2003, 3164).

Program directors are also realizing that institutional pressures concerning educational experience and work hours and time off have also impacted the surgery residents. The educational demands on surgery residents increase dramatically with
new scientific discoveries and/or technological advances. The Accreditation Council on Graduate Medical Education program requirements in general surgery have recently been extended to mandate surgery residents to have one day out of seven days of the week off from clinical duties and that in-hospital calls be no more often than every third night. Further pressure to reduce work-hour requirements for surgery residents is inherent in recent calls for 80-hour workweek limits for all residents. Surgery residency programs thus face the problem of expanding educational demands while decreasing surgery resident work hours.

Studies evaluating the present environment of surgery residency and working conditions of surgery residents in the United States investigated the recruitment and retention trends in surgery residency programs. As described previously, these studies asked program directors to describe the quantity and quality of applicants overall and the quantity of female applicants as increasing, decreasing, or without change for the same period. They also documented the total number of surgical residents at each teaching hospital; the number of male to female residents; the number of married male and female residents; and the number of male and female residents with children. Working condition data included number of hours worked per week, number of days on call per month, and number of days off per month (Veasey et al 2002, 1120). Furthermore, the number of residents who had left before completing surgical training was noted. Program directors then evaluated workforce solutions described in Chapter 7 based on whether they had used them,
proposed them, favored them, and believed they were likely to achieve success. In
addition to such considerations and solutions, program directors also evaluated the
impact of possibly increasing the years of surgery residency programs, increasing
the number of international medical graduates in surgical residencies, employing
more nurse practitioners or physician assistants as physician extenders, expanding
cross coverage between surgery residents, and modifying the night float system.
Finally, these program directors documented their own work schedule, their career
satisfaction, and the number of years they had been in their current position of
program director. All surgery residency program directors in attendance at this
combined meeting in 2001 of the Association for Surgical Education and the
Association of Program Directors in Surgery had an opportunity to complete a
survey, and they were encouraged to do so at several meeting sessions.

**Statistical Analysis**

Most information about program directors and the rate of dissatisfaction and
disinterest among surgery residents were evaluated using descriptive statistics.
Career satisfaction was designated on a 5-point Likert scale (1 indicated "extremely
dissatisfied" and 5 indicated "extremely satisfied"). A Pearson correlation
coefficient was calculated between attrition and program size and between attrition
and percentage of female residents. Program size was defined as small (offering
less than or equal to four categorical positions per year) or large (offering more
than four categorical positions per year).
Descriptive statistics were initially used to characterize the recruitment and match data and the working condition information through a 1-way analysis of variance to evaluate all recruitment and match data and working condition data using program size as a fixed factor.

Potential solutions to workforce and work-hour issues were also evaluated using descriptive statistics. The likelihood of an intervention achieving success was ranked by program directors on a Likert scale with the assumption that the categories represented an equal-interval scale from 1 to 5, with 1 representing "strongly disagree" and 5 representing "strongly agree." The null hypothesis was an average response of 3. A 1-sample t test was performed for the responses to each question.

The one hundred nine program directors participating in the survey represented forty-eight percent of the two hundred twenty-six surgery residency programs in the United States. Program directors reported working an average of sixty-eight hours per week and being on call approximately eight and a half nights per month. Moreover, program directors indicated that they spend an average of seven and a half hours per week teaching medical students and slightly more than twenty-six hours per week teaching residents. Although program directors tend to be satisfied with their careers, the statistical results did not match their sentiment.

Program directors reported that twenty-five percent of surgical residents were women, with individual programs ranging in resident gender composition from
zero to fifty-three percent women. Most male surgical residents were married, and one-third fewer female residents than male residents were married (thirty-eight to fifty-seven percent. Male residents were three times more likely than female residents to have children (thirty-three versus ten percent). Only two percent of all female surgical residents had a child during surgery residency training during the four or five year program.

Recruitment of residents shows somewhat different patterns between small and large residency programs in 1999-2001. The number of candidates interviewed and the number of interviews per position in a surgical category varied significantly by program size. As expected, large programs interviewed more candidates than small programs, while small programs interviewed more candidates per position than did large programs. The number of candidates interviewed by both small and large programs declined from 1999 to 2001, and the number of interviews per categorical position also declined at both small and large programs.

Of ninety-eight program directors, sixty-five indicated that the number of applicants for surgical residency has declined, fourteen indicated that the number of applicants has increased, and eighteen were not sure. The number of female applicants was thought to be unchanged by sixty percent of responding program directors, but twenty-eight percent of the respondents believed that the number of female applicants increased between 1999 and 2001. Regarding changes in
applicant quality, the ninety-nine program director responses were distributed equally with thirty-seven percent stating the number of female applicants have increased, thirty-four percent stating the number of female applicants have decreased, and twenty-nine percent were not sure (Center et al 2003, 3165).

