Trauma: Still the Cornerstone of Acute Care Surgery Specialty

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The American College of Surgeons has had a long and fruitful journey. Strong and visionary leadership has been responsible for establishing the great legacy of the College. One such leader was Dr Charles Locke Scudder. You can imagine that hearing that I had been selected to be the 2017 Scudder Orator was surprising, humbling, and of course, a tremendous honor.

A defined specialty, acute care surgery is the embodiment of 3 components: trauma, critical care, and emergency general surgery. The title of this Scudder Oration, "Trauma: Still the Cornerstone of Acute Care Surgery Specialty," was spawned because of the observed confusion of some that, perhaps, trauma would be supplanted by this emerging specialty and the frank paranoiac duplicity demonstrated by a few individuals when they erroneously reference this specialty as "trauma and acute care surgery." In an effort to clarify any controversy and dispel such duplicity, unveiling a historical perspective or backdrop for such a theme for the 2017 Scudder Oration would be appropriate (Figure 1).

The fertile soil for the formation and development/growth of trauma and the ultimate evolution was mostly provided by 2 organizations: The American College of Surgeons (ACS) and the American Association for the Surgery of Trauma (AAST). The American College of Surgeons (established in 1913) was antedated by both Clinical Congress (1910) and what would be its publication organ, *Surgery, Gynecology & Obstetrics* (SG&O) (1905). The Nickerson and Murphy buildings (Figure 2), along with a separate facility for the *SG&O* journal, were the early building structures for the American College of Surgeons. The founder and, essentially, the chief executive officer was Dr Franklin Martin, who expertly shepherded the advancement of the American College of Surgeons.

On day 1 (even before the official inception of the American College of Surgeons [ACS]), there was an unwavering emphasis on quality and a resistance against anything that would detract or adversely alter optimal patient care. In addition to initiating a process for the standardization of hospitals (which led to the birth of what is now The Joint Commission), the College, in 1922, established the Committee on Treatment of Fractures, in order to emphasize quality care of the trauma patient and bring such a focus to the attention of both the medical profession and the public. Dr Charles Scudder (Figure 3) was appointed to be its chairman.

Born in Kent, CT in 1860, Charles Locke Scudder had an impressive education background, having received Bachelor of Arts and Bachelor of Philosophy degrees from Yale University and a medical degree from Harvard Medical School in 1888. He subsequently joined the Harvard Medical School faculty and later became the chief of East Surgical Service of Massachusetts General Hospital.[1] Earmarking the importance of standardization, Dr Scudder's first assignment for the committee was a report on the early management of fractures, which was presented in 1923. In 1949, the Committee on Treatment of Fractures was renamed the Committee on Trauma (COT) and was charged with an overarching aim to improve all aspects of trauma care.

The second major organization to have a substantial impact on the care of the trauma patient was the American Association for the Surgery of Trauma (AAST). Dr Kellogg Speed was its first president. He had the dubious distinction of presiding over the first annual meeting of what was initially and surprisingly called the American Association of Traumatic Surgery (subsequently changed to the American Association for the Surgery of Trauma at the second annual meeting). This year is the 88th anniversary of the orations; the centennial celebration will take place in 2029. There have been 19 orations on fractures and 11 orations on trauma. In 1963, the orations on trauma were again renamed the "Scudder Oration on Trauma." Not including today, there have been 52 Scudder Orations on Trauma (Tables 1-3).

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Figure 1. LD Britt, MD, MPH, FACS, presenting the Scudder Oration at the American College of Surgeons 103rd Clinical Congress, San Diego, CA, October 2017. (Reprinted courtesy of the American College of Surgeons.)

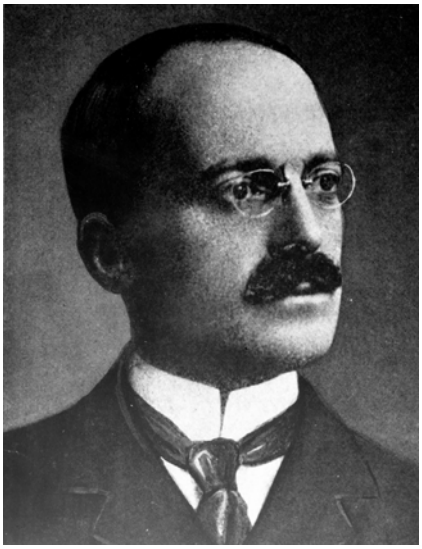

Figure 3. Dr Charles Scudder. (Reprinted courtesy of the Archives of the American College of Surgeons.)

As the first orator, in 1929, Dr Scudder stated that while chronic duodenal and gastric ulcers were being permitted to advance to perforation, peritonitis, and fatal hemorrhage, fractures were "wittingly allowed to go beyond the time at which successful treatment may be instituted." He highlighted that "treatment should begin without delay so that reparative processes may be facilitated instead of hindered."[2] By all accounts, Dr Scudder would be considered today to be the consummate acute care surgeon, for his scope of expertise went beyond the treatment of fractures. In May, 1922, JMT Finney, president of the American Surgical Association, presided over Dr Scudder's paper presentation at the annual meeting. Demonstrating his broad expertise (beyond just the management of fractures), Dr Scudder presented the results of operative treatment of gastric and duodenal ulcer disease. In 1905, Dr Scudder also published in the *Boston Medical Surgical Journal* on a similar topic on "acute abdominal emergencies."[3]

Lecturing on present day problems in nonpenetrating abdominal trauma, WL Estes Jr gave the first oration,

Figure 2. The Nickerson and Murphy buildings, along with a separate facility for the *Surgery, Gynecology & Obstetrics* journal. (Reprinted courtesy of the Archives of the American College of Surgeons.)

