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Patient-Centered Hospital Environment Extends to Audio

By Del Williams (08/25/2015)

As the U.S. health care system upgrades or replaces outdated hospitals from the 1960s and 1970s, evidence-based research shows that taking measures to decrease patient stress and instill a sense of control can reduce anxiety and the use of pain-controlled opioid medications, while improving cooperation and clinical outcomes.

OWI equipment at St. Elizabeth's Hospital in Appleton, Wis., helps to improve sound quality for patients.

Toward this end, room designs traditionally packed with several patients per room are being replaced or supplemented with single-occupancy rooms. This provides more patient privacy in accord with HIPAA regulations, along with improved sleep, environmental control, and lower infection risk.

The benefits of such a patient-centered hospital environment are increasingly being extended to in-room audio, where advanced design allows more patient-control, better audio quality, and a streamlined architecture.

In the past, each hospital room often contained several patients and a speaker for each such as "pillow speakers," as well as TV speakers, intercom speakers, nurse call speakers, and an emergency broadcast speaker.

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The background noise from all these speakers could be a problem at times. The audio quality could be sub-par as well, for instance, with pillow speakers, which tend to require frequent replacement, due to rough patient handling. The clarity and reliability of pillow speakers can also deteriorate with such use until they may require replacement once or twice a year at a cost of about $200 each time.

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As a consequence, hospitals are moving away from a multitude of speakers in traditional patient rooms to fewer, better, more durable speakers in private rooms.

Now technology has advanced to the point where a single self-amplified “all-in-one” speaker set like that from OWI, a manufacturer of advanced audio equipment, can enhance patient control of audio while replacing several separate speakers and improving sound quality. Such all-in-one speakers further streamline the process by combining the speakers, amplifier, volume control, and input plate.

“Overhead, all-in-one speakers with wireless Bluetooth connectivity like OWI’s allow patients to more conveniently control song selection and volume from their iPhones or MP3 devices without plugging into the wall or having to reach for wall or pillow speaker controls,” says Jud Miles, a senior designer at RTKL, a global architectural design consulting firm that offers patient-oriented health care design, among other specialties.

Bluetooth compatibility for the all-in-one speakers allows patients to play music from their own smartphones from the overhead speaker so they are no longer limited to earphones, a plug-in cord, or listening only to what the hospital offers.

“By connecting wirelessly to the overhead speaker, patients can listen to their own song selections from bed with audio quality much better than typical pillow speakers,” says Miles. “Since patients do not touch the speaker, the system will last much longer than pillow speakers.”

OWI offers ceiling and wall-mounted speakers for hospitals with several additional advantages compared to traditional audio equipment. For instance, the all-in-one, overhead speakers can do the work of several speakers such as pillow speakers, TV speakers, and paging/intercom speakers, while improving audio quality.

Since the two source, self-amplified ceiling speakers with Bluetooth come with a built-in amplifier, this also optimizes high-fidelity reproduction and response without an external amplifier that could otherwise take up space in the patient’s room.

With up to 40 watts of class D digital amplifier power delivered directly to the speaker, OWI’s AMP-ER2TR6 self-amplified speakers are powerful enough to drive additional non-amplified speakers, yet compact enough to mount discretely above a two-foot by two-foot ceiling tile with Bluetooth.

“You don’t have to worry about finding a place to put an amplifier in the patient room because the speakers have an integrated amplifier that fits neatly above a ceiling panel,” said Miles, who has specified the overhead, self-amplified speakers in private patient rooms in new hospital construction at several locations across the country.

“From an infrastructure and installation standpoint, it’s a nicer solution than trying to find a location and power for the amp somewhere in the patient room,” said Miles. “Instead of having all these separate line items on an equipment list: the speaker, amplifier, volume control, and input plate, it’s all one line item on the equipment list.”

For those without Bluetooth capability, a volume control knob and audio input jack are built on a single wall plate, said Miles.

To improve clinical communication, such all-in-one speakers can also provide a unique priority override that automatically mutes music or TV in the patient room when a nurse call or emergency notification is announced. If there is a power outage in the hospital or local area, the speaker priority override messages can still come through, when connected to a paging system that is connected to a failsafe UPS device.

“From a hospital design, purchasing, installation, maintenance, and end user viewpoint, an all-in-one speaker is easier and less costly to use than traditional hardware,” said Miles.

Del Williams is a technical writer based in Torrance, Calif. He writes about health, business, technology, and educational issues, and has an M.A. in English from C.S.U. Dominguez Hills.