CREATING A CULTURE OF QUIET IN HOSPITALS

Simple Changes Reduce Noise Levels and Improve Patient Outcomes

Research has shown that sleep is essential for healing—unfortunately, hospitalized patients rarely get a decent night of it. Hospitals are noisy, bustling places that deliver nonstop health care. Of course, sleeping in an intensive care unit is difficult because of the constant activity and monitoring; but even for patients in their hospital rooms, the sounds of nurses and physicians doing their work at night can be disruptive, resulting in a diminished hospital experience.

Many studies have established the deep connection between sleep and healing. Disrupted sleep patterns have been linked to immune system dysfunction, reduced resistance to inflammation and infection, and slower wound healing.[1] Lack of sleep can also contribute to high blood pressure, delirium, mood disorders, and falls.[2-5] Sleep-related complications like these can slow down patient healing and recovery, extend hospital stays, and drive up healthcare costs. As reported by the U.S. Health and Human Services Agency for Healthcare Research and Quality in its 2013 "Clean and Quiet" presentation, "if we are depriving patients of sleep, that is going to impact their ability to heal, and it affects other physical processes in their body and their way of dealing with stress." [6]

The sounds of nurses and physicians doing their work at night can be disruptive to patient sleep, resulting in a diminished hospital experience and lower HCAHPS scores.

Well-Rested Patients Recover Faster

Orfeu Buxton, an associate neuroscientist at Brigham and Women's Hospital in Boston, wrote in the Annals of Internal Medicine in 2012 that routine hospital noises, including staff conversations and voice paging, interfered with patient sleep. "Preservation of patients' sleep should be a priority for contributing to improved clinical outcomes for patients who are hospitalized," he concluded. [7]

Noise also undermines patient safety. Fatigued patients tend to be stressed, are more pain-sensitive, and are less likely to retain critical health information when they're discharged. Sedatives are often prescribed to promote sleep, but these medications also increase the risk of delirium and falls. A 2010 study in the Journal of Hospital Medicine showed that small adjustments in hospital routines improved patient sleep patterns, which significantly reduced the need for sedatives. [8]

Anjali Joseph, director of research at the Center for Health Design in Concord, California, in collaboration with Texas A&M University, reported in 2007 that "high ambient noise levels, as well as peak noise levels in hospitals, have serious impacts on staff as well, leading to emotional exhaustion and burnout. Poorly designed acoustical environments can also impede effective communication between patients and staff." [9]

There is another important reason for controlling noise in hospitals—higher reimbursements. The Patient Protection and Affordable Care Act introduced the "Hospital Consumer Assessment of Healthcare Providers and Systems" (HCAHPS) as a measurement to use when calculating value-based incentive payments. As a result, healthcare facilities are making greater efforts to improve their HCAHPS scores. Since excessive noise is a top complaint by

hospital patients, reducing noise is one of the most rapid and effective ways to improve HCAHPS scores and patient outcomes. Hospitals with high "Quiet at Night" HCAHPS scores also have a competitive edge in the marketplace because noise level is also a key factor that patients consider when selecting a hospital for their procedures.

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Controlling Noise

The first step in controlling noise levels is to understand the noise environment. This can be accomplished by installing sensors that provide real-time data on noise levels, which is then evaluated to determine baseline noise levels. For example, Rochester General Hospital in New York wanted to reduce its noise levels at night. It contracted with Quietyme, a Madison, Wisconsin-based IT firm that provides wireless sensor systems for measuring and recording noise levels, to track noise patterns on four floors. Sensors were plugged into standard outlets in patient rooms and dashboard components installed at nursing stations to alert staff to areas of high noise levels. The Quietyme system measures the decibel level in every patient room, nurse station, and common area each second and records the exact time and location of sustained noises. It then provides reports and alerts to identify and correct situations where limits are exceeded, enabling staff to maintain compliance with noise-reduction goals.

Quietyme provided a "success manager" to supervise the project. Utilizing historic and live data feeds, the success manager worked with nursing staff to identify noise signatures and patterns. The success manager then created an action plan to minimize these types of disturbances, including reports and alerts that identify and correct situations where limits are exceeded, enabling staff to maintain compliance with noise-reduction goals. Members of the nursing staff and the success manager met every two to three weeks to evaluate progress and address new areas for improvement.

"Quietyme provides us with continuous, 24/7 measurements that can be compared day-after-day, as well as trend reports created over weeks and months," says Doug Della Pietra, director of customer services and volunteers for Rochester General Hospital. "Some nurse leaders have used the data to follow up with patients the next morning. One leader was even able to correlate lower or higher decibel levels at nighttime with individual staff members working those particular nights. This is powerful information for increasing the awareness of staff."

Meaningful Results, Simple Solutions

Most hospitals think of installing soundproof materials when considering implementing noise-reduction solutions. These are, however, expensive, time-consuming, and disruptive to day-to-day operations on the floor. Simple and lower-cost solutions such as redirecting workflow can result in immediate noise reductions—sometimes by as much as 50 percent or more.

Rochester General Hospital's data showed conversational signatures in the common areas often exceeded the 65 dB limit and carried over to adjoining areas, which patients considered disruptive and unnecessary. To remedy this situation, Quietyme consultants developed three simple initiatives for reducing noise levels:

- Staff keeping all conversations at an arm's length distance, waiting to start a conversation until they arrived at that distance (no raised voices)
- Dimming the lights as a visual cue to staff and visitors that it was "night time"
- Closing patient doors when inside the room with the patient providing care

The most time-consuming part of this implementation was educating staff, which was conducted through morning huddles or personal conversations. Most staff members embraced the changes. "Nurse managers regularly used their reports to provide input to staff about how well they were doing at reducing decibel levels, especially during the night," said Della Pietra.

Within a few months of implementing these initiatives, the HCAHPS "Quiet at Night" scores improved by as much as 50 points on some floors, with an overall noise reduction of 54 percent.

HCAHPS "Quiet at Night" scores improved by as much as 50 points on some floors.

Moving Forward

Research has shown that more than 75 percent of patients suffer sleep disturbance as a result of noise from other patients, equipment, working nurses, and general hospital noise.[10] Noise reduction in healthcare facilities is a process of continuous improvement. Staff members receive daily and weekly trend reports that update progress and motivate staff to achieve weekly goals. Continued monitoring, documentation, and feedback are essential for maintaining this momentum and building a "culture of quiet."

"Ultimately, the key to performance improvement is staff involvement and engagement," says Della Pietra. "Quietyme provides vital data in patient-care areas that help front-line staff find effective ways to reduce noise levels. Without baseline data and continual monitoring, staff could be wasting considerable time and energy on strategies that ultimately have little positive impact on the patient experience. A wireless noise-monitoring system is a valuable tool that gives healthcare leaders the important information they need to make informed decisions regarding noise reduction."

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