



*Presidential
Address:*

**Achieving our
personal best**



**Back to the future of the
American College
of Surgeons**

by
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A STUDY IN
HOSPITAL EFFICIENCY

BY
S. A. LORRY, M.D.



I want to share a story about an extraordinary man, profoundly influential but flawed, visionary but, in his own words, quixotic—a surgeon whose story is woven into the fabric of our College through a century of improving the care of the surgical patient.



Dr. Codman

Editor's note: The following is an edited version of the Presidential Address that Dr. Warshaw delivered at the Convocation ceremony during the 2014 American College of Surgeons (ACS) Clinical Congress in San Francisco, CA.

It is with both pride and awe that I welcome you to this 100th Convocation of the Clinical Congress of the ACS, which is truly an international society of nearly 80,000 members. My journey to this podium has been propelled by talented colleagues and trainees, valued collaborators, and invaluable mentors. President [Carlos A.] Pellegrini, you have been a leader worthy of being followed. I hope I have learned from you and our predecessors as ACS Presidents and that I will represent our College wisely, as you have done.

I owe much to my family, who tolerated and supported my absences in the interest of my patients, and especially to Brenda, my wife of three decades, on whose constant support I have depended. Brenda, thank you.

But this is your night, new Fellows. I know that your family, teachers, and mentors are justly proud of you, just as I take personal pride in those among you in whose progress I have had a hand. Now is your time to put your hard work and preparation to use, to become your personal best. The door is opening to your future.

Visionary surgeon

In this first year of the second century of the ACS, let us revisit our beginnings. I want to share a story about an extraordinary man, profoundly influential but flawed, visionary but, in his own words, quixotic—a surgeon whose story is woven into the fabric of our

College through a century of improving the care of the surgical patient.

Ernest Amory Codman, MD, FACS, who preferred to be called “Emory,” had a privileged upbringing in Boston, MA. He was what some term a “Preparation H.” He was a graduate of Harvard College and Harvard Medical School (HMS), trained at a Harvard institution, Massachusetts General Hospital (MGH), and had an appointment at HMS and MGH—at least for a while.

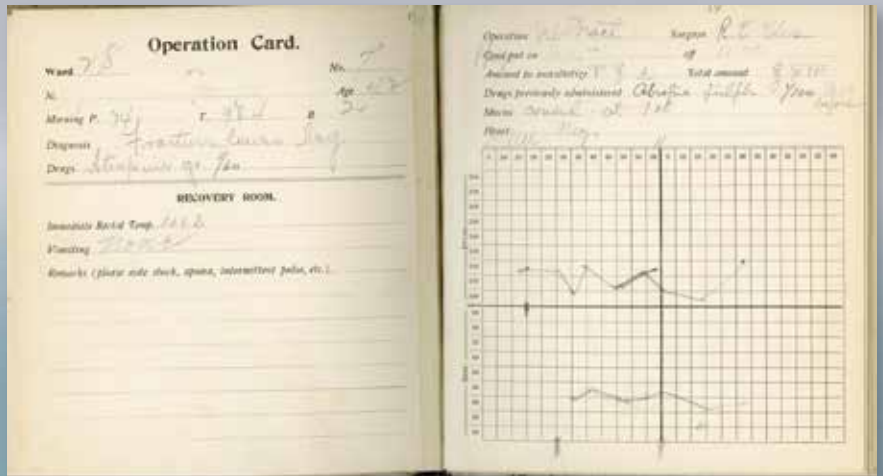
As a medical student in 1895, Dr. Codman and his classmate, Harvey Cushing, MD, FACS, later a renowned neurosurgeon, witnessed a fatal outcome from the administration of ether anesthesia, which had been introduced at MGH 50 years earlier. To provide data to ensure the safety of their patients, they began to record pulse, respiratory rate, and blood pressure when this anesthesia was used. These “ether charts,” now residing in the HMS Countway Library of Medicine, were the first anesthesia records and have contributed to saving many thousands of lives.