Program directors described an average resident work schedule of ninety-one hours per week, ninety-five hours per week at large programs, whereas eighty-eight hours per week for smaller programs. The average number of days on call per month for all programs was slightly less than nine days per month; however, surgery residents at large programs were significantly working more on call days than residents at small programs. The average number of days off for all residents was four days per month while residents at large programs had slightly less time off than residents at smaller programs. Sixty-three percent of program directors reported information about resident work schedule based on surveys of their house staff and of estimates regarding their house staff work schedule. Ninety percent of responding program directors believed that the reported data accurately reflected their residency program's work schedule. There was a twenty percent incidence of surgery residents having become disinterested and having quit surgery residency program within the four or five year training period. Program directors found no correlation between the these residents having been disinterested or dissatisfied in relation to program size and gender whereas they found a correlation between these residents disinterest and dissatisfaction in relation to working conditions.
As for solutions to workforce and work-hour concerns, use of physician extenders was the only measure with widespread use and acceptance. Nearly fifty percent of the program directors reported using physician extenders, several had proposed employing physician extenders, and several program directors also favored educating physician extenders as part of the surgical team. Most importantly, almost all program directors viewed the positive impact and likely success of employing physician extenders as part of the surgical team. Using a night float or vacation coverage system, expanding cross coverage, increasing international medical graduate opportunities, and increasing the years of surgery residency were viewed to have a poor likelihood of success due to the different conditions of teaching hospitals in which surgery residency programs are held. Changes in societal expectations and medical education have placed surgery training under a unique set of pressures. Demographic characteristics, recruitment and retention, and working conditions of surgery residents all provide critical foundations for addressing the transformations occurring within surgery residency programs and surgical education. Surveys mentioned beforehand elucidate definite patterns in surgical training that provide the groundwork for future research on a variety of surgical education issues. Important gender-related trends are evident in the results. Women remain underrepresented in surgical training vis-à-vis their enrollment in medical school, but the number of women in surgical residencies is far greater than the number of female surgical faculty members.
Women seem to be undergoing different sacrifices than their male counterparts with regard to marriage and childbearing during residency, as demonstrated by the lower percentage of female residents who are married or have children. The potential for recruiting more women into surgery and surgical subspecialty programs is currently unclear, although family concerns obviously have a substantial effect. While women currently constitute almost fifty percent of medical students, gender-related deterrents to surgical careers must be addressed if the surgical specialties are to increase the recruitment of surgeons from the increasing number of women from the population of medical students.

Studies demonstrate several trends in the recruitment and retention of surgical residents (Whalen 2007, 140-142). The prevalent belief is that the number of applicants for surgery residency is declining and that the perceived quality of these applicants varies widely. The program directors who participated in these studies have been granting fewer interviews and filling categorical surgical positions without evaluating a diverse number of applicants, if at all, on their rank lists most likely since the best and brightest candidates are still being aggressively recruited and highly ranked. Nevertheless, the decreasing number of interviews and the higher rank of last-matched candidates also reflect a decreasing pool of qualified candidates so that changes in application, interview, and ranking trends merit ongoing review.

As studies demonstrate, there is a notable difference between working
conditions for surgery residents at small and large programs. Surgery residents at large programs work approximately seven hours per week more than their counterparts at small residency programs, and they are also on call more days per month.

The solution to preventing or approving the rate at which surgery students become disinterested or leave surgery residency program remains an ongoing issue. Such an occurrence during the four or five year surgery residency programs are consistent with previously documented studies and literature. Although workload is thought to contribute significantly to such an occurrence, no single cause has been presently correlated between any specific working conditions. Program size and gender of surgery residents seem to impact such an occurrence, although more complex set of factors are known to cause surgery residents to leave surgery residency. Further investigation, especially into the characteristics of residents who leave surgery residency, is needed to isolate specific motives of those who do not complete surgical training and thereby for surgery training programs to enhance certain aspects of the programs.

Physician extenders, i.e. physician assistants, nurse practitioners, and operating room technicians were the most widely used and the most positively approved option for reducing surgery residents’ work hours. Modification of these residents’ night float schedule and expansion of cross coverage between these residents have been the second most widely used option for workload modification,
although such an option has not been as effective as program directors and surgery residents hoped it to be (Whalen 2007, 142). The option to increase the number of years of surgery residency programs was the least favored. A significant paradigm shift reflective of such alternatives needs to be developed for surgery residency programs to be modified. As surgery residency is currently in an unparalleled state of transition the confluence of the changing demographics of medical education, the changing priorities of those selecting careers as surgeons, and the changing environment of graduate medical education has continued to affect the design of surgery residency programs profoundly. The numerous studies have provided a descriptive foundation for understanding the status of surgery residency, yet a more comprehensive research agenda is still needed to find a more permanent resolution to issues concerning surgery residents’ work hours and work conditions. Many aspects of surgery residency remain in need of in-depth analysis if program directors and medical educators are to understand and enhance the future of surgery education and the surgery profession. A thorough review of surgery residents’ professional and personal relationships reveal an important aspect of surgery residency where there is great potential for surgery residents to find balance between their professional and personal lives, thus continuing a medical tradition of excellence in promoting the well-being of others at the highest possible standard within the professionally and socially elite field of surgical arts and science.
REFERENCE LIST


