The 2005 ABA Presidential Address
Who Will Follow?

Richard L. Gamelli, MD, FACS

The impact of the work that we do daily, what the value of these efforts will be to those who follow us, and what the challenges will be to providing high-quality burn care are issues that we must understand if we are to build to the future. As a society, we can look to our past to gain important insights about what the future may hold and the problems we will encounter. The past also allows us to reflect on the accomplishments of those who have been a part of our success, recall memories that have become distant, and view our concerns in new and important ways. From this reflection, we may better understand how we are doing and develop solutions to today's problems in a way that will pave the route to tomorrow's successes.

The history of burn care can be rightfully traced to many important periods in our civilization's history. Advances in the treatment of the burn patients have tracked the evolution of civilization. New scientific knowledge based on empiric clinical observations and experimental studies as occurred during the Renaissance and period of enlightenment promoted changes in patient care. Warfare, although a human tragedy, often has stimulated progress in the treatment and management of the injured. The treatment of burns was recorded as early as 1550 BC in the Ebers papyrus.1 The writings of Galen (200 AD) document further advances in the treatment of wounds resulting from his work in anatomy and physiology. Ambrose Pare of France (1510–1590), the surgeon of the Renaissance, was not only the most influential surgeon of his time but also the originator of modern surgery. His treatment of injuries paralleled that of burn patients.6 During the Second World War, H. N. Harkins established protocols for the resuscitation of burn patients incorporating infusions of plasma titrated to the patients' physiologic needs and their response to the injury.7,8

The care of burn victims has an intriguing history and has been shaped by major societal geopolitical events. The Knights Hospitaller of St. John began as a group of monks who aided travelers visiting the holy lands. Their mission was "to care for our Lords' sick and our Lords' poor." At the time of the first crusades in 1095, they joined in the battles against the Saracens. The Knights of St. John as they have become known were medieval knights, crusaders, master mariners, builders, and navigators and represented the first organized fire fighters and paramedics. In their battles with the Saracens, the crusaders encountered a new weapon—fire. As the crusaders advanced on the walls of the Saracens' fortresses, the Saracens saturated the battlefield with naphtha from flying glass bombs. When the knights came in contact with this highly flammable material, the Saracens ignited the field of battle. Many of the knights died of their wounds, and others were rescued by their compatriots. Their fellow crusaders recognized the heroic effort of the rescuers by awarding them a badge of honor. The Cross of Calvary that we now know as the Maltese cross represents the ideals of charity, loyalty, chivalry, generosity to friends and foe; protection of the weak; and dexterity in service. These are common values for all that provide care to burn patients. The Maltese cross is today embodied in the shield of the fire service.

The delivery and organization of burn care has likewise been shaped by similar events as have influenced burn treatment. The notation that a special care environment was required for burn patients can seemingly be traced back to Edinburgh, Scotland, in 1843. It is not clear whether the motivation behind this plan to develop "burns hospital" was for the benefit of the burn patients who smelled or to...
Collum in 1938 was one of the first to use the term “burn. The concept of the burn teams and the advantages that it might provide to patient care were evolutionary in nature. MacCollum in 1938 was one of the first to use the term “burn team.” Whipple in 1943 further defined the elements that were essential to the burn team and consisted of a general surgeon with expertise in infection and wound healing, a physician versed in fluid, protein, and electrolyte imbalance and nurses able to stand the stress and strain of burn care. The role of nursing in burn care became progressively more expanded in the first part of the twentieth century. It should be noted that nursing as a paid profession did not occur until around 1880 in the United Kingdom. Aldridge in 1933 stressed the importance of nursing in the treatment of burn patients. In particular Aldridge recognized the critical role nursing played in the general and topical treatment of these patients and the provision of comfort along with care. In 1933 stressed the importance of nursing in the treatment of burn patients. In particular Aldridge recognized the critical role nursing played in the general and topical treatment of these patients and the provision of comfort along with care.