Table 1. Oration on Fractures

Year	Orator
1929	Charles Locke Scudder
1930	Dallas B Phemister
1931	William Darrach
1932	Philip D Wilson
1933	W Edward Gallie
1934	Kellogg Speed
1935	Paul B Magnuson
1936	George E Wilson
1937	William O'Neil Sherman
1938	Isidore Cohn
1939	Fraser B Gurd
1940	Frederic W Bancroft
1941	Walter Estell Lee
1946	Edwin W Ryerson
1947	Frank D Dickson
1948	Henry C Marble
1949	Otto J Hermann
1950	J Huber Wagner
1951	Sir Reginald Watson-Jones

1942–1945, World War II.

in 1953, that was clearly a departure from extremity injuries. The title of his talk was, "Present Day Problems in Non-Penetrating Abdominal Trauma." Preston Wade (Figure 4, A), in his 1961 trauma oration, selected the topic, "The Injured Patient and the Specialist."[4] It was presented at the Clinical Congress held in Chicago. A highly respected leader in American surgery, Dr Wade was the former chairman of the ACS Committee on Trauma and president of the American Association for the Surgery of Trauma. In a somewhat indicting format, he analyzed the adequacy of emergency department care. On behalf of the Committee on Trauma, he asked piercing questions regarding the coordination of patient care, including one that asked, "Would one responsible surgeon see the patient immediately after admission and thereafter direct the care of the patient throughout the entire illness?"

Table 2. Oration on Trauma

Year	Orator
1952	Sumner L Koch
1953	William L Estes, Jr
1954	Robert H Kennedy
1955	Frank B Berry
1956	Michael L Mason
1957	Harrison L McLaughlin
1958	George J Curry
1959	R Arnold Griswold
1960	Joseph Trueta
1961	Preston A Wade
1962	Jorg Bohler

It was Edwin French Cave (Figure 4, B) who encouraged the ACS Committee on Trauma to change the name of the oration. He felt that it was "fitting" that such a lecture should honor that person who had the vision to see the needs of the injured patients "in the years to come."[5] As a result, the oration on trauma series was renamed the Scudder Oration on Trauma. Dr G Tom Shires (Figure 4, C) was the Scudder Orator in 1972. In his oration titled, "The Care of the Injured—the Surgeon's Responsibility," Dr Shires made the pronouncement that the challenge presented by the trauma patient represented the "ultimate aim of all medicine"— improvement in patient care. He also poignantly underscored the pressing need for more surgeons to be interested in the management of the severely injured patient.[6]

The 1979 Scudder Orator was Dr John Davis (Figure 4, D), whose catchy title, "We've Come a Long Way Baby (in Improving Trauma Care)," engaged the audience. The role of "Hawkeye" in the book, award-winning movie and television series, M*A*S*H, was modeled after Dr Davis and his military experience. Eerily, he asked the probing question, "What do we want our Scudder orator to say about our efforts 50 years from now?"[7] Although it is not quite 50 years, the Scudder orator should enthusiastically applaud his efforts in establishing not only a rock-solid foundation in trauma but a spring board for growth and development of our discipline. Acute care surgery is a product of such efforts. Dr Basil Pruitt (Figure 4, E), the 1984 Scudder orator, whose contributions to the advancement of our discipline have been innumerable, stressed the importance of research, which forms the basis of improved treatment in order to enhance survival of all trauma patients.[8] Such research effort is equally pivotal for the maturation of the specialty, acute care surgery. In his 1987 Scudder Oration, Dr David Mulder (Figure 4, F) underscored the essential role that "injury"(trauma) has had in both the development and evolution of surgery.[9] Its inception would never have occurred without it. Dr Jim Carrico (Figure 4, G), in his 1998 Scudder Oration, boldly stated that, even with the well-acknowledged advances, the trauma specialty still needed a "voice."[10]

If branded correctly, there is little doubt that acute care surgery (the embodiment of trauma, critical care, and emergency general surgery) can be that voice. Dr Mattox (Figure 4, H), the 2000 Scudder Orator, unveiled 5 key "theorems" in his Scudder Oration, "TraumaLine 2000." His third theorem, "Advances in medicine are often a function of advances in trauma... and when

