

ACS PROMOTES

THE SIX COMPETENCIES

OF THE ACCREDITATION
COUNCIL FOR GRADUATE
MEDICAL EDUCATION

by B. J. Palmer, MD;
Victor Stams, MD;
Thomas R. Russell, MD, FACS;
Alden H. Harken, MD, FACS;
and L. D. Britt, MD, FACS

As a boy, Charles Darwin had everything. His wealthy, accomplished, and aristocratic parents not only provided him with superb genes but also bathed him in every conceivable educational opportunity. Yet Charles famously failed sequentially at medicine, the law, and at religious ministry. By age 19, he was floundering. He and his prodigiously provident parents were incapable of matching his abilities to any constructively respectable profession or vocation. In 1831, the Electronic Residency Application Service did not exist. The assessment strategies available to channel promising youth into productive professions were in their infancy.

But in the fall of 1831 Captain Robert FitzRoy received a commission from the Royal Navy to chart the coastal shoals of South America in the HMS *Beagle*. He was offered the option of recruiting an intellectually stimulating companion. Captain FitzRoy interviewed several applicants. The captain was an enthusiastic phrenologist. Charles Darwin was not his first choice. Ultimately, he did select Darwin because he approved of the pattern of the bumps on Charles' head. In retrospect, who among us could or would challenge FitzRoy's decision? In the rich panoply of fortuitous scientific events ultimately shaping the intellectual fabric of our times, FitzRoy's decision was a successful lunar landing and a World Series grand slam home run all rolled into one. So, as surgical residency program directors, are we doing it wrong?

The purposes of this article are to examine the competencies essential to the successful maturation of a surgical resident, to examine the tools available in assessing these competencies, and to review potential strategies for enhancing a resident's and established surgeon's (such as FACS) abilities within these competencies.

The Accreditation Council For Graduate Medical Education (ACGME) has identified six essential competencies and we are comfortable working within this constructive framework.

I. Basic knowledge

As students, we all typically begin with the assumption that medicine and surgery exist as a body of knowledge. Acquire that knowledge

and you are done. Daniel Boorstin, in his book, *The Seekers*, notes that we will always live in that dynamic interval between the authoritative past and the unknowable future.¹ Historically, we have accepted knowledge as derived from a higher authority—the Old Testament, Holy Writ, a prophet, the department chair, the residency program director, or the omniscient chief resident. We can, and should, seek our bearing from the vanished past. The static construct of the surgery textbook capably sets a descriptive stage delineating how things are; but Boorstin distinguishes man—and certainly the surgeon and surgical resident—as an “asking animal.” We want to know *why*. We encourage a surgical resident as residing intellectually within, not an Old, but a New, Testament of “good news” incorporating healthy protest, inquiry, and reform.

We live in an age of molecular medicine. We accept that the genetic recipe within our patients' cells obligates the assembly of proteins that dictatorily conspire to create cellular life. We comfortably ignore the idea that purchasing exactly the same trillions of atoms from an internet chemistry catalog would result in a desultory and frustratingly lifeless mound of chemicals. The lipoproteins that critically establish our cellular membranes probably don't even care that we exist. So, as physicians and surgeons, we are looking at patterns. And the truly miniscule differences in the biochemical patterns of happy, healthy cells versus diseased patients are often too small to measure.

Additionally, the parameters that we have traditionally chosen to measure may not be reflective of cellular health. For instance, 99.9 percent of the genes that encode Mrs. O'Flaherty with pancreatic cancer are not just similar—they are identical—to the molecular make-up of Mrs. Wilson with the ankle fracture. It is easy to conclude that genes don't count.² This is where the natural science of surgery morphs into an art. It is undeniable, however, that the patterns presented in a surgical textbook, like the American College of Surgeons' textbook of surgery,³ fundamentally form the foundation of surgical judgment.

Strategies to enhance textbook knowledge of surgery are appropriately diverse. We all learn differently. The admonition to “read more” is

comparably instructive as mom's hapless homilies to "get rest," "eat right," and "be careful." Similarly, we have all read a chapter or attended a lecture and come away unscathed. Alternatively, it is hard to author a manuscript or give a lecture without learning something. A "cyber journal club" encourages residents to critique a selected surgical study on their own time and online. Surgical residents are sufficiently competitive that they rise to the challenge of presenting a five-minute "basic science" introduction to surgical grand rounds.

