



**The modern
surgical lifestyle**

**by
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The core value that binds us together as surgeons is continuity of care: the principle that we, and not surrogates, are responsible for the patient, regardless of time, geography, or personal commitments.¹ William S. Halsted formalized the principle of continuity of care when he created the first residency training program at Johns Hopkins University in 1897. The underpinning of Dr. Halsted's educational goals was a restrictive lifestyle that committed trainees solely to their patients.

Since the time of Dr. Halsted, surgical training and practice have been questioned as a result of many factors, including growing numbers of women in surgery and work-hour reform. There is increasing recognition of doctors as susceptible to fatigue and illness; as having the same hopes and desires for personal development as others not in medicine; and, like their patients, as being human. The profession of surgery stands at a fundamental crossroads: how do we balance the core values of professionalism and continuity of care with the need to be human? In this article, the authors will examine some of the history that has brought us to this point and explore current trends in the personal lives of surgeons.

History of surgical education

Dr. Halsted was influenced greatly by his contemporary, Sir William Osler, who championed the ideas of strict dedication to the bedside study of diseases and graded responsibility with an involved teacher.² Dr. Halsted's model established that surgery was best learned by hands-on education within a hierarchical program. An internship, followed by six years as an assistant resident, culminated in two years as "house surgeon." House surgeons lived in the hospital, where room, board, and training were provided in exchange for 24/7 service to the hospital.³ This pattern of personal sacrifice was established as the sine qua non of the life of a surgeon. Dr. Osler advised trainees, "What about the wife and babies, if you have them? Leave them! Heavy as are your responsibilities to [them], they are outweighed by the responsibilities to yourself, to the profession, and to the public."⁴

The enactment of the Servicemen's Readjustment Act of 1944, or GI Bill, was a defining mo-

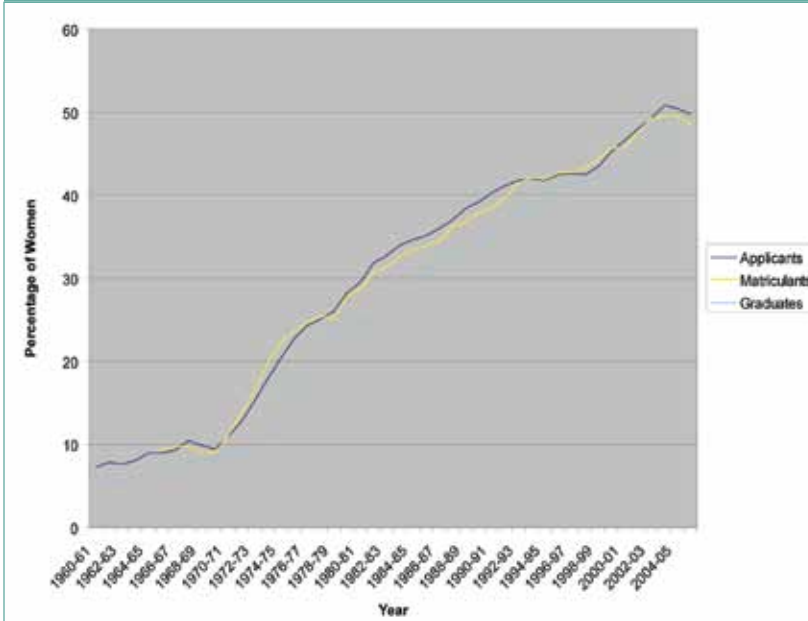
ment for surgical education. The GI Bill, created to train medical officers returning from World War II, marked the first time surgical trainees received stipends.⁵ Despite financial compensation, the life of a surgical resident remained austere throughout the 1950s, 1960s, and 1970s. Trainees essentially never left the hospital where they were provided meals, whites, laundry, and a sleep room.⁶ Enactment of the Medicare and Medicaid Act of 1965 was a turning point for trainee lifestyles. Residents who had previously been providing care to the indigent for free now had a mechanism for compensation. At San Francisco General Hospital, when George F. Sheldon, MD, FACS, was a resident (1965–1969), he saw his salary increase from \$120/month to \$1,200/month as a result of that landmark health care mandate.⁶

Over time, attitudes began to shift and the restrictive lifestyle of Halsted's model began to lessen. Trainees began to marry and move out of the hospital; they were no longer available 24 hours a day.⁷ Despite these changes, surgical training remained arduous, with long hours and overnight call as often as every other night. Trainees went home only when the work was done. But then the death in 1984 of a patient in a New York teaching hospital brought these long hours into sharp focus.