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The evolutionary changes in burn care and treatment have been profoundly impacted by the advances in medical and surgical care that have occurred since the middle of the twentieth century. Developments in critical care, antimicrobial agents, anesthesia, nutritional support, blood banking, and mechanical ventilation all have positively influenced the outcomes of patients with burns. Advances in burn wound management techniques, burn wound closure, and rehabilitation and reconstructive surgery have equally benefited the health of burn victims. The challenges that burn care faces today and will face in the future is the status of its work force, solvency of burn centers and burn physicians, and our need to continuous raise the standard of care we deliver. A survey conducted by the Membership Advisory Committee of the American Burn Association (ABA) of burn units of North America noted that 62% of burn centers were experiencing a nursing shortage. In a similar vein, Faucher raises the question of whether we headed for a shortage of burn surgeons based on his personal experience in seeking employment as a burn surgeon upon completion of his burn fellowship. This problem is not one that appears to be simply that of the United States. Brown raises a similar issue based on the results of a survey of plastic surgical trainees in Australasia, where he documented a significant shortage of burn surgeons. As a result of these concerns, the ABA conducted a Burn Centers Directors’ Workforce and Burn Center Health Professional Survey, which was initiated in 2004 and completed in 2005. Burn Center Directors from 129 burn centers were surveyed. Responses were returned from 93 directors and formed the basis of our analysis. Burn center personal characteristics were that the average burn center director was 50 years of age, had been in practice for 16 years, spends nearly 60% of his or her time providing burn care, and that 90% of the directors were men (Table 1). The directors reported that they also spent 14% of their time providing wound care. Furthermore, the specialty mix that was identified was 69% were general surgeons, 29% plastic surgeons, and the remaining 2% from other surgical disciplines. The distribution of board certification demonstrated that the great majority had board certification in general surgery, less than half of the directors were certified in critical care, 26% of the directors held certificates in plastic surgery, and there were several who were certified in pediatric surgery (Figure 1). Burn Center directors typically had a broad base of practice, with 57% providing trauma call in their institution, 78% had an additional surgical practice beyond burns and trauma alone, and 40% also maintained a private practice. The response to questions dealing with financial status revealed that many burn center directors had incomes sufficient to support their salary, whereas a small minority was subsidized by other surgeons and nearly a third had hospital support to further augment their practice income (Table 2). The burn center directors reported that, on average, there were three surgeons per unit, whereas the optimum they felt would be four surgeons. The planned years-to-retirement for the majority of the directors was approximately 10 years; however, 30% anticipated retirement within 5 years. The primary reason to leave burn care before planned retirement times would be lack of institutional support, increasing malpractice costs, income limitations, and increasing workload. In those centers in which there had been recent recruitment, the most recent time for this was in the immediate preceding 4 years of this survey. The training background of the recently recruited burn surgeons typically was in general surgery, with training in trauma/intensive care unit experience or burn care. The second most common training background was plastic surgery (Table 3). Interestingly, the most common source of recruitment for a unit was an internal candidate from within the directors own training program. The directors’ assessment of their own current burn staffing needs was that, on average, they had a shortage of 4 registered nurses, with the current level being 27 and the optimum being 32. Furthermore, although the directors did not note a shortage of therapists, they did report that the average current number of technical support in their burn unit was six full-time equivalents.

Table 1. Burn Center Director Characteristics: response from American Burn Association Burn Centers Directors Workforce Survey 2004 to 2005

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Percentage</th>
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<tr>
<td>50 years old</td>
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<tr>
<td>16 years of practice</td>
<td></td>
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<tr>
<td>59% of time for burn care</td>
<td></td>
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<tr>
<td>Male:female ratio 9:1</td>
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<tr>
<td>14% of time to wound care</td>
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n = 93 of 129 burn centers (American Burn Association, 2005).
(FTEs) where the optimum would be seven FTEs (Table 4).

A similar survey of burn center managers in these same 129 units resulted in 61 manager returning the questionnaire. Managers, on average, were 45 years of age; the great majority were women and classified themselves as nurses (Table 5). The average years of experience was 14 years and the expected time to retire was 10 years. The credentials of burn center managers varied, with 46% having an RN, 37% a BSN, and 17% a MSN. Nursing shortages were noted in 54% of the burn centers, as reported by ABA manager’s survey. Twenty-seven units had shortages in occupational or physical therapist, whereas 31 reported no vacancies (Table 6). The average duration of vacancies within the units as reported by unit managers was 1 year. Burn Center managers responded to the query of the most likely reasons to leave before planned retirement to include stress, workload, job satisfaction, lack of a sense of personal accomplishment, institutional support, and family needs.