Assessment of basic knowledge is harder. The components of the MEN II Syndrome can be tested—there are correct answers—but the information is frequently not relevant. Conversely, management of everyday breast lump is too controversial to divulge its intricacies following an attack by a multiple-choice examination. Several assessment strategies gratifyingly combine acquisition and assessment of knowledge.

The American Board of Thoracic Surgery re-certification examination presents multiple-choice questions online.⁴ After selecting one, the examinee is referred to a page of instructive text and then offered the opportunity to answer the initial question again. A correct answer permits you to proceed. Most thoracic surgeons require 70 to 100 hours to complete the recertification process. But everyone learns—and wins. The American College of Surgeons SESAP (Surgical Education and Self-Assessment Program) learning tour successfully accomplishes a similar knowledge acquisition/assessment process.⁵

Finally, the American Board of Surgery (ABS) In-Training Examination (ABSITE) serves as a formidable stimulus to study. Some surgical residency programs mandate ABSITE success as a condition of resident progression through the training program. The correlation between ABSITE performance and success on the ABS qualifying examination is frighteningly close.

II. Clinical competence

Just as the trillions of elemental atoms that together precisely conspire to create Mrs. O'Flaherty are nothing but a chaos of chemicals when acquired from a chemistry catalog, a rich assemblage of textbook data does not guarantee

clinically successful and compassionate patient care. Surgical therapy, when applied at the right time for the right patient by a skillful practitioner, can be gratifyingly effective. Unfortunately, the converse is also true.⁶ To no one's surprise, a really sick patient tolerates surgical stress less well than a world-class triathlete. To everyone's surprise, the surgical community never thought to factor this into preoperative assessment until the American Society of Anesthesiologists (ASA) developed their practical ASA classification system 50 years ago.⁷

As surgeons, our procedural morbidities and mortalities are now being tracked and as "pay for performance" evolves, the significance of these data will soon assume formidable proportions. Surgical residents must not only catalog all of their operative cases, but must learn to risk-stratify their procedures such that a 5 percent mortality suffered in a series of Supreme Court justices may compare favorably to a 2 percent mortality with the rugby team who present with identical injury severity scores. Thus, surgical residents must accept the dictum espoused in St. Augustine's *City of God*⁸ (Civitas Dei or the Holy Writ from the textbook and the program director) but this must be filtered through the lens of the "earthly city" (Civitas Terrena or the empirical, risk-stratified, results of direct patient care). In other words, the textbook must always be related to the uniqueness of the patient—and it never precisely fits.

III. Interpersonal skills

There may be some disciplines within medicine that do not obligate teamwork, but surgery is emphatically not one of them. A surgeon is absolutely dependent upon everyone from the telephone operators and ward secretary to the anesthesiologist and the scrub nurse. It is surprisingly easy to encourage these people to work together because everyone wants to play on a winning team. Unlike the law, or even business, where there are necessarily both winners and losers, with surgery, either everyone—most of all, the patient—wins, or everyone loses. A mature surgeon, almost instinctively, knows that wins must be shared, while the surgeon himself or herself must personally shoulder defeat. This

policy is most effective when the surgeon accepts full responsibility for a misadventure that was clearly not his or her fault. Perhaps paradoxically, acceptance of blame will enhance the surgeon's stature, and will never be forgotten.

Teaching and monitoring interpersonal skills is more difficult. The province of Alberta, Canada, formally practices a 360-degree review process in which patients, secretaries, nurses, and colleagues are encouraged to comment on the personal manner of all physicians. More than 1 million encounters have now been catalogued. Compassionate and sensitive outliers are visited to assess strategies for success. Less competent outliers are also approached with the offer of remediation. In similar fashion, the airlines encourage pilots and first officers to identify colleagues with whom they would like to work or like to avoid in the cockpit. Again, both ends of the spectrum are constructively reviewed.

