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American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Annals *of* Emergency Medicine
An International Journal

VOLUME 56 NUMBER 2 AUGUST 2010

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The Future of Emergency Medicine

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0196-0644/$-see front matter
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doi:10.1016/j.annemergmed.2010.04.011

[Ann Emerg Med. 2010;56:178-183.]

INTRODUCTION

Physician shortages are being projected for most medical specialties.[1] The specialty of emergency medicine continues to experience a significant workforce shortage in the face of increasing demand for emergency care. The limited supply of emergency physicians, emergency nurses, and other resources is creating an urgent, untenable patient care problem.

In July 2009, representatives of the leading emergency medicine organizations met in Dallas, TX, for the Future of Emergency Medicine Summit (a complete list of attendees is included in the Appendix). The organizations represented met specifically to address the issues facing the emergency care workforce. This consensus document, agreed to and cowritten by all participating organizations, describes the substantive issues discussed and provides a foundation for the future of the specialty. There are other, nonworkforce issues that were not addressed that will also inevitably influence the future of emergency medicine.

Overview

Attendees at the Future of Emergency Medicine Summit agreed that:

1. Emergency medical care is an essential community service that should be available to all. Public expectations, as well as federal law, require the ready availability of emergency care. Resources, including funding, should be made available to meet this well-intended goal.
2. An insufficient emergency physician workforce also represents a potential threat to patient safety.
3. Accreditation Council for Graduate Medical Education/American Osteopathic Association (AOA)-accredited emergency medicine residency training and American Board of Medical Specialties/AOA emergency medicine board certification are the recognized standard for physician providers currently entering a career in emergency care. Physicians who enter the practice of emergency medicine in the 21st century without this training represent a potential threat to patient safety.
4. Physician supply shortages in all fields contribute to—and will continue to contribute to—a situation in which providers with other levels of training may be a necessary part of the workforce for the foreseeable future. These providers include nurse practitioners, physician assistants, and physicians trained in fields other than emergency medicine.
5. A misdistribution of emergency medicine residency–trained physicians persists, with few pursuing practice in small or rural settings.
6. Ensuring that the public receives high-quality emergency care while continuing to produce highly skilled emergency medicine specialists through emergency medicine training programs is the challenge for emergency medicine's future.
7. It is important that all providers of emergency care receive continuing postgraduate education.

DISCUSSION

During the past 40 years, emergency medicine has become an established discipline. It is a recognized specialty with a unique body of knowledge. The goals of the founders of emergency medicine were to establish specialty credibility, create residency training programs, and develop board certification. (The term "board certification" in this article refers to the American Board of Emergency Medicine, the American Osteopathic Board of Emergency Medicine, or Pediatric Emergency Medicine [through the American Board of Emergency Medicine or American Board of Pediatrics] certification.) Those goals have been accomplished. During the past 4 decades, the number of emergency medicine residency–trained/board-certified emergency physicians has increased dramatically. Still, today the supply continues to fall short of the demand. Providing the qualified physicians to care for patients in need of emergency care in the United States remains a formidable challenge.

Today's environment also holds many nonworkforce challenges for emergency medicine. The uncertainty of federal

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health care reform and the inability to sustain the current medical practice model loom large in the environment. Also of significance to emergency medicine is the need for professional liability reform, the lack of fair reimbursement, overregulation, and violations of emergency physicians' practice rights.

In 2006, the latest year for which information is available, there were approximately 120 million patient visits for emergency care in the United States. That number has increased dramatically during the past decade, reflecting many factors such as an aging, chronically ill, and increasingly mobile population that demands continuous access. Utilization is likely to increase as more individuals acquire health insurance coverage, which was demonstrated in Massachusetts, where insurance coverage for 97% of their population resulted in a significant increase in the number of emergency department (ED) visits.[2] A similar phenomenon occurred in Australia after adoption of measures providing universal coverage for diabetes.[3] Despite all the current challenges of insufficient resources and providers, emergency medicine has grown rapidly and continues to provide care for patients who could not otherwise access the health care system.

Physician Workforce

Early leaders in emergency medicine worked diligently to develop training programs in academic medical centers and teaching hospitals across the country. Many other physicians devoted their careers to emergency medicine, even though they were ineligible for board certification without completing additional training. Many of these "legacy" physicians still practice emergency medicine.[4] In 2009, there were 149 allopathic residency programs and 43 osteopathic emergency medicine residency programs.[5] Annually, approximately 1,500 physicians complete emergency medicine residency programs and enter the workforce. Although the percentage of emergency medicine residency–trained/board-certified emergency physicians continues to grow, many positions in hospital EDs are still filled by physicians who are neither trained in emergency medicine nor are legacy emergency physicians. All organizations participating in the Future of Emergency Medicine Summit agreed that emergency medicine residency training is now the recognized standard for physicians entering the specialty of emergency medicine in the 21st century.

