

SPECIAL CONTRIBUTIONS

The Influence of Critical Care Medicine on the Development of the Specialty of Emergency Medicine: A Historical Perspective

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Abstract

Through their largely concurrent development, the specialties of emergency medicine and critical care medicine have exerted a great deal of influence on each other. In this article, the authors trace the commonalities that emergency medicine and critical care medicine have shared and report on the historical relationship between the two specialties. As issues between emergency medicine and critical care

medicine continue to emerge, the authors hope to inform the current discussion by bringing to light the controversies and questions that have been debated in the past. **Key words:** emergency medicine; critical care medicine; historical perspective. *ACADEMIC EMERGENCY MEDICINE* 2005; 12:879–883.

Throughout their brief histories, the specialties of emergency medicine (EM) and critical care medicine (CCM) have developed in a sometimes interwoven and sometimes conflicted pattern. Competency in critical care has been a key component of EM education, and critical care certification was a vital bargaining chip in the struggle to have EM become a primary board. In this article, we trace the development of the fields of EM and CCM in the United States from the 1960s and show the relationship between these two specialties. As issues between EM and CCM continue to emerge, we hope to inform the current discussion by bringing to light the controversies and questions that have been debated in the past.

THE EARLY YEARS: 1960–1970

As the 1960s began, there was no specialty or formal training in either EM or CCM. However, as the decade progressed, the groundwork for a natural relationship between the two was formed. Hospital emergency departments (EDs) were largely staffed by triage nurses or unsupervised interns, residents, and medical students. Critical care units (CCUs) were evolving from postanesthesia care units and were beginning to be staffed by critical care specialists, although these specialists had little or no additional training.^{1,2} Throughout the 1960s, ED patient volumes drastically

increased, and it became clear that hospitals needed a plan to provide qualified and competent emergency care. In 1961, in Alexandria, Virginia, Dr. James Mills, Jr., became the first physician to leave his general practice and form a full-time emergency practice group. By the end of the decade, hundreds of U.S. physicians identified themselves as emergency physicians and had organized to form the American College of Emergency Physicians (ACEP).¹ At the same time, technological advances in invasive cardiac monitoring, along with advances in resuscitative techniques and critical care and the availability of federal funding, resulted in the formation of CCUs in many hospitals.³

As EM began to develop as a discrete specialty, there was a need to train the physicians who were converting themselves to this new practice. Many of the new emergency physicians were general practitioners whose only training beyond medical school was a one-year internship, and others were not prepared for the procedural and critical care aspects of the new profession. After being approached by such a group of physicians, two internists at Massachusetts General Hospital offered a course in EM and CCM starting around 1968. Drs. Steven Goldfinger and James Dineen developed a two-week intensive course in EM and CCM that included lectures and procedure laboratories. This “fellowship” trained hundreds of early emergency physicians in the basics of critical care.^{1,4,5}

The first EM residency was founded at the University of Cincinnati in 1970. The first EM residents rotated through the ED and the CCUs, gaining valuable experiences in the care of critically ill patients.¹ At the Medical College of Pennsylvania, Dr. David Wagner founded an “acute care internship” in 1971, which consisted mainly of rotations through the ED and the CCUs.¹ The significant overlap of the subject

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Received February 25, 2005; revision received April 24, 2005; accepted April 24, 2005.

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doi:10.1197/j.aem.2005.04.016

matter needed to practice EM or CCM led to the consideration of an educational linkage between the two specialties for the formal education of the first EM residents.

Outside of the academic world, emergency physicians often found themselves to be the only physicians in community hospitals, particularly during the night or on weekends. Community emergency physicians became "default" CCU physicians when emergencies arose in-house during these uncovered times.^{1,6-8}

THE FEDERATION FOR EMERGENCY AND CRITICAL CARE MEDICINE AND THE CONFERENCE ON EDUCATION OF THE PHYSICIAN IN EMERGENCY MEDICAL CARE

As critical care and resuscitation advanced in the 1960s, the implementation of new technologies required an organized and efficient emergency medical services system and ED.¹ One of the early leaders of the critical care movement, and a "founding father" of modern resuscitation, was the Austrian-born anesthesiologist Peter Safar. While Chief of Anesthesia at Baltimore City Hospital, Safar used paralyzed resident physician and medical student volunteers to study the technique of mouth-to-mouth ventilation and later described the ABCs of cardiopulmonary resuscitation.^{3,9} In 1970, along with 28 physicians of differing specialties, Safar became one of the founders of the Society for Critical Care Medicine (SCCM).¹⁰ Safar looked to implement his resuscitative techniques throughout medical practice and saw the field of critical care as a seamless continuum running the gamut from out-of-hospital care, to the ED, and finally to the CCU. He realized that a liaison with EM could be an initial step in the development of such a continuum.

