

In-hospital Mortality in Patients Admitted to IMCUs With and Without ICUs



ICUs provide critical treatment for severely ill patients but are resource-intensive and costly, requiring efficient and equitable utilisation. Guidelines for ICU admission and discharge have been established in several countries to optimise resource use. Intermediate care units (IMCUs), also known as high-dependency or step-down units, offer care for patients who do not need full ICU resources but require more support than general wards. IMCUs aim to improve ICU access for critically ill patients without compromising the health of those transferred to them. They are typically co-located with ICUs in hospitals, but some hospitals, such as in Japan, operate IMCUs without ICUs, raising concerns about patient outcomes.

A recent study examined changes in IMCU and ICU bed numbers in Japan from 2016 to 2022 and compared patient outcomes in hospitals with and without ICUs. The study analysed data from 2016 to 2022 using Japan's Diagnosis Procedure Combination Database and Hospital Bed Function Reports. It compared in-hospital mortality rates for patients admitted to IMCUs in hospitals with and without ICUs. Multilevel logistic regression models, adjusted for confounders, were used to assess the differences in outcomes.

From 2016 to 2022, the number of IMCU beds in hospitals without ICUs in Japan increased by 59%, reaching 5,403 beds and accounting for 38% of all IMCU beds in the country. Among 3,061,960 IMCU patients, 75% were admitted to hospitals with ICUs, while 25% were in hospitals without ICUs. Patient transfers between IMCUs and ICUs occurred in 10.5% of cases, with significant variability across hospitals.

The study found that patients in hospitals with IMCUs but without ICUs had higher in-hospital mortality and hospitalisation costs, especially those requiring life-sustaining therapies. This suggests that such hospitals may not provide the appropriate level of care, violating the core principle of IMCUs to maintain patient outcomes. Factors such as the absence of intensivists and ICU nurses could also contribute to worse outcomes.

Hospitals with more frequent transfers between IMCUs and ICUs (above 10%) had better patient outcomes, emphasising the importance of a flexible transfer system to match patient severity with the appropriate level of care. The study recommends that IMCUs be co-located with ICUs to ensure optimal care for critically ill patients and suggests mandatory regulations to address growing disparities.

IMCUs in hospitals without ICUs have become more common in Japan, but patient outcomes in these hospitals were worse compared to those with ICUs. The study suggests that IMCUs should ideally be located in hospitals with ICUs to ensure appropriate care and effective patient transfers. It highlights the need for an improved critical care system tailored to patient severity. However, these findings should be considered within the local healthcare context, and further research is needed to assess their applicability to other countries and healthcare settings.

Source: [Critical Care](#)
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