Table 3. The Scudder Oration on Trauma

Year	Orator
1963	Edwin French Cave
1964	Truman G Blocker, Jr
1965	Frank H Mayfield
1966	Tord G Skoog
1967	James K Stack
1968	FJ Noer
1969	Sir Frank Holdsworth
1970	William T Fitts, Jr
1971	W Altmeier
1972	G Tom Shires
1973	J Farrington
1974	Jack Wickstrom
1975	Sawnie R Gaston
1976	Fraser N Gurd
1977	John A Moncrief
1978	Alexander J Walt
1979	John H Davis
1980	Francis D Moore
1981	Harold E Kleinart
1982	FW Blaisdell
1983	William R Drucker
1984	Col Basil A Pruitt
1985	Robert J Freeark
1986	Donald S Gann
1987	David S Mulder
1988	Gerald W Shaftan
1989	Donald D Trunkey
1990	Norman Rich
1991	George F Sheldon
1992	Erwin R Thai
1993	Ben Eiseman
1994	J Alex Haller, Jr
1995	Frank L Mitchell
1996	Anna M Ledgerwood
1997	H David Root
1998	C James Carrico
1999	Kenneth L Mattox
2000	Charles E Lucas
2001	H Harlan Stone
2002	Ernest N Moore
2003	Norman E McSwain, Jr
2004	J David Richardson
2005	C Thomas Thompson
2006	Frank R Lewis
2007	Dario Birolini
2008	David B Hoyt
2009	A Brent Eastman
2010	David V Feliciano
2011	Demetrios Demetriades
2012	Timothy C Fabian
2013	Ronald V Maier
2014	C William Schwab
2015	J Wayne Meredith
2016	Susan M Briggs

trauma care has made quality advances, medicine and society have benefited."[11] In his 2007 Scudder Oration, "Trauma: A Social and Medical Challenge," Dr Birolini (Figure 4, I), stated that "creation of a new specialist" was, indeed, an option that should be considered.[12] He candidly stated that in his opinion, "the most adequate alternative" was that "trauma and general surgery should together create a specialist that has broad training in elective and emergency surgery, trauma, and surgical critical care." Our current Executive Director and the 2008 Scudder Orator, Dr David Hoyt (Figure 4, J), contributed to both the development and advancement of acute care surgery.

Dr Meredith's (Figure 4, K) Scudder Oration 2 years ago, titled, "If Charles L Scudder Could See Us Now," is a compelling comment, particularly given the transformative changes that occurred, resulting in the establishment and evolution of a new specialty. Undoubtedly, if he could see us now, Dr Scudder would embrace the expansion in the scope of practice. With a career that spanned over 6 decades (involving all aspects of surgical—beyond fractures), Dr Scudder would clearly be pleased with the inception and growth/development of acute care surgery as an emerging specialty. Returning back to work at the age of 83, when there was a depletion of the surgical staff due to war, Dr Scudder would fully appreciate the commitment required to be an acute care surgeon. As the Committee on Fractures evolved to become the Committee on Trauma (and not the Committee on Fractures AND Trauma), trauma has evolved into the specialty, acute care surgery. This is not a naming advantage; it is a management advantage for surgical patients who are severely and critically ill, without an overt mechanism of traumatic injury. Trauma, which has a rich and dynamic history, has been a dedicated career pursuit for many. However, trauma, as a specialty, has presented challenges and complexities on several fronts. We must disabuse ourselves of any illusion or euphoric amnesia that a career in trauma has been a highly sought after pursuit.

Cook County Hospital, the first comprehensive trauma center in the US, was the original idea of Drs Robert

Figure 4. (A) Preston Wade, MD, 1961 Trauma Orator. "The Injured Patient and the Specialist." (B) Edwin French Cave, MD, 1963 Scudder Orator. "Trauma, Specialism and the College." (C) G Tom Shires, MD, 1972 Scudder Orator. "Care of the Injured—The Surgeon's Responsibility." (D) John H Davis, MD, 1979 Scudder Orator. "We've come a long way, baby, in improving trauma care." (E) Col. Basil A Pruitt, MD, 1984 Scudder Orator. "The Universal Trauma Model." (F) David S Mudler, MD, 1987 Scudder Orator. "Specialization in Surgery — Implications for Trauma-Related Disciplines." (G) C James Carrico, MD, 1998 Scudder Orator. "In Search of a Voice." (H) Kenneth L Mattox, MD. 2000 Scudder Orator. "TraumaLine 2000." (I) Dario Birolini, MD, 2007 Scudder Orator. "Trauma: A Social and Medical Challenge." (J) David Hoyt, MD, 2008 Scudder Orator. "Blood and War — Lest We Forget." (K) J Wayne Meredith, MD, 2015 Scudder Orator. "If Charles L Scudder Could See Us Now." (L) Robert J Freeark, MD, 1985 Scudder Orator. "The Accident Hospital." (Reprinted courtesy of the Archives of the American College of Surgeons.)

Freeark and Robert Baker. Dr Freeark was the 1985 Scudder Orator (Figure 4, L). Under the oversight and direction of Drs Freeark and Baker and their colleagues, the Cook County Hospital Trauma Unit greatly influenced the growth and development of emergency radiology, anesthesiology, lab support, and computerized trauma registry. For most of its existence as Cook County Hospital, it was the only hospital serving the indigent sick for the entire County of Cook and adjacent suburbs (a population of more than 7 million). The subsequent proliferation of comprehensive trauma centers was impressive, in both the south and throughout the country (Figure 5). As Dr Freeark would underscore, the first (and at that time, only) accident hospital in North America was the Maryland Institute of Emergency Medical Service System (MIEMSS)—now known as the Maryland Shock Trauma Center. He issued an admonition that "continued emphasis on caring only for critical injuries will doom the trauma-center concept."[13] Such a prediction of "doom" became even more relevant and possible, with a big-picture view (Figure 6) of other challenges that resulted in suboptimal patient care.