In 1972, the ACEP initiated a meeting with the SCCM and the University Association for Emergency Medical Services (a direct predecessor of the University Association for Emergency Medicine and Society for Academic Emergency Medicine¹) and formed the Federation for Emergency and Critical Care Medicine (FECCM). With representation from the three groups, the primary purpose of the FECCM was to increase the political clout of EM and CCM within the American Medical Association (AMA). The FECCM seems to have been a factor in convincing the AMA to approve a provisional Section on Emergency Medicine in 1973 and helped stimulate the organization of the landmark Workshop Conference on Education of the Physician in Emergency Medical Care, also in 1973.¹ The FECCM accomplished its goal of increasing the visibility of the two fields; however, the organization dissolved as EM and CCM separately underwent the process of becoming specialties, although it existed on paper until at least 1975.¹¹

Spurred on by the FECCM and other organizations, the AMA sponsored and organized the Workshop Conference on Education of the Physician in Emergency Medical Care in July 1973. The conference divided into four workshops, including one dedicated to critical care.¹² Led by Peter Safar, this workshop explored in detail the early relationship between EM and CCM. The group defined CCM as the "triad of 1) resuscitation, 2) emergency medical care for critical illness or injury, and 3) intensive care."¹³ They advanced Safar's ideal of CCM as a continuum. To Safar and other workshop participants, CCM and EM were "inseparable," and they concluded that EM training followed by a critical care fellowship was "highly desirable."¹³ At the time, the SCCM agreed to accept two years of EM residency as a prerequisite for admission to a critical care fellowship and proposed that a "new type" of emergency physician who could staff both EDs and CCUs would be an ideal manpower source for the CCU.¹³

Safar's ideas would prove to be difficult to implement; over the next 15 years, critical care fellowship training for emergency physicians would take a backseat to the struggle for primary board recognition.

CONJOINT (MODIFIED) BOARD OF EMERGENCY MEDICINE AND THE JOINT COMMITTEE ON CRITICAL CARE MEDICINE

As the 1970s progressed, emergency physicians turned their attention to becoming recognized as a primary boarded specialty within the American Board of Medical Specialties (ABMS).¹⁴ After a lengthy application process, an initial resounding defeat in 1977, a series of negotiations and compromises, and modification to the ABMS charter, the American Board of Emergency Medicine (ABEM) was approved as a conjoint (modified) board of ABMS in 1979 and became the 23rd medical specialty in the United States.^{1,7}

As a conjoint (modified) board, ABEM functioned in most respects as a primary board, with one major exception. Conjoint (modified) boards were not allowed to issue certificates of special qualifications (subspecialty designations).⁷ Even though EM and CCM had been closely linked in the early 1970s, it became clear to the leaders in both specialties that their roads would be separate for at least a few years. Like their EM counterparts, CCM leaders turned their attention to becoming certified as a boarded specialty.^{6,15}

Leaders in CCM failed in a brief attempt to form their own primary critical care board; however, in 1979, a new method was proposed within ABMS to make critical care a multidisciplinary subspecialty of four existing primary boards: anesthesia, internal medicine, pediatrics, and surgery.^{7,15,16} This newly

formed Joint Committee on Critical Care Medicine (JCCCM) was charged with determining training criteria for critical care fellowships and with writing and implementing an examination to certify competence in the new subspecialty of CCM.¹⁶ According to Dr. George Podgorny, President of ABEM and ACEP at the time, a "verbal promise" was made to ABEM to eventually provide access to ABEM diplomates to sit for the critical care board examinations.⁷