The impact of work-hour reform

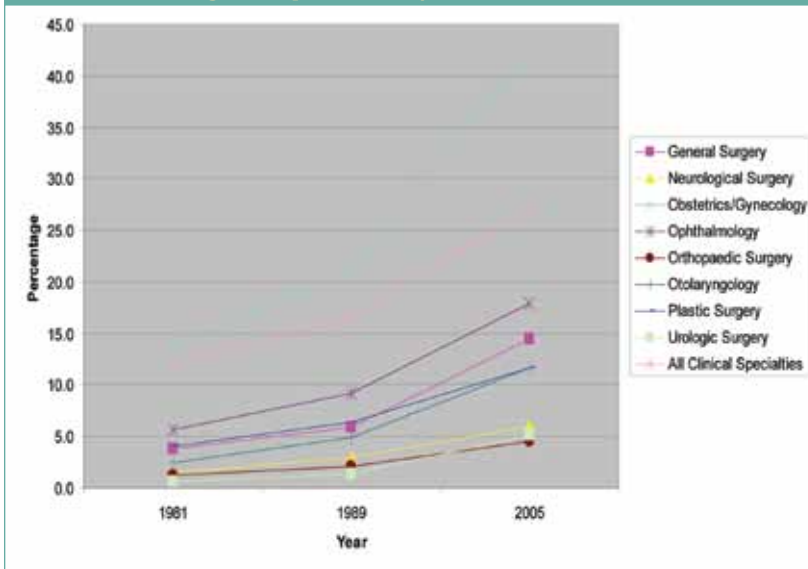
Libby Zion was an 18-year-old woman admitted to a New York hospital with fevers, agitation, and delirium on March 4, 1984; she died within 24 hours. Her father, Sidney Zion, a *New York Times* columnist and lawyer, believed that she died as a result of inadequate care from overworked and inadequately supervised residents. A grand jury investigation did not return a criminal indictment but made recommendations concerning resident supervision and work hours that were considered "an indictment of the American graduate medical education system."⁸ The case led to a formal evaluation of the training and supervision of physicians in New York State by the Bell Commission, whose recommendations—including work-hour limits of 24 hours per shift and 80 hours per week—were adopted by the state in 1989.⁹ In July 2003, the Accreditation Council for Graduate Medical Education (ACGME) enacted similar regula-

Figure 1. Percentage of women in medical school, 1960-2005



Source: Association of American Medical Colleges (AAMC). *AAMC Databook*. Washington, DC: AAMC; 2006.

Figure 2. Percentage of women physicians in surgical specialties, 1981-2005



Source: American Medical Association. *Physician Characteristics and Distribution in the United States*. Chicago, IL: AMA; 2005, 1990, and 1982.

tions for all U.S. residency programs.¹⁰

Protest from surgical educators followed swiftly. Barone and Ivy portrayed their response as resembling Elisabeth Kubler-Ross' five stages of grief, describing the tone of the 2004 annual meeting of the Association of Program Directors in Surgery as "funereal."¹¹ One New York surgeon commented in a 2003 *New York Magazine* article, "We have to act as cops and chase people out of the hospital. It's antithetical to everything being a doctor is about."¹² Josef Fischer, MD, FACS, summed up the reasons behind the protest, writing that "The 80-hour work week is seen as damaging to the essence of surgery's being. It is the denial of the foundation of...continuity of care."¹¹

Still, there was evidence that overwork among trainees was harmful to their emotional and physical health and that work-hour reform improved quality of life. A survey of interns (from all specialties), conducted the year before the ACGME duty-hour restrictions were enacted, found that post-call interns were more likely to suffer needlestick injuries or be involved in motor vehicle collisions.^{13,14} A survey of surgery residents (n=86) after work-hour reform found that 88 percent felt more rested and 71 percent experienced improvement in the quality of their personal relationships.¹⁵ A meta-analysis (54 studies) published in the *Journal of the American Medical Association* in 2005 found similar results.¹⁶

The effects of work-hour

reform on patient care and surgical education have been more controversial. In a survey of New York State surgical residents, the majority of residents believed that continuity of care had been affected negatively by work-hour reform; fewer thought that the quality of care had been affected negatively.¹⁷ However, objective metrics for patient care and education have not been shown to decrease after work-hour reform. A study at Massachusetts General Hospital before and after implementing work-hour restrictions found no differences in quality of care based on the ACS National Surgical Quality Improvement Program, or in education based on ACGME case logs and in-service exam scores.¹⁸ The Residency Review Committee for Surgery evaluated operative experience before and after work-hour reform and found no change in operative volume, both overall and for chief residents.¹⁹

Women in the surgical workforce

Increasing representation of women in surgery is another factor driving the discussion of work-life balance. Since the 1960s, the percentage of women entering medical training has increased steadily to parity (see Figure 1, page 33). Although the proportion of women subsequently entering surgical training and practice has lagged behind that of nonsurgical specialties, there has been a consistent trend toward more women across all surgical specialties (see Figure 2, page 33). Though they are not yet at equal representation and were once a rarity, women are now an expected constituent of the surgical workforce.

