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A new ICU paradigm: Intensivists as primary critical care physicians

After nearly a half-century, the subspecialty of critical care medicine—uniquely trained physicians caring for critically ill or injured patients in specialized, discrete nursing units—continues to suffer from an identity crisis.

Too often, the role of the intensivist in caring for the patient is unclear, to the patient, to the family, and to other physicians. Is the intensivist merely a consultant, or does he or she have a larger role?

The time has come to end the identity crisis with a fundamental paradigm shift, to identify intensivists as the principal caregivers of critically ill patients, ie, the "primary critical care physicians," or PCCPs. We think this is necessary based not only on evidence from clinical studies, but also on our decades of experience as intensivist caregivers in a high-intensity, closed-staffing model.

REASONS FOR THE IDENTITY CRISIS

The reasons for the continued identity crisis of intensivists are many and complex.

To begin with, other physicians tend to be ambiguous about the duties of intensivists, and the general population is mostly unaware of the subspecialty. In contrast to mature subspecialties such as cardiology or gastroenterology, where responsibilities are generally known to physicians and the lay public alike, or in contrast even to recently evolved specialties such as emergency medicine, the enigmatic roles of an intensivist may differ depending on primary specialty (anesthesiology, internal medicine, surgery) and the patient population, or even among intensive care units (ICUs) within the same hospital.

Moreover, that an identity crisis exists is even more surprising given the disproportionately large consumption by critical care medicine of finite economic resources. One would expect that a sector of health care that expends 1% of the GNP[1] would have clearly explicit roles and responsibilities for its physicians.

The time has come for critical care medicine to end its identity crisis

Nearly three-quarters of the care by intensivists in the United States is delivered in what is considered an "open" or "low-intensity" ICU staffing model[2]: an intensivist makes treatment recommendations but otherwise has no overarching authority over patient care. In this model, the admitting physician is not trained in critical care and is not available throughout the day to make decisions concerning the management of the patient. In addition, various consulting physicians and single-organ specialists may not be aware of the overall management plan, resulting in potentially unnecessary or conflicting orders and increased expense.[2] What is more, in an open ICU model, critical care nurses are often left to detect and correct a significant change in a patient's status without the necessary immediate physician availability, resulting not only in a stressful working environment for nursing staff, but also in potential harm associated with individuals providing care outside their scope of practice.[3]

doi:10.3949/ccjm.78a.10162

In only a small percentage of ICUs—mostly medical ICUs and ICUs in teaching hospitals—is critical care provided in a "high-intensity" or "closed" staffing pattern, in which treatment decisions are cohesively managed under the guidance of an intensivist.[2]

EVIDENCE IN THE MEDICAL LITERATURE

Staffing patterns in the ICU

Several studies have attempted to identify the consequences of these different ICU staffing patterns on patient care.

Hanson et al[4] examined two concurrent patient cohorts admitted to a surgical ICU. The study cohort was cared for by an on-site critical care team supervised by an intensivist, while the control cohort received care from a team with patient care responsibilities in multiple sites, supervised by a general surgeon. The results showed that patients cared for by the critical care team spent less time in the ICU, used fewer resources, had fewer complications, and had lower total hospital charges. The difference between the two cohorts was most evident in patients with the worst Acute Physiology and Chronic Health Evaluation (APACHE) II scores.

In the 'open' ICU model, the admitting physician has authority over patient care but usually is not trained in critical care

According to Hanson et al, the lack of an accepted prototype for the delivery of critical care is due to factors such as the relative youth of the discipline, contention over control of individual patient management, and the absence of a single academic advocate.[4]

Moreover, Pronovost et al[5] concluded that high-intensity staffing (mandatory intensivist consultation or closed ICU) was associated with lower ICU mortality rates in 93% of studies and with a reduced ICU length of stay in the high-intensity staffing units when compared with ICUs with low-intensity staffing (no intensivist or elective intensivist consultation).

Critics of our PCCP paradigm may point to a study by Levy et al[6] that, using a database of more than 100,000 patients, could not demonstrate any survival benefit with management by critical care physicians. Indeed the study found that patients managed by intensivists had a higher mortality rate than patients managed by physicians not trained in critical care. However, they also showed that more patients managed for the entire stay by intensivists received interventions such as intravenous drugs, mechanical ventilation, and continuous sedation and that they had a higher mean severity of illness as measured by the expanded Simplified Acute Physiology Score (SAPS II) and higher hospital mortality rates than patients who were not managed by a critical care team.

According to Levy et al, most ICUs in the United States are structured as completely open units in which the admitting physicians retain full clinical and decisional responsibility and thus have the option to care for their patients with or without input from intensivists.[6]

However, a recent study by Kim et al[7] likely rebuts the findings of Levy et al. Kim et al analyzed more than 100,000 ICU admissions and found that the lowest odds of death within 30 days were in ICUs that had high-intensity physician staffing and multidisciplinary care teams, suggesting that the presence of an intensivist confers a survival benefit.

Other studies have also shown that high-intensity staffing improves patient outcomes in the ICU.[5,8,9]

Issues of cost and use of resources

Issues concerning cost and human resources for staffing ICUs have acquired increasing importance. According to Angus et al,[10] intensivists provided care to only 36.8% of all ICU patients. The demand for critical care services will continue to grow rapidly as the population ages. It is this shift in the care of the critically ill that requires intensivists to take on the role of the PCCP, so as to provide high-quality, evidence-based critical care and to promote a long-term sustainable model of physician and nursing care.