The JCCCM struggled to reach a consensus on training criteria and on how to administer the subspecialty as a part of four different boards.¹⁶ In September 1983, the American Board of Internal Medicine (ABIM) withdrew from the JCCCM and submitted a separate application to ABMS to certify ABIM diplomates as subspecialists in CCM.¹⁷ Eventually, the boards of pediatrics, surgery, and anesthesia followed suit, and critical care became a separate subspecialty of the four separate boards.¹⁶ In 1987, approximately eight years after the process was begun, the first CCM board examination was administered by ABIM.¹⁷

Throughout the early to mid-1980s, EM was relegated to an outsider status in the certification process for critical care. Although the historical literature on both the EM and the CCM sides mentions that ABEM was interested in issuing critical care subspecialty certification, no accommodations were made for ABEM diplomates to sit for the critical care boards.^{7,15,16,18,19}

THE 1980S AND THE PUSH FOR PRIMARY BOARD STATUS

As the CCM community progressed in its goals to become a certifiable medical specialty, and after the approval of EM as a conjoint (modified) board, EM specialists perceived CCM as a natural field of subspecialty interest.²⁰ Although ABMS bylaws made it impossible for a conjoint board to issue a certificate of special qualifications, ABEM decided that it was possible for them to issue a certificate of added qualifications. Less rigorous than special qualification, a certificate of added qualifications would have been a modification of the general certification of ABEM. In May 1986, ABEM submitted an application to ABMS for a certificate of added qualifications in CCM.^{7,21} Almost immediately, the opposition to such a certification began to mount.

By the end of 1986, ABIM and the American Board of Pediatrics had formally protested the added certification. The opposition, led by Dr. John Benson, Jr., Executive Director of ABIM, cited concerns that critical care "implies continuity of care in the most complicated and difficult environments for... patients" and that the "emergent or short-term interventional process is only a small component of the overall process of critical care."²² ABIM suggested combined

training programs in EM and internal medicine as a way for EM-trained physicians to be eligible to become CCM specialists.²³ According to Benson Munger, Executive Director of ABEM at the time, leaders in internal medicine and pediatrics viewed the critical care issue as a way for EM to get "the camel's nose under the tent" of inpatient medicine and worried that if EM were granted the ability to train in CCM, inpatient care by emergency physicians could someday follow.²⁴

At the same time as it proposed a combined EM/internal medicine training program, ABIM also informed ABEM of its plan to issue an added certification in emergency internal medicine.²² EM leaders became very concerned that a subspecialty of emergency internal medicine would subvert the further development of EM as a specialty. To prevent this from happening, ABEM decided to compromise on the critical care issue to salvage its chances for primary board status.²⁵ In December 1986, ABEM applied to ABMS to become a primary board and as a first step decided to defer its application for certification of added qualifications in CCM.^{26,27} Although ABEM put a hold on the process, it still believed it had the right to critical care certification. Dr. James Mills, Jr., President of ABEM at the time, wrote, "In a very real sense it is our belief that the continuum from emergency medical care [to critical care medicine] is a reasonable and logical one, and... a specialist... in critical care medicine can be created by additional training for a physician who presents EM training... as a prerequisite."²⁶

While ABEM prepared its formal application for primary board status, ABMS worked to interpret its bylaws and define the rights of conjoint (modified) boards. In early 1987, ABMS decided that a conjoint (modified) board was allowed to issue certificates of added qualifications but not certificates of special qualifications.²⁸ This was a small victory for ABEM and kept the CCM issue alive for the next couple of years.

In the May 1987 ABEM application to ABMS, there is no mention of critical care certification for ABEM diplomates, but the application does state that "the approval of ABEM as a Primary Board would not automatically create additional certification options. Any modification of certificates or levels of certification must be approved by the appropriate ABMS process."²⁹ The application was first considered by the ABMS executive committee and was unanimously approved. The executive committee, perhaps wondering about the critical care issue, called attention to three issues, including in-hospital continuous care, asking, "Does the ABEM see a role for emergency physicians for in-hospital continuous or long-term care?"³⁰ With the approval of the ABMS executive committee, ABEM felt encouraged about being approved as a primary board.³¹ However, there still

existed a great deal of opposition, and in September 1987, the full delegation of ABMS voted with a small majority to reject the application.³² ABEM remained a conjoint (modified) board, and critical care certification remained on hold. ABIM and the American Board of Pediatrics continued to discuss subspecialty certification in emergency internal medicine and emergency pediatrics, and ABEM began to realize that more compromises would be necessary.²⁵

