ICU
MANAGEMENT & PRACTICE

Are Single-Bed Rooms Cost-Effective?

Single-patient rooms in the ICU may be more costly to build and operate, but the resultant cost savings from reductions in nosocomial infections outweigh the additional construction and operating expenses, according to a new study published in *Journal of Critical Care* .

Despite recent efforts to improve healthcare quality and safety, there is still considerable room for improvement in reducing nosocomial (hospital-acquired) infections, and facility design is a recognised factor. Only a few studies have investigated the return on investment from improving facility design and operation, and none have been performed in ICU settings.

Hessam Sadatsafavi, PhD, Department of Design and Environmental Analysis at Cornell University, Ithaca, NY, and colleagues conducted a simulation case study to investigate whether cost savings from reductions in nosocomial infections justify the additional construction and operating costs of single-bed rooms in ICUs. The researchers used the findings of a previous comparative study of nosocomial infections in patients in single-patient and open-bay ICU rooms to estimate the return on investment in such rooms.

See Also: Better Management of ICU Beds

The analysis period was five years, the maximum payback period (ie, time required to recover the cost of an investment) commonly expected from healthcare facility investments in North America. To evaluate the financial feasibility of this type of investment, the researchers calculated the net financial gain (or loss), taking into account all resources invested and amounts gained over the five-year analysis period. Invested resources included the money for building the single-bed rooms, along with their annual operating expenses. The amounts gained included the costs avoided each year by reducing nosocomial infections.

Dr. Sadatsafavi's team found that, despite uncertainty in the estimates of costs, infection risks, and length of stay, the cost savings from the reduction of nosocomial infections in single-bed rooms in this case substantially outweighed additional construction and operation expenses. The mean value of internal rate of return over a five-year analysis period was 56.18% (95% credible interval, 55.34%-57.02%).

"Together with studies that have shown the efficacy of single-bed rooms in controlling ICU nosocomial infections, our study showed that facility design and operation can support good hospital practice in a cost-effective way," the authors write. "The body of research that points to the effectiveness of single-bed rooms in ICU infection control can become more applicable in practice if information is available about return on investment in ICU design and operation features as nonpharmacological ways to improve clinical outcomes."

Source: Journal of Critical Care

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