Universal screening may not prevent suicide

Paul S. Nestadt[a,b,*], **Patrick Triplett**[b], **Ramin Mojtabai**[a,b], **Alan L. Berman**[b]

[a]Department of Mental Health, Bloomberg School of Public Health and Department of Psychiatry, Johns Hopkins University, Baltimore, MD, United States of America

[b]Department of Psychiatry and Behavioral Sciences, Johns Hopkins University School of Medicine, Baltimore, MD, United States of America

Keywords

Suicide; Suicidal ideation; Risk assessment; Joint Commission; Screening

The Joint Commission released Sentinel Event Alert 56 in 2016, setting an expectation that hospitals "[s]creen all patients for suicide ideation, using a brief, standardized, evidence-based screening tool." Prior to this Alert, it was understood that only patients presenting for or receiving primarily psychiatric care were expected to be screened or assessed. This latest step caught many hospitals by surprise. The Joint Commission's stated goal that "all health care organizations…develop clinical environment readiness by identifying, developing and integrating comprehensive behavioral health, primary care and community resources to assure continuity of care for individuals at risk for suicide" is laudable. Such comprehensive and integrated mental health initiatives will likely contribute to improved outcomes for persons in need of mental health care. While we are in support of expansion and greater integration of mental health services in general medical settings, we also note that there is little evidence that screening for suicidal ideation will actually prevent suicides.

Alert 56 replaces previous Alerts 7 and 46, which were explicitly aimed at "preventing suicide." Although 56 expands attention to other hospital settings, it refocuses the direct priority from preventing suicide to detecting suicidal ideation (SI) and implies that "treating" ideation is the path to saving lives. There are three problems with this proposal.

First, while SI is reasonably predictive of future SI and risk of nonfatal suicide attempts, it has little association with suicide mortality, predicting suicide only marginally better than chance [1–3]. While SI is associated with elevated lifetime risk for suicide, it is not predictive of near-term risk [1]. This is especially true among the general non-psychiatric patients with SI, who are being targeted with this recommendation for universal screening. When these patients endorse SI, they have only a 0.23% absolute risk of suicide over the next year [4], much less over the next few days. In fact, when asked at the last clinical meeting before death, SI is denied by 67–72% of suicide decedents [5, 6]. As recent SI is not clearly linked to acute risk of suicide, it is dangerous for the Alert to imply that it is.

---
[*]Corresponding author at: Hampton House 884, 624 N. Broadway, Baltimore, MD 21205, United States of America. pnestadt@jhmi.edu (P.S. Nestadt).

Most SI screeners are designed to be part of a risk stratification system, which Alert 56 advocates in its action point 4, despite there being no good evidence that risk stratification based on ideation can prevent suicide [7]. Only 5% of patients at high risk go on to die by suicide in the long term, and nearly half of all suicide decedents would have been classified as low risk [8, 9]. Powerful new detection techniques based on machine learning have been shown to effectively stratify risk [10], but this is not the recommendation JCAHO is making.

A second problem with Alert 56 is the low quality of available screening tools. Alert 56 promotes the use of these tools to detect SI, but wrongly asserts that these brief screening tools identify individuals at risk for suicide. Systematic reviews have shown that no scale has sufficient positive predictive value to support their use [11–13]. These scales tend to be validated for prediction of SI or attempts, but not deaths by suicide, which is a very different outcome marked by different patient demographics and characteristics. The currently available scales play an important role in the collection of assessment data, but their use rightfully ends at anything more than assessing ideation or a history of attempts. For instance, as a predictor of suicide deaths, PHQ-9 produces unacceptably high rates of false negatives [6] with only a 0.3% positive predictive value over 1 year [14, 15]. Other scales instead result in very high false positive rates [12, 16]. The most widely accepted scale, the C-SSRS, wrongly promotes interpretation of active SI as suggesting greater risk than does passive SI when there is no evidence to support this [5]. In evaluating for risk of suicide, a relatively rare event, no screener has been found to have acceptable metrics for use in a general hospital population [9, 12, 16]. These screeners have not been improved upon for decades. Potential screening advances, such as the integration of biomarkers or use of machine learning to process myriad variables digested from medical records, are still not refined and ready for general hospital use. We look forward to their adoption, but importantly, these sorts of risk stratifying algorithms are not relevant to the JCAHO mandate which instead specifically asks for the administration of a brief screening tool such as the PHQ or the Suicide Behaviors Questionnaire.

