

Advancing Suicide-Risk Detection in Post-COVID Hospital Systems: A Three-Layer Model for Unified Screening, Training, and Follow-Up

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ABSTRACT

Behind the medical urgency of COVID-19 was an overlooked consequence: a sharp rise in mental-health concerns that heightened the need for stronger tools to detect suicide risk in hospital settings. The COVID-19 pandemic intensified both psychological distress and existing gaps in hospital suicide-risk detection, exposing the longstanding inconsistencies in screening, documentation, and follow-up practices. Pre-pandemic systems often relied on nonstandardized assessments, limited EHR integration, and uneven staff training, contributing to inconsistent identification of at-risk patients. These weaknesses became more apparent during COVID-19, when increasing rates of anxiety, depression, and suicidal ideation overwhelmed existing workflows. Based on national data, multidisciplinary research, and original survey findings, this paper analyzes why prior suicide-risk frameworks failed to meet the growing need for timely assessment. To address these gaps, it proposes a three-layer model unifying EHR-based screening, structured follow-up, and continuous staff training. This framework strengthens early detection and provides a scalable, feasible pathway for improving patient safety in post-pandemic care environments.

FOUNDATIONS OF THE PROBLEM AND CONTRIBUTING FACTORS

For numerous post-COVID patients, physical recovery marked only one phase of the broader healing process, followed by a more invisible battle: a persistent decline in mental health that places individuals at elevated risk for suicide. Within hospital settings, physicians, nurses, behavioral-health specialists, and care coordinators each contribute to recognizing early indicators of psychological distress. However, during the pandemic, the urgent need to address acute medical complications redirected clinical attention toward immediate physical stabilization, while isolation protocols reduced opportunities for the extended patient interaction needed for routine mental health evaluation. The subtle nature of post-COVID psychological symptoms made consistent identification especially challenging, as these concerns often emerge gradually and without clear physical symptoms. As hospital teams work to meet these evolving needs, the establishment of screening practices that integrate efficiently into existing workflows has become increasingly important. Tools such as the PHQ-9, C-SSRS, and ASQ, along with expanded access to telepsychiatry, offer meaningful opportunities for early detection; however, implementation varies across hospitals due to differences in resources, workflow structures, and technological capacity, which can lead to fragmented screening practices and uneven follow-up. This lack of uniformity highlights the need for an integrated structure that aligns assessment, consultation, and documentation within a single, reliable process. Given these ongoing challenges, a more coordinated and sustainable approach can be achieved through a three-layer model that integrates universal EHR-based screenings, structured post-screening follow-up, and continuous staff training to effectively detect and mitigate the elevated suicide risk among post-COVID patients.

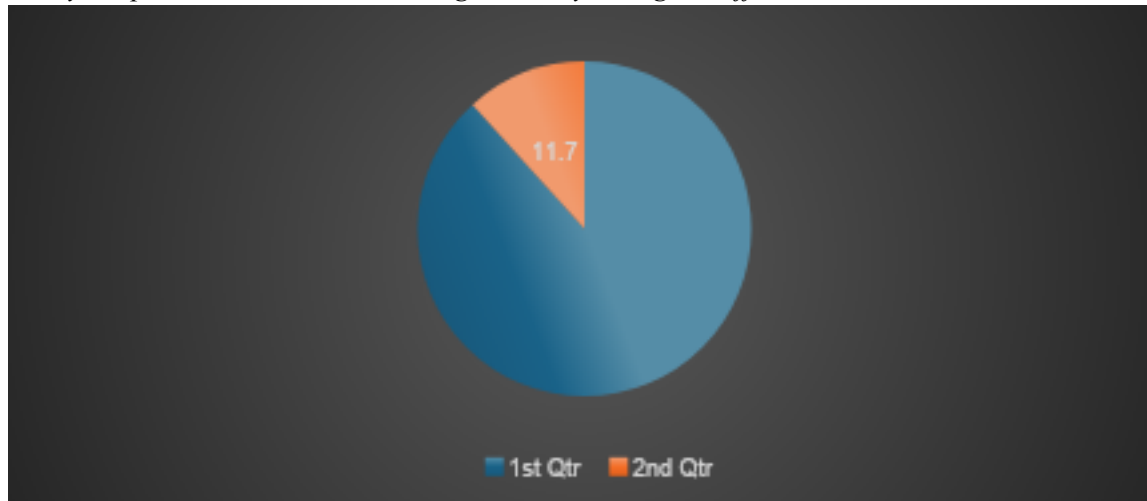
The origin of suicide-risk identification across hospital settings can be traced back to pre-pandemic screening practices that developed with varying levels of uniformity and standardization, shaping the conditions that later influenced today's post-COVID challenges. This pattern was reflected in the Joint Commission's Sentinel Event Alert 56 (2016), which emphasized suicide-risk screening mainly for patients in behavioral-health settings, leaving general medical admissions without a uniform, system-wide requirement. This emphasis, which was medically justified for high-risk behavioral-health populations, did not include a universal screening mandate; as a result, hospitals established their own procedures for medical units, leading not only to institution-specific variation in screening practices but also to limited reach of assessments for general patients without overt psychiatric symptoms. Another contributing factor was the limited integration of suicide-risk assessments into EHR systems, where reliance on paper-based documentation constrained coordination among providers and reduced opportunities for timely follow-up. Informatics research prior to 2020 repeatedly noted that many hospitals still relied on paper or hybrid documentation systems for behavioral-health assessments, limiting the degree to which suicide-risk screenings were integrated into electronic workflows (Horowitz et al., 2023). Screening practices also varied according to the training clinicians received within their specific units. Fowler et al.'s findings illustrate this point, noting that variation in the availability of training contributed to differing levels of familiarity with validated tools such as the PHQ-9 and ASQ, which in turn led to uneven application of screening procedures across institutions (Fowler, 2012). A further contributing factor involved the absence of consistent follow-up pathways, preventing screening results from reliably leading to a structured reassessment or referral. This gap often left clinicians without a clear sequence of next steps, making it difficult to ensure continuity of care after an initial screen. Collectively,

these combined pre-pandemic factors formed a fragmented baseline for suicide-risk detection, setting the stage for the heightened challenges that emerged during and after COVID-19.