At the biologic level, the presence of women in surgery has challenged Osler's and Halsted's paradigm of the surgeon's wife bearing children and carrying out all family and domestic responsibilities. In the modern world, the surgeon may now be both doctor and mother. A recent survey of women urologists revealed the difficulties of reconciling these identities. Women urologists were, on average, eight years older than national norms at the time of the birth of their first child. Pregnancy complications were 5 percent to 20 percent higher than national rates. Assisted reproductive technology was required for this group approximately 10 percent of the time,

compared with 1 percent nationally.²⁰ As these data show, delaying childbearing until after residency is not without risk to both mother and child.

Beyond the biologic imperatives of childbearing lies the responsibility of maintaining the family. Over the past 20 years, more and more surgeons have married other professionals within and outside of medicine. Two different surveys of academic surgeons (n=386 women and 338 men, and n=572 women and 1,050 men, respectively) found that 80 percent to 90 percent of women surgeons and 26 percent to 50 percent of men surgeons were married to a full-time professional.^{21,22} The reality of two-professional households has shifted responsibility for domestic and family obligations from solely the province of women to a realm where both partners share in the burdens—and joys—of home life.

Balancing the identities of professional surgeon with partner, parent, and friend, however, requires a change in residency training and surgical practice. Julie A. Freischlag, MD, FACS, chair of the department of surgery at Johns Hopkins University in Baltimore, MD, has observed: "Raising children cannot be delegated to others. As parents, we need to be there." She encouraged program directors to accommodate pregnant residents during training and encouraged chairs to support young female faculty in maintaining their academic productivity.²³ Difficulty combining work as a surgeon with family life is often cited as a detractor to a career in surgery;²⁴ promoting and sustaining women in the surgical workforce may ultimately dispel this notion.

Today, outstanding female surgeons serve as role models for men and women alike. In describing the female students—whose role models in surgery include Dr. Freischlag; Carol Scott-O'Connor, MD; the late Olga Jonasson, MD, FACS; Rosalyn Sterling-Scott, MD; and Barbara Bass, MD, FACS—Eddie L. Hoover, MD, FACS, has said they not only want to "become surgeons, faculty members, medical executives, deans, and departmental chairs" but also want to "succeed as wives and mothers who attend soccer games, ballet performances, and parent-teacher meetings."²⁵ Young men aspiring to become leading surgeons can also look to these women and aspire to succeed as husbands and

fathers. The increasing presence of women in the surgical workforce has demonstrated to both male and female students “that there are a variety of ways to achieve balance between professional and personal life.”²⁶

In pursuit of balance

Achieving work-life balance is difficult because it is easy to put aside outside interests or neglect the people we care about when we are passionate about our profession. Pearsall describes this effect as “toxic success.”²⁷ For example, two-thirds of academic surgeons surveyed (n=54) reported their demands at work “adversely affected their relationships with spouses.”²⁸ Half the surgeons in another survey (n=317) felt that their work schedules did not allow enough time for their personal lives.²² Campbell measured burnout among practicing surgeons (n=582) and found that 32 percent manifested “high” levels of emotional exhaustion and 13 percent showed high levels of depersonalization. Burnout was associated with a perceived imbalance between career, family, and personal growth.²⁹ How, then, can we reap the rewards of both our professional and our personal lives and avoid career burnout?

