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Critical Care Delivery and ICU Structure - The elephant in the room

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We read with interest the article by Weled et al[1] on the importance of ICU structure on improved outcomes for our ICU patients. The article began with a seminal quote from one of the true creators of multi-disciplinary critical care medicine:

The best possible care of critically ill patients can be rendered when physicians of various specialties, nurses, and allied health professionals join forces and treat problems together.

Ake Grenvik, MD (1974)

The 2009 Task Force on Models of Critical Care reviewed and summarized the current literature pertinent to the 2001 SCCM practice model guidelines[2], to process improvement in the ICU and to the integration of ICUs with other areas of the hospital. Their conclusion based on this review is that “An Intensivist-Led, High-Performing, Multidisciplinary Team Dedicated to the ICU Is an Integral Part of Effective Care Delivery”. They reviewed the current literature on “fulltime” vs “timely available” intensivists, nighttime intensivist coverage, high vs. low intensity ICU coverage and closed vs. open ICUs to come to these conclusions, all of which seem very reasonable. However the authors did not mention or discuss in their manuscript several of the most important questions facing those of us who are interested in the future organization of the ICU. What exactly is meant by “an intensivist-led ICU” in an open ICU, as most surgical ICUs remain in this country? Should the ICU be run as a division of another service within the hospital (medicine, surgery and anesthesia) or should the ICU be run by a separate critical care medicine service with equal standing to the other services? Should there be movement towards a unified, multidisciplinary critical care medicine service (encompassing medical, surgical,

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neurological, trauma, transplant and cardiac patients) or should there be a continued Balkanization of critical care medicine with each service running their own ICU?

The forces bearing on the ICU are manifold and changing. The financial pressure being brought on hospitals and providers to minimize complications, hospital readmissions, and lengths of stay – especially for new structures such as the Accountable Care Organizations and with the increasing prominence of new payment strategies including bundled payments – will only increase the pressure for high quality care within the ICU. This will increase the demand for 24/7 intensivist coverage within the ICU and will only increase the current discrepancy between intensivist demand and the limited supply of board certified providers. That discrepancy has been accurately described in this journal as the coming “perfect storm” for critical care medicine[3]. This storm will not only put increasing pressure on resolving the gap between the need for intensivists and the number of medical school graduates choosing training in critical care medicine, but will increase the pressure on the profession to resolve the structural reasons for this storm. Those structural reasons include both the organization of critical care in the ICU and the organization of critical care training - and these issues are tightly linked.

Critical care organized as a subspecialty of medicine, anesthesia and surgery has been producing intensivists at a rate that exacerbates the current discrepancy between supply and demand[4]. Pulmonary/critical care training programs produce intensivists that on average devote only 23% of their professional time to critical care, while surgery and anesthesia training programs are producing ever decreasing numbers of intensivists. The profession must develop new critical care medicine structures that will both attract medical students into the field and have the resources to train and employ them. The question is not “should an ICU be led by an intensivist” - that question is settled. The questions are: Should critical care be a department of the hospital and of the medical school, and have control over its own budget? Should critical care be organized as a unified service to eliminate redundancy, to insure efficiency and to promote evidence-based and protocol-driven care - and thus to allow Grenvik’s *physicians of various specialties* to work together and to learn from each other? Should educational structures that have been examined but not implemented in the past, such as a single entry multidisciplinary fellowship - be examined again? Should disruptive new organizational structures, such as an independent specialty in critical care medicine with a single entry residency - as has been implemented in parts of Europe and in Australia and New Zealand - be discussed in this country? The overview of the Australian and New Zealand Intensive Care Medicine training program in this issue provides a fascinating perspective on both the trials and benefits of their program for ICU organization and training - including perhaps most importantly that medical students are choosing critical care medicine training at unprecedented levels[5].

While important, the questions addressed in this manuscript pale in comparison to these questions. There is a huge vested interest in maintaining the status quo in ICU organization, and change will be neither easy nor quick. However to start the process these questions must be asked and must be studied.

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References

1. Weled BJ, Adzhigirey LA, Hodgman TM, et al. Critical Care Delivery: The Importance of Process of Care and ICU Structure to Improved Outcomes: An Update From the American College of Critical Care Medicine Task Force on Models of Critical Care. *Crit Care Med*. 2015; 43(7):1520–1525. [PubMed: 25803647]
2. Brilli RJ, Spevetz A, Branson R, et al. American College of Critical Care Medicine Task Force on Models of Critical Care Delivery. The American College of Critical Care Medicine Guidelines for the Definition of an Intensivist and the Practice of Critical Care Medicine. Critical care delivery in the intensive care unit: defining clinical roles and the best practice model. *Crit Care Med*. 2001; 29(10):2007–2019. [PubMed: 11588472]
3. Krell KE. Critical care medicine growth requires dealing with our “perfect storm” of manpower shortage. *Crit Care Med*. 2010; 38(7):1613. [PubMed: 20562556]
4. FAIRFAX V, GROUP L: Critical Care Workforce: A Study of the Supply and Demand for Critical Care Physicians. 2006
5. McLean AS. Is a Single Entry Training Scheme for Intensive Care Medicine Both Inevitable and Desirable? *Crit Care Med*. 2015 Jun.10.1097/CCM.0000000000001088