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Deferred Admission to the Intensive Care Unit:

Rationing Critical Care or Expediting Care Transitions?

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There are several reasons to doubt that we can expand the supply of high-quality critical care to meet the expected surge in demand brought on by an aging population. First, critical care expenditures already strain nations' abilities to meet other socially desirable goals.¹ Second, most critically ill patients are cared for by physicians who lack specific training in critical care medicine,² a staffing model that has been associated with worse outcomes in most studies.³ Third, severe shortages are projected in critical care workforces.^{4,5} Therefore, if the capacity of critical care is relatively fixed, we must instead try to improve the efficiency of care.⁶

Although these observations have spawned conceptual analyses about how critical care *ought to be* allocated, relatively little empirical work has documented how critical care *is* allocated. Therefore, the cohort study reported by Stelfox et al⁷ in this issue of the *Archives* is a welcome addition. To examine the influence of intensive care unit (ICU) bed scarcity on processes of care and patient outcomes, the authors evaluated 3494 consecutive episodes of sudden clinical deterioration leading to the activation of a medical emergency team (MET) at all 3 hospitals in Calgary, Canada, between January 1, 2007, and December 31, 2009. After adjusting for patient- and hospital-level covariates, the authors found that when fewer ICU beds were available at the time of MET activation, patients were less likely to be admitted to the ICU (or were admitted later) and that transitions of care were more common from resuscitative to either medical (no ICU transfer) or comfort care. Despite relatively large differences in these intermediate outcomes, in-hospital mortality was not affected by ICU bed availability.

What does this seeming paradox tell us about decisions to admit patients to ICUs? Decisions to admit patients to the ICU should ideally be based on their severity of illness or other objective markers. However, this study adds to an evidence base^{8,9} showing that bed availability and other nonpatient-centered factors affect triage. Indeed, the present study suggests that decision making is directly affected by “nonnormative” factors such as the

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time of day and day of week of MET activation and the training level of the MET provider who happens to be on call.

The influence of these factors on decision making, without corresponding differences in mortality, suggests that many ICU admissions are unnecessary because the patient is either too well or too sick to benefit. Furthermore, it appears that clinicians can allocate beds efficiently by eliminating nonbeneficial admissions when scarcity forces them to do so. This conclusion differs from a multicenter European study suggesting that ICU admission confers a survival advantage when beds are scarce⁹ but agrees with a Seattle-based study that was published a quarter of a century ago showing that although bed scarcity commonly caused clinicians to discharge patients “prematurely,” survival was unaffected.¹⁰

Such uncertainty regarding whether ICU admission could benefit some patients from whom it is denied defies efforts to label such decisions as *rationing* (withholding of potentially beneficial services) vs *elimination of waste*. Regardless, the most provocative suggestion of the present study is that clinicians may reduce ICU admissions that are not overtly beneficial by addressing patients’ goals of care in a more timely and determinative manner when they exhibit physiologic deterioration on the floor. If this mechanistic explanation is true, then scarcity may in fact motivate more patient-centered care near life’s end.

Nonetheless, before we conclude that we can get better care at lower cost by closing existing ICU beds, several limitations of the study merit consideration. First, Stelfox and colleagues⁷ show that ICU bed availability is *correlated* with delayed or deferred ICU admission and with changes in goals of care, but *causality* remains uncertain. It is plausible that bed scarcity could cause these outcomes, and the observed “dose-response” relationships between the degree of bed scarcity and the frequency of these outcomes lend further causal support. However, there are also several alternate explanations for the results. If bed availability were truly a random variable, then residual confounding would be unlikely. However, the relationships identified, for example, between ICU bed availability and the type of MET provider, suggest degrees of nonrandomness. Furthermore, although the authors suggest that floor teams were unaware of ICU bed availability, this suggestion is uncertain and unlikely to generalize to the many hospitals in which electronic patient flow software is available at every computer terminal. Might the threshold for MET activation have been influenced by ICU bed availability? If floor teams activated METs slightly less often during times of ICU bed surplus because they were able to transfer their sickest patients directly to the ICU, then a bias against showing a mortality difference might arise.

Second, the authors report that more patients are transferred to another hospital or facility if they clinically deteriorate when ICU beds are plentiful. Presumably, patients who are transferred are both sufficiently stable for transfer and invested in curative goals of care, and their exclusion potentially biases the results toward higher mortality during times of bed availability. Third, more patients were discharged home with support services when they experienced sudden declines during times of bed scarcity. If home hospice were included among these services, even greater changes toward comfort goals of care might occur when beds are scarce. However, because the ensuing deaths at home were excluded from analyses,

this too would bias the relationship between hospital mortality and bed availability toward the null.

Much work remains to be done before we can fully appreciate whether strained ICU capacity⁶ ultimately leads to more or less appropriate use of ICU resources. The study by Stelfox and colleagues⁷ highlights a new potential benefit of ICU bed scarcity: that it may expedite transitions of care toward palliation among patients who are likely to die with or without ICU admission. Therefore, this study's greatest legacy may be to provide the impetus that is needed for efforts to better understand the conditions that promote clinicians' willingness to do the difficult but important work of considering and frankly discussing all therapeutic options that may be appropriate for critically ill patients who are decompensating before their eyes.

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