Spiritual and worldly interests must be fostered; although it is no sign of social ineptitude to enjoy one’s work, the importance of caring for mind and body must not be underestimated. A study of University of Wisconsin surgery program graduates between 1978 and 2002 found that surgeons were at risk of neglecting their physical and mental health.³⁰ John Tarpley, MD, FACS, serves as an excellent example of avoiding such neglect. Dr. Tarpley likens his work as a surgeon and an educator to a ministry. His faith in God grounded him through years of work in Nigeria and leads him today as he counsels residents who are demoralized by the rigors of residency. He still finds time, however, to read a nonmedical book every night and go to weekly choir practice because this, too, grounds him.³¹

Ambition must be put into perspective; the pursuit of career success need not come at the expense of personal satisfaction. In a qualitative study, a leading female academic surgeon stated that “It’s okay to say...my focus is going to be a little bit more on my family...I’m still going to be

productive...but I am not going to marry myself to my job.”³² When Orrom describes his fellow surgeons as professional high-achievers, he advises them that “The pursuit of mastery is a good thing, whereas the excessive pursuit of mastery to the exclusion of intimacy and other life experiences is not.”³³ Achieving work-life balance in surgery is incumbent on acceptance that pursuing interests outside of surgery is not a sign of professional underachievement.

Expectations must be manageable; work and life will not always be precisely balanced. Personal interests and professional ambitions may occasionally need to be sacrificed in favor of the other. Speaking at the Radcliffe Institute for Advanced Study in 2006, Myriam Curet, MD, FACS, a surgeon and associate dean for medical education at Stanford University, noted that “Work-life balance is different for different people. It’s also different for the same person at different times in her life. Doing it successfully, however, requires building a network and finding backup systems.... Some people have a spouse who works a job whose hours can accommodate the demands of child care. Others live near family and rely on them to help out. Still others hire nannies and use professional care.” Dr. Curet urged the audience to be flexible and to realize that life doesn’t have to be perfect to work.³⁴

In his keynote address to the Pacific Coast Surgical Association in 2004, Pearsall gave some advice on how to avoid the “toxic success of surgeons.” He said “Much of the focus...has been on time management..., stress management..., trying to ‘live in balance...,’ ‘cutting back...,’ or ‘quality time’.... [But,] it is the nature of our consciousness that has the most significant influence on whether our work and view of success causes our families and us to flourish or languish and what that success ultimately does to our health and well-being. When it comes to the effect of our work on our life, a key factor seems to be whether we are mindless or mindful in our approach to daily life.”²⁷

Mindfulness at a crossroads in surgery

Thus, we have arrived at the current challenge facing surgeons and patients alike: how do we resolve the apparent conflict between continuity

of care and the need for surgeons to fully realize their personal interests? The authors submit that this dilemma is not a conflict but instead an opportunity to continue perfecting the art and science of surgery. Dr. Halsted demanded “a system... which will produce not only surgeons, but surgeons of the highest type, who will stimulate [others] to study surgery and to devote their energy and their lives to raising the standard of surgical science.”³⁵ Today, surgeons of the “highest type” are mindful not only of the core value of continuity of care but also of the need to be fully present in both personal and professional life.

Arriving at the crossroads of those two paths defines work-life balance and allows surgeons to give the best of ourselves to our patients, our colleagues, and our families. With creativity, flexibility, planning, and cooperation, surgeons can remain true to the qualities that make them

human while maintaining fruitful careers and an unassailable commitment to patient care. Patients benefit when surgeons couple clinical acumen and technical skill with “narrative medicine” which, as Dr. Tarpley has taught us, better enables us to understand that people with illness are shaped more by their human experience than by the pathophysiology of their disease.³⁶ Our vivid lives outside of work give us the insight to appreciate our patients’ capacity to suffer and heal in the face of surgical illness. □

References

1. Fischer JE. Continuity of care: A casualty of the 80-hour work week. *Acad Med.* 2004;79(5):381-383.
2. Franzese CB, Stringer SP. The evolution of surgical training: Perspectives on educational models from the past to the future. *Otolaryngol Clin North Am.* 2007;40(6):1227-1235.
3. Fuhrman GM, Orr R, Dunn E, et al. An assessment of university versus independent general surgery program graduate performance on the American Board of Surgery examinations. *J Surg Educ.* 2007;64(6):346-350.
4. Osler W. The student life. *Med News.* 1905;87:626.
5. Sheldon GF. Surgical workforce since the 1975 study of surgical services in the United States: An update. *Ann Surg.* 2007;246(4):541-545.
6. Blaisdell FW. Changes in county hospitals during Sheldon’s tenure. *Am J Surg.* 2003;185(1):30-34.
7. Wallack MK, Chao L. Resident work hours: The evolution of a revolution. *Arch Surg.* 2001;136(12):1426-1431.
8. Asch DA, Parker RM. The Libby Zion case. One step forward or two steps backward? *N Engl J Med.* 1988;318(12):771-775.
9. Brensilver JM, Smith L, Lyttle CS, et al. Impact of the Libby Zion case on graduate medical education in internal medicine. *Mt Sinai J Med.* 1998;65(4):296-300.
10. Whetsell JF. Changing the law, changing the culture: Rethinking the “sleepy resident” problem. *Ann Health Law.* 2003;12(1):23-73.
11. Barone JE, Ivy ME. Resident work hours: The five stages of grief. *Acad Med.* 2004;79(5):379-380.
12. Horowitz C. The doctor is out. *New York Magazine.* October 27, 2003. Available at: http://nymag.com/nymetro/health/features/n_9426/. Accessed March 30, 2009.
13. Ayas NT, Barger LK, Cade BE, et al. Extended work duration and the risk of self-reported percutaneous injuries in interns. *JAMA.* 2006;296(9):1055-1062.
14. Barger LK, Cade BE, Ayas NT, et al. Extended work shifts and the risk of motor vehicle crashes among interns. *N Engl J Med.* 2005;352(2):125-134.
15. Irani JL, Mello MM, Ashley SW, et al. Surgical residents’ perceptions of the effects of the ACGME



