



## Improving Patient Outlooks through Privacy Enhancement and Noise Reduction

Hospital design and architecture can play an important role in a patient's recovery and well-being. Accordingly, the US government now allocates billions of dollars every year to replace and improve the majority of US hospitals built in the 60s and 70s. Since the early 90s, a number of studies have examined how hospital design and architecture affect patients and healthcare workers, and the results are convincing.

### Noise Reduction

Recent studies of US hospitals have shown that the average ICU patient is exposed to background noise that is eight times louder than the guidelines set out by the World Health Organization (WHO). WHO states that ICU background noise should not exceed 35dB (decibels) for patients.<sup>1</sup> In most US ICUs background noise averages 75dB with peaks reaching in excess of 95dB. It is important to note that dB increases do not result in a linear increase in audible noise - an increase of 10dB will result in twice the perceived noise.<sup>2</sup>

This increased noise level has a wide range of effects on patients and healthcare professionals. In addition to the

obvious sleep disturbances, patients exposed to higher levels of noise consistently show higher levels of stress, increased heart and respiratory rates, higher blood pressure<sup>3</sup> and even decreased levels of oxygen saturation in infants.<sup>4</sup> These can all decrease the body's ability to recover and heal, and leads to longer hospital stays along with higher rates of re-hospitalization.

Similarly, healthcare workers have been shown to endure higher levels of stress and anxiety which have led to a slew of issues. Nurses and doctors often experience decreased productivity and a higher incidence of error with patients. The increased stress has also been linked to the 20 percent turn-over rate among nurses in US hospitals.<sup>5</sup>



## Privacy

Much like increased levels of noise, a lack of patient privacy has adverse effects on recovery times and patient outcomes. Hospital stays are often a time of weakness and vulnerability for patients, and the ability to recover in privacy is important.

In addition to the heightened levels of stress, a lack of privacy has been proven to interfere with treatment as well. Patients have admitted to withholding aspects of their medical history or refusing physical examinations when they have concerns regarding their privacy.<sup>6</sup> In terms of healthcare professionals, over 82 percent of US nurses surveyed strongly preferred collecting patient information and performing examinations in private rooms or areas with increased privacy.<sup>7</sup>

## Solution

To ensure patient safety and the best possible outcomes, hospital designers are seeking ways to provide patients with both privacy and noise reduction without removing the visibility nurses and doctors need to properly care for them. For example, a popular solution that meets these demands is integrated louvers such as Unicel Architectural's Vision Control® insulating glass units with integrated cord-free louvers. This approach offers adjustable visibility, and its double layered glass design has a Sound Transmission Class (STC) rating on par with drywall and concrete block walls.

When combined with the temperature control and a contaminant proof seal, louvered glazing products such as Vision Control® are far superior to any other privacy solution that is currently used in healthcare facilities.

- <sup>1</sup> Berglund, B., Lindvall, T., & Schwela, D. H. (1999). Guidelines for community noise. World Health Organization: Protection of the Human Environment.
- <sup>2</sup> Blomkvist, V., Eriksen, C. A., Theorell, T., Ulrich, R. S., & Rasmanis, G. (in press, 2004). Acoustics and psychosocial environment in coronary intensive care. Occupational and Environmental Medicine.
- <sup>3</sup> Novaes, M. A., Aronovich, A., Ferraz, M. B., & Knobel, E. (1997). Stressors in ICU: patients' evaluation. Intensive Care Medicine, 23(12), 1282-1285; Morrison, W. E., Haas, E. C., Shaffner, D. H., Garrett, E. S., & Fackler, J. C. (2003). Noise, stress, and annoyance in a pediatric intensive care unit. Critical Care Medicine, 31(1), 113-119; Baker, C. F. (1992). Discomfort to environmental noise: Heart rate responses of SICU patients. Critical Care Nursing Quarterly, 15(2), 75-90.
- <sup>4</sup> Johnson, A. N. (2001). Neonatal response to control of noise inside the incubator. Pediatric Nursing, 27(6), 600-605.
- <sup>5</sup> Topf, M., & Dillon, E. (1988). Noise-induced stress as a predictor of burnout in critical care nurses. Heart & Lung, 17(5), 567-574.
- <sup>6</sup> Barlas, D., Sama, A. E., Ward, M. F., & Lesser, M. L. (2001). Comparison of the auditory and visual privacy of emergency department treatment areas with curtains versus those with solid walls. Annals of Emergency Medicine, 38(2), 135-139.
- <sup>7</sup> Chaudhury, H., Mahmood, A., & Valente, M. (2003). Pilot study on comparative assessment of patient care issues in single and multiple occupancy rooms (Unpublished report): The Coalition for Health Environments Research.