



# SOUND MASKING

## For Hospitals



Noise is a well-documented problem in hospitals. Sources include patients, staff and visitors talking, as well as the cacophony produced by televisions, alarms, carts, doors, medical equipment and mechanical systems.

These sounds cause more than just irritation. A growing body of research shows that noise actually harms patients by elevating heart rate and blood pressure, as well as increasing muscle tension and metabolism.

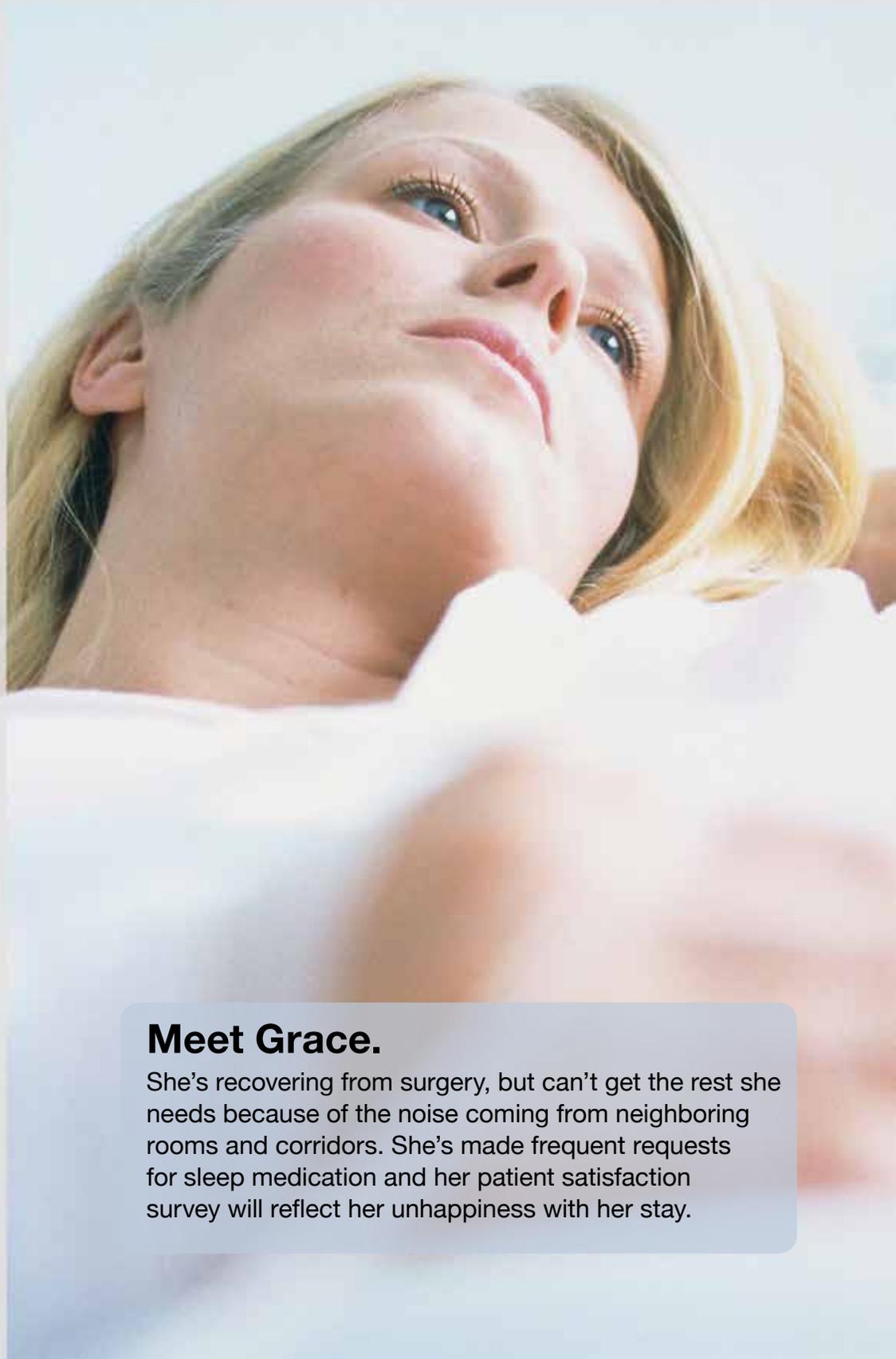
Noise also prevents patients from getting the rest they need for recovery. While it's not responsible for all disruptions, its contribution is significant. Sleep deprivation can cause agitation, delirium, decreased tolerance to pain and suppressed immune response, increasing nursing calls and lengthening hospital stays.

No wonder *Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS)* scores show that noise is the most common patient complaint. Under the new Value-Based Purchasing program, this issue will impact government funding.

But patients are not the only ones affected. Noise also tires staff out and disrupts concentration, affecting workplace satisfaction and the quality of care.