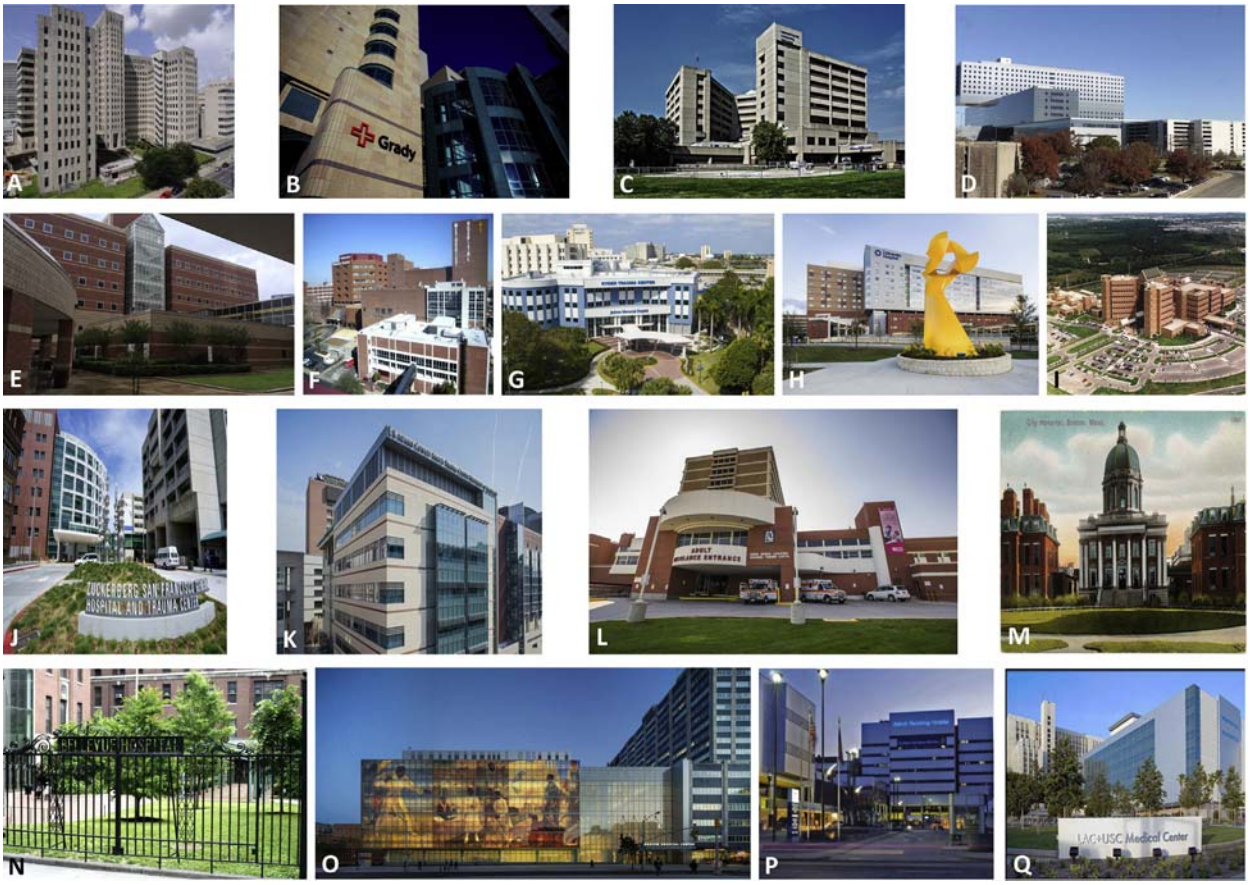

Figure 5. Comprehensive trauma centers. (A) Charity Hospital, Louisiana. (Reprinted from E-Architect, with permission from Louisiana State University Health Sciences Center.) (B) Grady Hospital, Atlanta. (Reprinted from Grady Hospital, with permission.) (C) Louisville Hospital. (Reprinted from University of Louisiana Health Sciences Center, with permission.) (D) University of Texas, Parkland. (Reprinted courtesy of the artist, David Taffet, with permission from Dallas Voice.) (E) Ben Taub Hospital, Houston. (Reprinted courtesy of the artist, Britni Riley, staff writer at Texas Medical Center.) (F) Methodist University Hospital. (Reprinted from Methodist Healthcare, with permission from University of Tennessee Health Science Center.) (G) Ryder Trauma Center, Miami. (Reprinted from Jackson Health System, with permission.) (H) University Hospital, San Antonio. (Reprinted courtesy of Mark Greenberg Photography, with permission from University Hospital in San Antonio.) (I) Brooke Army Hospital. (Reprinted courtesy of Brook Army Medical Center.) (J) San Francisco General Hospital. (Reprinted courtesy of the artist, Noah Berger, with permission from University of California San Francisco.) (K) R Adams Cowley Shock Trauma Center at the University of Maryland Medical Center. (Reprinted from University of Maryland Medical Center, with permission.) (L) Denver Health. (Reprinted from Denver Health, with permission.) (M) Boston City Hospital. (Reprinted from Boston Public Library, with permission from Boston Medical Center.) (N) Bellevue Hospital. (Reprinted from NYC Health + Hospitals/Bellevue, with permission.) (O) Harlem Hospital. (Reprinted courtesy of the artist, Paul Warchol, with permission from HOK.) (P) Detroit Receiving Hospital. (Reprinted from Detroit Medical Center, with permission.) (Q) Los Angeles County Hospital. (Reprinted from Los Angeles County Hospital, with permission.)

