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Letter to the Editor

Investigation of Stethoscope Technology for En Route Care

Dear Editors:

We wish to expand on our previous publication, "Investigation of Stethoscope Technology for En Route Care," in which our team discusses the findings from assessing 2 stethoscope devices and their implications for patient care in the en route care (ERC) environment. In the previous study, we reported the feasibility of device 2 (ThinkLabs One digital stethoscope located in Centennial, CO) based on ground level testing in a simulated C-130 environment and the pursuit to investigate its use in in-flight testing. These results are complete and ready for publication.

Flight testing with device 2 was performed by 6 pararescue providers on an HH-60 rotary wing airframe and 3 air medical evacuation providers on a C-130H fixed wing airframe. Quantitative results from flight testing with device 2 reported an ability to hear median values of 1 (unable to hear) in the HH-60 and 2 (poor) in the C-130 using values on a traditional Likert scale ranging from 1 to 5 at the traditional cardiac and pulmonary assessment locations. Qualitatively, the research team identified 3 categories of themes that impacted the ability to use the device for auscultation: environment, mechanics, and training. These quantitative and qualitative results provided valuable insight into the limitations of device 2 within the ERC environment.

Currently, patient auscultation with a conventional stethoscope is not feasible in high-noise military environments. Device 2 was developed for use in high-noise civilian medical facilities and, upon assessment by 6 pararescue and 3 air medical evacuation providers, was determined to not be a feasible tool for the ERC environment without further development. These results will lead to further research to identify the noise and vibration transmission pathways in an aim to provide cardiopulmonary auscultation capabilities to ERC providers.

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