

# Ceribell

**Delirium** is an acute **disorder** affecting up to 80% of **intensive care unit (ICU) patients**. It is associated with a 10-fold increase in **cognitive impairment**, triples the rate of in-hospital **mortality**, and costs \$164 billion annually. Delirium acutely affects attention and global cognitive function with fluctuating symptoms caused by underlying organic etiologies. Early detection is crucial because the longer a patient experiences delirium the worse it becomes and the harder it is to treat. Currently, identification is through intermittent clinical assessment using standardized tools, like the Confusion Assessment Method for ICU. Such tools work well in clinical research but do not translate well into clinical practice because they are subjective, intermittent and have low sensitivity. As such, healthcare providers using these tools fail to recognize delirium symptoms as much as 80% of the time. Delirium-related biochemical derangement leads to electrical changes in electroencephalographic (EEG) patterns followed by behavioral signs and symptoms. However, continuous EEG monitoring is not feasible due to cost and need for skilled interpretation. Studies using limited-lead EEG show large differences between patients with and without delirium while discriminating delirium from other causes. The **Ceribell** is a limited-lead device that analyzes **EEG**. If it is capable of detecting delirium, it would provide an objective physiological monitor to identify delirium before symptom onset. This pilot study was designed to explore relationships between Ceribell and delirium status. Completion of this study will provide a foundation for further research regarding delirium status using the Ceribell data <sup>1)</sup>.

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href="https://vimeo.com/322713847">Brain Stethoscope Training</a> from <a
href="https://vimeo.com/user96073159">Ceribell</a> on <a
href="https://vimeo.com">Vimeo</a>.</p></html>
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<sup>1)</sup>

Mulkey MA, Hardin SR, Munro CL, Everhart DE, Kim S, Schoemann AM, Olson DM. Methods of identifying delirium: A research protocol. Res Nurs Health. 2019 May 30. doi: 10.1002/nur.21953. [Epub ahead of print] PubMed PMID: 31148216.

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Last update: **2024/06/07 02:50**