As a junior resident, your primary responsibilities are data gathering on individual patients. The big jump to senior residency encompasses responsibility for the whole team. These are very different skills. And, with disturbing frequency, residents thrive at the former and stumble as seniors. Surgical residency programs that raise team building and interpersonal skills to the level of senior resident consciousness will more likely succeed. The American College of Surgeons runs both an Interpersonal Skills and Surgeon Leadership Course⁹ and a Surgeons As Educators course.¹⁰ Both courses have proven to be popular and effective.

On August 9, 1941, U.S. President Franklin Delano Roosevelt arrived off Newfoundland aboard a large Navy cruiser. He met British Prime Minister Winston Churchill, who approached aboard the HMS *Prince of Wales*. The purpose of this risky venture was to meet personally (for only the second time) and establish a friendship. They did. The construct of the Second World War and ultimately the democratic visions and future of the world hung in the balance. Churchill would later observe: "Friendship among nations, as among individuals, calls for constructive efforts to muster the forces of humanity in order that an atmosphere of close understanding and cooperation may be cultivated."¹¹

The "mustering of the forces of humanity" in order to establish a cohesive team is pivotal to the success of a surgeon. An ability to communicate must be actively nurtured during surgical residency. Opportunities to present ideas persuasively at conferences and grand rounds can be organized and amplified. The ability to establish "an atmosphere of close understanding and cooperation" routinely trumps basic knowledge and is completely subsumed within clinical care.

For a surgeon, interpersonal skills are not simply a matter of life or death, success or failure, nor just the salvation of your country and world—they are much more important than that.

IV. Professionalism

As professionals, society permits us a monopoly on a body of knowledge. In return, our community logically mandates that we use our skills altruistically and charges us with the responsibility of self-regulation.^{12,13} The imprint of altruism within the confines of professionalism appropriately instills an anthropomorphic ring to our activities. Yet, during the 17th and 18th centuries, we ceased our focus on salvation from God and began seeking sovereignty over nature. We continue to worry that we might not grasp the whole picture, however. Hamlet warned his skeptical friend: "There are more things in heaven and earth, Horatio; than are dreamt of in your philosophy."¹⁴ But, by the mid-eighteenth century, Alexander Pope was sufficiently comfortable with this domination of the natural sciences that he codified it in verse:

Know then thyself, presume not God to scan;
The proper study of mankind is man.¹⁵

In addition, Dr. Martin Luther King, Jr., fortunately and famously refocused the spirit of altruism within professionalism when he observed, "An individual has not started living until he can rise above the narrow confines of his individualistic concerns to the broader concerns of all humanity."¹⁶ There is huge overlap between "interpersonal skills" and "professionalism." For the surgeon, the synergy of these competencies is paramount.

For example, F. Dean Griffen, MD, FACS, re-

cently reviewed “closed claims” or nonfrivolous malpractice lawsuits in which there probably really was a surgeon-related problem.¹⁷ Dr. Griffen empaneled six clinically active general surgeons who meticulously reviewed the charts and records of 490 cases decided against the surgeon. Over and over again, the panel concluded that neither “basic knowledge” nor “clinical practice” were wanting in the surgeon. In almost 70 percent of instances, “professionalism” was the competency that was breached. So, if you want to stay out of trouble—stay professional.

Almost all surgeons cherish their professionalism. It is the rewarding and gratifying glue that links us to our patients and their families. Transgressions are rare. There are predictable speed bumps, however. When we are tired, most of us get grumpy, and when we are grumpy we sometimes act in ways that we wish we hadn't. As a response, the Professionalism Task Force within the Division of Education of the American College of Surgeons has produced a professionalism CD (*Professionalism in Surgery: Challenges and Choices, 2nd Edition*). The CD presents clinically relevant vignettes that exhibit 24 painfully frequent ways to ambush professionalism. These are common hurdles encountered by all surgeons. The goal is not to identify and weed out the less than 1 percent of surgeons who fundamentally lack professionalism. The purpose of the exercise is to red-flag predictable pressure points and raise them as warnings to the level of consciousness. Individual or group review of these vignettes invariably generates vigorous and constructive discussion. The Surgery Residency Review Committee now mandates a curriculum in professionalism. Formal review of the ACS CD qualifies as a curriculum.