A third problem arises from practical and economic realities. Many hospitals will likely choose from among existing suicide screening tools, with a preference for those with the least impact on existing workflows (and likely those which are not copyright protected.) Even in-depth structured screeners have low sensitivity predicting death [9], and there is a built-in hospital incentive to pick screeners with high thresholds to minimize costly false positives. More positive screens means more demand for mental health resources, which are often already over-taxed. Without additional funding or some financial incentive tied to this new requirement, contingency plans for positive screens will likely be cobbled together with existing resources. Many clinicians may consider a screener as a substitute for clinical evaluation. Though the letter of the law may be adhered to, clinicians, patients, administrators and Joint Commission reviewers will have a false sense of security about these efforts as if they will prevent suicide, when evidence shows most suicidal patients will not endorse SI on an ideation based screener [5, 6].

It is clearly important to identify and treat suicidality, but the available screening tools are faulty. This is analogous of past attempts to apply violence risk assessment tools, developed on high risk populations, to general use. Like SI screeners, these were found to exhibit poor

predictive power and might have led to unwarranted hospitalization extensions and missed dangers [7]. Similarly, SI screeners may be useful in high risk psychiatric populations, but universal screening for SI is a problematic guideline and would be an unfortunate change in the standard of care away from targeted clinical evaluation towards universal checklists, despite the lack of empirical evidence. This will have clinical, social and medicolegal consequences for practice if this Alert moves from a recommendation to requirement.

While recommending less insistence on universal screening for ideation, we recommend more emphasis on clinical evaluation, especially in psychiatric populations. Utilizing the clinical relationship to identify individual clinical risk factors and modifiable problems opens the door to personalized treatment plans. We recognize that PCP's have limited time and are not trained to do psychiatric assessments. This is an important problem that needs to be addressed in training and healthcare systems structure, but it does not change the fact that JCAHO's recommendation for brief SI screeners on all patients, regardless of history or complaint, is not supported by evidence. Given the ineffectiveness of universal screening, we suggest that PCPs focus on patients who are clearly in acute psychiatric crisis, utilizing approaches based on individual needs and employing thorough and sympathetic active listening, with benefits beyond even the lowering of suicide risk. On a public health scale, priority should be given to the few interventions that have been proven to decrease suicide deaths, such as decreasing access to lethal means [17].

There are several positives in Alert 56 to commend, such as its focus on continuity of care, collaborative approaches to assessment, safety planning, lethal means restriction, evidence-based treatments, and studies of comprehensive, integrated interventions that have shown evidence of successes at preventing suicides. However, greater consensus is needed regarding effective risk stratification before imposing universal screening. The recent Prioritized Research Agenda for Suicide Prevention (http://actionallianceforsuicideprevention.org/research-prioritization-task-force) explicitly states that "the science of screening is lagging behind the practice demand in a number of ways" (p. 25) and has proposed a number of short- and long-term objectives for finding better approaches to identify near-term suicide risk. We propose a panel be convened to include experts in suicide risk, prevention and intervention, as well as hospital work flow and task sharing. This panel could determine whether any valid and practical evaluations exist for a general patient population, and if not, which subpopulations could specifically be targeted for increased levels of evaluation, in addition to alternative means to best accomplish the aspirational goals of Alert 56.

