The Critical Care Medicine Crisis: A Call for Federal Action*

A White Paper From the Critical Care Professional Societies

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In the United States, shortages of qualified health-care professionals have created a major threat to the availability and quality of critical care services for seriously ill patients. An unprecedented, and largely unrecognized, shortage of physician intensivists in the near future will deny standard critical care services for large populations of patients with serious illnesses. If the current trend persists, shortages of these specialists, combined with the current shortages of critical care nurses, pharmacists, and respiratory therapists, will become severe by 2007 and will worsen through 2030. Numerous studies demonstrate that critical care services directed by physicians who are formally trained in critical care medicine reduce mortality in the ICU and reduce health-care costs. While people of all ages, from low-birth-weight newborns to senior citizens, benefit from treatment in the ICU, older Americans receive a disproportionate share of ICU services. The demand for ICU services, therefore, will continue to grow as the baby boom generation ages. To address the shortage, the critical care professional societies recommend that steps be taken to improve the efficiency of critical care providers, to increase the number of critical care providers, and to address the demand for critical care services.

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Key words: critical care; workforce shortage

Abbreviations: CMS = Centers for Medicare and Medicaid Services; COMPACCS = Committee on Manpower for Pulmonary and Critical Care Societies; FOCCUS = Framing Options for Critical Care in the United States; GME = graduate medical education; HRSA = Health Resources and Services Administration

I. Issue Overview

A. General Background on Critical Care Medicine

Critical care medicine is the direct delivery of medical care by a physician to a critically ill or critically injured patient. A critical illness or injury acutely impairs one or more vital organ systems such that there is a high probability of imminent or life-threatening deterioration in the patient's condition. Care of these patients can take place anywhere in the inpatient hospital setting, although it typically occurs in the ICU. Critical care involves highly complex decision making to assess, manipulate, and support vital system functions, to treat single or multiple vital organ system failure, and/or to prevent further life-threatening deterioration of the patient's condition.[1]

Critical care medicine is provided by physician-directed multidisciplinary teams consisting of nurses, respiratory therapists, pharmacists, and physician assistants. Critical care medicine has evolved into a board-certified medical subspecialty that trains physicians to utilize a unique combination of skills needed to care for critically ill patients. Board-certified critical care specialists come from a variety of specialty backgrounds. Most of the physicians who practice critical care come from the internal medicine subspecialty of pulmonology. Other specialties that also practice critical care include anesthesiology, surgery, and pediatrics.

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Numerous studies[2] have shown that board-certified critical care-directed teams save lives and reduce costs. The strength of these studies is so compelling that organizations such as the LeapFrog Group, a business consortium that studies ways to reduce health-care costs for employers, have required hospitals in their health networks to provide coverage in the ICU 24 h per day/7 days per week with board-certified critical care specialist staffing during daytime hours, and at other times with the return of ICU pages by a board-certified physician, or an arrangement for a specially trained physician or physician extender to reach an ICU patient within 5 min.[3]

While people of all ages, from low-birth weight newborns to senior citizens, receive treatment for critical care services across the United States, older Americans continue to consume a disproportionate share of critical care resources.

B. Shortage of Critical Care Providers

The United States is currently facing an unprecedented, and largely unrecognized, shortage of physicians trained to provide critical care services. As described in a study by the Committee on Manpower for Pulmonary and Critical Care Societies (COMPACCS),[4] future demand for critical care services in the United States will soon exceed the capabilities of the current delivery system. The most alarming problem is that the anticipated shortage of health-care professionals practicing critical care medicine already has begun.

Today, board-certified critical care physician-directed ICU teams care for only one in three patients in the ICU. The aging population, and the coinciding increased demand for critical care services, will exacerbate the situation. If current trends continue, a severe shortage of critical care specialists will occur by 2007 and will worsen until 2030. This means that in the near future, patients with critical care illnesses will be unable to get medical treatment from physicians trained in providing critical care services.

C. Contributing Factors to the Critical Care Shortage

There are several contributing factors that have created the critical care shortage. The following factors should guide any federal policy decisions: the aging of the US population will lead to a predictable increase in the demand for critical care services; the supply of physicians and allied health professionals trained to provide critical care services will remain constant; the limited number of physician residency/fellowship trainee slots prevents medical schools from quickly increasing the number of physicians trained in critical care medicine; cuts in graduate medical education (GME) payments have reduced the funds available for physician training; the cost of medical school education is significant and continues to rise; medical school debt pressures many physicians to pursue the highest paying specialties; and, finally, the complexity of Medicare reimbursement tends to drive physicians out of the field.

