

Critical Care Workforce Partnership Position Statement:
The Aging of the US Population and Increased Need for Critical Care Services
AACN/ACCP/ATS/SCCM*
November, 2001

Summary

In the United States today, there is an unprecedented, unrecognized, and growing crisis in access to quality critical care services for the sickest patients. This crisis threatens patient safety and will continue to increase for the next 30 years. There are currently insufficient numbers of qualified doctors and nurses to provide specialized care in intensive care units (ICU) for critically ill patients and their families. This crisis will intensify as the United States population ages and requires more critical care services but will affect patients of all ages, including infants, children, and young adults.

Patients with life-threatening conditions such as severe heart and lung disease, trauma, chest pain, overwhelming infection, shock, burns, and exposure to toxic agents, as well as those who have undergone major surgery require the services of doctors and nurses who are specially trained to care for them. Critical care physicians, also called intensivists, are trained to have the particular skills and knowledge required to diagnose and treat such urgent, life-threatening illnesses within an ICU. Critical care nurses also are specially trained in the intense monitoring and care offered in ICUs.

The maturing of our population will increase the demand for critical care services in the decades ahead. While this will increase the need for critical care specialists, the current training programs cannot produce a sufficient number of qualified intensivists and nurses to meet the projected needs. If the current trend continues, a severe shortage of these specialists will occur by 2007 and worsen until, at least, 2030. This means that in the years ahead there will be a *decreasing* likelihood that a patient with a critical illness will get optimal, even appropriate, care.

Moreover, several recent studies indicate that even the current level of critical care coverage is not adequate, and patient outcomes could be improved with wider use of critical care intensivists. Today, only one in every three critically ill patients is treated by a critical care intensivist. Yet research has shown that patient outcomes are improved when the sickest patients are cared for by those who are trained in critical care medicine – resulting in fewer deaths, fewer days in the ICU, and lower health costs. Recent studies also have found that insufficient staffing leads to complications, including higher infection rates. This shortage of trained specialists in many hospitals in the US undermines our ability to provide optimal care to these patients and their families even today.

The shortage of trained critical care specialists could also hinder the availability of appropriate medical care in the case of a major disaster or terrorist attack causing massive injuries. In the event of

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an attack using chemical or biological agents, or cases in which trauma or burns are widespread, the necessity of trained critical care physicians to direct the care of victims is imperative. Such events could overwhelm the system, and the medical system must be prepared with an expert team to triage patients to receive appropriate care. If patients are not triaged quickly and moved through the system, the emergency department may become unable to accommodate new patients, a necessity in times of crisis.

The societies of the Critical Care Partnership (American Association of Critical-Care Nurses, the American College of Chest Physicians, the American Thoracic Society, and the Society of Critical Care Medicine) collectively representing over 100,000 health care professionals, believe that shortages such as those described above will affect patient safety and quality of care. The societies have joined forces to inform key audiences of the complex issues associated with shortages of critical care physicians, nurses, pharmacists, and respiratory therapists and propose a platform of incentives that will ensure that critical care professionals are available to serve America's future needs.

Background

I. Impact of the aging of the United States population on the need for critical services

People of all ages become critically ill or injured and require specialized critical care interventions. However, the segment of the population over age 65 has a disproportionate need for critical care services. Because of the aging of the US population, the need for critical care is increasing rapidly. This is primarily due to the aging of the 78 million ‘baby boomers’ who will shortly begin to reach the age of 65. This aging of the United States population will have far-reaching impact on many aspects of American life. Demand for medical services for the elderly will increase, as will demand for other services such as housing, social services, leisure activities, consumer goods, and transportation. Medicare enrollment is predicted to grow by 50% over the next 30 years.

With the increase in numbers of the aged population, we can expect a tremendous increase in demand for critical care services (1). Individuals between the ages of 65-74 use critical care services at a rate that is four times that of people under age 65, and the oldest of us, those 75-84 years old, have a rate that is six times the rate of those under the age of 65.

The need for critical care is determined by a number of factors, many of which are unpredictable and require urgent action. Patients are admitted to ICUs with a variety of conditions, such as multi-organ failure, respiratory distress, infections, shock, severe trauma, other life-threatening conditions, and following surgery for life-threatening complications (see appendix).

II. Is the United States prepared for the increased need for critical care services?

Critical care in the US is provided by a multidisciplinary team of specialized professionals who work together to provide the intense monitoring and care needed for critically ill patients. The team is headed by a physician and includes nurses, pharmacists, respiratory therapists, nutritionists, social workers, and in some cases, bioethicists.