FINAL COMPROMISE AND PRIMARY BOARD STATUS

In the early summer of 1988, the new President of ABEM, Dr. Judith Tintinalli, and Executive Director Dr. Benson Munger attended the ABIM summer conference in Carmel Valley, CA.²⁵ They presented information about the activities of ABEM and were able to reassure ABIM by insisting that ABEM had no interest in inpatient care. By placing emphasis on out-of-hospital emergency medical services and presenting information on the growing field of EM research, Tintinalli and Munger swayed many from ABIM to the side of ABEM.^{25,33} Combined internal medicine/EM and pediatric/EM programs were discussed and agreed to in principle, and as a final bargaining chip ABEM voted during its July 1988 board meeting to "withdraw its application for added qualifications in Critical Care Medicine."^{34–36} The response from ABIM was very positive, and Dr. Benson wrote in a cordial letter that "ABIM applauds the withdrawal by ABEM of its application for authorization to issue certificates of Added Qualifications in Critical Care."³⁷

ABIM immediately changed its opposition to primary board status for ABEM; after another application process, ABEM was approved by ABMS as a primary board on September 21, 1989.³⁸ By agreeing to combined residency training programs and giving up on critical care certification, ABEM had achieved, after two decades of struggle, full standing in American medicine.

CONCLUSIONS

The coincidental development period, overlap in scientific content and required training, and a commonality of practice promulgated a relationship between EM and CCM that continues in fits and starts until the present day.^{39–43} Negotiations by ABEM with the American Board of Anesthesia and ABIM have recently reexplored the issue but with no formal resolution.⁴⁴ Currently, EM residents are allowed to enter critical care fellowships but are not allowed to become board certified in CCM.

Interestingly, in some countries in Europe, the EM and CCM relationship developed much differently and is much more along the lines of the continuum that Safar first envisioned, with CCM specialists

responsible for out-of-hospital, ED, and CCU treatment of critically ill patients.⁴⁵

The opponents of CCM training for EM in the United States were worried that emergency physicians would expand their practice or take over elements of inpatient care. The great irony in reviewing the history of the relationship and then looking at the current state of hospital and ED crowding is that emergency physicians did not have to move to the CCU to have the opportunity to manage critical care patients. In many busy hospitals with limited CCU beds, emergency physicians are responsible for the care of critically ill emergency patients for 24 hours or longer. Still, some in EM would like to pursue a career path with formal critical care training and the opportunity for certification as a subspecialist. The only path to this end at present is to do a combined residency training program followed by a critical care fellowship. Whether this is the final chapter in the long, interwoven saga of EM and CCM in America remains to be seen.

References

1. Zink B. *Anyone, Anything, Anytime—A History of Emergency Medicine*. St. Louis, MO: Mosby (in press).
2. Hilberman M. The evolution of intensive care units. *Crit Care Med*. 1975; 3:159–65.
3. Eisenberg MS. *Life in the Balance, Emergency Medicine and the Quest to Reverse Sudden Death*. New York, NY: Oxford University Press, 1997.
4. Dineen J. The need for training physicians in emergency medicine. *J Trauma*. 1972; 12:378–84.
5. Wiegenstein JG. The need for training physicians in emergency medicine. *J Trauma*. 1972; 12:375–6, 380–4.
6. Grenvik A. Certification of special competence in critical care medicine as a new subspecialty: a status report. *Crit Care Med*. 1978; 6:355–9.
7. Podgorny G. ABEM Advisory Committee Brief: The American Board of Emergency Medicine, July 10, 1986.
8. Abramson NS, Levine R, Safar P. Physician education in emergency and critical-care medicine: a continuum? *Am J Emerg Med*. 1985; 3:569–71.
9. Grenvik A, Kochanek PM. The incredible career of Peter J. Safar, MD: the Michelangelo of acute medicine. *Crit Care Med*. 2004; 32(Suppl):S3–7.
10. Safar P. Critical care medicine—quo vadis? *Crit Care Med*. 1974; 2:1–5.
11. JACEP News. *J Am Coll Emerg Physicians*. 1975:53.
12. Council on Medical Education: Report on the Conference on Education of the Physician in Emergency Medical Care. Chicago, IL: American Medical Association, 1973.
13. Safar P. The Critical Care Physician. Report on the Conference on Education of the Physician in Emergency Medical Care. Chicago, IL: American Medical Association, 1973.
14. Podgorny G. White Paper. American College of Emergency Physicians, 1979.
15. Grenvik A, Leonard JJ, Arens JF, Carey LC, Disney FA. Critical care medicine. Certification as a multidisciplinary subspecialty. *Crit Care Med*. 1981; 9:117–25.
16. Grenvik A. Subspecialty certification in critical care medicine by American specialty boards. *Crit Care Med*. 1985; 13:1001–3.
17. Norcini JJ, Shea JA, Langdon LO, Hudson LD. First American Board of Internal Medicine critical care examination: process and results. *Crit Care Med*. 1989; 17:695–8.