The combination of these factors creates the self-fulfilling prophecy of a depleted workforce. Because there are fewer critical care specialists, those remaining become overwhelmed and exit the system prematurely.

There are many challenges facing critical care providers. Considering the intensity of services, and the time commitment and emotional demands involved, the reimbursement for critical care medicine is low. Further complicating the problem is that many critical care practices are finding it difficult to hire new physicians and critical care nurses from a diminishing pool of qualified applicants. While the need for additional critical services many be growing, critical care physicians are prevented from significantly increasing their critical care time because of other clinical and business commitments.

II. Federal Policy Recommendations

Policy initiatives can be implemented to address the looming shortage of physicians trained in critical care medicine. Some of these initiatives are specific to critical care medicine, and others will affect the entire field of medicine. Federal support is required to implement many of these initiatives.

The following sections outline a series of policy initiatives that have been identified by the COMPACCS as key actions with which to address the coming shortage of critical care providers. These initiatives cover the following three general areas: improving the efficiency of critical care providers; increasing the supply of critical care providers; and addressing patient demand for critical care services.

A. Improving the Efficiency of Critical Care Providers

1. Implement the Framing Options for Critical Care in the United States Recommendations: In response to the COMPACCS study, the professional societies for critical care nurses and physicians organized a task force called Framing Options for Critical Care in the United States (FOCCUS), which assessed the current state of critical care and developed recommendations on how to respond to this workforce crisis.

The implementation of a number of the FOCCUS

task force recommendations could be facilitated by federal government assistance, including the following: standardization of the practice of critical care (recommendation 1); examination of the role of medical informatics (recommendation 2); and research to better identify the optimal roles for critical care professionals in the delivery of services (recommendation 4).

To implement the recommendations of the FOCCUS task force, we recommend the following:

- The Agency for Health Research and Quality and the Health Resources and Services Administration (HRSA) should conduct studies on medical informatics, quality of care, and medical practice in the field of critical care medicine.
- HRSA should conduct studies tracking the supply of and demand for critical care services, and their utilization.
- The Centers for Medicare and Medicaid Services (CMS) should conduct research demonstration projects on the optimization of critical care services for the Medicare and Medicaid populations.
- The Institute of Medicine should conduct a study reviewing how the aging population will impact the supply of trained critical care providers in the United States and what steps must be taken to address the critical care needs of the aging population.

2. Redistribute Current Critical Care Workforce: HRSA should develop a model to estimate the appropriate physician/population ratio for critical care specialists. The resulting analysis should be used to assist in the redistribution of the current critical care workforce. To reach the appropriate distribution of physician and allied critical care provider resources will likely require financial incentives to encourage critical care providers to serve in areas of shortage.

3. Explore Innovative Approaches to Relieve Burden on Current Workforce: It is important to explore innovative approaches, where appropriate, to relieve the burden on critical care providers to be physically present in institutional settings on a 24 h per day/7 days per week basis, including the following:

- Telemedicine initiatives that borrow from Department of Defense learning to allow for remote ICU management in rural or other locations that lack staffing depth.
- Borrowing from the trauma center planning model to organize critical care resources in a "tiered" manner that would channel patients who are in need of more intensive or complex services to higher caseload facilities with a better ability to provide the necessary personnel.

4. Simplify Reimbursement System: The reimbursement system is very cumbersome for critical care services because it is time-based, requiring separate rules and guidelines for documentation and payment. It is important to continue, foster, promote, and accelerate the dialog initiated in 1998 between CMS and several provider groups (including the American College of Chest Physicians, the Society for Critical Care Medicine, and the American Thoracic Society) to facilitate billing and reimbursement policies for critical care services.

B. Increasing Supply of Critical Care Providers

1. Long-term Solutions: The federal government provides support for medical education through a variety of mechanisms, including student loan programs and GME payments channeled through Medicare and Medicaid to institutions that train medical residents/fellows, and through a variety of HRSA-sponsored programs. Clearly, the federal government has taken an active role in addressing workforce supply issues.

