

When ICUs get busy, doctors triage patients more efficiently, study finds

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A new study by Penn Medicine researchers published Oct. 1 in the *Annals of Internal Medicine* found that busy intensive care units (ICUs) discharge patients more quickly than they otherwise would and do so without adversely affecting patient outcomes – suggesting that low-value extensions of ICU stays are minimized during times of increased ICU capacity strain.

An expected growth in the number of patients requiring critical care resources combined with a projected shortage in critical care providers will likely result in ICUs operating under conditions of increasing strain, leading to increased competition for ICU beds among greater numbers of more seriously ill patients. Many fear that this strain on an ICU's capacity to provide high quality care will result in patients spending shorter periods of time in the ICU and therefore experiencing worse health outcomes due to "rationing" of necessary critical care.

However, the new study, led by Jason Wagner, MD, MSHP, a senior fellow in the Division of Pulmonary, Allergy and Critical Care at the Perelman School of Medicine at the University of Pennsylvania, helps dispel the notion that resource-strained ICUs will ration critical care resources and negatively affect patient care, with findings that have important implications for planning U.S. critical care capacity. If bed crunches in the ICU cause reductions in the delivery of low-value ICU care for patients nearing ICU discharge without adversely affecting patients, it is conceivable that reductions in the number of U.S. ICU beds could yield considerable cost savings without reducing the quality

of care.

In a retrospective analysis of over 200,000 patients from 155 ICUs in the United States between 2001 and 2008, the authors found that when ICUs were at their busiest, patients were discharged an estimated 6.3 hours sooner than they otherwise would be. Nonetheless, such patients experienced no increase in the odds of dying in the hospital, no greater overall length of hospital stay, and no decrease in the odds of ultimately going home. ICU capacity was measured by ICU census, number of new admissions, and the average acuity of the other patients in the ICU at the time of a patient's discharge.

"Many believe there will be a break at the intersection of the growing demand and our ability to supply high-value critical care. So we asked the question: When busy, do critical care providers discharge patients quicker than they otherwise would and does it result in negative consequences such as rationing critical care resources or promoting breakdowns in the quality of patient handoffs among providers?" said Dr. Wagner. "We found that patients are discharged earlier but are no worse off—which suggests that in a strained-resource setting, doctors are more efficiently discharging patients into the appropriate next step of care. This rightfully frees up critical care providers and beds for any potential incoming patients."

Said differently, when ICU providers are not busy they are more likely to keep patients in the ICU for longer than necessary – providing low-value critical care services.

Together, these results suggest, the authors write, that rather than causing the rationing of beneficial care, strain spurs providers to reduce their provision of what seems to be low-value care by critically re-examining a patient's need for ICU-level care and transferring patients who could be equally well-managed outside the ICU.

Avoiding waste, the authors also point out, serves the interest of individual patients and society simultaneously.

"Although the reductions in ICU length of stay during times of strain were modest, focusing efforts on achieving similar reductions in ICU length of stay for majority of [patients](#) admitted to the nearly 100,000 ICU beds in the United States could reduce the overall use of critical care in the country," said Dr. Wagner. "Rather than reflexively moving towards the higher cost approach of adding more ICU beds, perhaps more effort should be focused on increasing the efficiency with which we provide [critical care](#) services with our existing resources."

Provided by University of Pennsylvania School of Medicine

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