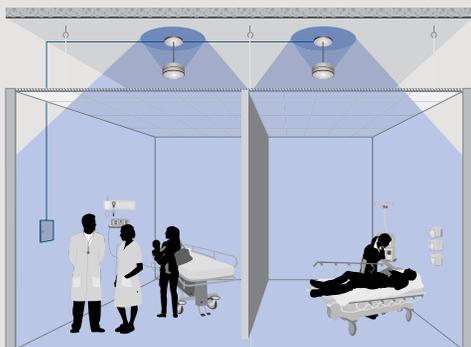
Speech privacy is yet another concern. Patients' right to privacy has been officially recognized in the *Health Insurance Portability and Accountability Act (HIPAA)*, which requires healthcare entities to take reasonable safeguards to protect verbal communication.

Addressing these acoustical issues helps to create an environment that promotes healing and supports the proficient delivery of care.



### Meet Grace.

She's recovering from surgery, but can't get the rest she needs because of the noise coming from neighboring rooms and corridors. She's made frequent requests for sleep medication and her patient satisfaction survey will reflect her unhappiness with her stay.



### The LogiSon® Solution

The LogiSon Acoustic Network generates a continuous, soothing background sound that maintains the noise floor at a comfortable volume. Though most compare the sound to softly blowing air, it's specifically engineered to cover speech and noise while remaining unobtrusive.

This technology is easily installed in new and existing spaces, including reception, waiting and common areas, sleep labs, pharmacies, staff quarters and offices, laboratories, observation and diagnostic imaging rooms, as well as the ER. It's earned over seventeen industry awards – four for healthcare applications – and its efficacy has been proven in many hundreds of millions of square feet worldwide.

Hospitals are also increasingly using the LogiSon Acoustic Network in patient rooms where it's proven to improve patient satisfaction ratings for noise. The system is uniquely designed to provide local control in individual rooms or areas, allowing occupants or staff to adjust the volume as needed to enhance privacy, reduce disturbances and improve sleeping conditions. In this way, it not only increases comfort, but patients' sense of control over their environment.

The LogiSon Acoustic Network can also provide paging and background music functions where needed. Networked control over all loudspeaker settings and zoning allows changes to be made without re-opening the ceiling.

For more information about the system's advanced features, see our brochure or contact your local LogiSon Representative.

### The Quest for Silence

For many years, the typical approach to acoustic problems in the healthcare field was to try to achieve the lowest possible volumes, particularly in and around patient rooms in hospitals. Various methods were drawn into this 'Quest for Silence,' including high spec walls, decentralized nursing stations, behavioral policies, and more. However, noise control and speech privacy remained elusive goals. In fact, HCAHPS scores show that noise remains the lowest-rated marker of patient satisfaction.

Though well-intentioned, part of the problem with this earlier approach is that it is impossible to eliminate all noises from a busy, round-the-clock healthcare environment. Furthermore, the more silent one tries to make a space, the louder the remaining noises seem to occupants.

This phenomenon can be attributed to the fact that an effective acoustic environment relies on the provision of an appropriate *noise floor* or level of continuous background sound. Once established, it covers up any noises that are lower in volume and diminishes the impact of those that are higher. Without it, occupants can clearly hear conversations and noises, even those generated at a distance or relatively low in volume.

#### New FGI Guidelines

That is why resources such as the *FGI Guidelines for the Design and Construction of Health Care Facilities* now recommend the use of sound masking systems in healthcare applications. Although the system increases the background sound level, occupants perceive treated spaces as quieter for the above noted reasons. Speech privacy is also greatly improved.

#### Improved Sleeping Conditions

Furthermore, sound masking has been found to be a very effective method of improving sleep. Studies show that it shortens the time it takes to fall asleep and helps reduce sleep disruption due to noise. In fact, in a study of ICU patients, quality of sleep improved by 42.7% when sound masking was used (Stachina et al., 2005). The technology's success lies in its ability to decrease the magnitude of change between baseline and peak volumes. It's this change, rather than a noise's volume, that determines whether or not disruptions occur.

### Case Study

#### MEMORIAL MEDICAL CENTER • Modesto, California • USA

Memorial Medical Center is affiliated with Sutter Health, a family of not-for-profit hospitals, physician organizations and other medical services that share resources and expertise to advance healthcare quality and access.



#### Problem

Memorial was experiencing noise issues and decided to conduct a trial of the LogiSon Acoustic Network in semi-private and private patient rooms, as well as in their Cancer Center. An independent acoustical consultant was hired to quantify its impact. The rooms selected for testing included one directly across from the nurses' station, one with a direct path of sound transmission from a medication dispenser, and several off a main corridor. Their acoustical design was generally poor, with gypsum walls and ceilings and large glass windows. Only the Cancer Center rooms featured a suspended ceiling.

#### Solution

Measured and subjective findings showed that the LogiSon Acoustic Network reduced speech intelligibility and the amount of disruption caused by conversation. Noise from the dispensing machine and other sources was far less noticeable. Overall, the difference between the masked and unmasked floors was dramatic. The nursing staff was very pleased with the results. The trial expanded into an installation that covers four floors of patient rooms and corridors. Post installation surveys show a marked improvement in terms of patient satisfaction with noise levels.