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Relating the hospital sound environment to occupant psychological and physiological response

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Examining the relationship between specific acoustical characteristics of noise and occupant response is a fundamental step in determining the current hospital soundscape. Hospitals should be conducive to patient recovery and safety as well as employee health and productivity. Therefore, the sound environment that occupants are exposed to should be attended to from a health standpoint. Previous research on hospital patients has indicated negative effects of hospital sounds such as sleep disturbance, cardiovascular response, increased incidence of rehospitalization, extended hospital stay, and increased dosages of pain medication. There is some evidence that overall levels of hospital noise may impact staff mental efficiency, short-term memory and stress. A series of studies are currently being conducted by the authors to evaluate the modern hospital soundscape and the associated psycho-physiological responses of occupants, incorporating both quantitative and qualitative approaches. One phase in which detailed sound measurements, staff evaluations, and patient physiological measurements were conducted in a general intensive care unit will be highlighted, focusing also on methodological aspects related to physiological measurements. This phase also includes evaluation of patient ICU delirium, a condition that may negatively impact patient health and length of stay in the hospital. [Work supported by ASA and Swedish FAS].