It had been the conventional wisdom that emergency medicine residency–trained/board-certified emergency physicians would eventually replace the non-emergency medicine residency–trained/board-certified physicians because retirement of long-practicing physicians would yield spots for newly trained emergency physicians. Recent evidence suggests that this may not be the case. In fact, it is likely that emergency medicine residency–trained/board-certified emergency physicians will not be able to fill the workforce demand for several decades, if ever. Several recent studies suggest that emergency medicine workforce demand will not be met by the current training and certification methods.[6-8] This problem is even more severe in rural areas in which the percentage of residency-trained physicians is considerably less. A recent study from Iowa[9] reported that only 12% of EDs there were staffed exclusively by emergency medicine residency–trained/board-certified emergency physicians, whereas 23% of hospitals were staffed exclusively by family medicine physicians. The survey revealed that 39% of hospitals in Iowa used nurse practitioners or physician assistants as sole coverage during at least some of the workweek. The challenge becomes preservation of quality patient care and safety that uses a disparate workforce while preserving the value of emergency medicine residency training.

Physicians entering the practice of emergency medicine without emergency medicine residency training and board certification have not been adequately trained in ED patient and venue management or in the lifesaving skills taught in emergency medicine residencies. Although basic skills are taught in courses such as advanced cardiac life support, advanced trauma life support, pediatric advanced life support, and advanced pediatric life support, these courses alone are not sufficient to ensure that quality emergency care is delivered by individuals who complete them. Completion of residency training and board certification in a non-emergency-medicine medical specialty is not intended to—nor does it—prepare a physician for the independent practice of emergency medicine. However, because of the shortage of emergency medicine residency–trained/board-certified physicians and the demand for physician coverage, non-emergency medicine residency–trained/board-certified physicians may staff EDs, and with time many acquire a level of skill in emergency medicine.

The development of dual training programs in emergency medicine and family medicine, emergency medicine and internal medicine, and emergency medicine and pediatrics supports the general assertion that primary care residency training alone does not sufficiently encompass the body of knowledge or the training needed to be an emergency physician.

In areas in which there are no emergency medicine residency–trained/board-certified emergency physicians, other physicians may be needed to provide emergency care. There is a clear distinction between providing some emergency care as a patient's personal physician and being an emergency physician. There is a shortage of physicians in many fields, most notably primary care. When physicians trained in primary care choose to practice emergency medicine, the shortage of those providers becomes more critical. Any solution to the shortage of emergency providers must not worsen the shortage of primary care or other providers.

With the probability of emergency care being delivered by a variety of providers of diverse backgrounds and training, public safety requires that every emergency provider have the skills necessary to perform the job. During the upcoming years, when much of the emergency medicine workforce will continue to be non-emergency medicine residency–trained/board-certified providers, the specialty must discover innovative approaches to raise the level of care, as well as the cognitive and technical skills of all emergency providers.

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The evolution of emergency medicine as a specialty resulted in specialty training and a board certification process that tests for skills and knowledge, as well as the maintenance of those skills. Although the competency of an individual provider is not based solely on training and is best determined by an organized medical staff, emergency medicine residency–trained/board-certified emergency physicians are the only providers currently who are trained and certified to practice emergency medicine.

Nursing Workforce

Recent data also suggest a serious emergency nurse shortage. Currently, the average nurse in clinical practice is 46.8 years old.[10] Data from Texas in 2001 suggest that half of the nursing workforce of that state plans to retire by 2012.[11] Nationally, there is a similar pattern, with approximately 40% of the nursing workforce older than 50 years in 2010.[12] One key to the nursing shortage is the lack of nursing school faculty necessary to train future nurses. The lack of resources and the recent and ever-increasing practice of boarding inpatients in EDs have caused many career emergency nurses to rethink their careers. Increasingly, hospitals rely on temporary nurses employed by a contracted agency to fill the gaps in the emergency nurse workforce. These nurses may not have the training or experience needed to provide quality emergency care.

Physician Assistant and Nurse Practitioner Workforce

One possible solution is to use nonphysician providers. There are many physician assistants and nurse practitioners currently providing emergency care. The workforce in 2009 includes 79,980 physician assistants, with 93% in clinical practice.[13] There are 141,209 nurse practitioners in the United States, of whom 85% are in primary care; only 5% practice in emergency care settings.[12] Physician assistants are dependent practitioners licensed by medical boards and are trained in the traditional medical model of physician education. Nurse practitioners are licensed by nursing boards and in many states may practice independently. Many of these providers elect full- or part-time practice in EDs. Physician assistants and nurse practitioners can be used to augment emergency physicians, but in small departments, which represent a sizable percentage of facilities, sole coverage by a physician may still be preferable.

