

# Emergency medicine and critical care medicine: the collaborative model

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## Historique

Historiquement, la médecine d'urgence et la médecine de réanimation sont perçues comme deux disciplines distinctes. Selon le modèle traditionnel, le département d'urgence est responsable d'une proportion importante d'hospitalisations aux soins intensifs et les soins du patient passent de l'urgentologue à l'urgence au spécialiste en réanimation aux soins intensifs. Mais une analyse de définitions révèle que le point de liaison entre ces spécialités n'est pas aussi évident qu'on pourrait le croire. «Réanimation» signifie «ramener à la vie», sous-entendant un état grave où le décès du patient est une possibilité. «Urgence» est dérivé du mot latin *urgere* (pousser, presser), défini comme la nécessité d'agir vite. Visiblement, la réanimation et la médecine d'urgence s'occupent toutes deux de changements subits d'importance cruciale où des efforts intenses peuvent modifier le pronostic du patient. Telle qu'elle est pratiquée actuellement, la réanimation déborde du cadre des soins intensifs et devrait être considérée comme faisant partie d'un continuum qui englobe les soins pré-hospitaliers, l'intervention au département d'urgence et l'hospitalisation à l'unité de réanimation. Au fur et à mesure que notre système de santé évolue, des changements constants nous pousseront à considérer des modèles de rechange conduisant à une polyvalence et à une efficacité accrues.

## History

Emergency medicine and critical care medicine are historically viewed as distinct. In the traditional model, the emergency department is responsible for a significant proportion of intensive care unit admissions, and patients progress from an emergency physician in the emergency department

to a critical care specialist in the ICU. But an analysis of definitions reveals that the interface between these specialties is not so clear. "Critical" denotes the nature of a crisis or a morbid condition in which death is possible or of sufficient quantity to constitute a turning point. "Emergency" is derived from the Latin *emergeo* (to rise up or emerge), which is defined as an unexpected development or a sudden need for action.<sup>1</sup> Clearly, critical care medicine and emergency medicine both address sudden changes of crucial importance, where significant concentrated effort can change ultimate patient outcome. As it is currently practised, critical care has gone beyond the walls of the ICU and should be considered part of a continuum that extends from prehospital care to emergency department intervention to critical care unit admission. As our health care system evolves, ongoing changes will compel us to examine alternative models that increase both versatility and effectiveness.

## International models

Intensive care is primarily acute hospital-based medicine involving cardiopulmonary, renal and gastrointestinal dysfunction, as well as acute trauma. In the UK, selection of fellows for critical care training is based more on the importance of acute care skills than on specialty of origin, and critical care training is available to members of any discipline, provided they have obtained the appropriate postgraduate qualifications of their parent specialty. Therefore, physicians with emergency medicine (EM) training are eligible for certification by the European Society of Intensive Care Medicine.<sup>2</sup> In Canada, the Royal College of Physicians and Surgeons recognizes critical care medicine (CCM) as an "area of added competence." Canadian resi-

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dents become eligible for 2-year CCM fellowships after completing 3 years in anesthesia, internal medicine, surgery, pediatrics or emergency medicine.<sup>3</sup>

In the US, emergency medicine is not recognized as a primary training pathway.<sup>4,6</sup> The only routes to critical care certification are through anesthesia, internal medicine, surgery and pediatrics. A 1993 American College of Chest Physicians (ACCP) survey showed that the typical critical care physician was a pulmonary subspecialist (68%), age 41–50 (41%) and was without critical care certification (55%).<sup>7</sup> Respondents spent 25%–50% of their clinical time in the ICU, and most (69%) practised in 100- to 500-bed hospitals with housestaff available (60%). The majority (53%) were involved in group practice and cared predominantly for Medicare patients (55%). The ACCP survey suggests the need for more certified critical care specialists and greater diversity in specialty of origin.

Despite the fact that EM is not a recognized path, in 1995 approximately 30% of CCM programs accepted applicants with EM training.<sup>8</sup> A small number of emergency physicians took advantage of this alternative pathway to acquire critical care training, but without the option for board certification. This EM group has continually sought certification through the established primary disciplines, with varying levels of success.

## Clinical practice models

Care quality is an important issue, and the substantial interface between EM and CCM warrants efforts to standardize and improve critical care practice in the emergency department (ED). But improvement means more than achieving board certification; it means increasing critical care knowledge and skills, training residents and fellows, participating in research, and enhancing the system of information transfer between ED and ICU. The most appropriate template is one that optimizes patient outcomes in a cost-effective fashion.

In community hospitals, physicians with appropriate training can supplement EM with critical care practice and teaching — usually in a combined coronary–medical–surgical ICU. In community teaching hospitals, larger volume ICUs are typically partitioned into a coronary care unit and a medical–surgical ICU, where practitioners can combine EM with part-time critical care practice, assisting full-time intensivists with clinical practice, staff development and housestaff education. In community teaching hospitals, EM–CCM specialists can also facilitate critical care delivery in the ED and pre-hospital realm. In high complexity university hospital settings, EM and CCM practices tend to be more diverse, encompassing elements like aeromedical transport, burns, trauma, car-

diothoracic surgery and neurosurgery. Here, physicians might consider full-time CCM or part-time CCM/EM practice models, with a greater focus on teaching and research.

## The future

In the “hospitalist” model, appropriately trained EM physicians can provide initial care for patients admitted to the intensive care or coronary care unit care and total care for many medical-surgical patients who need 24-hour intensive treatment admissions. Conditions like acute respiratory distress, asthma, chronic obstructive pulmonary disease, metabolic derangements, some gastrointestinal emergencies and cardiac dysfunction may be addressed by a brief admission, whether in an ED, a short-stay unit or a monitored “critical care” unit. Using EM staff to fulfill some critical care needs reduces demands on ICU staff and provides a flexible and cost-effective CCM staffing option.

Emergency physicians with critical care certification can serve many other functions. They can develop care protocols and clinical pathways, and lead initiatives to improve quality, accessibility and cost-effectiveness of critical care delivery. They can bring about important changes in ED practice, particularly in the areas of mechanical ventilation, sepsis, coagulopathy, organ transplantation and mechanical cardiopulmonary support. They can teach medical students, residents and fellows whose primary practice includes aspects of CCM, and they can teach allied health care professionals who care for the critically ill. EM–CCM experts can help EMS personnel provide better prehospital and aeromedical care, and they can educate the lay public about rapid hospital access, critical care delivery, and preventive measures to reduce catastrophic injury and illness. They should establish a research agenda and facilitate research focused on the EM–CCM interface (e.g., predicting outcome after catastrophic illness, defining quality-of-life outcome measures relevant to CCM, clarifying issues of “futility,” and optimizing resource utilization in ED and critical care settings). Most important, EM–CCM specialists can augment the pool of physicians capable of providing high quality, cost-effective critical care in the ED or ICU.

## Conclusion

With the current health economic pressures, physicians are being asked to maximize patient outcomes and limit resource utilization. Critical care is perhaps the most challenging and resource-intensive aspect of EM. Combined EM–CCM training provides a unique skill set that will improve critical care delivery and cost-effectiveness in the community, the ED and the hospital.

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