18. Baraff LJ, Podgorney G. Role of emergency medicine in critical care. *Am J Emerg Med.* 1984; 2:109.
19. Hellstern RA. Intensive/critical care and emergency medicine [editorial]. *Am J Emerg Med.* 1984; 2:108.
20. Goodenberger DM. Critical-care training for emergency medicine residency graduates. *Am J Emerg Med.* 1985; 3:531-3.
21. American Board of Emergency Medicine. Application to the American Board of Medical Specialties by the American Board of Emergency Medicine for Added Qualifications in Critical Care Medicine, May 14, 1986.
22. Fallon HJ. Letter to James Mills, Dec 30, 1986.
23. Benson JA. Letter to Donald Langley, Jan 7, 1987.
24. Personal communication, telephone interview of Benson Munger, PhD, by David Somand, 2005.
25. Personal communication, interview of Judith Tintinalli, MD, by David Somand, 2005.
26. Mills J. Letter to Harold Fallon, MD, Feb 12, 1987.
27. American Board of Emergency Medicine. American Board of Emergency Medicine Annual Report: 1986-1987; 1986-1987, p 8.
28. Munger B. Memorandum—ABMS Proposed Bylaw Changes: American Board of Emergency Medicine, February 13, 1987.
29. American Board of Emergency Medicine. American Board of Emergency Medicine Primary Board Application, May 14, 1987, p 15.
30. Langsley DG. American Board of Medical Specialties—Highlights of Executive Meeting July 2, 1987. American Board of Medical Specialties, Jul 4, 1987.
31. Anderson GV. Letter to John Benson, MD, Aug 25, 1987.
32. Anderson GV. Letter to American Board of Emergency Medicine, Sept 24, 1987.
33. Benson JA. Letter to Judith Tintinalli, MD, Aug 23, 1988.
34. Tintinalli J. Letter to Donald Langsley, MD, Aug 31, 1988.
35. Tintinalli JE. Withdrawal of critical care medicine application by ABEM. *J Emerg Med.* 1989; 7:292.
36. Tintinalli JE. ABEM & critical care [letter]. *Ann Emerg Med.* 1989; 18:330.
37. Benson JA. Letter to Judith Tintinalli, MD, Mar 14, 1989.
38. Clinton JE. Letter to Robert Azinger, MD, Sept 22, 1989.
39. Milzman DP, Rubin S, Moskowitz L. Consideration of adult critical care training for emergency physicians. *Acad Emerg Med.* 1999; 6:345-8.
40. Abramson NS, Dellinger RP, Ehrlich FE, et al. The future of critical care medicine within emergency medicine. *Ann Emerg Med.* 1990; 19:832-5.
41. Falk JL. Emergency medicine and critical care. *Am J Emerg Med.* 1990; 8:573.
42. Falk JL. The future of critical care medicine within emergency medicine. *Ann Emerg Med.* 1991; 20:320-1.
43. Crippen D. A career path in emergency and critical care: the time is ripe. *Am J Emerg Med.* 1990; 8:162-4.
44. Personal communication, interview of William Barsan, MD, by David Somand, 2004.
45. Garcia-Barbero M, Such JC. Teaching critical care in Europe: analysis of a survey. *Crit Care Med.* 1996; 24:696-704.