



## KEY POINT SUMMARY

### OBJECTIVES

To find out if money saved from reducing nosocomial infections justifies the costs of building and maintaining single-bed rooms in ICUs.

### DESIGN IMPLICATIONS

If feasible, ICU designers should consider constructing more single-patient bedrooms to help reduce the costs associated with nosocomial infections.

## Do cost savings from reductions in nosocomial infections justify additional costs of single-bed rooms in intensive care units? A simulation case study

Sadatsafavi, H., Niknejad, B., Zadeh, R., & Sadatsafavi, M. 2016 | *Journal of Critical Care* Volume 31, Issue 1, Pages 194-200

### Key Concepts/Context

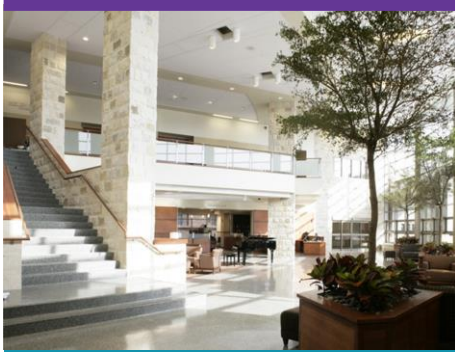
Nosocomial infections are infections that are acquired in healthcare facilities. They are a key factor in decisions to construct and maintain single-patient bedrooms in intensive care units (ICUs), since single-patient rooms have been shown to greatly reduce instances of nosocomial infections. However, no prior studies have investigated whether the resource savings incurred from reducing nosocomial infections are worth the construction and maintenance costs required for single-patient bedrooms in ICUs.

### Methods

A probabilistic return-on-investment study was performed using three sets of data provided by a medical-surgical ICU. These data included information regarding ICU operation and design features, schematic drawings of floor plans used for cost calculations, and information regarding the costs associated with ICU operation and design interventions. The authors used an analysis period of five years, as that is the timeframe in which U.S. healthcare facilities often expected to recover costs from investments.

### Findings

Results indicated that although single-patient bedrooms were more expensive to operate and build than open-bay rooms, they also were highly effective in avoiding the expenses linked to incidents of nosocomial infections. Furthermore, the cost-benefit analysis conducted by the authors proved that, apart from inherent health benefits, single-patient bedrooms are indeed justifiable from an economic perspective. Therefore, the costs saved by reducing nosocomial infections through



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the construction and upkeep of additional single-patient rooms make the rooms worthy investments.

**Limitations**

The authors listed two limitations in this study. First, the study is based on a re-analysis of a single ICU's previous assessment, and every healthcare facility is ultimately constructed, managed, and financed differently, so the results described here might not apply to every ICU. Secondly, during the author's assessments of the ICUs floor plans and construction data, hypothetical walls were superimposed upon certain open-bay room spaces to simulate the construction of additional single-patient rooms. It is not known how the addition of these hypothetical walls would have affected workflows, storage, or utilities.

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