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Why Use The ICU If It Doesn't Improve Mortality?

By Chuck Dinerstein, MD, MBA — August 18, 2016

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A recent study led to an obvious question: Why have greater utilization of a hospital's Intensive Care Unit and invasive procedures if it doesn't improve mortality?

The article by Dong Chang MD and Martin Shapiro MD, PhD in *JAMA Internal Medicine* [2] looked at ICU use for four common conditions, diabetic ketoacidosis, pulmonary embolism, upper GI bleeding and congestive heart failure at 94 acute care, non-federal hospitals in Washington state and Maryland. They found that:

- Utilization of ICU beds varied with each hospital
- Hospital mortality was not improved in hospitals with greater ICU utilization
- Greater ICU utilization was associated with more invasive procedures and subsequently higher costs

That greater utilization of ICU and invasive procedures increases cost without subsequent reductions in mortality is not an original conclusion, it’s really just a confirmation.

Their second conclusion was more original:

> *“that systematic institutional factors strongly influence clinicians’ decisions to utilize ICU. … institutional factors, such as number of ICU beds, nurse-to-patient ratios, protocols within non-ICU settings and possibly even physician practice styles, likely contribute to greater propensity to utilize ICU care. The apparent variability in propensity for ICU utilization suggests that greater standardization of ICU admission practices might decrease costs, improve outcomes, and thus increase the value of critical care services.” (italics added)*

They're actually arguing for less utilization, even though they just said that the more ICU utilization does not improve outcomes, so how will less? Standardizing ICU admissions does not address nurse-to-patient ratios or protocols within non-ICU settings, right?

The answer is deeper into the dataset. Two-thirds of the high use hospitals were either 99 beds or less (42.6%) or teaching hospitals (24%). The small hospitals utilize their ICUs more because, in general, that is where their nursing expertise is maintained. Changing nurse-to-patient ratios and increasing the intensity of nursing care outside ICU is difficult for these facilities because of cost and a localized scarcity of nursing expertise. Teaching hospitals do not have this problem as frequently and placement decisions by the less experienced residency staff rather than attending physicians may be an underlying cause – perhaps this explains the reference to physician practice styles?

Similar conclusions are evident farther down in the study's limitations.

> *"Finally, our findings do not explain the underlying mechanism that drive hospitals to use ICUs more often."*

So what is the value to the community publishing a paper on what we already know to be true? Why not spend the time necessary to tease out this additional information, advancing the discussion?

Why enhance the noise when you could articulate the signal?