Currently, there are few options for comprehensive physician assistant or nurse practitioner postgraduate emergency care–specific training. There are only 8 training programs in the United States for nurse practitioners specific to emergency care, and no state-specific certification; therefore, nurse practitioners practicing in EDs must be certified in another area, usually as a family nurse practitioner. The Emergency Nurses Association has established scope of practice, standards of care, and competencies for nurse practitioners practicing in emergency care settings. Programs for the postgraduate physician assistant transitioning into emergency medicine are under development. There are currently no emergency medicine–specific standards, competency measurements, or continuing education requirements. Development of emergency care–specific continuing education and standards is being undertaken by the National Commission for the Certification of Physician Assistants. These will be needed to help ensure quality patient care.

All Providers

Solutions must be sought to improve the quality of patient care provided by all emergency providers. One potential safeguard to help ensure an optimal level of patient care would be the establishment of guidelines or standards for basic procedural and cognitive skills for all emergency providers. Training and competency assessment programs could be established, ensuring a basic level of care for communities without access to emergency medicine residency–trained/board-certified emergency physicians. Regular reassessment of skills, similar to that of existing maintenance of certification programs, would be essential. A program in Nebraska that provides hands-on education in emergency procedures for rural practitioners may be an example of such a program (personal communication, Robert Muelleman, MD, University of Nebraska, July 2009). In addition, the Comprehensive Advanced Life Support program, initiated in Minnesota but used elsewhere, provides information similar to that of other advanced life support courses but includes training in advanced airway management.[14] Such programs could be mandatory for physicians and nonphysicians alike who provide emergency care and are not covered by a maintenance of emergency medicine board certification program. In addition, special arrangements should be made for those providing emergency care but not directly supervised by an emergency medicine residency–trained/board-certified physician. Regular assessment of competency would be a component of such a system. This training and competency assessment would not be equivalent to the training and assessment provided by emergency medicine residency programs, but it would clearly raise the quality of care provided to the public.

SOLUTIONS

Regionalization of emergency care, as recommended in the Institute of Medicine report, may help to more efficiently utilize the supply of emergency medicine residency–trained/board-certified emergency physicians.[15] Regionalization refers to an organized system for the delivery of emergency care within a region. The goal is to ensure access while avoiding costly duplication of services. One successful model for regionalization has been systems for trauma care. Early attempts at regionalization of cardiac and stroke care have been less successful, in part because the standards can be achieved by so many hospitals, with no clear path from hospitals with lesser capabilities to those with greater capabilities. This may in part be due to the greater reimbursement afforded for interventional cardiac care and interventional stroke care than for injured patients, which offers greater incentive for hospitals to keep

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lucrative patients at their own facilities and not rely on a regional system. Today, there is no other regionalization of emergency care. The Emergency Care Coordination Center of the US Department of Health and Human Services has been charged by the federal government with examining regionalization models of emergency care.

An initial step toward de facto regionalization could be categorization of emergency facilities. In the late 1990s, the Macy Foundation recommended that US EDs be categorized according to resources and staffing.[16] There have been a number of attempts at categorization of emergency care, but all to some degree have failed. Categorization could improve quality by motivating hospitals to meet higher standards for their emergency care workforce and capabilities. On the other hand, categorization could decrease the quality of care in some hospitals because there is the risk that emergency medicine residency–trained/board-certified emergency physicians may avoid these hospitals, and there may be a financial advantage to staff with lower-cost providers, which may place the public at risk. However, categorization would help bring transparency about ED resources, staffing models, and capabilities to the public. Patients choose their personal physicians for a variety of reasons, but studies show that patients choose emergency care according to the reputation of or experience with the sponsoring facility.

Categorization of emergency care is under way in the military. The military model distributes physicians with the highest level of training to the areas that anticipate the highest-acuity patients. This model also includes regionalization and coordination of care that extensively utilizes telecommunication technology. This tiered system of delivery could be translated to civilian emergency medicine, perhaps with emergency medicine residency–trained/board-certified physicians positioned in the highest-acuity facilities and non-emergency medicine residency–trained/non-board-certified physicians positioned in the lower-acuity areas. Population demographics might concentrate emergency medicine residency–trained/board-certified emergency physicians in urban areas. Although this system may solve some problems, it is problematic because many rural areas also lack availability of non-emergency-medicine medical specialties, which makes it vital that physicians providing emergency care possess the skills necessary to treat all life-threatening conditions, even if those same skills are infrequently used.

