OR noise levels linked with increased risk for error

Noise in the OR, whether it is the sound of loud equipment, talkative team members, or music, is a patient and surgical safety factor that can affect the processing of auditory information by surgeons and other members of the OR team, finds a study.

The study is the first to demonstrate that a surgeon’s ability to understand spoken words in the OR is directly affected by noise in the environment, according to researchers from the University of Kentucky, Lexington.

They created a noise environment similar to that of an OR and tested 15 surgeons with 1 to 30 years of operating experience. The surgeon’s ability to understand and repeat words was tested using the Speech In Noise Test-Revised (SPIN-R) under 4 listening conditions typical for the OR:
- quiet
- filtered noise through a surgical mask
- background noise with music
- background noise without music.

The surgeons were tested while engaged in a specific surgical task and while task free.

Results showed that surgeons’ speech comprehension decreased significantly with the presence of background noise when the conversations included critical information that was not predictable.

This has important implications, the researchers say, because OR teams carry on critical conversations that often include discussions about medications and their doses as well as blood replacement. For example, the anticoagulant heparin can sound like the plasma volume expander Hespan, and 16 units can sound like 60 units. Failing to hear the correct medication type or dosing could endanger a patient’s life.

Surgeons’ speech comprehension diminished in the presence of music compared with a quiet environment or with OR noise. However, music significantly impeded speech comprehension only when the surgeon was performing a task. This suggests that the variables might have an additive effect when all are present, the researchers say.

Previous studies have shown that more than 60% of staff listen to music in the OR and that music is associated with less stress and patient anxiety, greater surgeon efficiency, and fewer distractions. However, the researchers note, “OR personnel should be aware that the combination of noise, music, and engagement in a task can lead to substantial breakdowns in communication.”

The ever-increasing emphasis on improving patient safety means that clinicians must critically analyze noise in the OR, the researchers say. To create the safest environment possible, the surgical team may need to turn the music off or down or limit background conversations.
Using a simulated testing environment and asking surgeons to perform less complex tasks than those they typically perform are some of the study’s limitations. Future studies should also examine auditory comprehension among nurses and anesthesiologists, the researchers note.

Reference