The changes in healthcare dynamics and workforce issues for burn nurses, burn surgeons, burn center directors, and burn center managers point out the need to look beyond technological advancements if we are to preserve the specialty of burn care. One of the challenges in healthcare today is the need to shift to disease-based management and not specialty care. This shift would seem on one hand to represent a significant challenge to our profession. The reality is that burn care as performed by the burn team is disease-based management. It is what we do and what we have done for well more than a half century. A very real problem is that we have not fully recognized this fact and we certainly have not publicized it. The shortages that exist in burn nursing and physicians are unfortunately part of a larger workforce problem in healthcare. It has been projected that by 2020 there will be a nursing shortfall of 400,000 nurses. Thus, we must fully understand the issues impacting the nursing workforce and what specifically needs to be addressed in the area of burn care. Further, this shortage may prove even a greater and more urgent crisis as upwards of 20% of nurses currently in practice have been predicted to leave nursing within 5 years. Major issues represent unsatisfactory working conditions, lack of leadership and mentoring, poor communications, inflexible scheduling, on-call sign-up process, decision-making, and lack of recognition. In her report, Yurko et al15 noted that vacant positions per burn unit averaged 4.6 FTEs. Two-thirds of centers at the time of her survey were experiencing nursing shortages, and nearly 70% of the units had current vacancies. If we are to address the nursing shortage, we must address issues of retention and recruitment, be willing to entertain alternative staffing models, deal with inflexible scheduling, support educational training and advancement, recognize that dedicated nurse managers are critical to the stability of the unit, and improve internal communications. In an attempt to attract more nurses into burn nursing, 84% of burn units have reported placing new graduate nurses into vacant positions. Clearly units must have established mentoring and preceptor programs to support new graduate nurses. Physician leaders within each burn center must understand that they have an important and powerful role as advocates for nursing as well as for other members of the team. The burn center director must establish clear and reasonable expectations with hospital administration about what is vitally important to support ongoing high-quality burn patient care (Table 7).

Although a major focus in healthcare has been the shortage of nursing personnel, what must be similarly recognized is that the physician workforce is in equal jeopardy of experiencing a shortage. Cooper et al19 has suggested that the physician demand by 2020 will require 242 physicians per hundred thousand population, whereas the supply will only be 237 physicians per hundred thousand population, leading to a predicted shortage of some 200,000 physicians. Furthermore, the number of general surgical resident graduates has been constant at roughly 1000 per year during the past 20 or so years. Presently, there is no active plan to dramatically increase the number of resident trainees. Given the overall surgical staffing issues, it is equally likely that physician workforce shortages could be as problematic as the nursing shortage and particularly so in burn care.20 It is important for us to understand factors influencing medical student career choices if we are to actively manage this expected shortfall. Bland properly noted that on-call hours, length of training, educational debt, malpractice risk, and professional control expected by practitioners of their work hours were all important consideration by students in developing their career plans. The opportunity to

Table 2. Financial Status: self-reported assessment of financial status of burn center directors (American Burn Association Burn Center Directors Workforce Survey 2004 to 2005)

- 57% of directors receive sufficient income
- 3% of directors are subsidized by other surgeons
- 32% of directors receive hospital support
- 8% are unknown

American Burn Association, 2005.
influence medical student career choices requires an understanding of when students likely formulate their career plans. Kozar et al. has suggested that nonsurgeons career selection is shaped by second-year preceptors and that happiness requires satisfaction both in career as well as family. Surgeons were noted to often make their choice before medical school, based on personal experiences and that happiness and career satisfaction were on a near-equal plane. There is significant opportunity in medical schools and during resident training in which active burn units exist to expose medical students as well as resident trainees to the rewards and satisfaction of a career in burn care. The report by Gabram outlines how a highly organized and structured burn elective can be used as template for improving all surgical rotations to meet the six core competencies for third-year students. It also demonstrated how high-quality and coordinated care positively influenced patient outcome, served as a model of multidisciplinary care, and demonstrated the vibrancy of burn care as a profession.