In accordance with FOCCUS recommendation 3 (to define and promote incentives to ensure the future workforce in the critical care professions), the federal government should consider the following steps to address the looming shortage of critical care providers:

- Eliminate the cap on the number of residency training positions eligible for GME funding.
- Reverse cuts in GME payments to institutions (*eg*, the recent reduction in Medicare indirect medical education payments to 5.5%).
- Provide sponsoring institutions full GME support through the completion of critical care specialty training. GME currently provides sponsoring institutions with full support for medical residents and fellows through their initial board certification, with support being reduced to 50% for additional specialty training.
- Create a national health service corps-type program for critical care physicians. HRSA would identify areas that have an unmet demand for critical care services. Physicians who complete training as board-certified critical care specialists then would be eligible to apply to the program, through which they would receive loan forgiveness for making an irrevocable 3-year commitment to provide critical care services in an HRSA-designated shortage area.
- Expand the Veterans Affairs career development award to support research in pulmonary/critical care.

2. Short-term Solutions: The federal government can produce a near-term increase in the supply of critical care providers through specific changes in the immigration laws of our country. J-1 physicians,

also known as *foreign medical graduates* or *international medical graduates*, are physicians from other countries who have sought and received a J-1 (education exchange) visitor visa in order to attend a medical residency or fellowship training program in the United States This J-1 visa requires that, on completion of the training program, the foreign physician must return to his or her home country for at least 2 years before applying for immigrant status to the United States The foreign physician can have this J-1 visa home-residence requirement waived in return for providing primary care or general mental health care in a federally designated health professional shortage area or a medically underserved area if sponsored by an interested US government agency. State government agencies also may sponsor J-1 physician waiver requests through the "Conrad State 30" program.

The J-1 visa waiver program for physicians should be retained and expanded. Specifically, additional slots should be permitted under the Conrad 30 program. Critical care providers who agree to provide services in health professional shortage areas and medically underserved areas should be allowed to participate in the program, and nongovernmental entities should be permitted to serve as sponsors for critical care providers.

C. Addressing Patient Demand for Critical Care Services

While improving efficiency and expanding the number of physicians trained to care for the critically ill patient is essential, attention also must be paid to factors driving patient demand for critical care services. As the US population ages, there will be a predictable increased demand for these services. To address this age-driven increased demand, we recommend the following:

- The National Institutes of Health, including the National Institute of Aging, the National Heart, Lung, and Blood Institute, the National Institute for General Medical Sciences, the National Institute of Nursing Research, and the National Institute of Allergy and Infectious Diseases, should expand research on providing critical care services to the elderly.
- The Agency for Health Research and Quality and the CMS should sponsor research on optimal systems for providing critical care for Medicare beneficiaries. Research topics should include critical care triage, alternative care pathways for conditions of high mortality, and appropriate provider/patient/family communication.
- The critical care community should work with the Department of Health and Human Services to develop an education campaign to educate Americans on the benefits and limitations of critical care medicine.
- The Department of Veterans Affairs should conduct an ICU census, collecting data on the number of ICU beds, the number of patients seen in the ICU, patient disease, and the physician specialty providing care to the ICU patient.
- Federal agencies should support health systems research on the standardization of critical care information platforms and care delivery.
- Federal agencies should support health systems research on the regionalization of critical care resources.

Conclusion

Compelling evidence exists that the demand for critical care services has already begun to exceed the supply of physicians trained in critical care. The increased demand in critical care services is caused by a significant growth in the elderly population. To meet the increased demand, health-care policy makers will need to consider steps to increase the efficiency of the current critical care workforce, increase the supply of physicians trained in critical care medicine, and explore ways to address the patient demand for critical care services that is driven by the aging population. While addressing each area can make incremental gains, the crisis will be averted only if policy action is taken on all three fronts. The critical care societies, American College of Chest Physicians, the American Thoracic Society, the Society of Critical Care Medicine, and the American Association of Critical-Care Nurses, encourage health-care policy makers to begin a public discussion on this growing shortage of critical care team members. While the numbers in nursing, respiratory therapy, and pharmacy are already at crisis levels, a concerted, dedicated, and strong response must be undertaken to ensure that our most vulnerable patients have the team that will provide them the best possible care. We hope that this document will provide a thoughtful starting point for this important policy discussion.

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