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- duty hour requirements 1 year after implementation. *Surgery*. 2005;138(2):246-253.
16. Fletcher KE, Underwood W III, Davis SQ, et al. Effects of work hour reduction on residents' lives: A systematic review. *JAMA*. 2005;294(9):1088-1100.
 17. Whang EE, Mello MM, Ashley SW, et al. Implementing resident work hour limitations: Lessons from the New York State experience. *Ann Surg*. 2003;237(4):449-455.
 18. Hutter MM, Kellogg KC, Ferguson CM, et al. The impact of the 80-hour resident workweek on surgical residents and attending surgeons. *Ann Surg*. 2006;243(6):864-871.
 19. Bland KI, Stoll DA, Richardson JD, et al. Brief communication of the Residency Review Committee-Surgery on residents' surgical volume in general surgery. *Am J Surg*. 2005;190(3):345-350.
 20. Lerner LB, Stolzmann KL, Gulla VD. Birth trends and pregnancy complications among women urologists. *J Am Coll Surg*. 2009;208(2):293-297.
 21. Sonnad SS, Colletti LM. Issues in the recruitment and success of women in academic surgery. *Surgery*. 2002;132(2):415-419.
 22. Schroen AT, Brownstein MR, Sheldon GF. Women in academic general surgery. *Acad Med*. 2004;79(4):310-318.
 23. Freischlag JA. Invited commentary: Some things cannot be delegated. *J Am Coll Surg*. 2009;208(2):297-298.
 24. Williams C, Cantillon P. A surgical career? The views of junior women doctors. *Med Educ*. 2000;34(8):602-607.
 25. Hoover EL. Mentoring women in academic surgery: Overcoming institutional barriers to success. *J Natl Med Assoc*. 2006;98(9):1542-1545.
 26. Flannery AM. Success, women, and academic surgery. *Surgery*. 2002;131(6):670-671.
 27. Pearsall P. Toxic success and the mind of a surgeon. *Arch Surg*. 2004;139(8):879-888.
 28. Colletti LM, Mulholland MW, Sonnad SS. Perceived obstacles to career success for women in academic surgery. *Arch Surg*. 2000;135(8):972-977.
 29. Campbell DA Jr, Sonnad SS, Eckhauser FE, et al. Burnout among American surgeons. *Surgery*. 2001;130(4):696-702.
 30. Harms BA, Heise CP, Gould JC, et al. A 25-year single institution analysis of health, practice, and fate of general surgeons. *Ann Surg*. 2005;242(4):520-526.
 31. Humphrey N. Tireless "Tarp"—John Tarpley serves as beacon for residents, students. *Vanderbilt Med Center Reporter*. January 25, 2002.
 32. Kass RB, Souba WW, Thorndyke LE. Challenges confronting female surgical leaders: Overcoming the barriers. *J Surg Res*. 2006;132(2):179-187.
 33. Orrom WJ. Achieving balance in a surgical life: A personal perspective on a Sisyphus task. *Am J Surg*. 2008;195(5):557-564.
 34. Powell A. Cutting new paths to careers in surgery. *Harvard Gazette*. November 16, 2006.
 35. Cameron JL. William Stewart Halsted: Our surgi-

- cal heritage. *Ann Surg*. 1997;225(5):445-458.
36. Pearson AS, McTigue MP, Tarpley JL. Narrative medicine in surgical education. *J Surg Educ*. 2008;65(2):99-100.

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