If we are to build upon the past, then we must set about a plan by which to build to the future. The best way to predict the future is to do as Alan Kay suggest, “invent it” (Xerox Park, 1971). Without control of our collective destiny, the ability to achieve this goal may not be possible. The ABA has evolved from a voluntary organization to a professional society with its own staff (Table 8). The ABA has developed from an academic society with physician membership to a multidisciplinary organization with some 3000 members. Currently, it manages its annual meeting; has its own journal; and conducts education and training, advocacy, and burn center verification. This evolution in programmatic initiatives is the backbone upon which we can build continuous change via a central organized approach. One such example is the burn center verification program, which is a joint program between the ABA and the American College of Surgeons. It represents a rigorous review by which to verify a burn center’s resources for optimal patient care; represents a true mark of distinction; and is an indicator to government, third-party payers, accreditation organizations, and families of high-quality care. That being said, the current status of burn center verification should be viewed as a “first generation product.” It is necessary for burn center verification to now represent verification of the quality of burn care. Verification must move to a process that quantifies the quality of burn care, promotes best practices, and develops a series of process measures that can serve as indicators of quality to governmental agencies, the public and payors. The ultimate goal is to be able to demonstrate that verification stands for quality care that is continuously improving. Further, with the concerns about patient safety as identified by the Institute of Medicine, we should be able to establish that quality care is safe care. Verification will come to indicate that burn centers are not only centers of excellence but also centers of safe patient care (Tables 9 and 10).

Table 3. Recruitment: characteristics of recently recruited burn center surgeons as reported by American Burn Association Burn Center Directors Workforce Survey 2004 to 2005

- Most recent time: 4 years
- 70% general surgery
- 39% Trauma/intensive care unit
- 44% burn care
- 31% Plastic surgery

Most common source: internal recruitment (American Burn Association, 2005).

Table 4. Burn center staffing: Burn Center Director assessment of burn staffing needs (American Burn Association Burn Center Directors Workforce Survey 2004 to 2005)

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<thead>
<tr>
<th></th>
<th>Current</th>
<th>Optimum</th>
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<tr>
<td>Registered nurses</td>
<td>27</td>
<td>32</td>
</tr>
<tr>
<td>Therapists</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Technical support</td>
<td>6</td>
<td>7</td>
</tr>
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American Burn Association, 2005.
of a cohesive plan of management and is possible under the aegis of a professionally managed society.

In the ABA survey of burn center directors, 35% of the directors reported that they offered a burn fellowship and had trained 101 trainees during the past 5 years. However, only 42% of the trainees remained in active burn care. When this is viewed in light of the age distribution of burn surgeons, as noted by Fauscher, it suggests that a very critical shortage may be soon be in the offing beyond that which has already been reported. In the survey by Brown, the two most common reasons for not pursuing a burn career were the nature of burn surgery and burn care. How we train and educate fellows and trainees could clearly be improved.

Warden and Heimbach recently have outlined the guidelines for burn fellowships. They point out the absolute need for clinical and educational objectives, leadership training, sponsorship by a verified burn center, alignment with a general surgical residency, that the training program must provide the opportunity for critical care training, and that this training should be done as postresidency fellowship. In the past, many burn fellow trainees have been simply using the burn fellowship as “filler year” before progressing to the completion of their training (Table 11). Recently, the University of North Carolina has developed a burn fellowship that includes surgical critical care, burn center administration, burn clinical training, disaster management training, opportunity for basic science and clinical research, and also the development of collaborative studies and participation in collaborative studies within the ABA’s multicenter trials groups. Such programs as this as well as others fellowships not only offer the burn fellow opportunity to obtain additional certification in critical care but to have a broad base of education that will establish them as leaders in burn care.

The American Board of Surgery (ABS), which certifies graduate surgeons, has many members of the ABA who currently or have served as directors. These individuals attained this rank of distinction as a result of the esteem they are held in by their colleagues for their broad based surgical knowledge. In the past, ABA has not been an active participant in the activities of the ABS. Because of the good work of many of these individuals and the recognition of burn care as an important component of surgical training, the ABS have developed the Advisory Council in Trauma, Burns and Critical Care. Advisory councils within the ABS ensure relevance of their area of surgery to general surgical training, examination, and certification. They also may serve as the group responsible for fellowship program oversight and development. What is new for the ABA is that we are now a sponsoring organization. A member of the ABA will sit on the advisory council representing the ABA at the ABS. Further advisory council status within the ABS is a prelude to becoming a component board if that is viewed as

Table 5. Burn care managers: characteristics of burn center managers: 129 burn center managers surveyed, 61 respondents (American Burn Association Burn Center Health Professionals Survey 2004 to 2005)

- 45 years of age
- 81% women
- 76% nurses
- 14 years of experience
- 10 years to retirement
- Practice
  - 58% burn care
  - 13% wound care

n = 61 of 129 (American Burn Association, 2005).