OUR EXPERIENCE

Our intensivist group has been providing a near-primary-care style of critical care practice for almost 40 years, from its inception in 1977 by one of the authors (A.B.), to our current group of 15 board-certified intensivists. We can easily cite the clinical value of our practice approach, with outcome data showing consistent and better-than-expected

Standardized Mortality Ratio accounts from our APACHE IV data (personal communication, Cleveland Clinic Cerner/APACHE IV report), or with reports showing that the presence of a full-time, attending-level, in-house staff physician ensures that patients, surgeons, and consultants have confidence and respect for the care provided. However, we feel that the intangible components are what make our practice a prototype for the PCCP model.

A dedicated team with a low turnover rate

First, we have a team of anesthesiology- and surgery-based intensivists dedicated to ICU practice, with a very low turnover or burnout rate, in contrast to most ICUs in the United States, where intensivists tend to practice part-time (at other times either providing operating-room-based anesthesia or surgical care or working in a pulmonary- or sleep-lab-based practice). We believe this point should not go unstressed: we have a team of physicians who have dedicated their career to working in the ICU full-time, and some have done so in excess of 20 years, even as long as 30 years! It is our opinion that we are able to provide such a highly desirable working environment by a unique daily staffing model that does not utilize the conventional practice style of one intensivist on-call per week.

We also feel that our model dramatically reduces the risk of burnout by permitting our attending intensivists to break up on-call sequences so that there are days on which work in the ICU is not also associated with on-call responsibilities.

A successful fellowship program

Second, we have an extremely successful fellowship program, which began in 1974 when one of the authors (A.B.) advocated the training of anesthesiology residents as intensivists.[11] The American Board of Anesthesiology certifies on average 55 candidates per year in critical care medicine, and our program trains about 10% of the physicians applying for certification. In most years, there are actually more candidates for our program than there are available positions, which is atypical for anesthesiology-based critical care training programs. This wealth of young, talented candidates interested in critical care as a career is, again, in contrast to most anesthesiology-based programs, which find it difficult to enroll even one fellow per year.

Critical care programs grounded in anesthesiology typically struggle because of the realities of economics.[12] The payoff of operating-room-based anesthesiology practices generally outshines those in critical care, yet we already have three times as many candidates as there are positions to start our training program in the next 2 years. We feel that candidates are attracted to our program simply because our environment (dedicated staffing, equal clinical footing with surgeons, low burnout rates) is seen as an exciting, positively charged role-modeling atmosphere for young physicians who may have a career interest that involves more than just their original base specialty.

A collegial working relationship

Third, we have a thriving, collegial working relationship—including daily bedside and weekly bioethics rounds with our nursing staff—which has fueled a high degree of professional satisfaction among nurses. This is evidenced by the extremely low turnover rate of nurses (less than 5% per year in the last 5 years) and by national recognition for nursing excellence (Beacon Award for Critical Care Excellence, American Association of Critical Care Nurses) (personal communication, S. Wilson, Nurse Manager). In 2009, the four nurses out of 174 who left did so to further their careers.

Our intensivist group has provided a primary-care style of critical care practice for nearly 40 years

While low turnover rates among nurses and award-winning practices are surely a testament to a highly motivated and skilled nursing team, there is no question that a constructive collegiality among the physicians and nurses has provided an environment to allow these positive aspects to flourish.

OVERCOMING ROADBLOCKS

Obviously, although in theory it is easy to proclaim a PCCP paradigm, in reality the roadblocks are many.

For example, standardization of education and credentialing would be an essential hurdle to overcome. The current educational arrangement of the various adult specialties (anesthesiology, internal medicine, surgery),

each offering disparate subspecialty critical care training and certification, is deeply rooted in interdisciplinary politics, but without any demonstration of improved patient care.[13] As described recently by Kaplan and Shaw,[14] an all-encompassing training and credentialing standard for critical care is essential for 21st century medicine and would go a long way toward development of the PCCP paradigm.

Another major roadblock is the shortage of intensivists in the United States.[13] There are many reasons why physicians opt not to select critical care as a career, such as a nonstraightforward training pathway (as described above), recognition that the 24-hours per day, 7-days-per-week nature of critical care affects lifestyle issues, and inconsistent physician compensation.[13]

However, technological and personnel advances, including the use of electronic (e-ICU)[15] and mid-level practitioner models, have led to creative approaches to extend critical care coverage.[13]

Additionally, the multitude of physician specialty stakeholders and the overall flux of the future of medical care in the United States all would contribute to the difficulties of prioritizing the implementation of the PCCP concept. Also, our practice style—a large intensivist group working in an ostensibly closed surgical ICU in a tertiary-care hospital—is one possible model, as is the even more highly evolved Cleveland Clinic medical ICU, where medical intensivists are already essentially PCCPs. But these models of care may not be generalizable among the local care patterns and medical politics across hospitals or ICUs.

Based on the described successes of our practice model, coupled with evidence in the literature, we have proposed a paradigm shift toward the concept of a PCCP. To be sure, paradigm shifts nearly always require time, effort, and wherewithal. In the end, however, we feel that embracement of the PCCP paradigm would result in a concise, discrete understanding of the role of intensivist, eliminate the specialty's identity crisis, and ultimately improve patient care.

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