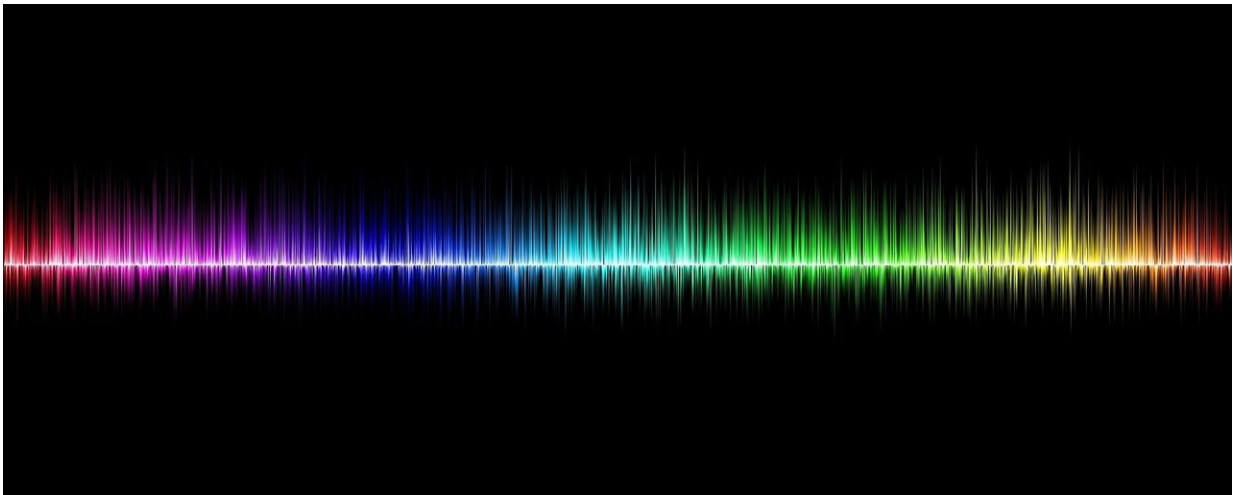


Medical alarms may be inaudible to hospital staff

October 23 2019, by Jacqueline Carey



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Thousands of alarms are generated each day in any given hospital, but there are many reasons why humans may fail to respond to medical alarms, including trouble hearing the alarm.

New research from the University of Illinois at Chicago looked at one common issue that affects [alarm](#) perceivability—simultaneous masking.

"We know that our [sensory system](#) works as a filter and while that filter, generally, helps us, it can also prevent us from hearing one or more

concurrent sounds in certain circumstances," said Andrew Boyd, senior author of the study.

To study this effect among [health care professionals](#), Boyd and his colleagues played standard medical alarm sounds for 28 nursing students. In the experiments, the participants were provided an initial sound—they were then played additional sounds and asked if the initial sound was present. Students were played sounds under two conditions, a masking condition and a non-masking condition, that each mimicked real-life [hospital](#) scenarios.

"Miss rates were significantly higher and sensitivity was significantly lower for the masking condition than for the non-masking one," said Boyd, associate professor of biomedical information sciences at the UIC College of Applied Health Sciences.

Boyd and his colleagues write that "the results show that masking of an alarm's primary harmonic is sufficient to make an alarm sound indistinguishable."

"Considering an average hospital patient may produce hundreds of alarms each day, the presence of masking among standard hospital alarms is dangerous," he said.

The results are published in *Human Factors*, a journal of the Human Factors and Ergonomics Society.

More information: Judy Reed Edworthy et al. Getting Better Hospital Alarm Sounds Into a Global Standard, *Ergonomics in Design: The Quarterly of Human Factors Applications* (2018). [DOI: 10.1177/1064804618763268](https://doi.org/10.1177/1064804618763268)

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Provided by University of Illinois at Chicago

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