Perhaps the most compellingly successful strategy for enhancing surgical professionalism, however, was devised by one of our colleagues. In an unpublished study, residents at the University of California-San Francisco, East Bay, were encouraged to record and present instances of positive professionalism. During the first week, two instances were identified. By the fourth week we were up to 25. We are convinced that asking the question constructively amplified the answer.

V. Patient-based learning

Surgeons are not very patient. We chose surgery because we want something to happen. Surgery is not specific to a skin incision. The distinguishing attribute of a surgeon is that we are capable of proceeding with therapy before we are absolutely certain of what is going on. We have all encountered the hypotensive trauma victim who might have a liver laceration, or the septic and dwindling intensive care unit patient who might have an occult intra-abdominal abscess. In these instances, the only strategy that is wrong is to do nothing. Surgery is a discipline of commission—not omission. As surgeons, we are viscerally capable of proceeding with therapy before we have all the facts. We understand that waiting is not an alternative. So, we make errors. Mature and appropriately compassionate analysis of error is “patient-based learning.”

The morbidity and mortality conference is a formidable opportunity to learn. The clinical experiences examined are not sterile and impersonal stuff from a textbook—they have familiar faces, names, and families. We all like to think that we practice evidence-based medicine, but the educational impact of a recent clinical misadventure, when analyzed and reviewed thoughtfully, can burn its way into our memory banks forever. And this personally painful process is predictably more instructive than a Cochrane analysis.

The morbidity and mortality process is, in itself, a high-risk exercise. Fear and intimidation can be formidably undermining of the educational opportunity. Nelson Mandela quotes Marianne Williamson because he knows that she captured the concept:

It is our light not our darkness that most frightens us.

Our deepest fear is not that we are inadequate. Our greatest fear is that we are powerful beyond measure.¹⁸

We all make errors. Careful analysis of an error is the most effective antidote to a repeat performance. Conversely, misallocation of responsibility almost guarantees future trouble. It is instructive for a senior surgeon—preferably the residency program director or department

chair—to present a personal error with regular frequency. Making an error is acceptable; repeating that error is not. Senior surgeons still make errors. By analyzing these errors we continue to learn, and we learn how to learn. As surgeons, when we stop learning, we become progressively dangerous. Recurrent themes are that communication can always be enhanced, and “calling for help” is a sign of maturity, not weakness. Again, Marianne Williamson recognizes this capacity of the senior surgeon:

As we let our light shine
We unconsciously give other people
Permission to do the same¹⁸

VI. Systems-based learning

At 30,000 feet, when you respond to the request, “Is there a doctor on this plane?” you rapidly realize and appreciate extraordinary support systems that typically surround us in our hospitals. In the absence of those familiar high-tech aids, you abruptly feel technologically nude. Conversely, when you visit a clinically busy surgical team, everyone knows their role and the procedure flows with grace and elegance, almost like a ballet. It is quiet. The resuscitative success of a Code Blue-CPR event is, for instance, always inversely related to the decibels and to the number of participants in the room. Each of these are “systems” issues. With frightening frequency we tolerate even dangerous systems problems because we fail to recognize them. When the bottles of succinyl choline and Vancomycin have the same blue labels and look alike, that is a systems problem. When the surgeon marks the operative site with a water-soluble pen that is easily erased with the surgical prep, that is a systems problem. And when the anesthesiologist who “pre-ops” the patient is different from the anesthesiologist who conducts the case, that is a systems problem. Some of these hurdles have been solved ingeniously. But these systems issues pop up all the time. It is easy to blame the trauma surgeon or the surgical resident for giving succinyl choline instead of Vancomycin. Blame is rarely a productive educational strategy. A culture of blame promotes the generation of self-preservational defensive

strategies, not patient care solutions. Again, the senior surgeon can, and must, take the lead in visibly seeking systems solutions as opposed to individual blame.

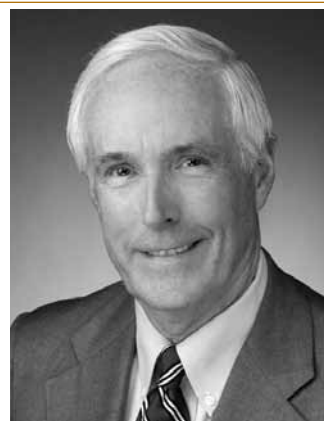
Dr. Palmer is a surgical resident, University of California–San Francisco–East Bay, Oakland, CA.