A. Physician Workforce

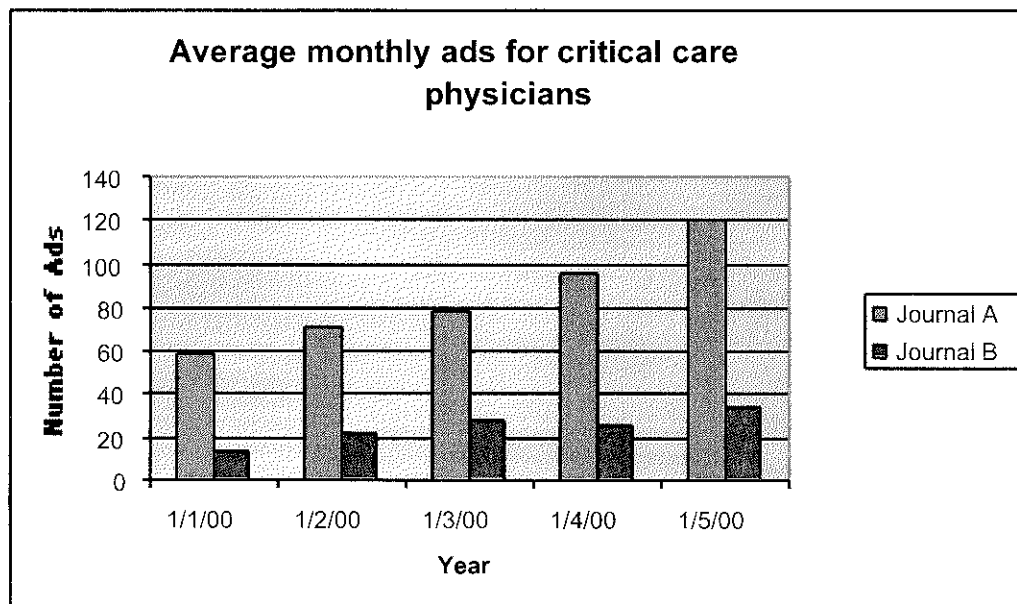
Critical care physicians are trained in a number of specialties, such as internal medicine, anesthesiology, surgery, or pediatrics, and undergo further subspecialist training. Their training totals at least 6 years beyond medical school.

Recent data indicate that the US is not producing enough critical care physicians to provide adequate patient care for the demand expected from the growth of the over 65 population. The shortfall is expected to appear by 2007 and will worsen through the year 2030. Evidence from a study recently published in the *Journal of the American Medical Association (JAMA)* has documented that, in order just to maintain the current level of service, more physicians and nurses will be necessary than are currently being trained¹. The study was commissioned by the American College of Chest Physicians, the American Thoracic Society, and the Society of Critical Care Medicine and conducted by the Committee on Manpower for Pulmonary and Critical Care Specialties (COMPACCS).

In 2001, there are approximately 600 critical care physician trainees in the United States. This annual supply of critical care specialists is expected to remain constant because the number of critical

care fellowship training positions is established by federal policy. Because it takes 6 years to train a specialist, the number that will graduate in the next few years can be estimated. By 2007, a shortage of trained critical care physicians will be evident. Subsequently, demand will grow rapidly while the supply of critical care physicians will remain constant, yielding a shortfall of specialist hours equal to 22% of demand by 2020 and 35% by 2030.

Some indicators suggest that the shortage is already here. An analysis of position advertisements in the journals of two of the partnership organization indicate that in the past 5 years, the number of advertised positions for critical care physicians has more than doubled. This is an indication of the difficulties many hospitals are having in recruiting critical care physicians to staff their units.



B. Nursing Workforce

Critical care nurses are trained to respond to life-threatening problems. A critical care nurse is a licensed professional nurse who is responsible for ensuring that all critically ill patients receive optimal care.

There are currently approximately 400,000 critical care nurses in the United States. The average age is 45 years with only 9% between the ages of 22 and 29, and 61% between the ages of 40 and 60. Forty percent have been practicing for over 21 years². These data underscore several salient points: First, the number of critical care nurses entering the specialty is down significantly. Second, the bulk of experienced critical care career nurses are nearing retirement. Third, the vacancy rate of nursing positions has increased from 9.4% in 1998 to 16.5% in 2001. For approximately half the positions, it takes longer than 90 days to fill the job.