Trauma has always been a microcosm and predictor of major health care issues, with workforce in the health-delivery environment being an example of such. Perhaps, the most direct admonition of a workforce crisis and the trauma discipline at the crossroads was authored by the 2004 Scudder Orator, Dr J David Richardson (Figure 7, A). He and Dr Frank Miller, in the 1992 article published in the *Journal of Trauma*, unveiled the resident survey responses regarding interest in trauma as a career.[14]

The responses became overwhelmingly negative when the following questions were asked: Are you interested in a career in trauma or as a major part of your surgical practice? Would you be willing to take in-house call as an attending surgeon? Are you interested in a trauma fellowship? The cited factors for such responses included the following: "detracts from elective operations and lifestyles," "poor compensation for the amount of work," and "non-operating trauma surgeon." The 2003 *Journal of Trauma* article by Bulinski and Bachulis[15]

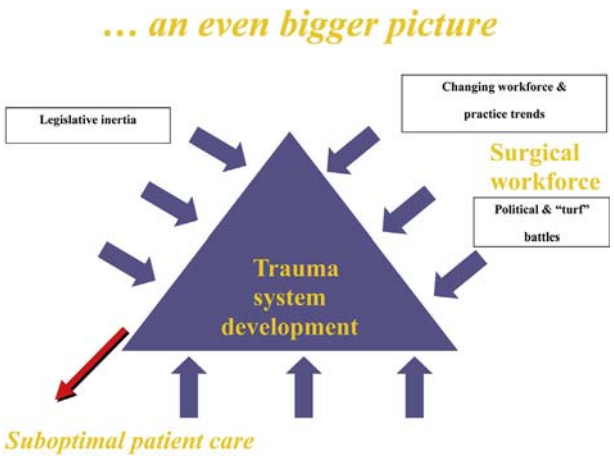

Figure 6. Big-picture view of challenges resulting in suboptimal patient care.

also documented the precipitous decline in operative trauma cases. The American Trauma Society (ATS) conducted a trauma surgeon survey, which listed insufficient number of traumas and difficulty recruiting trauma fellows as 2 of the top 3 concerns. Table 4 is a complete composite list of the reasons for this workforce crisis. With there being no quality without access, the dilemma in suboptimal care took on an even broader view, as was so eloquently presented by Dr Brent Eastman, 2009 Scudder Orator (Figure 7, B) in the oration title, "Wherever the Dart Lands: Toward the Ideal Trauma System," which definitively underscored the need to have a nationwide trauma system in order to ensure optimal care for any individual, irrespective of where in this country he or she might be injured.[16]

Another forewarning regarding the trauma work force was issued by the 1991 Scudder Orator, Dr George Sheldon (Figure 7, C) in his lecture titled, "Trauma Manpower in the Decade of Aftershock."[17] He, too, highlighted the negligible interest in a trauma/critical care center. Dr Sheldon appropriately prophesied that there would be a shortage of general surgeons interested in trauma. His detailed analyses accurately documented this disturbing trend. There is no meaningful dispute that all those factors helped create an environment for the formation of acute care surgery, as a defined specialty.

Concomitant with the emergence of acute care surgery were circulating myths. One such myth was that the evolution of fellowship training in acute care surgery would ultimately solve access problems, with respect to workforce shortage. A troubling backdrop was being unveiled to the general public—a crisis throughout the emergency setting that was slated to receive headline coverage in *US News and World Report*. This pronouncement coincided with the unthinkable attack on our great nation on September 11, 2001. However, the state of emergency care was chronicled by many health-related organizations, including the Institute of Medicine (now called the National Academy of Medicine).[18]

The myth that fellowship-trained acute care surgeons would adequately address the workforce concerns in the emergency surgical care setting is, indeed, baseless, particularly given the fact that the general surgery specialist remains the cornerstone of emergency surgical care. With general surgery specialists staffing many of the nondesignated trauma centers and providing the bulk of emergency care, there are more than 1,100 counties in the US without general surgeons. There are an additional

Figure 7. (A) J David Richardson, MD, 2004 Scudder Orator. (B) A Brent Eastman, MD, 2009 Scudder Orator. "Wherever the Dart Lands: Toward the Ideal Trauma System." (C) George Sheldon, MD, 1991 Scudder Orator. "Trauma Manpower in the Decade of Aftershock." (Reprinted courtesy of the Archives of the American College of Surgeons.)