Dr. Stams is a surgical resident, University of California–San Francisco–East Bay, Oakland, CA.



Dr. Russell is Executive Director of the College.



With the previously mentioned strategies of encouraging, stimulating, and assessing the maturation of surgical residents, it might be easy to assume an ease of homogeneous surgical resident production incorporating cookie-cutter technology and efficiency. But diversity is paramount.¹⁹ Like species, disciplines evolve. Whatever we do and however we practice surgery today, it is a certainty that the discipline of surgery 10 and 20 years from today will build on similar aptitudes, but very different skills. 99.99 percent of all the species that have existed since life in this world began are now extinct.²⁰ An emerging surgical resident must be educationally agile. The most valuable asset a resident can acquire, or faculty can teach, is the capacity to learn how to learn. 

References

- Boorstin DJ. *The Seekers. The Story of Man's Continuing Quest to Understand His World*. New York: Random House; 1998.
- Shames BD, Selzman CH, Meng X, et al. Genes don't count. *Arch Surg*. 1998; 133:667-669.
- Souba WW, Fink MP, Jurkovich GJ, et al, eds. *ACS Surgery: Principles & Practice, 6th Edition*. New York, NY: WebMD Inc.; 2007. ACS Surgery Online (2008) www.acssurgery.com. Accessed March 2009.
- American Board of Thoracic Surgery Web site. Available at: <http://www.abts.org/>. Accessed March 2009.
- Surgical Education and Self-Assessment Program (SESAP), 13th edition. Available at: http://www.facs.org/fellows_info/sesap/sesap.html. Accessed March 2009.
- Harken AH. Enough is enough. *Arch Surg*. 1999; 134(10):1061-1063.
- American Society of Anesthesiologists. Physical Status Classification System. Published annually (January 6, 2009). Available at: <http://www.asahq.org>. Accessed June 4, 2009.
- O'Daly JP. *Augustine's City of God: A Reader's Guide*. New York, NY: Oxford University Press; 1999.
- Surgeons As Leaders: From Operating Room to Boardroom. Available at: <http://www.facs.org/education/surgeonsasleaders.html>. Accessed January 6, 2008.
- American College of Surgeons, Division of Education, 15th Annual Surgeons As Educators Course. Available at: <http://www.facs.org/education/sre/saeintro.html>. Accessed January 6, 2008.
- Meacham J. *Franklin and Winston: An Intimate Portrait of an Epic Friendship*. New York, NY: Random House; 2003.
- ACS Task Force on Professionalism. Code of Professional Conduct. *J Am Coll Surg*. 2003;197:605-608.
- Barry L, Blair P, Cosgrove E, et al. One year, and counting, after publication of our ACS "Code of Professional Conduct." *J Am Coll Surg*. 2004;199:736-740.
- Shakespeare W. *Hamlet*. Act I, scene V, line 166.
- Pope, A. (1734). *An Essay on Man. Address'd to a Friend*. Part I. Epistle II. Facsimile Edition, Menston: Scolar Press, 1969. Available at: <https://tspace.library.utoronto.ca/html/1807/4350/poem1638.html>. Accessed May 29, 2009.
- Available at: http://www.brainyquote.com/quotes/authors/m/martin_luther_king_jr.html. Accessed January 6, 2009.
- Griffen FD. ACS closed claims study reveals critical failures to communicate. *Bull Am Coll Surg*. 2007;92(1):11-16.
- Williamson M. *A Return to Love: Reflections on the Principles of a Course in Miracles*. New York, NY: HarperCollins; 1992.
- Bernstein, AS, Ludwig, DD. The importance of biodiversity in medicine. *JAMA*. 2008; 300:229.
- Bryson W. *A Short History of Nearly Everything*. New York, NY: Broadway Books; 2003.

Dr. Harken is professor and chair, department of surgery, University of California—San Francisco—East Bay, Oakland, CA.



Dr. Britt is Brickhouse Professor and chair, department of surgery, Eastern Virginia Medical School, Norfolk, VA, and Chair of the Board of Regents.

