

# In the ICU, use of benzodiazepines, other factors may predict severity of post-stay depression

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Psychiatrists and critical care specialists at Johns Hopkins have begun to tease out what there is about a stay in an intensive care unit (ICU) that leads so many patients to report depression after they go home.

In a study reported online April 10 in *Critical Care Medicine*, the Hopkins researchers say several factors predicted symptoms of [depression](#) six months after hospitalization among very sick ICU [patients](#), including a high level of [organ failure](#) and being given relatively high doses of a benzodiazepine sedative.

"The hope is that as we learn more about the effect of variations in ICU care, we'll be able to predict which patients are most susceptible to depression, prevent some depression by changing ICU practices, and make sure patients receive adequate mental health monitoring after discharge," says O. Joseph Bienvenu, M.D., Ph.D., an associate professor in the Department of Psychiatry at the Johns Hopkins University School of Medicine.

Bienvenu says doctors have long theorized that a health problem devastating enough to send someone to an ICU might well trigger depression, but because only some patients become depressed, he and his colleagues wondered whether the root causes might be more complex.

"Historically, the only goal for [critical care](#) physicians, understandably,

was to keep people alive, but now there is interest in longer-term outcomes, such as patients' mental health and well-being," says Bienvenu. "So we asked ourselves, could certain aspects of [critical illness](#) and ICU care swing patients toward depression?"

To test the idea, Bienvenu and other Johns Hopkins researchers evaluated patients recently admitted to one of 13 ICUs located at four teaching hospitals in Baltimore, Md., including four ICUs at The Johns Hopkins Hospital.

Each of the patients was treated for acute lung injury (ALI), a respiratory distress syndrome that's considered an archetype of critical illness. Patients with ALI typically require invasive interventions in the ICU, including use of ventilators. Though better care has greatly reduced mortality rates, ALI still kills about 40 percent of those affected.

Bienvenu and his colleagues followed 160 patients who had survived at least six months after their ALI diagnosis. The researchers took note of a variety of features of each patient's status and care while in the ICU, such as severity of organ failure, their blood sugar levels and other lab work, and the amount and type of sedative they received.

At six months after ALI diagnosis, the researchers administered a questionnaire to patients that measured depressive symptoms ranging from none to possible or probable clinical depression. Of the 160, 26 percent scored above the threshold for possible depression. Compared to other ALI survivors, the depressed patients were more likely to have suffered greater severity of organ failure and to have received 75 mg or more of a benzodiazepine sedative daily.

Bienvenu says that because more severe organ failure may lead to a longer physical recovery period after ICU discharge, patients' depression may be explained, in part, by a slow recovery. However, he and his

colleagues aren't sure how to explain the association between depression and ICU benzodiazepine dose.

One possibility could be that the amount of this drug received reflects how agitated patients were in the ICU, with very distressed individuals getting higher doses. However, because this relationship hasn't been seen with other types of sedatives commonly prescribed in the ICU, it's possible that high doses of benzodiazepine alone may somehow cause depressive symptoms. "This is clearly a question that needs further study," says Bienvenu.

Source: Johns Hopkins Medical Institutions

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