

## A hospital ward soundscape: It's about perception not level

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Sound in hospital spaces is generally assessed in terms of sound level and how measured levels relate to guidelines of 30-40dB(A) (Berglund et al. 2000; DoH, 2008). Yet, as sound levels have persistently risen since the 1960s (Bush-Vishniac et al. 2005) and often exceed these figures, perhaps mitigation is the wrong way to look at the problem. It has been shown that there is no clear relationship between reduced levels and physiological improvement (Drahota et al. 2012) and as the absence of sound does not necessarily create a positive environment (Truax, 1984), understanding the perception of these sounds offers a way to improve the effect of them.

This paper details a research project which aimed to understand how to improve the perception of a hospital ward soundscape (the sound environment). A mixed method approach of interviews with cardiothoracic ward patients, laboratory listening evaluations, and a questionnaire study formed (i) a conceptual model of perception, (ii) notions of coping methods, and (iii) understood and measured how perception might be improved through physical and cognitive soundscape interventions. These related to the introduction of positive sound and the view that facilitating understanding of sound appeared to influence patients' perception of the soundscape.

In testing these, listening evaluations showed the addition of natural sound to hospital ward soundscape clips produced a significant ( $p=.001$ ) 10% positive change in subjective 'Relaxation' with the addition of 'Sound Source Information' (SSI) producing a significant ( $p=.001$ ) 5% change. Finally, SSI was tested with patients and although not found to affect patient perception of 'Relaxation' it did significantly alter their 'Interest & Understanding' in the soundscape by

26-32% ( $p<.05$ ). It is concluded, that with more testing, giving patients information about the soundscape may offer a way to potentially improve patient reported outcomes in relation to a hospital ward soundscape.

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