

# Researchers find delirium in hospitalized patients linked to mortality, disability

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Wesley Ely, MD, MPH, co-director of the Critical Illness, Brain Dysfunction, and Survivorship Center at Vanderbilt University Medical Center. Credit: Vanderbilt University Medical Center

Delirium, a form of acute brain dysfunction, is widespread in critically ill patients in lower resourced hospitals, and the duration of delirium predicted both mortality and disability at six months after discharge, according to a study published in *PLOS ONE*.

Working with partners in Zambia, Vanderbilt University Medical Center researchers evaluated 711 hospitalized critically ill patients; [delirium](#) occurred in 48.5%. The findings shed light on the impact of delirium on a patient's recovery—and even whether a patient is likely to live or die.

There have been limited data on the prevalence and outcomes of delirium in low- and middle-income countries, despite there being high numbers of critically ill patients. The mitigation of delirium and post-acute support of patients with delirium is a growing public health concern in the U.S. and Europe as the number of patients in intensive care units surged with the rise of

COVID-19 cases.

"There is a driving unmet need to understand what happens with people's brains in [critical illness](#) in low- and middle- income countries as well as with HIV in all settings. The necessity is now urgent because of the COVID-19 pandemic. Delirium has become the epidemic within the pandemic—and it's the strongest predictor of long-term acquired cognitive impairment after critical illness. These are bread and butter issues people care about: will I live or die and if I live, what will I be like as a person," said Wesley Ely, MD, MPH, co-director of the Critical Illness, Brain Dysfunction, and Survivorship Center at VUMC and senior author.

Patients with delirium had a higher six-month mortality, 44.6%, than patients without delirium who had a 20.0% six-month mortality. Compared to no delirium, presence of 1, 2 or 3 days of delirium predicted higher odds of six-month mortality of 1.43, 2.20, and 3.92, respectively. A similar relationship was found between duration of delirium and odds of worse six-month disability, assessed using the WHO Disability Assessment Schedule.

The study adjusted for age, sex, education, income, Universal Vital Assessment (UVA) severity of illness score, HIV status, and current antituberculosis treatment in adult patients who spoke English, Nyanja, or Bemba at the University Teaching Hospital, a 1,655-bed national referral hospital in Lusaka with about 17,500 acute admissions annually.

The prevalence of HIV in the study cohort was 45.4% while 27.2% of participants had a history of tuberculosis, suggesting delirium is an important clinical issue impacting the lives of hospitalized patients with HIV and tuberculosis in Sub-Saharan Africa. The high mortality and disability associated with delirium in this medically and socioeconomically vulnerable patient population spotlights an urgent global health issue.

"Acute brain dysfunction can have a variety of drivers, yet we know that delirium can itself lead to poor outcomes. In other parts of the world delirium is recognized as a major public health concern, while in lower resourced communities the magnitude of the problem has been obscured by acutely pressing issues such as HIV, malaria, and tuberculosis. Our research suggests it's widespread and may present an opportunity to improve the lives of critically ill patients in low- and [middle-income countries](#) in the future as well as advocate for global critical care equity during the COVID-19 pandemic," said Justin Banerdt, MD, MPH, internal medicine resident at Yale School of Medicine, and corresponding author who led the study on the ground in Zambia while a MD/MPH student at Vanderbilt University School of Medicine.

The next step is to see which interventions are effective in resource limited hospitals, said Douglas Heimburger, MD, MS, professor of Medicine and core faculty at the Vanderbilt Institute for Global Health. He leads projects with grant funding from the Fogarty International Center of the National Institutes of Health (NIH).

"I'm glad for the opportunity to bring attention to the implications that delirium has on patients and communities with solid evidence. The takeaway is that delirium needs to be treated alongside the underlying and driving issue. It's an important message that needs to be a call to action so we can save and improve more lives," said Heimburger.

Provided by Vanderbilt University Medical Center

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