



## CICU: Cardiac Intensivist-directed Care Linked to Lower Mortality



In the CICU setting, the presence of a dedicated cardiac intensivist has been shown to reduce mortality rates in patients with cardiovascular disease who require critical care. The findings are from a study by South Korean researchers and published in *Journal of the American College of Cardiology*.

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Dedicated intensive care unit (ICU) physician staffing is associated with a reduction in ICU mortality rates in general medical and surgical ICUs. However, limited data are available on the role of a cardiac intensivist in the cardiac intensive care unit (CICU). This led the researchers to undertake the study to investigate the association of cardiac intensivist-directed care with clinical outcomes in adult patients admitted to the CICU.

The research team analysed data from 2,431 patients admitted to the CICU at Samsung Medical Center in Seoul from January 2012 to December 2015. In January 2013, the CICU was changed from a low-intensity staffing model to a high-intensity staffing model managed by a dedicated cardiac intensivist, a cardiologist who is board certified in interventional cardiology and critical care medicine. Eligible patients were divided into either a low-intensity management group ( $n = 616$ ) or a high-intensity management group ( $n = 1,815$ ). One-to-many (1:N) propensity score matching with variable matching ratios was also performed. The primary outcome was death in the CICU.

Data analysis revealed that, compared with the low-intensity group, the CICU mortality rates (8.9% vs. 4.1%;  $p < 0.001$ ) and the in-hospital mortality rates (10.7% vs. 6.1%;  $p = 0.009$ ) were significantly lower in the high-intensity group. Other key findings include:

- Of 135 patients who underwent extracorporeal membrane oxygenation, the CICU mortality rate in the high-intensity group was also lower than that in the low-intensity group (54.5% vs. 22.5%;  $p = 0.001$ ).
- High-intensity staffing was associated with approximately 50 percent lower CICU mortality rates in the matched cohort of patients (7.5% vs. 3.7%; adjusted odds ratio: 0.53; 95% confidence interval: 0.32 to 0.86;  $p = 0.010$ ).
- In overall and propensity-matched patients, there were no substantive differences in either median length of CICU stay or readmission rates between the two groups, the researchers noted.

"Our findings demonstrate that high-intensity staffing is associated with reductions in CICU and in-hospital mortality rates in patients with cardiovascular disease who require critical care," the authors write. "Our results are consistent with those of numerous previous studies that showed significant reductions of ICU and in-

hospital mortality rates in high-intensity general medical and surgical ICUs and other specialty ICUs."

In an accompanying editorial, David A. Morrow, MD, MPH, Samuel A. Levine Cardiac Intensive Care Unit, Cardiovascular Division, Department of Medicine, Brigham and Women's Hospital, Boston, MA, says the study findings "are an important piece of the larger puzzle supporting the notion that evidence-based changes to the structure of critical care in other ICUs also apply to the CICU."

In particular, the results "support a deepening expert consensus that evolution toward integrated team-based care led by CICU based cardiologists with specialised skills and experience provides for the best possible care in advanced (Level 1) CICUs," Dr. Morrow explains.

He also notes that ongoing studies will further refine the redesign of CICUs with improved understanding of the essential elements of high-intensity, high-quality cardiac critical care.

Source: [Journal of the American College of Cardiology](#)

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Published on : Tue, 20 Dec 2016