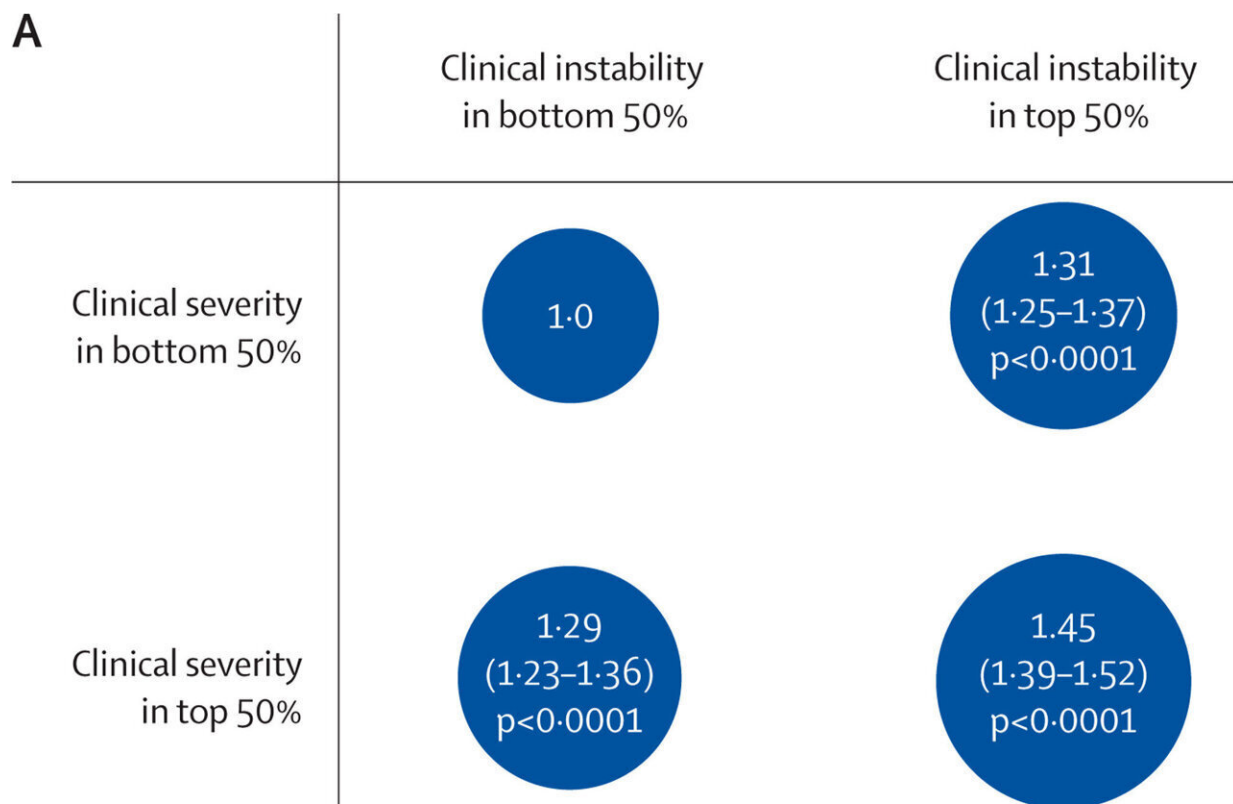# New study reveals clinical instability predicts psychiatric hospitalization

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HR for the risk of being hospitalized for those in the top versus bottom half of the population in terms of clinical severity and clinical instability (A) within the primary analysis, and (B) in the analysis with a 6-months phenotyping windowEach comparison is made with respect to the reference taken to be the subgroup in the bottom half of the population both in terms of severity and instability. The diameter of each circle is proportional to the HR, which is reported alongside its 95% CI within each circle. The total number of individuals and hospitalizations in each subgroup is provided in the appendix (p 12).

For patients with psychiatric conditions, illness severity and instability are key factors in predicting future risk of hospitalization, according to a new study by researchers associated with Holmusk, a behavioral health real-world evidence and data analytics company, that has been published in *The Lancet Psychiatry*. The study, which was enabled by Holmusk's NeuroBlu Database, could prove useful across the behavioral health care and research ecosystem, from facilitating early intervention to supporting the development of more targeted treatments.

The research was conducted using Holmusk's NeuroBlu Database, a real-world data source that contains longitudinal, de-identified data from the electronic health records of more than 1.4 million patients receiving care for behavioral health conditions at over 30 health systems across the U.S. Researchers examined the associations among clinical severity, instability, and psychiatric hospitalization, producing the first study to explore whether early clinical trajectory serves as a predictor of psychiatric hospitalization across diagnoses.

In addition to publication in *The Lancet Psychiatry*, findings from the study also have been presented in recent weeks at Academy of Managed Care Pharmacy's annual meeting, held this year in San Antonio, and at the annual European Congress of Psychiatry, held this year in Paris.

"Our vision in creating the NeuroBlu Database was to provide the gold standard for behavioral health real-world data," said Nawal Roy, Founder and CEO of Holmusk. "Findings like these validate that this vision is being realized. Even more importantly, they underscore the importance of developing standardized measures across behavioral

health care in order to improve patient care and outcomes."

The research team, led by clinical psychiatrist and University of Oxford senior research fellow Maxime Taquet, found that patients who experienced severe illness and instability within the first two months of their clinical encounters had a significantly higher risk of psychiatric hospitalization within six months. In fact, patients ranking in the top half for clinical severity and instability had a 45% increased risk of hospitalization.

Researchers used scores from the Clinical Global Impression Severity scale (CGI-S) to measure both clinical severity and instability.

The study, which included over 36,000 patients, also found that this association remained consistent across a wide range of diagnoses, including major depressive disorder, bipolar disorder, schizophrenia, post-traumatic stress disorder, and other behavioral health conditions. The association was seen in both adults and children, and in both men and women.

To further establish the strength of the association, researchers replicated the analysis with a different group of patients, this time using the patient-reported outcome measure Patient Health Questionnaire (PHQ-9). Their findings complemented results from the original analysis.

"Holmusk's NeuroBlu Database is an invaluable resource whose real-world data made this analysis possible," Taquet said.

"Not only does the NeuroBlu Database include frequently collected psychometric scales, such as the CGI-S used in this study, but it also includes longitudinal data across diverse treatment centers, including emergency rooms and hospitals. The completeness of this EHR-derived

data enabled us to examine patients' clinical journeys and determine whether they had been admitted to the hospital within the first six months after initiating care."

The research has implications for many areas across the behavioral health ecosystem. In clinical practice, providers could use severity and instability to aid in making decisions, such as which patients might benefit from intensive interventions. Hospitals and health systems could use this information in planning provision of care, such as predicting need for psychiatric hospital beds.

Finally, researchers could use these findings to accelerate the development of new interventions that aim to prevent hospitalization or to help recruit specific patient cohorts based on their hospitalization risk.

More information: Maxime Taquet et al, Early trajectory of clinical global impression as a transdiagnostic predictor of psychiatric hospitalisation: a retrospective cohort study, *The Lancet Psychiatry* (2023). DOI: 10.1016/S2215-0366(23)00066-4

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