The following year, Dr. Codman began to experiment with the newly introduced X rays to study anatomy. This experience led to his appointment in 1899 as “skiagrapher” (radiologist) at Boston Children’s Hospital and was the foundation of his extensive studies of bone and joint diseases, which culminated in his classic book, *The Shoulder: Rupture of the Supraspinatus Tendon and Other Lesions In or About the Subacromial Bursa*, in 1934.

Dr. Codman’s biggest contribution, however, was what he called “The End Result Idea.” This concept centered on the common-sense notion that every hospital and every surgeon should follow every patient



Dr. Cushing



An operation card with an ether chart

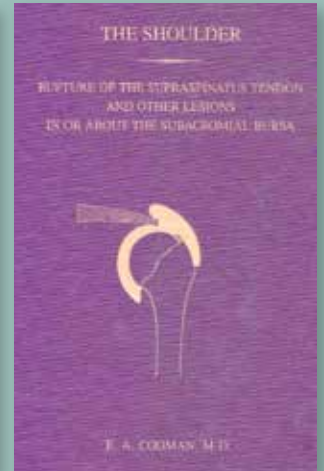
long enough to determine whether the treatment was successful, and to inquire, “If not, why not?” with a view to preventing similar failures in the future and to improving the efficiency of care—his term for effectiveness and quality.

Applying the End Result Idea

In 1911, he opened the tiny 12-bed Codman Hospital in Boston, near the MGH, to test his ideas. He kept records on every patient on 3 x 5 cards for a year. He rated the outcomes with absolute honesty: error in diagnosis, error in judgment, error in treatment, and so on. This process is the basis for the modern morbidity and mortality conference. In 1917, Dr. Codman published another book, *A Study in Hospital Efficiency: As Demonstrated by the Case Report of the First Five Years of a Private Hospital*—which contained the records of all 337 cases treated over five years at the Codman Hospital, good and bad results alike—and made it available free of charge to any member of the ACS. The book is a marvel of public reporting that would be difficult to replicate in today’s litigious environment. It is noteworthy that although these end results were for an individual surgeon, they were intended to serve as building blocks for improving the surgical profession. Presciently, he stated that “insurance companies, large industrial plants, and even the state may find that it will be less expensive in the long run to send patients



Study with X ray



Dr. Codman's book, *The Shoulder*

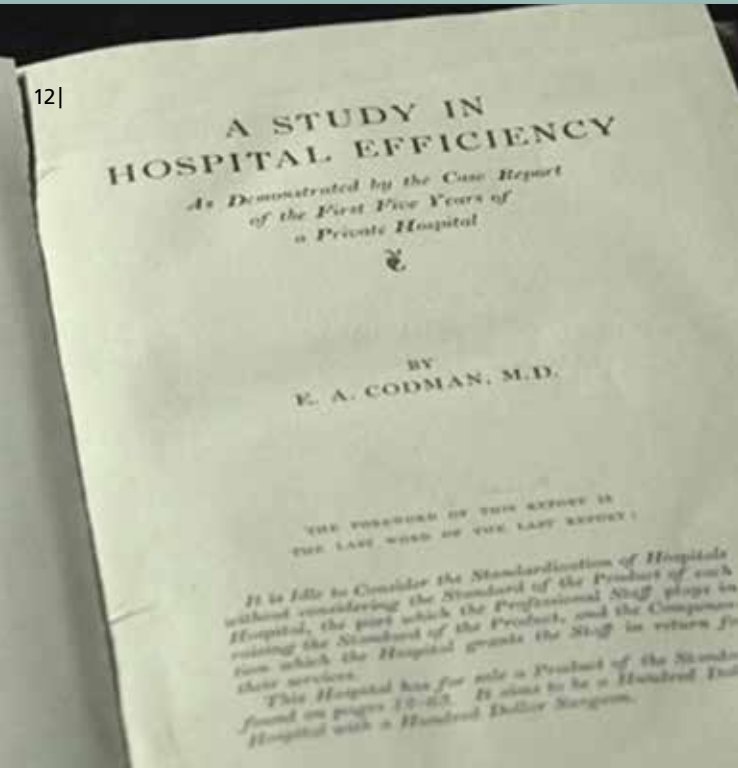
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The Codman Hospital

