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CREATING THE QUIET ZONE

People will always create noise as they go about their day in a busy, round-the-clock healthcare facility. By considering acoustics during the hospital's planning and construction, one can help administrators meet regulatory requirements, relieve some of the environmental stress from caregivers, and—above all—create more comfortable places in which patients can recuperate.

If you've stayed overnight in a hospital, you can probably recall how noise affected your experience. Whatever the sources—chirping alarms, nurses going about their tasks, neighboring patients' conversations, or the sounds of distress—you likely ran a gauntlet of side effects ranging from irritation to sleep deprivation.

And then there were the effects that perhaps you weren't so acutely aware of: elevated blood pressure, quickened heart rate, increased metabolism, to name a few. Add the consequences of poor sleep to that mix—agitation, delirium, weakened immune system, and impeded ability to generate new cells—and you haven't exactly got the elixir of health.

In fact, medical researchers have concluded that the physiological and psychological fallout of noise exposure can slow our recovery rates, lengthening hospital stays when all we really want to do is get back to our lives...not to mention our own beds.

It's important for those involved in the planning and construction of these facilities to understand these initiatives, as well as how to help hospital administrators to achieve their acoustic goals.

HCAHPS and noise

In the United States, various economic incentives, regulatory measures and design guidelines have been developed in order to encourage hospitals to address acoustic issues.

One of the most powerful measures is the value-based purchasing program (VBP) enacted by the Centers for Medicare and Medicaid Services (CMS). This program provides monetary incentive to improve patient outcomes by penalizing poorly performing hospitals, while rewarding those that do better. At its outset, it was funded by a one percent withholding of Medicare. In 2014, that figure began rising by 0.25 percent annually and reached its planned cap of two percent in 2017.

The VBP program is rooted in a total performance score for each hospital calculated from clinical quality assessments (70 percent) and patient satisfaction scores (30 percent). The latter is based on the results of the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey. Failure to submit these surveys to CMS results in a two percent withholding of Medicare.

The HCAHPS (pronounced h-caps) survey is given to a random sample of patients between 48 hours and six weeks after discharge and is used to gain insight into perspectives on the quality of their hospital stay. It includes 18 questions,

grouped under eight topics. Hospitals earn points for achieving a certain performance level relative to other hospitals, for improving their performance over previous periods, and for consistency across all eight categories.

The section pertaining to the hospital environment includes a question relating to noise that asks "During this hospital stay, how often was the area around your room quiet at night?" The patient can respond: never, sometimes, usually, or always. Since 2007—when collecting and submitting the survey became mandatory—noise has consistently been one of the lowest-rated factors nationwide. As such, this problem has the greatest potential to impact hospital funding by dragging down

consistency scores as well as patients' overall rating of their stay. It may also affect a hospital's competitiveness because members of the public can review each facility's results online.

Patient comfort and outcomes

It's worth noting the HCAHPS survey focuses on the quietness of the patient's room at night. Though noise isn't responsible for all sleep disruptions, its contribution is significant.

Researchers have found the sick and the elderly are the most likely to have their sleep disturbed by noise, and people never completely habituate themselves to night-time noise. Noise reduces both the quantity and quality of sleep through delayed onset, shifts to lighter stages, motility (i.e. tossing and turning), and awakenings, which weaken the immune system and impede the body's ability to generate new cells. It can also lead to problems during the day, such as agitation and delirium.

However, a growing body of medical studies show noise also causes problems during the day. Because illness can increase sensitivity to environmental stressors, noise can create anxiety, driving up nursing calls as well as pain medication requests. In fact, side effects such as elevated blood pressure, quickened heart rate, and increased metabolism have led some researchers to conclude noise may even slow recovery rates and length hospital stays.

Sound masking is increasingly used to help control acoustics and enhance sleeping conditions in patient rooms. Providing a patient with the ability to locally adjust the ambient level in their room not only improves comfort, but increases their sense of control over their environmental conditions, raising satisfaction levels. The system's administrator can program each control so that the patient cannot lower the masking volume to an ineffective level or raise it too high. Central control of individual patient rooms can also be provided at nursing stations.

In the United States, the quietness of patient rooms was found to be one of the lowest-rated satisfaction markers nationwide, placing noise control at the top of many facilities' list of objectives.