The dearth of critical care nurses reflects the larger national shortage of nurses. The average vacancy rate for hospital nurses grew to 14.7% in the first quarter of 2000. The Bureau of Labor Statistics predicts that nursing positions will increase by 23% by 2008, faster than the average of all other

occupations. Government projections indicate that by 2015, 114,000 full-time equivalent positions will be vacant.

III. Is current critical care optimal?

A dedicated interdisciplinary team of doctors, nurses, respiratory therapists, and pharmacists is necessary for optimal care in the ICU. However, the training of the physician heading the patient care team or providing the care is a major factor in quality of care. When care is provided or supervised by trained specialists, patient outcomes improve. Data indicate that the presence of a full-time ICU medical director, in partnership with a nurse manager, and in a supporting organizational structure can dramatically decrease length of both ICU and hospital stay and led to fewer patient deaths³. Several other studies indicate that the involvement of intensivists in the care of patients improve the outcomes of their care and reduces costs⁴⁻⁷.

Critically ill patients often experience rapid changes in status. These changes necessitate constant monitoring and immediate and appropriate therapy. When a physician or a team of physicians provides 24 hour coverage, patients are more likely to survive, time in the ICU and resource utilization decreases, and there is enhanced teaching for housestaff, nurses, and other health care workers than ICUs that are not staffed by such a team⁸.

The data are so strong that a group of business leaders that pay for care are now demanding that patients in their plans only use ICUs in which critical care intensivists provide services. The Leapfrog Group, a group of business leaders from Fortune 500 companies and other large health care purchasers, has created a set of purchasing principles to improve patient safety by rewarding organizations that adhere to proven quality principles with preferential use. The Leapfrog Group concluded that there is evidence of a direct correlation between the level of training of ICU personnel and the quality of patient care. When ICUs are staffed with physicians who have credentials in critical care medicine, or when intensive care specialists are available to respond to 95 percent of pages within 5 minutes, the risk of patients dying in the ICU has been shown to reduce by more than 10 percent.

IV. Need for critical care specialists in times of disaster or biological or chemical attacks

Critical care specialists are essential in times of national or local disaster. When there is an influx of critically injured or ill patients, hospitals must be equipped and staffed to accommodate the numbers. In the event of an attack using chemical or biological agents, or cases in which trauma or burns are widespread, the necessity of trained critical care physicians and nurses to treat victims is imperative. Such events could overwhelm the system, and the medical system must be prepared with an expert team to triage patients to receive appropriate care. Patients may be triaged to surgery, to burn units, to infectious disease isolation units, to medical ICUs, or to other institutions with available capacity. If patients are not triaged quickly and moved through the system, the emergency department may be unable to accommodate new patients. Although critical care units regularly coordinate care internally, in emergencies, the coordination required is more complex and necessitates coordination with civilian officials, public health authorities, and emergency departments.

V. Recommendations to improve the future of critical care in the United States

The organizations in the Critical Care Partnership are committed to improve the availability, quality, and cost effectiveness of medical care for critically ill patients. All four are dedicated to education of health professionals in critical care, promoting effective and safe systems of patient care, and an adequate number of trained critical care professionals. Together, the organizations have initiated an effort to improve the organization and administration of critical care in the U.S. to promote excellent medical practices in ICUs, safeguard patients from medical errors, and reduce inefficiencies and health care costs. However, only a national effort involving legislators, regulators, payors, medical schools, hospitals, other health care organizations, and communities can address the inadequate supply of critical care physicians and nurses to care for our aging population.

To address the issues of an insufficient workforce and to improve quality of care to future critically ill patients and their families, the Partnership proposes that medical and nursing organizations, policy-makers, interested stakeholder groups, and the public engage in a discussion of the significant effects of the aging of the population on the need for additional critical care professionals. This dialogue should include consideration of several policy recommendations to assure highest quality patient care in the future.

The solutions to the documented shortages of health professionals in the ICU are complex and involve a wide variety of programs on the federal, state, and local levels as well as within the critical care profession itself.

A. Expand federal support for critical care education:

1. Increase the graduate medical education (GME) program that provides support for training of residents. Existing caps on GME positions should be specifically waived for critical care training.
2. Funding for Title VII health professional training grants should be increased.
3. Expand loan forgiveness and accelerated deductions of interest on student loans to encourage students to enter medical and nursing programs.
4. Increased funding for nursing education programs and loan forgiveness programs under Title VIII of the Public Health Service Act.
5. Consider alternative mechanisms to attract physicians to serve in critical care units.