Acknowledgments

References

[1]. Silverman MM, Berman AL. Suicide risk assessment and risk formulation part I: a focus on suicide ideation in assessing suicide risk. Suicide Life Threat Behav 2014 8;44(4):420–31. [PubMed: 25250407]

[2]. Franklin JC, Ribeiro JD, Fox KR, Bentley KH, Kleiman EM, Huang X, Musacchio KM, Jaroszewski AC, Chang BP, Nock MK. Risk factors for suicidal thoughts and behaviors: a meta-analysis of 50 years of research. Psychol Bull 2017;143(2):187. [PubMed: 27841450]

[3]. Ribeiro J, Franklin J, Fox KR, Bentley K, Kleiman EM, Chang B, Nock MK. Selfinjurious thoughts and behaviors as risk factors for future suicide ideation, attempts, and death: a meta-analysis of longitudinal studies. Psychol Med 2016;46(2):225–36. [PubMed: 26370729]

[4]. Hubers A, Moaddine S, Peersmann S, Stijnen T, van Duijn E, Van der Mast R, Dekkers O, Giltay E. Suicidal ideation and subsequent completed suicide in both psychiatric and non-psychiatric populations: a meta-analysis. Epidemiol Psychiatr Sci 2016:1–13.

[5]. Berman AL. Risk factors proximate to suicide and suicide risk assessment in the context of denied suicide ideation. Suicide Life Threat Behav 2017 10.1111/sltb.12351.

[6]. Louzon SA, Bossarte R, McCarthy JF, Katz IR. Does suicidal ideation as measured by the PHQ-9 predict suicide among VA patients? Psychiatr Serv 5 1 2016;67(5):517–22. [PubMed: 26766757]

[7]. Wand T Investigating the evidence for the effectiveness of risk assessment in mental health care. Issues Ment Health Nurs 2011;33(1):2–7.

[8]. Carter G, Milner A, McGill K, Pirkis J, Kapur N, Spittal MJ. Predicting suicidal behaviours using clinical instruments: systematic review and meta-analysis of positive predictive values for risk scales. Br J Psychiatry 2017 6;210(6):387–95. [PubMed: 28302700]

[9]. Large MM, Ryan CJ, Carter G, Kapur N. Can we usefully stratify patients according to suicide risk? BMJ 10 17 2017;359:j4627. [PubMed: 29042363]

[10]. Kessler RC, Stein MB, Petukhova MV, Bliese P, Bossarte RM, Bromet EJ, Fullerton CS, Gilman SE, Ivany C, Lewandowski-Romps L, Bell AM. Predicting suicides after outpatient mental health visits in the Army study to assess risk and resilience in servicemembers (Army STARRS). Mol Psychiatry 4 2017;22(4):544. [PubMed: 27431294]

[11]. Chan MK, Bhatti H, Meader N, Stockton S, Evans J, O'Connor RC, Kapur N, Kendall T. Predicting suicide following self-harm: systematic review of risk factors and risk scales. Br J Psychiatry 10 2016;209(4):277–83. [PubMed: 27340111]

[12]. Runeson B, Odeberg J, Pettersson A, Edbom T, Adamsson IJ, Waern M. Instruments for the assessment of suicide risk: a systematic review evaluating the certainty of the evidence. PLoS One 2017;12(7):e0180292. [PubMed: 28723978]

[13]. Mullinax S, Chalmers CE, Brennan J, Vilke GM, Nordstrom K, Wilson MP. Suicide screening scales may not adequately predict disposition of suicidal patients from the emergency department. Am J Emerg Med 2018 10.1016/j.ajem.2018.01.087.

[14]. McCusker PJ. The clinical utility of PHQ-9 item 9 for suicide prediction. Psychiatr Serv 2016 9 1;67(9):1042.

[15]. Simon GE, Rutter CM, Peterson D, Oliver M, Whiteside U, Operskalski B, Ludman EJ. Does response on the PHQ-9 depression questionnaire predict subsequent suicide attempt or suicide death? Psychiatr Serv 2013;64(12):1195–202. [PubMed: 24036589]

[16]. Quinlivan L, Cooper J, Davies L, Hawton K, Gunnell D, Kapur N. Which are the most useful scales for predicting repeat self-harm? A systematic review evaluating risk scales using measures of diagnostic accuracy. BMJ Open 2 12 2016;6(2):e009297,2015–009297.

[17]. Zalsman G, Hawton K, Wasserman D, van Heeringen K, Arensman E, Sarchiapone M, Carli V, Höschl C, Barzilay R, Balazs J. Suicide prevention strategies revisited: 10-year systematic review. Lancet Psychiatry 2016;3(7):646–59. [PubMed: 27289303]