- All results of surgical treatment which lack perfection may be explained by one or more of these causes:
 - E-s: Lack of knowledge or skill
 - E-j: Lack of surgical judgment
 - E-c: Lack of care or equipment
 - E-d: Lack of diagnostic skill
 - P-d: Patient’s unconquerable disease
 - P-r: Patient’s refusal of treatment
- Acknowledged that mistakes or “calamities of surgery” occur and need to be studied to be prevented

Dr. Codman’s end-result system



A Study in Hospital Efficiency by Dr. Codman

to us.” In 1917, he wrote that evaluation and follow up, the core components of the End Result system, were a necessary precondition to the adoption of a national health insurance system—93 years before the Affordable Care Act was enacted.

In 1911, Dr. Codman and Edward Martin, MD, FACS, then President of the Clinical Congress of Surgeons of North America, discussed the formation of the ACS. Dr. Martin asked Franklin H. Martin, MD, FACS (no relation), to lead the ACS, and he asked Dr. Codman to form and chair its Committee on Standardization of Hospitals. That committee later evolved into the Joint Commission on Accreditation of Healthcare Organizations, now known as The Joint Commission. Expressing Dr. Codman’s priorities, Edward Martin wrote that “the tail—the end result idea—is more important than the dog—the ACS—but we shall have to have the dog to wag the tail.”¹¹

Dr. Codman felt strongly that the outcomes—the end results—of a surgeon’s practice, rather than seniority, should determine his or her promotion. This suggestion ran counter to the practice at MGH at the time, so it is not surprising that the senior surgical leadership did not take kindly to Dr. Codman’s suggestions that their outcomes be held up to



Dr. Codman with his end result files

scrutiny and criticism. Recounting that time, Dr. Codman wrote,

In order to attract the attention of the trustees of the MGH, I resigned from the staff in 1914 as a protest against the seniority system of promotion, which was obviously incompatible with the End Result Idea. On the day on which I received acceptance of my resignation, I wrote again asking to be appointed Surgeon-in-Chief on the ground that the results of treatment of my patients during the last 10 years had been better than theirs. Naturally, my letter was ignored, and I was not appointed Surgeon-in-Chief.¹

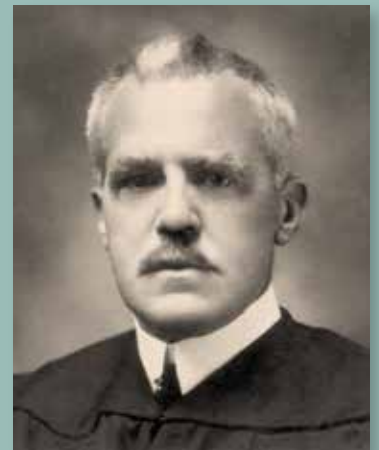
An offensive act

On January 6, 1915, Dr. Codman used his position as chairman of the surgical section of the local medical society to push his End Result Idea. At the conclusion of a slate of speakers on hospital efficiency, accurate measurement of outcomes, and standardization, Dr. Codman unveiled an six-foot cartoon drawn on brown paper. It depicted the medical community and the leaders of Harvard and MGH as caring only about the golden eggs being kicked to them by an ostrich with its head in the sand, and not about the facts that support optimal patient care.

Dr. Codman managed to offend just about everyone in the surgical and education community. He was forced to resign his chairmanship of the surgical



Dr. Codman



Dr. Martin



The infamous cartoon

section and was dropped from the Harvard Medical School faculty. Later that year, his reputation marred, he resigned his chairmanship of the Hospital Standardization Committee of the ACS. Despite these setbacks, he persisted and continued to speak out in support of the End Result Idea.

