

# Obese heart surgery patients require significantly more ICU resources

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After heart surgery, obese patients tend to require additional intensive care unit (ICU) services and longer recovery times when compared to non-obese patients. This results in more expensive, more labor-intensive care, according to a study published online today in *The Annals of Thoracic Surgery*.

"Obesity is a growing problem for society that has reached epidemic proportions," said lead author Brandon R. Rosvall, BSc, of Dalhousie Medicine New Brunswick in Canada. "In our study, we saw that as [patients](#) became more obese, the hospital resources required to care for them after [heart surgery](#) also increased."

Rosvall, along with senior author Ansar Hassan, MD, and other colleagues, used data from the New Brunswick Heart Centre Cardiac Surgery Database to identify patients who underwent [cardiac surgery](#) at the New Brunswick Heart Centre between January 2006 and December 2013. The authors also examined data specific to the patients' ICU stays, which were obtained from logbooks and individual charts.

Of the 5,365 patients included in the final analysis, 1,948 (36 percent) were classified as obese. The patients were grouped into the following weight categories, as defined by the World Health Organization: Obese Class I (BMI 30.00-34.99), n=1,363 (25 percent); Obese Class II (BMI 35.00-39.99), n=441 (8 percent); and Obese Class III (BMI greater than 40.00), n=144 (3 percent). Body mass index (BMI) is a measure of body fat based on weight in relation to height. In general, the higher the BMI

number, the more body fat a person has.

The study showed that following [surgery](#), patients with higher levels of obesity were four times more likely to require extra time in the ICU, three times more likely to need additional time on mechanical ventilation, and three times more likely to be readmitted to the ICU. Researchers also learned that these patients experienced longer overall hospital lengths of stay and discharges with home care.

"The consistent relationship we have shown between increased BMI and these primary adverse outcomes confirms the robust nature of our findings," said Rosvall.

According to the Centers for Disease Control and Prevention (CDC), more than one-third (36.5 percent) of American adults are obese. The estimated yearly medical cost of obesity in the US reached \$147 billion in 2008 (the latest data available), which translates to \$1,429 more for each obese patient than a patient of normal weight.

"The ICU provides a number of highly specialized services to care for patients who are seriously ill," said Rosvall. "Expensive resources including staff, medical equipment, and medication are needed to provide these services. Health care is costly, so by more efficiently using ICU resources, we can save the health care system money, while also improving overall patient care."

Researchers said that strategies should be developed that improve ICU resource utilization among patients with increased BMI. For example, knowing that obese patients spend more time in the ICU after their operations enables health care providers to better predict ICU bed vacancies and be more thoughtful when scheduling staff and surgeries. Rosvall explained that efficient booking allows more patients to be treated while preventing overworked staff and canceled procedures. In

addition, there are preemptive actions that doctors should put into practice, such as closer monitoring of obese patients and preoperative discussions about the unique surgical risks that they may face.

"Patients should be aware that obesity may negatively impact recovery from heart surgery," said Rosvall. "More in-depth conversations regarding surgical risks and alternatives to surgery should take place with obese patients so that they are aware of the true impact of increased obesity. While obesity has become a social issue, it is one that can be addressed on a personal level. By working with their [health care providers](#), patients can learn how to achieve and maintain a healthy body weight."

According to Rosvall, this research group is currently conducting research on biomarkers (specific molecules in the blood) that will help doctors predict how [obese patients](#) will recover from cardiac surgery.

**More information:** Brandon R. Rosvall et al. Impact of Obesity on Intensive Care Unit Resource Utilization After Cardiac Operations, *The Annals of Thoracic Surgery* (2017). [DOI: 10.1016/j.athoracsur.2017.05.047](#)

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