

Demystifying critical care

A new series provides a succinct, modern approach aimed at primary care physicians [see also p 392](#)

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Since their inception, intensive care units (ICUs) have continually grown in scope and complexity. Today's ICU—and the whole field of critical care medicine—can seem daunting to some physicians. With this in mind, *wjm* begins a new series that aims to demystify the workings of the 21st century ICU and to provide a succinct, modern approach to critical care medicine for primary care practitioners.

HOW DID MODERN CRITICAL CARE COME ABOUT?

Although a few small postoperative recovery rooms provided critical care in the 1920s and 1930s, ICUs developed primarily during and after World War II.¹ These first intensive care facilities were mobile mass casualty and “shock” wards in service near battlefronts. During the post-World War II polio epidemic, advances in mechanical ventilation—specifically, the use of positive-pressure ventilators and endotracheal tubes—led to a decrease in polio mortality by more than 50% and sparked the development of modern respiratory care units.¹ Similarly, the novel techniques of cardiac pacing, defibrillation, and closed-chest massage in the 1950s and early 1960s prompted the spread of coronary care units across the United States. Specialty ICUs, such as burn, acute stroke, and post-cardiac surgery units, arose chiefly during the past quarter century.

WHAT ROLE DOES CRITICAL CARE NOW PLAY?

In the past few decades, the role of critical care—in terms of the volume and percentage of hospitalized patients—has markedly expanded. With shorter hospital stays for most patients who are not critically ill and increasing use of outpatient therapy for such illnesses as deep venous thrombosis and infections, hospitals increasingly are becoming centers for the care of critically ill patients. Intensive care uses a large portion of health care resources, accounting for about 22% of total hospital expenditure,² and recent evidence has shown that the workload of ICU staff has increased substantially in the past 2 decades.³ If patients now treated in transitional care (step-down) units are considered in addition to patients in ICUs, the volume of patients cared for by hospitalists and intensivists is astounding.

WHAT ARE THE DEMOGRAPHIC TRENDS IN CRITICAL CARE?

Demographics within ICUs have followed expected trends. As average life expectancy in the United States

approaches 77 years, more geriatric patients are being treated in ICUs. In their 1-day snapshot of US critical care, Groeger et al found that more than half (58%) of all patients in adult ICUs were older than 65 years.⁴ Advanced age has generally been shown, however, to be only modestly associated with decreased survival; disease severity and patients' functional status are more important predictors.⁵ “Chronic” ICU patients, defined as those staying longer than 14 days, comprise nearly 17% of all ICU patients.⁴ Although these patients consume about half of all ICU resources, continued ICU care for them is supported by reasonably good 12-month survival (44%) and fair overall quality of life after hospital discharge.^{4,6,7}

WHAT IS NEW IN CRITICAL CARE MEDICINE?

The overall practice of critical care medicine has also evolved significantly in recent years. Explosions in technology and in pharmaceutical development provide clinicians with an ever-expanding array of devices and drugs to treat critically ill patients. Attendant costs with these advances have triggered frequent reviews of the ethical and economic issues of futile care, cost-effective care, and quality of life after prolonged ICU stays. Even the spectrum of diseases treated in ICUs has evolved with the development of AIDS [acquired immunodeficiency syndrome] and transplant medicine.

With regards to outcomes of several major critical illnesses, however, frustratingly little progress has been made. We have had only marginal effect on mortality from the acute respiratory distress syndrome.⁸ Likewise, other than some minor advances in supportive care, minimal improvements have been made in the overall management of septic shock and multiorgan failure.^{9,10} Only recently, after many randomized trials of various anticytokines and a multibillion dollar search, has a drug been identified that may decrease the disturbingly high mortality from sepsis.¹¹ Nosocomial infections and the emergence of multidrug-resistant organisms persist as substantial problems in the ICU.

THE WJM SERIES

We will begin the series with a general approach to critically ill patients (see p 392). Subsequent contributors will discuss crucial topics in the initial evaluation and treatment of critically ill patients—the airway, respiratory failure, and shock. A national group of experts with diverse training backgrounds has been enlisted to

elaborate on other specific problems and diseases in the ICU, such as dysrhythmias, coma, and the acute abdomen (see box). We expect to cover a different subject each month, with articles that will be both evidenced-based and peer-reviewed. Overall, we hope to provide readers with current, practical approaches to common problems encountered in the care of critically ill patients.

Topics that the series will address

- An approach to critically ill patients
- Managing the airway
- Treating respiratory failure
- How to treat a patient who is in shock
- Septic patients
- Patients who have taken an overdose
- The acute abdomen
- Managing dysrhythmias
- Patients in coma

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disease that might be occurring as we design optimal prevention programs.

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