On December 6, 1917, there was a mammoth explosion of an ammunition ship in Halifax Harbor, QC. The explosion leveled much of Halifax, killed 3,000 people, and left more than 20,000 injured.² Dr. Codman immediately responded by closing his hospital and leaving Boston the next day with nurses and another surgeon to help those in need. Of course, he kept his end result cards on every patient over the succeeding months. Each year since, the City of Halifax remembers Dr. Codman's humanitarian help by sending an enormous Christmas tree to decorate a public plaza in Boston.

It strikes me that his action presaged another ACS program, Operation Giving Back, through which surgeons selflessly volunteer their skills in times of disaster as well as to address other unmet needs for surgical care among the medically underserved at home and abroad. Today, increasing numbers of medical students, surgical residents, surgeons, and surgical institutions like the ACS are recognizing and responding to these calls for help, not only for direct provision of treatment, but also for sustaining benefits through helping to develop the skills of local caregivers.

Shortly after that time in Halifax, Dr. Codman went off to serve in the U.S. Army during World War I. On returning to Boston in 1919, he was deeply in debt, had no hospital appointment, and was unable to reopen the Codman Hospital. In subsequent years, he struggled to make a living and support his family.

The ACS' first registry

In 1920, Dr. Codman became interested in the treatment of bone sarcoma, a condition about which little was then known. He circulated a letter to ACS Fellows requesting information about their cases for a clinical research database. Again ahead of his time, he explained, "By grouping cases into series large enough to favor comparative study and by observing definite previously determined points, a rational and clinical science can be developed."³ Initially disappointed with the lack of responses, he joined with James Ewing, MD, a New York, NY, pathologist, and Joseph Bloodgood, MD, FACS, a pathologist at Johns Hopkins University, Baltimore, MD, to develop a Registry of Bone Sarcoma, which was adopted as a standing committee of the ACS in 1921. This registry, the first cancer registry in this country, was a precursor to later ACS databases, such as the National Trauma Data Bank[®] and the National Cancer Data Base. Characteristically, Dr. Codman scolded the ACS Fellows for their apathy in a journal article in which he wrote, "The American College of Surgeons expects something more of its



Above and left: The Halifax Harbor explosion and its aftermath

Fellows than annual dues. It expects any Fellow who has undertaken the care of a case of bone sarcoma to give the other members of the College, and through them to the rest of the profession, the benefits of the experience gained.”⁴

Fellows, take heed of that injunction. We owe it to each other and to our patients to improve our profession actively and continuously, to increase knowledge, and to innovate when we can. Be involved in shaping the changes in health care delivery, in advocacy, and in giving back to society for the opportunities we have been given.

In subsequent years, Dr. Codman was slowly accepted back into the fold. The soil—organized medicine—was finally prepared to nurture the seed he had planted. He was reinstated at the MGH in 1929, and when he died in 1940 from melanoma, the MGH trustees paid Dr. Codman this tribute: “Champion of truth; original in thought; firm in his convictions and willing to sacrifice personal place and standing to achieve what he believed to be right. Mankind, medicine, and the Massachusetts General Hospital are his debtors.”⁵

Dr. Codman’s ashes were interred in his wife’s family plot in Mount Auburn Cemetery, Cambridge, MA. His wife, Katherine (Katy) Bowditch, part of a prominent Boston and MGH family, was active in the women’s suffrage movement and nursing education. Because of difficult financial circumstances at the time of his death, he instructed Katy not to spend money on a headstone, and for 74 years his ashes had lain in



The Halifax Christmas tree



The *Bulletin's* article on the registry of bone sarcoma



Dr. Codman with his wife, and in later years



an unmarked grave. I am pleased to report to you that our College, along with The Joint Commission, The American Shoulder and Elbow Society, and the Massachusetts General Physicians Organization, among others, led a successful campaign to design and create a fitting headstone for Dr. Codman. It was installed July 22 with appropriate recognition of his significant achievements on behalf of surgical standards.