Additionally, patients are not the only ones affected. Though one might think staff can become conditioned to noise over time, no one is able to fully tune out these disturbances because senses are designed to detect such changes in the environment. Both the American Hospital Association (AHA) and the Institute for Safe Medical Practices (ISMP) recommend medical error prevention programs take noise into consideration, given it can impact caregivers' concentration, stress levels, and fatigue.

HIPAA and speech privacy

Speech privacy is yet another acoustic concern in hospitals. Conversations occur at administrative stations, in hallways, and semi-private rooms. Often, areas used for the input and retrieval of both medical and financial information are located near waiting areas.

Patients know if they can overhear conversations occurring in adjacent areas, others can hear them as well, making them uncomfortable and less likely to discuss private matters with their caregiver. They also have a fundamental right to auditory privacy, which has been officially recognized in a set of federal regulations developed by the U.S. Department of Health and Human Services (HHS).

Introduced in 1996, the Health Insurance Portability and Accountability Act (HIPAA) primarily deals with the use of protected health information (PHI) and of any individually identifiable health information, as well as its storage, and sharing in electronic systems. However, a small but essential part of HIPAA pertains to oral communication, because to exclude conversations would essentially allow for private information to be inappropriately shared if it was done verbally.

HIPAA requires healthcare entities take “reasonable safeguards”—including administrative, technical, and physical measures—to ensure speech privacy during both in-person and telephone conversations with patients and between

employees. Compliance was required by healthcare-related facilities and other organizations working with PHI as of April 14, 2003. There are stated penalties for non-compliance, but HHS has elected to address speech privacy issues on a complaint basis to date, and few monetary penalties have been issued. However, a hospital must be able to demonstrate it has investigated acoustics, researched possible solutions, and implemented economically viable ones.

In any case, it's difficult to dispute the fact patients have a basic right to a level of auditory privacy. In most situations, having a conversation overheard is merely embarrassing, but in the context of providing healthcare, it's a matter of confidentiality.



Facility Guidelines Institute

The Facility Guidelines Institute's (FGI) Guidelines for Design and Construction documents are broadly accepted as best-practice in healthcare facility design and construction, and its recommendations incorporated into building code in many US states.

The guidelines acknowledge that speech privacy and acoustic comfort are key drivers of effective overall design. However, in trying to meet these goals, FGI continues to rely on traditional noise control methodologies that emphasize isolation. Given the impact on patient well-being, hospital funding, and construction budgets, it's worth exploring another strategy—namely, the use of controlled minimum background sound.

Learn more by reading ‘Sound Advice: Designing for speech privacy, controlling noise to enhance care’ by Niklas Moeller, in *Medical Construction & Design*, March/April 2018, Volume 14, Issue 2 (pg. 28-29).



AN OUNCE OF PREVENTION IS WORTH A POUND OF CURE

As with most facilities, the majority of a hospital's acoustical burden should be borne by its design, using strategies such as absorptive ceiling tiles, a well-planned layout and sound masking. But it's also important to reduce or even eliminate unnecessary noise sources:

- lower the telephone's ringer volume;
- dim the lights in the evening to encourage quiet;
- fix or replace faulty equipment, such as squeaky carts and creaking doors;
- provide training on how to handle loud vocalization by patients;
- purchase quieter equipment, such as hand towel dispensers and door hardware;
- limit or eliminate overhead paging by equipping staff with personal devices; and
- use visual indicators for low-priority or advisory alarms, rather than audible signals.

Some hospitals have even formed committees tasked with raising caregivers' and visitors' awareness of noise and enforcing behavioral policies related to its reduction. Anti-noise posters are often topped with clever acronyms, such as Silent Hospitals Help Healing (Shhh) and Help Us Support Healing (HUSH) or the time-honoured Hospital Quiet Zone.

Policies for caregivers include:

- respond to alarms promptly;
- change IV bags before alarms sound;
- restock supplies during the evening rather than at night;
- talk only in close proximity to the listener, not from a distance;
- use hushed rather than normal speaking tones whenever possible;
- ask patients to use headsets and turn off unwatched television sets; and
- designate 'quiet time' during which no routine checks are made unless medically necessary.

The hospital should also designate an individual who will document speech privacy practices (as required by HIPAA), provide privacy awareness training for employees, and act as the contact for complaints. In addition, they may also:

- implement waiting lines at a specified distance;
- post signs reminding both staff and patients to consider their voice level; and
- locate staff telephones away from areas where conversations may be overheard.

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