SYNOPSIS

KEY POINT SUMMARY

OBJECTIVES

To determine whether or not strategically placed sound-diffusing acoustic panels can acutely reduce noise in hallways adjacent to patient rooms in hospitals.

Reducing hospital noise with sound acoustic panels and diffusion: A controlled study

Farrehi, P. M., Nallamothu, B. K., & Navvab, M. 2015 | *BMJ Quality Safety*. Volume 25, Issue 8, Page 644

Key Concepts/Context

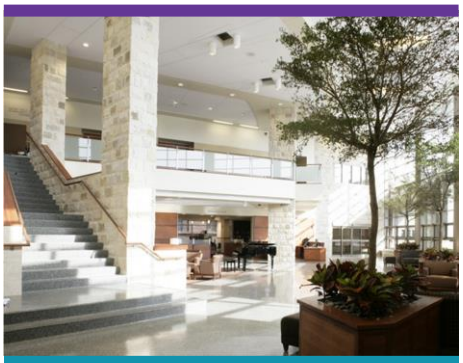
Ambient noise is a well-known source of stress in healthcare environments. Hospitals have employed methods such as shielding patients with closed doors, altering staff behaviors, and moving equipment, but these approaches can disrupt workflows and do not address the realities of sound generation within hospitals. The authors suggest that the use of sound-diffusing acoustic panels within healthcare environments remains relatively unexplored, and that using these panels could potentially reduce noise in hallways adjacent to patient rooms.

Methods

For this study, the researchers selected two central parallel hallways featuring architecturally identical patient rooms on both sides. One hallway acted as a control, the other as an intervention setting. A total of four sound-diffusing acoustic panels were placed in the intervention hallway, adjacent to the patient rooms. Two large panels and one small panel were hung on walls in the hallway, while one small panel was affixed to the hallway's ceiling. Audio recordings were captured for 72 hours during routine work hours.

Findings

Over the course of the study, the mean sound level in the control hallway was 60.89±4.36 dBA, while the mean sound level of the intervention hallway was 57.55±4.00 dBA, for a total difference of 3.34 dBA. The acoustic panels primarily impacted the decay or diffusion of high- and mid- frequency sound levels. There were no significant changes in standard hospital routines or activities during the study period.



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Limitations

The authors conducted this study within a relatively small timeframe and within a single setting. Only one configuration of the sound panels was examined. Staff and patient opinions concerning the aesthetic appeal of the panels were not taken into consideration. The authors note that the lack of measurements regarding patient and staff satisfaction is a key limitation of the study.

Design Implications

Sound-diffusing acoustic panels can be affordable and effective solutions for reducing ambient noise in healthcare settings. The aesthetic appeal and location of these panels should be carefully considered to both maximize patient and staff satisfaction as well as the effectiveness of the panels themselves.

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ASHE American Society for Healthcare Engineering, A personal membership group of the American Hospital Association

AAHF Academy of Architecture for Health Foundation

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