

## **Auditory Displays in Healthcare**

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### **Abstract**

Anyone who has spent any time in a critical care area of a hospital is aware how noisy it can be. There is so much noise that one group of researchers went so far as to suggest there should be a department of sound in every hospital to monitor and control noise pollution.

This article gives an introduction to the several types of audible feedback in use, including *earcons* (constructed short melodies), *auditory icons* (everyday sounds used to convey meaning, though these are rare in healthcare), and other *sonifications* including parameter mapping, which is familiar from tools such as Geiger counters. Medical applications of various approaches discussed in this article include blood pressure, pulse oximetry, and respiratory measurements.

It is encouraging that medical equipment manufacturers are increasingly hiring HCI and HF practitioners to join product development teams. It is also encouraging that editors of healthcare journals such as JAMIA, QSHC, JCMC, A&A and others are increasingly publishing papers that promote a user-centered design process. Despite this, medical electrical equipment manufacturers and members of standards committees could benefit from much greater awareness of the value that human factors and usability professionals can bring to equipment design, and the dangers of not taking such considerations into account.