B. Change state regulation:

Because the majority of health care delivery is regulated by the states, there will be multiple opportunities on the state level to alter policies to promote critical care workforce improvement. Over the past two years, 15 states have introduced 26 bills or regulations related to staffing issues.

- A. Encourage state legislation that would restrict mandatory overtime and protect nurses and other health care workers from retaliatory or punitive actions.

- B. Take action to improve working conditions in critical care units and improve compensation in this high stress environment where "burn out" is pervasive.

C. Professional critical care societies advocate for change

Professional critical care societies will urge program directors to support subspecialty training for critical care and facilitate entry into fellowship programs. Through targeted media and advocacy campaigns, these societies should work to increase the awareness of the public, the Congress, and other health professionals about the problem of workforce shortages in the ICU.

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Appendix

What Is Critical Care?

Critical care (sometimes called “intensive care”) is the care of patients who are extremely ill and whose clinical condition is unstable or potentially unstable. These patients need continuous, coordinated physician, nursing, and respiratory care, with constant surveillance and adjustment of therapy. The team must be able to provide immediate intervention to prevent adverse occurrences. The critically ill patient has an injury or illness resulting in abnormal function of one or more major organ systems, resulting in a potential or immediate threat to life.

I. Source of Admissions to an ICU

Patients are admitted to the ICU because they require high intensity monitoring and life support by specially trained health care professionals, including high intensity nursing care that cannot be provided on a general medical ward. Patients come to the ICU from several areas:

- A. Emergency Department – Medical surgical, trauma, or burn patients can be admitted to the ICU from the Emergency Department.
- B. Medical or surgical ward – Patients may be admitted to the ICU from a general medical or surgical ward. These are patients who were initially stable but who developed respiratory distress, low blood pressure, shock, cardiopulmonary arrest, or other physiologic instabilities on the ward. They require aggressive resuscitation, treatment, and invasive monitoring and are transferred to the ICU for closer observation, more frequent measurement of vital signs, invasive monitoring, or mechanical ventilation.
- C. Operating Room (OR) or post anesthesia care unit (PACU) – Surgical patients who require invasive monitoring, mechanical ventilation, or resuscitation after surgery may be transported directly to the ICU from the OR or the PACU after a period of observation.
- D. Other facilities- Patients may be transferred from another facility that does not have the resources to provide the level or type of care they require.

II. Common conditions resulting in patients entering critical care units are:

- A. Cardiovascular system: heart attacks; shock, or dangerously low blood pressure; abnormal heart rhythms; congestive heart failure; congenital heart disease; infections of the heart; build up of fluid in the lungs
- B. Pulmonary system: respiratory failure; pneumonia and other respiratory infections; pulmonary embolism, or blood clot that has moved from the legs into the lungs, acute respiratory distress syndrome (ARDS)
- C. Kidney failure
- D. Gastrointestinal system: bleeding, malnutrition, liver failure, pancreatitis
- E. Nervous system: stroke, encephalopathy, complex or prolonged seizures, head injury
- F. Infections: sepsis, and septic shock; ventilator associated pneumonia, catheter related infections; multiple-drug resistant infections
- G. Multiple system organ failure
- H. Postoperative monitoring

III. The ICU Team

- A. The patient care team leader is a physician. Critical care physicians have received advanced training in critical care medicine after board certification in a primary specialty such as pediatrics, internal medicine, surgery, or anesthesia.
- B. Critical care nurses specialize in the intense monitoring and care necessary for the sickest patients. Many critical care nurses have advanced training in critical care and are certified as critical care nurses. Joint administrative partnerships between medical directors and nurse managers have proven most effective in the delivery of optimal care to patients and their families.
- C. Respiratory therapists are experts in many forms of respiratory care. In addition to operating the ventilator, therapists often obtain and analyze arterial blood to measure blood gases and test patients breathing strength.
- D. Pharmacists help the ICU team review medication profiles, help determine dosing, and determine if the patient is predisposed to side effects or drug interactions.
- E. Nutritionists help to direct the provision of nutrition to the patient, either by mouth or by an IV route.
- F. Other professionals who work with the ICU team include other physician specialists, social workers, chaplains, and bioethicists who provide expertise and consultation for the specialized spiritual, emotional, and ethical needs of patients and their families.