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Ten big mistakes in intensive care medicine

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"Experience is simply the name we give our mistakes."

Oscar Wilde

Very good clinicians often use a form of self-doubt to avoid the dangers of overconfidence in the diagnosis and management of disease. Asking the questions "What does not fit with this patient's clinical course?" and "What am I missing?"—especially when things seem obvious or fully explained—is a useful tool for a physician. Perhaps even more important is to ask "What did I do wrong and how can I make sure it won't happen again?" The benefits of doing so are many: it helps dispel the myth of infallibility; it is a useful teaching tool; and it helps the past inform the future, hopefully to the benefit of our patients. In this commentary, we attempt to address the question "What ten big mistakes have we made in the field of intensive care medicine?" There is no question that our choices are subjective, and therefore somewhat arbitrary. To address this shortcoming, we encourage readers to extend our list.

1. We focus too much on syndromes—prominently the acute respiratory distress syndrome (ARDS), sepsis, and acute kidney injury (AKI)—and we spend much time redefining them. Even though we consider sepsis to be too vaguely defined [1], we did have one sepsis drug that seemed to be effective (activated protein C), but was subsequently lost following further trials. The pharmaceutical industry is now marginally interested in our field. Better identification of patient populations is the key. Instead of general phenotypes (fever and tachycardia), we should uncover the basic cellular alterations characterizing critical illness and, by doing so, better characterize patient status [2].
2. We jump to prospective randomized clinical trials, before fully identifying the right patient population, and then struggle to interpret the results. The prospective randomized controlled trial has become the holy grail of clinically relevant medical research. Many intervention trials in ARDS patients have been confounding, except perhaps for the use of proning when applied well [3] or the still controversial administration of neuromuscular blockers in the early phase [4]. Studies on hemodynamic resuscitation in sepsis have been similarly challenging with respect to interpretation of their findings [5–7], even while survival of patients managed in the ICU continues to improve [8]. These studies suggest we are inclined to jump before we know where we might land.

3. We have allowed the walls of the ICU to define critical illness and failed to recognize the evolution of physiologic change that precedes admission to the ICU. We have tended to define a patient as critically ill when (s)he is admitted to the ICU, and attempted to develop criteria for ICU admission. Often we miss an opportunity to intervene before admission to the ICU, at a time when the development of organ failure can be prevented. There have been some attempts to coordinate rapid response teams with critical care services, but the mixed results from such interventions may be partly explained by late recognition of disease progression. In an era of electronic medical records that can be queried in real time, such an approach will hopefully become archaic and we will be able to identify patients early in the evolution of their critical illness, and intervene before critical illness becomes entrenched [9].
4. We have failed to appreciate the journey of our patients and their loved ones after surviving critical illness. The observation above concerning patients before they enter the ICU is equally true concerning their recovery following critical illness [10]. While we are treating their acute problems, we have to consider and plan for their post-ICU recovery. We must also help them and their loved ones understand the path to recovery, which often is protracted and difficult.
5. We have failed to fashion the ICU experience in a way to optimize the path to recovery. Sedation, longer duration of mechanical ventilation, and immobility appear to contribute to ICU-acquired weakness and a more protracted course of recovery from critical illness [11]. A more aggressive approach to recovery during the ICU stay seems both feasible and beneficial [12]. Implementation, however, is sometimes limited by resources and commitment by the critical care team.
6. We don't use protocols enough, and we use protocols too much. Protocols can help some institutions to ensure the appropriate delivery of care, and may improve clinical outcomes (e.g., sepsis bundles), but should not become "cookbook" medicine. Physicians may blindly rely on protocols, and no longer critically evaluate their patients. We need to base our interventions on a sound understanding of the underlying alterations, often framed in pathophysiologic terms, leading to personalized medicine.
7. We have been too aggressive with many of our interventions, often with the goal of normalizing the patient's "physiology": too many calories, too much invasive monitoring, too many transfusions, too much tidal volume, etc. By being so aggressive, we inadvertently undermine the dictum of primum non nocere. In general, we have thought the more normal the patient's "numbers" are, the better. But this is not always the case whether it be excessive use of anti-arrhythmic agents, excessive transfusions, or too aggressive nutritional support [13]. Finding the right balance is not easy; it requires good clinical judgment, based on excellent outcome data.
8. We have often been poor communicators. We focus on the clear medical needs of our patients—which is certainly important—but often spend insufficient time communicating in sufficient depth with patients and their families. We also often do not fully appreciate the effectiveness that nurses and other health care professionals can bring to the communication issue.
9. We have failed to identify goals of treatment for our patients in the context of their prior health. We have begun, at least in an early fashion, to describe patients according to their prior health profile and the trajectory of their chronic diseases. Clearly patients with normal health before critical illness (the trauma patient with an acute insult) are different than patients with acute deteriorations of chronic illness (the patient with an acute exacerbation of COPD) and patients with a slow but progressive deterioration of an illness such as untreatable cancer [14]. Helping patients and families to understand this will advance expectations regarding the reality of outcomes of our interventions.
10. We have not adequately addressed the ethical aspects of care. We usually agree on general principles about care at the end of life [15], but when it comes to practical matters, we sometimes postpone or avoid discussions with relatives, or simply do not face the reality and wait for the next day. This scope of our practice has best been described by a non-intensivist, Francis Peabody: "the secret of caring for the patient is to care for the patient."

Conflicts of interest JLV and JBH have no conflicts of interest related to this manuscript. ASS has no financial conflicts of interest related to this manuscript, even though he has made many mistakes!

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