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**"Designing attention" with continuous auditory information:
Theoretical and methodological challenges**

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Observational studies indicate that clinical anaesthetists often need to maintain peripheral awareness of a patient's status when they are distracted by other tasks. Continuous auditory information plays a more effective role in guiding attention than deliberately-constructed discrete auditory alarms, but only recently have there been deliberate efforts to construct appropriate levels of attention with continuous auditory information. We have conducted a major study in a full-scale anaesthesia simulator to test this concept, with unprecedented levels of experimental control for the rich environment. Anaesthetist participants monitored a junior colleague administering anaesthesia to a simulated patient while the anaesthetist participant performed a distractor task that removed visual attention from the patient. Simulated adverse patient events were detected significantly more often than with standard visual and auditory monitoring only if continuous auditory information was present. Other forms of continuous information delivery, such as head-mounted visual displays, did not significantly improve incident detection, even when in combination with continuous auditory information. More empathic personalities (per EPQ) apparently find continuous auditory information about patient status easier to use. Findings are discussed in relation to attentional theory, auditory attention, and methods for conducting controlled experiments in complex real-world contexts.