Dr. Codman's legacy

So, what can we learn from Dr. Codman's career and his contributions—his end results? With a century's hindsight we see the strength of his pioneering ideas on quality based on a record of scientific truth, as he put it—on evidence, not eminence (see table, page 17). He asked if it was possible to standardize the treatment of disease or the work of individual members of hospital staffs. He answered, "Such standards can be established. The object of standards is to raise them."⁶ Good enough is not good enough. Dr. Codman can be considered the father of outcomes research, of process improvement in surgery, and, in fact, of quality as the driving force of ACS programs today.

But Dr. Codman's flaw was his tendency to excess and his intentionally disruptive personality. It is not sufficient to have a good idea. You must apply leadership to get others to buy into new concepts and programs. He failed to recognize that leading change requires developing consensus rather than






demanding it, and that change management should be rooted in the very data he collected, not blunt force. The cartoon he presented at a regional medical society meeting was simply the wrong way to achieve the change he desired. His lifelong friend, Dr. Edward Martin, wrote to him that "the wheels of progress must hurt and bruise someone, but the chariot should be drawn with some thought as to reducing to its minimum the crop of the crippled."¹

Dr. Codman came to peace with his failings in the end. He said, "If the prophet is confident of the value of his service, he may keep his equanimity in spite of the jeers of his contemporaries. Although the End Result Idea may not achieve its entire fulfillment for several generations, I hope to be as content when dying as any soldier of the battlefield."⁶ He added, "The man who may be called unselfish works for the next generation and necessarily cannot be paid for it—except in honor."¹ Yogi Berra, the baseball star and humorist philosopher, said, "It's tough to make predictions, especially about the future."⁷ Dr. Codman did predict the future—fought for it and paid for it.

Is a Codman among you?

But Dr. Codman's vision has not yet been fully reached. We have registries, such as the ACS National Surgical Quality Improvement Program; guidelines for efficient and appropriate care; and statistics

DR. CODMAN’S “END RESULTS”

Year	Codman’s contributions	An “end result”	Institution
1895	Ether charts	Anesthesiology	
1896	X-rays of anatomy	Radiography	
1910	Plan for 1913 Clinical Congress	American College of Surgeons	
1911–1917	Codman Hospital	Outcomes research	Codman Center 
1912	Committee on Standardization of Hospitals	JCAHO	
1917	Halifax explosion response	Operation Giving Back	
1921	Registry of Bone Sarcoma	ACS Registries	

on outcomes for hospitals, practices, and disciplines. However, measurement science is still short of an established methodology to assess the outcomes of most individual surgeons, as Dr. Codman did piecemeal for himself.

To that end, the ACS has initiated the Surgeon Specific Registry (SSR) for each surgeon to record and assess the outcomes of his or her cases, which is a step in the right direction. I urge each of you to use the SSR to gain insights into your own practices. In addition, evaluations by patients, such as the Consumer Assessment of Healthcare Providers and Systems survey tool for surgery, assess those outcomes that are important to these individuals, which is a key component in determining appropriate care.

In the end, it is up to each of us to measure, track, and improve our own end results and to achieve our personal best. This should be our message to legislators, insurers, the public, and especially to ourselves. In Dr. Codman’s words, “If not, why not?” If not us, who?

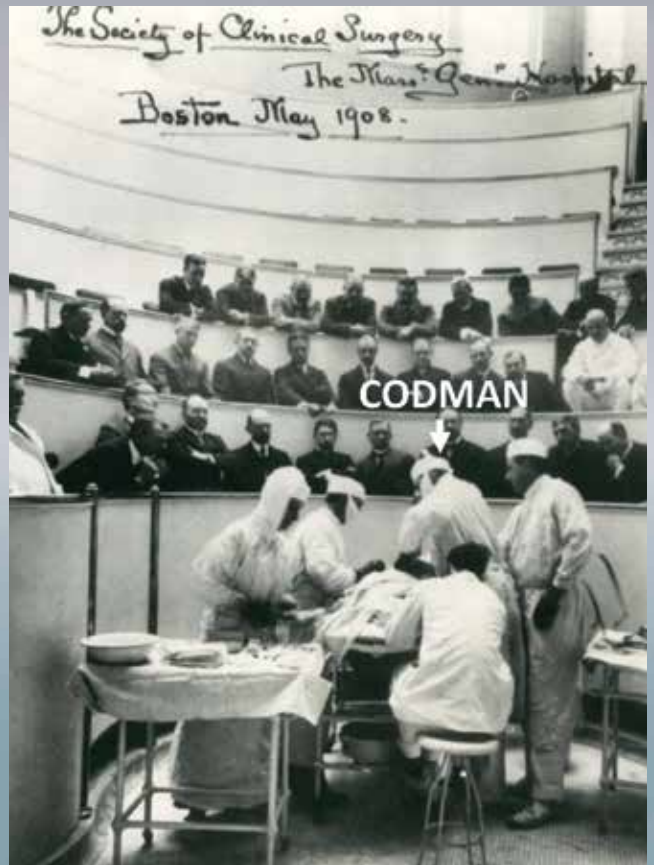
Unbeknownst to us when my class of Initiates, the class of 1974, sat in your seats, there were six

