

Device found able to reduce noise in simulated neonatal intensive care unit

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A team of researchers at Invictus Medical has found via simulated testing that their Neoasis active noise control device is able to reduce the noise level in a neonatal intensive care unit (NICU). They have written a

paper outlining their testing methods and results, and have uploaded it to the *PLOS ONE* open access site.

Prior research has shown that noise in a NICU can have an adverse impact on incubated, prematurely delivered babies. Not only does it harm their sleep patterns, but it disrupts their eating patterns, often resulting in abnormal weight gain. Efforts to reduce such noise, such as using lights instead of noisy alarms, or training staff to respond in different ways, have not proved effective. Nor has trying to fit tiny ear coverings on the preemies. In this new approach, the researchers have taken a different approach—attenuating the noise that is already in the room using a device they call the Neoasis active noise control device—it is a non-contact device that reduces the amount of noise in a given area. The device is based on ANA technology and works by sending out sound waves that cancel out sound waves produced in the near vicinity. The device detects sound in the environment and then calculates which sound waves to emit in order to reduce the noise—all in a matter of microseconds. The system also includes a voice in the [sound waves](#) it sends out that allows for directed communications between caregiver and patient.

The researchers tested the device by running it in a simulated NICU with preemie mannequins affixed with microphones. They found the device was able to reduce [sound](#) pressure levels for alarms used in NICUs by 14.4 dB in the best-case scenario—which, they note, was a five-fold reduction of the noise created by an alarm. They also noted that the device performed better when attenuating frequencies below 2 kHz and that background noises did not impact the ability of the device to do its job.

The researchers suggest that their device is able to reduce noise in a NICU environment, but note that their results must first be verified in a clinical setting.

More information: George Hutchinson et al. Incubator-based Sound Attenuation: Active Noise Control In A Simulated Clinical Environment, *PLOS ONE* (2020). [DOI: 10.1371/journal.pone.0235287](https://doi.org/10.1371/journal.pone.0235287)

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