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### Current State of Critical Care Medicine in the United States

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Dr Maccioli discusses some of the issues which threaten to aggravate the predicted shortage of intensivists in the US, and some potential solutions.

The practice of critical care medicine (CCM) in the United States can be divided into the adult and paediatric patient populations. Paediatric CCM practice is a fully consolidated line of patient care. No general, non-specialist, paediatrician in community or academic practice would attempt to manage a critically ill child or adolescent. In contradistinction, practitioners of adult CCM include physicians in the medical specialties of anaesthesiology, surgery, and internal medicine. All offer post-residency fellowship training in CCM. The fragmentation of CCM may increase, as emergency medicine programmes may begin to offer CCM fellowship training. Currently, the majority of practicing American intensivists are internal medicine based physicians (dominated by pulmonary- CCM practitioners; Angus et al. 2000).

Despite a large body of literature demonstrating that a "closed" (specialist practitioner only) unit improves patient outcomes (Brown and Sullivan 1989; Carson et al. 1996; Ghorra et al. 1999; Li et al. 1984; Manthous et al. 1997; Multz et al. 1998; Pollack et al. 1988; Pronovost et al. 1999; Pronovost et al. 2002; Reynolds et al. 1988; Rosenfeld et al. 2000) and optimizes resource utilization (Hanson et al. 1999), the vast majority of community (private hospital) intensive care units (ICUs) have "open" (any practitioner) admission and management policies. The traditional "open" model reduces friction between the medical staff and the intensivist in most instances, but does little to improve the quality of care. The "closed" model has not yet taken hold due to issues of resource allocation, control of patients, concerns by non-intensivists over lost revenue, and fears of restricting non-specialist practice.

The majority of critical care consultants combine CCM practice with work in their parent specialty. This mixed workload may be attributed to many factors including but not limited to: economics, preserving skills and interest in their base specialty, and a more flexible work pattern. The emotional and physical challenges, unpredictable work pattern, lower remuneration and political factors may have limited many physicians from full time careers in CCM. Federal reimbursement for critical care services pays less than private insurance, and as Medicare (a federal health insurance program for people aged 65 and older and for individuals with disabilities) covers a large percentage of ICU patients, time spent in one's base specialty remains more economically attractive. This may be addressed by the recent increase in the relative value unit for critical care services negotiated by the Critical Care Work Group, comprising six national societies related to intensive care.

In November 2000, the Leapfrog Group published a standard regarding Intensive Care Unit Physician Staffing (IPS; Birkmeyer et al. 2000). The Leapfrog Group is a consortium of the largest US companies, and other large healthcare purchasers committed to a common set of purchasing standards with full implementation in 2003. As a result, the physician workforce projects an increased demand for intensivists. It has been estimated that 35,000 critical care physicians will be required to staff all adult American ICUs (Ewart et al. 2004). This demand outstrips supply which continues to hover around 9,500.

In an effort to provide the necessary patient coverage, many institutions and group practices have added nonphysician providers to the clinical picture. Collaboration between advanced practice nurses and medically directing physicians may be a clinically efficient response. The Acute Care Nurse Practitioner (ACNP) is a registered nurse with a graduate degree in nursing who is prepared for advanced practice in acute clinical care. Early studies suggest that this model can be clinically efficient and effective in some patient populations (Jatremski 2001; Hoffman et al. 2005). The addition of nurse practitioners to the critical care team results in maintenance of the decreased length of stay, and improved clinical outcomes seen in 'closed' units, with documented evidence of improved family satisfaction and communication (Schukman et al. 1995).

Over the coming years as the population ages and an increased number of individuals survive with chronic diseases, tertiary-care centred

hospitals are likely to increase the percentage of critical care and monitored beds to upwards of 50% of the total. The combination of a sicker patient population, coupled with the payer driven demand for quality care and the planned reimbursement adjustments, may result in significant demands for future critical care practitioners.

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