future ACS Presidents among us, as well as innovators, scientists, and great clinical surgeons. There are those among you who will be tomorrow’s contributors and leaders. Every one of you will bring lifesaving and health-restoring care to patients around the world. You will bring new ideas, new techniques, new skills, and new compassion to those who need your help.

The Stone Age did not end because they ran out of stones. Something better replaced it. The field of surgery is changing. In this class of 1,640—one of the largest groups of Initiates ever—more are women (22 percent) and more are international medical graduates (26 percent) from 61 countries, than in any previous class. Most of you are likely to be employed by a hospital, group practice, medical school, or health care system. Teams and multidisciplinary care are superseding the lone surgeon. Minimally invasive surgical technologies are changing how surgery is practiced, while simulation is changing how surgery is taught. Health care delivery systems are coalescing rapidly. New organs are being tissue engineered, and DNA is being rebuilt to cure and prevent disease. The potential to heal is ever growing.



The headstone for Dr. Codman that was installed this year



The Society of Clinical Surgery at MGH, May 1908

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Change is the only constant. Don't be afraid of it. Embrace and foster change. Take risks—thoughtfully.

You are accomplished surgeons today. You have studied, struggled, and worked to wear the robes you have on, the robes of an ACS Fellow. But if you don't continue to improve and evolve, tomorrow you will remain the surgeon you are today—no better. Good enough is not good enough. Is there a Codman among you?

I wish for you good luck and success, but I wish from you clear sight for your future excellence, hard work for your patients and our profession, and forthright leadership on whatever path you choose. My generation will be passing the baton—symbolized by this Great Mace of the American College of Surgeons—to yours. Carry it forward proudly. Be your best. ♦

REFERENCES

1. Codman EA. *The Shoulder: Rupture of the Supraspinatus Tendon and Other Lesions In or About the Subacromial Bursa*. Boston, MA: Thomas Todd Co; 1934.
2. Bird MJ. *The Town That Died: The True Story of the Greatest Man-Made Explosion Before Hiroshima—A Chronicle of the Halifax Disaster*. McGraw-Hill Ryerson; 1967.
3. Codman EA. The registry of cases of bone sarcoma. *Surg Gynecol Obstet*. 1922;34:335-343.
4. Codman EA. The method of the procedure of the registry of bone sarcoma. *Surg Gynecol Obstet*. 1924;38:713.
5. Kowalczyk L. Honoring a once-scorned voice for medical openness. *Boston Globe*. July 21, 2014. Available at: <http://www.bostonglobe.com/lifestyle/health-wellness/2014/07/20/mass-general-raises-money-for-memorial-for-ground-breaking-surgeon-once-shunned/40e5gbGJxCdbfj1UPVidUK/story.html>. Accessed October 9, 2014.
6. Codman EA. *A Study in Hospital Efficiency: As Demonstrated by the Case Report of the First Five Years of a Private Hospital*. Boston, MA: Thomas Todd Co; 1918–1920.
7. The perils of prediction. *The Economist*. May 31, 2007. Available at: <http://www.economist.com/node/9253918>. Accessed October 9, 2014.