Additional models discussed included the use of a supervising emergency medicine residency–trained/board-certified physician to oversee other providers, the use of a mix of providers with different levels of training, and the use of telemedicine to provide real-time oversight. Current use of telemedicine is limited because of lack of payment for such consultations. Many in attendance agreed that ideally every ED should have the administrative and quality assurance oversight of an emergency medicine residency–trained/board-certified physician.

One obstacle in the development of a functional categorization or regionalization plan is the lack of comprehensive data about the delivery of emergency care in the United States. There was consensus that additional research is needed to improve the quality and efficiency of emergency care. Even basic system elements such as the number of EDs, the number of emergency physicians, and the resources available at each facility are unavailable or unreliable. Simple contact information for each ED is often unavailable or erroneous. An emergency medicine data registry should be developed. This emergency registry would be similar to cardiology and trauma databases that already exist. The emergency registry would supply crucial information needed to develop categorization criteria, perform comparative effectiveness research, establish value-based best practices, reduce costs, and improve quality.

Another workforce solution is to increase the efficiency of individuals currently providing emergency care. Increasing regulation of emergency care means that providers spend less time on patient care and more time addressing administrative issues. Although electronic medical records in many instances increase physician work, scribes and other innovations increase physician efficiency. Where barriers to efficiency exist, they must be removed.

Another solution is to increase the supply of emergency medicine residency–trained/board-certified emergency physicians, which would require increasing the number of emergency medicine residency training programs or increasing the number of residents training in those programs. This issue is more complex than it appears. The financing of emergency medicine training, and medical training in general, is a cause of many of the current and projected physician shortage and maldistribution issues. There are currently caps on the funding for graduate medical education. These caps are politically and historically based. Emergency medicine, because it is new, has been at a disadvantage from the start of the specialty despite overwhelming support from the public.

Recent changes in loan repayment statutes requiring residents to pay interest on their student loans while earning a comparatively small salary contribute to the financial burdens of future physicians, which provides a disincentive for choosing medicine as a career. The Health Resources and Services Administration excludes emergency medicine trainees from their loan forgiveness programs, which is a disincentive for emergency medicine and means that emergency physicians cannot earn loan forgiveness in return for provision of emergency medical care in an underserved area. Correction of both of these issues will help the emergency care workforce. Loan forgiveness in return for service in rural areas sponsored by federal or state programs, or even individual communities, may improve the distribution of emergency physicians.

Increasing the supply of physicians in rural areas will be a challenge for all specialties, not just emergency medicine. The National Health Service Corps, responsible for providing essential care in rural areas, provides few, if any, positions for

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emergency physicians. Compensation is often less in rural areas, and the lack of on-call specialty consultants makes the practice of emergency medicine especially challenging. Patients with complex chronic disease may be able to access specialty care available only in urban areas, but no such option exists when they need emergency care. Rural emergency providers must be capable of providing quality, complex emergency care. Incentives to encourage new emergency medicine residency graduates to practice in rural communities might include resident loan forbearance and deferment, tax deductibility of student loan payments, and support of rural rotations during residency training.

The shortage of emergency nurses parallels that of emergency physicians. More resources must be provided for nursing schools in general and specifically for training more emergency nurses. Several states prohibit new registered nurses from working in EDs for 6 months to 1 year. Although this prohibition may improve the skills and increase the number of nurses willing to work in inpatient units, many are unwilling to seek transfer to EDs after the specified period. We must remove all unnecessary barriers to increasing the supply of emergency nurses.

Paramedics possess some emergency skills and can augment nurse staffing, yet in some states they are prevented by state and local statute from performing the same tasks they are expected to provide during ambulance transport.

Physician assistants and nurse practitioners also would benefit from the availability of more training opportunities in emergency care. Barriers to increasing the supply of these providers should also be addressed.

THE FUTURE

Physicians practicing emergency medicine in the United States treat millions of patients every year and save innumerable lives. To be successful, emergency care needs more resources and more providers. We need to ensure the appropriate training and continuing education of our workforce. We also need additional data to create the innovative solutions to the workforce shortage that will carry this specialty—and the health of this nation—into the future.

Supervising editor: Michael L. Callaham, MD

Funding and support: By *Annals* policy, all authors are required to disclose any and all commercial, financial, and other relationships in any way related to the subject of this article that might create any potential conflict of interest. The authors have stated that no such relationships exist. See the Manuscript Submission Agreement in this issue for examples of specific conflicts covered by this statement.

Publication dates: Received for publication February 16, 2010. Accepted for publication March 30, 2010. Available online June 22, 2010.

This article will be copublished in *Academic Emergency Medicine*, the *Journal of Emergency Nursing,* the *Journal of Emergency Medicine,* and *The Pulse* (from the American College of Osteopathic Emergency Physicians).

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APPENDIX

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