

# Suicide risk prediction models could be cost-effective in clinical practice

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There are several effective interventions to reduce the risk of suicide, the tenth-leading cause of death in the United States, but difficulties in identifying people at risk for suicide and concerns about the potentially

high costs of suicide-prevention strategies have hampered their wider use.

But as researchers at Massachusetts General Hospital (MGH) demonstrate, statistical [suicide](#) risk prevention models could be implemented cost-effectively in U.S. [health](#) care systems and might help save many lives each year.

By evaluating data on the incidence of suicide and suicide attempts, the costs to society and the health care system of suicide, and the cost and effectiveness of suicide risk-reduction interventions, Eric L. Ross, MD, a resident in the Department of Psychiatry at MGH and colleagues found that several existing suicide risk prediction models are sufficiently accurate at identifying at-risk individuals to allow cost-effective implementation in clinical practice.

They report their findings in the journal *JAMA Psychiatry*.

"There are complex statistical models that researchers have come up with to predict who is at the highest risk of suicide or [suicide attempts](#), and our analysis suggests that those models are now accurate enough that we could be implementing them in the real world," says Ross.

"And if we do implement them, our analysis suggests they would be cost effective. That doesn't suggest that it would save the health care system money, but it does mean it would be a good investment of resources in order to improve people's quality of life and improve people's longevity," he adds.

Ross and colleagues created a [mathematical model](#) projecting suicide-related health economic outcomes over a lifetime for U.S. adults treated by primary care physicians. The [model](#) looked at the practicality of predicting individuals' risk of suicide and then offering either of two

possible interventions for people at high risk: active contact and follow-up, in which the patient at risk receives an initial intensive evaluation, and is contacted frequently thereafter by telephone or mail; and [cognitive behavioral therapy](#), a form of psychotherapy in which the therapist helps the patient identify and change self-destructive or disturbing thought patterns.

Using standard health economics measures, the researchers found that both interventions could be cost-effective as long the models used to predict suicide risk were accurate enough. When they examined prediction models developed by previous researchers, they found that several of these models would be accurate enough to be practical and cost-effective.

"[The results] suggest that current risk prediction models have achieved sufficient accuracy for health systems to move forward with pilot implementation projects," Ross and colleagues write in the paper's conclusion.

According to senior author Jordan W. Smoller, MD, ScD, of the Department of Psychiatry at MGH, "suicide rates have increased substantially over the past 20 years, so it is clear that we need new tools for addressing this national problem. Most individuals who die by suicide are seen by [health care providers](#) in the months before their death, so health care settings have a crucial opportunity to prevent this tragedy. Our results suggest that the tools exist to enable cost-effective interventions. And that, I think, is cause for hope."

**More information:** Eric L. Ross et al, Accuracy Requirements for Cost-effective Suicide Risk Prediction Among Primary Care Patients in the US, *JAMA Psychiatry* (2021). [DOI: 10.1001/jamapsychiatry.2021.0089](#)

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