Table 6. Burn center shortage: burn center shortages as reported by burn center managers (American Burn Association Burn Center Health Professionals Survey 2004 to 2005)

- 54% Nursing
- 20% Occupational/physical therapy
- 81% No vacancies

Average duration of vacancy: 1 year.

Table 7. Addressing the nursing shortage: proposals for dealing with nursing shortage within the burn centers

- Retention and recruitment incentives
- Alternative staffing models
- Scheduling flexibility
- Support for education, training, and advancement
- Dedicated nurse managers
- Improve internal communications
- Attract more people to burn nursing
- New graduate nurses
  - Mentor and preceptor programs
- Physician support and advocacy for nursing

Table 8. American Burn Association 2005: the changes that have occurred in the American Burn Association as it has evolved from an academic society to a professionally managed organization

- From an academic society with physician membership to a multidisciplinary organization
- From a small founding group of physicians to a multidisciplinary membership of 3000
- From a volunteer organization to a professional society with its own staff
  - Annual meeting
  - Publications
  - Education and training
  - Advocacy
  - Verification
a logical and appropriate next step. This points out the need for burn fellowship development to now include not only the components of a fellowship but the need to address the issues of critical care certification, a fellowship match, a program directors committee of the ABA, and also to decide whether fellowship program reviews will be by the Surgical Residency Review Committee or by the ABA. As the ABA moves through this process, we will need to assist in developing a certifying examination and the development of a maintenance of the certification process.

The many successes that members of the ABA have had as leaders in American surgery are a direct outgrowth of their talent, energy, and commitment. For most, it is also the result of the inspiration that they experienced while training with their mentors and further re-enforced by interactions with members of the ABA. For me, this person was the Chairman of Surgery at the University of Vermont, Dr. John Davis. John was the ABA’s 1986 Harvey Stuart Allen Distinguished Award recipient. Interestingly, he was the Chair when Palmer Bessey, William Cioffi, and I were medical students. During his tenure as Chair, I, along with William Cioffi and David Geenhalgh, was trained as a surgical resident by Dr. Davis. This group of Vermonters along with many other members of the ABA also have been influenced greatly by Drs. Basil Pruitt, David Heimbach, John Hunt, Glenn Warden, Alan Dimick, Robert Gillespie, William Curreri, Ronald Tompkins, and David Herndon, all members of the ABS as Directors, to name but a few who have contributed such much to our field. This speaks directly not only to the role that mentors have played in our various careers but the obligation we have to carry on this tradition. We must be committed to support the growth and development of our medical students, residents, burn fellows, and fellow ABA members if we are to advance the cause of burn care.

Table 9. Burn center verification: distinguishing features of the current American Burn Association/American College of Surgeons program for burn center verification

- Joint ABA/ACS program
- Rigorous review to verify burn center’s resources for optimal patient care
- True mark of distinction
- Indicator to government, third-party payers, accreditation organizations and families of high quality care

Table 10. Burn center verification: verification of the quality of burn care

- Quantify the quality of burn care
- Promote best practices
- Process measures as indicators of quality
- Quality care = safe care

Table 11. Guidelines for fellowship: key elements of the development of a burn fellowship as reported by Warden and Heimbach

- Clinical and educational objectives
- Leadership training
- Sponsored by a verified burn center
- Aligned with a general surgery residency
- Postresidency training
- Opportunity for critical care training

To achieve our goals, we must clearly plan and strategize. We must incorporate many seemingly unrelated events into an organized and cohesive structure that carefully articulates outcomes, change, research advancements, innovation and new technology, and promotes translational research. Further, new information should support best evidence, facilitate education and training, the development of practice guidelines and allow rational decision making in the development of a mass casualty disaster planning and management. Best evidence will allow us to support best practice and provide us with the needed information in advocacy efforts to improve the overall outcome for burn care. In the end such advancements will lead to high quality burn care and allow us to evolve continuously and advance our mission of teaching, care, research, rehabilitation and prevention (Figure 2).

REFERENCES


Figure 2. The interaction of advancements in knowledge and improvements in burn care.


