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Aural Connectivity: Enhancing sound environments in critical care settings for effective nurse auditory monitoring

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In intensive care unit (ICU) settings, the sound environment is critically important to nurses accomplishing their tasks. In earlier studies by the authors, it was found that non-amplified environmental sounds such as patient bodily sounds, patient threatening/unusual sounds, and help calls from patients and other caregivers are critically important auditory cues that nurses must listen for and respond to immediately.

These sounds do not exist in isolation but matter as a pattern of aural connectivity that can support a nurse's critical monitoring abilities as she moves through her workplace. Aural connectivity is a network measure that reflects the overall pattern of where users can hear and respond to different key sounds within a setting. This paper describes the sound environments of two ICU hospital settings with similar patient acuity levels but differing layout designs. Preliminary results regarding the patterns of aural connectivity and the role that layout design might play in those patterns are discussed and potential implications for layout design are proposed.