Table 4. Stated Reasons for the Crisis

Reason
Few operations
Poor reimbursement
No fellows
No partners
More complex and elderly patients
Dwindling specialist coverage
"Babysitting" for surgical specialist
Night call
Litigious society
Lifestyle

350+ counties with less than the standard general surgery workforce needed. As a result, more than half of all US counties have less than the lowest recommended workforce for access to emergency surgical care. This state of a workforce shortage in general surgery specialists was further reinforced by an analysis of Dr Joseph Fischer's article, which documented a precipitous decline in the general surgery workforce.[19] The fact that more than 70% of general surgery residents entering fellowships for sub-specialization were chronicled by Dr Jim Valentine in his 2007 *Surgery* publication titled, "Acute Care Surgery: the Surgery Program Director's Perspective."[20]

There are currently 20 acute care surgery fellowships. For the next decade, the projected number of fellowship sites will likely be a total of 35 to 40 sites. To provide the workforce for all emergency surgical settings, there will not be enough fellowship-trained acute care surgeons for the foreseeable future. A more urgent and pressing question is, how will the workforce void be filled in the community settings, where there is a shortage (or lack) of health care providers for surgical emergencies and the critically ill? A broad-base trained/ high-performance specialist, with trauma management expertise, will be needed to fill this shortage. The other myth about acute care surgery is that the development "strategy" of acute care surgery will adequately address the health care disparity issue. The most formidable of the 6 aims of care as proposed by the Institute of Medicine (now the National Academy of Medicine) is equity. For n = population, acute care surgery management is not equitable. The health care disparities continue to widen, resulting in severe adverse outcomes. Every discipline of medicine and surgery, including the acute surgical care settings, has health care disparities. The American College of Surgeons core values—quality surgical care and patient safety—have been unwavering. The organization clearly recognizes that these core values cannot be achieved without optimal access.

There are other myths related to acute care surgery. It is, indeed, a myth to even fathom that the evolution of acute care surgery is complete. On the contrary, continually rethinking and modifying the model is both needed and desired. Dr Andy Peitzman and his colleagues[21] and Dr ME Kutcher and associates[22] have appropriately proposed an additional pillar for acute care surgery: surgical rescue. With trauma always remaining the core pillar, surgical rescue should definitely be a component of acute care surgery. In their initial opinion article (published in the *Journal of Trauma*), Dr Peitzman and coauthors stated that their acute care surgery service's participation in "surgical rescue" was a major benefit for both the hospital and the region. In fact, expanding the scope of practice in acute care surgery makes the now famous quote by Dr Halsted even more erudite and astute: "… every important hospital should have on its resident staff of surgeons at least one who is well trained and able to deal with any emergency."[23] The definitive article on the efficacy of designated service being available for "surgical rescue" was published in a follow-up article by Drs Ghaferi, Birkmeyer, and Dimick.[24]

The differences in mortality between high and low-volume hospitals were reported not to be associated with large differences in complication rates (Table 5). The differences were felt to be associated with the ability to effectively rescue patients from complications. In order to improve outcomes, a strategy focusing on timely recognition and expeditious management of complications is imperative. The failure to rescue rate was significantly higher in those low-volume centers that could not provide timely recognition and management of complications once they occur. Review of the American College of Surgeons National Surgical Quality Improvement Program (NSQIP), a patient database analysis of approximately 2 million (n = 1,956,002) patients revealed a failure to rescue rate of 10.5% (n = 207,236) of patients with

Table 5. Differences in Mortality Between High and Low Volume Hospitals

	Complication incidence			Failure to rescue		
Complication	Very low volume, %	Very high volume, %	OR (95% CI)	Very low volume, %	Very high volume, %	OR (95% CI)
All complications	42.7	38.9	1.17 (1.02–1.33)	30.3	13.1	2.89 (2.40–3.48)

OR, odds ratio.

