



KEY POINT SUMMARY

OBJECTIVES

To investigate the effects of different factors that have been known to contribute to nosocomial infection rates in ICUs.

Relationship between environmental conditions and nosocomial infection rates in intensive care unit

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Key Concepts/Context

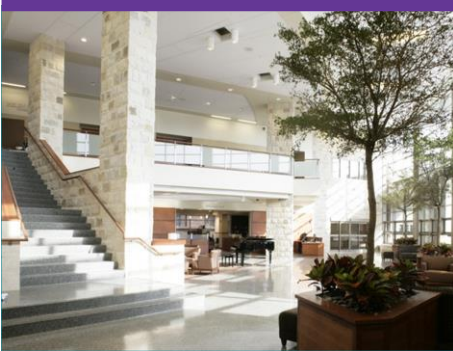
Due to the highly vulnerable state of the patients populating intensive care units (ICUs) and the health risks posed to healthcare providers working in ICUs, special attention must be given to the causes and effects of nosocomial infections within these areas. Previous studies have shown that there are many different factors that contribute to nosocomial infection rates in ICUs, such as nurse-to-patient ratios. The authors believe it is imperative to investigate several different causes of nosocomial infections in order to determine the most problematic sources, as well as the sources that require further investigation.

Methods

The authors retrospectively examined data concerning nosocomial infections in a hospital's ICU from January 2012 to June 2014. The effects brought on by changes in different environmental conditions, such as temperature, humidity, area around patient beds, and nurse-to-patient ratios were all included in this retrospective analysis. Infection rates in the ICU were calculated by assessing the total infection rate, ventilator-related pneumonia (VRP) infection rate, and the catheter-related urinary tract infection (CRUI) rate.

Findings

Statistical analysis found no significant relationship between infection rates and the nurse-to-patient ratio. However, the area surrounding patient beds did have a statistically significant negative correlation with the total infection rate, the CRUI rate, and the VRP rate. Although no significant relationships were found between temperature and humidity with other infections, the CRUI rate did have a negative correlation with humidity. The authors note that the lack of a correlation between nosocomial infections and the nurse-to-patient ratio within this study is most likely



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due to a regulation in Turkey that only allows for one nurse for every two patients in a shift.

Limitations

The authors gathered all of their data from one hospital within a period of less than three years. The hospital chosen for investigation closely followed many regional rules and regulations, which made the ramifications of some variables such as nurse-to-patient ratios and the effects of temperature and humidity difficult to gauge.

Design Implications

This study emphasizes how the presence of isolation rooms, a comfortable amount of space for each patient, and a reduced number of patients sharing rooms all can lead to reduced nosocomial infection rates. The authors state that the ideal ICU should have an area of at least 20m² and a single bed.

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