Difference in ICU care between the US and UK reflect extremes of bed availability

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Patients who receive intensive care services are very different in the United States than in the United Kingdom, according to a new study that compared admission and mortality statistics from ICUs in each country. The study found that U.K. patients are much sicker upon ICU admission, whereas U.S. patients are more likely to require continuing care after discharge and are often sent to skilled care facilities instead of home.

"The U.S. has about seven times as many ICU beds available per capita than the U.K. We wanted to compare the two because they represent extremes of ICU availability in developed countries," said lead author, Hannah Wunsch, MD, assistant professor of anesthesiology and epidemiology at Columbia University. "We wanted to look at the effect of that different availability of care to understand what impact that has on the delivery of critical care. What happens when you are on those extremes?"

Their findings are published online ahead of the print edition of the American Thoracic Society's American Journal of Respiratory and Critical Care Medicine.

Dr. Wunsch and colleagues examined data from Project IMPACT (PI) in the U.S., and Case Mix Programme (CMP) in the U.K., both large prospective datasets abstracted from clinical records of voluntarily participating ICUs by trained data collectors, according to precise rules and definitions. The researchers merged the datasets and used variables that were confirmed to be defined similarly in both countries.

They analyzed all medical admissions to ICUs from 2002 to 2004, excluding surgical admissions, patients younger than 16 years, and readmissions to the ICU during the same hospital stay.

The researchers then calculated the relative degree of illness of patients, length of stay, and hospital mortality and discharge status.

They found that overall patient age distribution was remarkably similar between the two countries, although the U.S. had proportionally more admissions over the age of 85 (7.8 percent versus 3.2 percent.)

However, the degree of illness of the patients prior to admission was strikingly different. Patients admitted to the ICU in the U.K. were sicker patients who had been in the hospital longer. Also, many more of the patients admitted in the U.K. were mechanically ventilated.

In contrast, U.S. patients were more likely to be admitted to the ICU straight from the emergency room compared to U.K. patients, indicating that fewer ICU beds in the U.K. may necessitate patients spending more time in the general wards than in the U.S.

Dr. Wunsch and colleagues found that hospital mortality for ICU patients was substantially higher in the U.K. than in the U.S., even after accounting for severity of illness, probably because of "a combination of many unmeasured differences in both patients and healthcare systems," said Dr. Wunsch. However, when Dr. Wunsch and colleagues compared subgroups of similarly ill patients—those who were admitted directly from the emergency room and who had been mechanically ventilated in the first 24 hours after admission—the mortality rates were similar.

"These findings highlight the importance of comparing 'like with like', and how hard that can be when looking at heterogeneous patients cared for in different healthcare systems," said Dr. Wunsch.

Comparing hospital mortality between the countries was also confounded by the trend for U.S. ICUs to discharge patients to "skilled care facilities" rather than directly home, as was the case in the U.K.

"The U.S. and the U.K. have very different discharge patterns, and the trend in the U.S. has been to shorten hospital length of stay and discharge people earlier to other types of facilities." said Dr. Wunsch. "If you look at hospital length-of-stay information it looks like [the U.S. is] very efficient, but many of these patients are actually going to a skilled care facility where the mortality is a lot higher than among those who go home. The effect is that for studies of ICU patients, there is a fair amount of mortality that occurs after intensive care that is outside of the hospital. This practice makes it hard to compare U.S. hospital mortality to other countries that tend to keep people in the hospital until they either die or are able to go home."

In spite of the difficulties in making direct comparisons between the countries, the study provides valuable information regarding the impact of ICU resources on admission practices and demonstrates some large differences in healthcare delivery. "The differences in the types of patients admitted to the ICU, and the patterns of hospital care for these critically ill patients really are enormous," said Dr. Wunsch.

In future research, Dr. Wunsch and colleagues hope to make more direct comparisons between groups of similar patients. "We want to understand the key differences between these two different models of ICU access," said Dr. Wunsch. "On the one hand, we want to ask at what point does restricted access to care translate into poorer patient outcomes? On the other, at what point are we no longer delivering intensive care that is helpful to patients?"

More information: Read the full study here