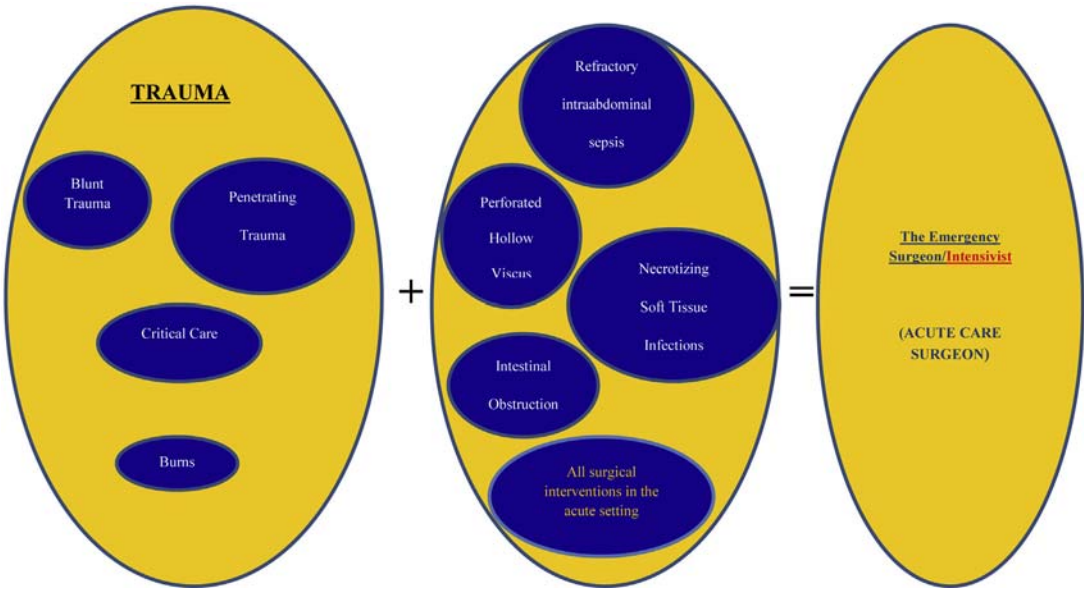

Figure 8. Acute care surgery. (Reprinted from Britt[25] with permission from Wiley.)

serious complications. Twenty percent of patients with the greatest risk for developing postoperative complications account for approximately 90% of failure to rescue.

An important quality metric is the ability of surgeons and institutions to rescue patients who develop postoperative complications. One of the original core components of acute care surgery, as shown in the first diagrammatic depiction (Figure 8) of acute care surgery, is critical care (particularly surgical involvement).[25] The discipline of critical care is reported to still have one of the most substantial workforce shortages. A decline in surgery attending input, increased delegation of care to nonsurgical specialists, the inability to meet the graduate medical education (GME) goals related to critical care experience, and loss of ICU-based operative cases are all indications of diminished critical care involvement and a clear alert signal that critical care must remain a core pillar of acute care surgery. Since the inaugural Clinical Congress of Acute Care Surgery was launched during my presidency in September 2011, there have been premature announcements and proclamations that this emerging specialty is now fully established. Past President of the Royal College of Surgeons of England Professor Norman Williams stated that, "They (Americans) established a new specialty, acute care surgery, which embraced trauma, emergency general surgery, and critical care."[26] He went on to comment that initially "there was much skepticism and, indeed, even hostility from colleagues but this has now largely vanished and the initiative is hailed as a great success, as demonstrated by improved patient outcomes."[26] As many of the members in this assembly today know, the evolution of acute care surgery continues, with a need for standardization of the fellowship, with respect to the curriculum and training that needs to be performed, along with the limited variation in specific rotations.

Also, there still needs to be clarification/standardization of the specialty, with respect to the complexity of surgical procedures and areas of coverage. In addition, there will likely be the establishment of centers of excellence, focusing on optimal health care delivery in this specialty, with verification requirements from the American College of Surgeons.

As this evolution continues, a web-based system will be established (analogous to the Accreditation Council for Graduate Medical Education) for tracking fellow and programmatic performance. A financial or business plan will need to be created in order to ensure financial sustainability of both the specialty and the fellowship programs. Also, it is conceivable and desirable that there will be process for the designation of centers for appropriate levels of care.

There should also be a goal to achieve better public awareness by generating a "call to action," similar to the Injury in America report by the Institute of Medicine

(demonstrating the gaps that exist in emergency surgical care, with an emphasis on the time-sensitivity in the management).

There is still a need to broaden support for acute care surgery among US surgical leaders, other specialties, and organizations/stakeholders (eg anesthesia, emergency medicine, and other nonsurgical specialties). Through legislative advocacy, there needs to be an organized effort to establish an enhanced relative value units (RVU) system for acute care surgery. As a specialty, we need to continue to document evidence-based improved outcomes, as a result of having acute care surgery services, similar to the landmark article by Mackenzie and colleagues[27] in the *New England Journal of Medicine* more than a decade ago, which demonstrated a lower risk of death when care was provided in a trauma center, as opposed to a nontrauma center.

With the public burden of emergency general surgery and the death patterns of emergency general surgery being discerned using administrative datasets, strategic interventions can be crafted to improve patient outcomes. There are a plethora of articles suggesting that an acute care surgery model is beneficial to patient care, with a shorter hospital stay and a decreased complication rate.[28-30] However, there need to be more statistically significant definitive studies demonstrating improved patient outcomes, with decreased morbidity and mortality, along with restoration to the patient's functional baseline. There will be many more individuals navigating the successful evolution of acute care surgery. In addition to major contributions coming out of the Committee on Trauma, robust activity and substantive productivity are occurring under the direction of the current chair of the AAST Acute Care Surgery Committee, Dr Kimberly Davis, and other current committee leaders-Dr Clay Burlew, Dr Pat Reily, and Dr Joe Minei. The orchestration in promoting the evolution of acute care surgery is also coming from our regional associations. Past EAST chair of the Acute Care Surgery Committee, Dr Therese Duane, had some laudable achievements during her leadership. This is just a sampling of the ongoing accomplishments that are helping advance this specialty. Progress is needed and demanded, particularly in the area of outcomes.

The Johns Hopkins team recently reported, in the *Journal of the America College of Surgeons* (JACS), that emergency general surgery (EGS) contributes half of all surgical mortality nationwide, with a 50% complication rate and 15% readmission rate within 30 days.[31] Not unexpectedly, the authors found that emergency general surgery volume was associated with outcomes. In the environment that had large EGS volume, patient outcomes were better. Probably the greatest myth is that the concentration on branding the name or label, "acute care surgery" is overemphasized and superfluous. Branding in any business, organization, discipline, or vocation counts! Brand names are adopted to capture a real or perceived new category. For example, the brand "Nike" was used to label the new category or product of athletic shoe, even though Keds (eg Keds sneakers) was the first to design and manufacture an athletic sneaker. According to branding experts, instead of giving this new category a new label, name, or brand, the company chose to call category or product, "Super-Keds." By any metric of definition, acute care surgery is a new category—a new specialty. It is not a distinction without a difference. As depicted in the first published illustration of the acute care surgery model, the components (trauma, critical care, and emergency general surgery) of this new category are well depicted. Reportedly, the science (or basic principles) of branding is simple: Do not put an emphasis on an extended brand label. Select a new brand or label.

There is a long list of failures when companies and organization choose not to adhere to this principle. Acute care surgery should not be added to this list of missed opportunities to capture a market and gain universal recognition. It is well accepted that "one size will not fit all," with respect to various services of acute care surgery. These differences reflect resource availability and specialty expertise. As a result, acute care surgery services will, on occasion, differ. However, if, for example, trauma and critical care are not covered by a designated service, but emergency general surgery is, such a service is an emergency general surgery (EGS) service. Past president of AAST Dr Raul Coimbra, in the organization's fall newsletter, communicated the following, "In Acute Care Surgery, it became apparent that what we need to do is

Table 6. Acute Care Surgery: The Present and the Future

Issue	Present	Future
Branding	Too variable, even when allowing for other best practices	Consistent and effective branding, accurately depicting the category that it represents
Quality outcomes	Sporadic and scant reports of improved outcomes	Comparative effectiveness research, with a comprehensive repository of favorable outcomes
Access	Problematic for many communities	A more robust workforce to address the needs of n = population

develop a multifaceted plan to completely 'OWN' acute care surgery as a specialty." Dr Coimbra went on to state that such a posture would assist in "eliminating threats from other groups."

Curiously, there are international efforts to give "birth" to emergency general surgery as a specialty. Some have had the debate and have become advocates for emergency general surgery to be a "specialty in its own right." Embracing emergency general surgery as a distinct specialty might be appropriate in certain international communities, depending on the workforce profile and professional expertise. Endorsing such an initiative, in this country, would be counterproductive to maturing acute care surgery as a specialty. Having an extended brand or confusing label is not part of "owning" the specialty. On the contrary, it might result in the acute care surgery initiative failing to reach its full potential. More appropriate branding needs to be directed to our current publication organ, *The Journal of Trauma and Acute Care.* This is the definition of an extended brand label and is, predictably, confusing and represents the antithesis of branding.

Looking into the future, the health care workforce in the emergency surgical setting will be the acute care surgeon, with trauma being the pivotal cornerstone of the specialty, recognizing that the role of a cornerstone is to determine the position of an entire structure. In the context of today (in this century), there is little doubt that Dr Halsted was referring to an acute care surgeon when he stated, "Every important hospital should have on its resident staff of surgeons at least one who is well and able to deal with any emergency that may arise."[23] In the Owen Wangensteen book titled, *The Rise of Surgery,*[32] he states that "General Surgery has had a great seminal influence in generating ideas for progress and for extension of the borders of surgery. Academician representatives of general surgery must continue to mount the watchtowers of scientific progress for signs and evidence of new approaches for the resolution of enigmatic problems. "... If general surgery can maintain its creative and innovative spirit, perhaps, the spawning of new disciplines will become its most important function."[32]

In summary, in this nation, trauma will always be the cornerstone of acute care surgery, but the specialty that has emerged to help address a void and a need is acute care surgery. There are 3 issues or challenges (Table 6) that have not been effectively and definitively addressed: quality outcomes, access, and branding. Quality outcomes must be achieved by comparative effectiveness research, resulting in a comprehensive repository of favorable outcomes. Optimal access will not occur until there is a robust workforce (which includes the general surgery specialist) to address the needs of n = population. Branding has to be consistent and effective, accurately representing a new specialty category.

As trauma was depicted by the National Research Council of the National Academy of Sciences in 1966, as "the neglected disease of modern society," acute care surgery is the neglected disease syndrome of modern society. Our specialty (acute care surgery) needs to ensure expeditious and optimal management of the injured and nontrauma critically ill surgical patients. Every discipline has a myriad of ever-changing challenges and threats. However, at no time should there be challenges or threats that affect the specialty's missions, and especially, optimal care of the patient. Dr Martin Luther King stated that, "the arc of the moral universe is long, but it bends towards justice."[33] What Dr King did not say, explicitly, is that the arc does not bend by itself. Such bending requires commitment, effort, and sacrifice. Adapting this statement to health care, I strongly believe that the arc of health care is long but it bends towards optimal care and inclusion. It, too, does not bend on its own. In order to make this arc bend, it also requires commitment, effort, and sacrifice. Establishing acute care surgery as a defined specialty, is part of this bending process to achieve optimal care and inclusion for those surgical patients who are injured and critically ill.

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