When COVID-19 emerged, the gaps in screening, documentation, and follow-up became increasingly visible, contributing to increased psychological distress and difficulty identifying suicide risk among patients. As these pressures accumulated, hospitals faced growing challenges in trying to meet both medical and psychological needs under rapidly changing conditions. Research during the early stages of the pandemic revealed this growing pressure, as Benavente-Fernández et al. (2022) found that nearly one-third of hospitalized COVID-19 patients experienced severe psychological distress, with many reporting suicidal thoughts during admission. National data from the Centers for Disease Control and Prevention (CDC, 2020) also showed that nearly 11% of U.S. adults seriously considered suicide during the pandemic's early months, a surge that strained existing hospital screening systems by expanding the number of at-risk individuals far beyond those identified in inpatient settings. The findings show that individuals experiencing severe psychological strain were frequently not admitted for mental health evaluation, even during a period when pandemic-related isolation, economic stress, and bereavement heightened their need for psychiatric support more significantly than at any other time. Findings from my survey of 60 participants aligned with these national trends, as more than one-third reported a decline in their mental health since COVID-19, and over half identified anxiety or depression as ongoing concerns (Gondere, 2025). As illustrated in Figure 1, 88.3% of respondents also reported that COVID-19 continues to have long-lasting effects on their mental health. Notably, approximately 70% indicated that a healthcare professional had asked about suicidal thoughts, a figure that reflects growing awareness of mental health screening practices but also underscores considerable variation in whether individuals felt able to access or pursue additional support (Gondere, 2025). These patient-reported patterns also produced direct effects for clinicians, including physicians, nurses, behavioral-health specialists, and care coordinators, creating significant challenges in determining which patients required urgent mental-health evaluation, particularly when rising levels of distress exceeded the capacity of existing screening workflows. Overall, these patterns show how the pandemic intensified both patients' distress and clinical workload, revealing the limitations of existing screening practices and highlighting why subsequent efforts to strengthen suicide-risk detection became increasingly necessary.

Figure 1

Survey Responses on COVID-19's Long-Term Psychological Effects



Note: The chart illustrates that a large majority of participants (88.3%, shown in blue) reports that COVID-19 continues to affect their mental health, whereas 11.7% (shown in orange) reported no lasting mental-health effects.

EXISTING APPROACHES AND NOTED LIMITATIONS

Across major public-health organizations, clinical researchers, physicians, and hospital administration, substantial efforts have been made to address the challenges of suicide-risk detection, with emphasis on integrating routine screening into standard medical care, particularly in the wake of COVID-19. Reports from the World Health Organization (2024) emphasize that early identification through standardized screening is one of the most effective strategies for preventing suicide in general hospital settings, highlighting the need for systematic approaches rather than symptom-driven evaluations. Similarly, the Centers for Disease Control and Prevention (2022) identifies universal screening, clinician education, and coordinated follow-up as core elements of evidence-based suicide-prevention practices. The effectiveness of both WHO and CDC recommendations is that they strengthened awareness of suicide prevention in medical settings, helping hospitals recognize the value of standardized tools and prompting more institutions to incorporate brief screening measures into routine admission procedures. However, despite this guidance, adoption has remained uneven: many hospitals lack the infrastructure or staffing capacity to implement universal screening consistently, and follow-up procedures vary widely, limiting the impact of these recommendations on day-to-day clinical practice. To address these implementation challenges, clinical researchers have also examined practical strategies for strengthening routine screening. Clinical researchers reinforce these principles: Horowitz et al. (2023) highlight the reliability of brief, validated tools such as the PHQ-9, C-SSRS, and ASQ, noting that these instruments are both feasible and effective when integrated into routine workflows. The use of these validated tools has improved the consistency of mental health assessments in many settings, demonstrating that brief screening instruments can be both practical and clinically informative when embedded into routine workflows. Yet, their overall impact remains constrained by inconsistent

implementation, as some hospital units lack the training, time, or workflow integration needed to administer these tools reliably.

A multi-site analysis published in JAMA Psychiatry (Holland et al., 2021), which included a case study done by Johns Hopkins Health System, provides further insight into why earlier screening efforts achieved only partial success. The study found a substantial increase in psychiatric emergency-department visits during the early months of COVID-19, including patients who arrived with acute psychological distress despite stable physical indicators. This pattern showed that existing hospital screening workflows largely centered on physiological markers were not designed to detect emerging psychiatric deterioration before it escalated to crisis. Although the analysis clarified how risk developed during COVID-19, it also demonstrated that prevailing evaluation frameworks lacked the structure needed for early identification and timely intervention.

PROPOSED SOLUTION

A clinically feasible solution to improving suicide-risk detection in hospitals is the implementation of a coordinated three-layer screening model that strengthens assessment at every stage of patient care. This model integrates universal EHR-based screenings, continuous staff training, and structured post-discharge follow-up into one cohesive process, ensuring that risk is identified, interpreted, and addressed consistently. Each layer directly targets the problem identified in the research: inconsistent detection, uneven clinical responses, and the absence of reliable follow-up for post-COVID patients. Because the model relies on systems already familiar to healthcare teams, including EHR workflows, existing training platforms, and telepsychiatry services, it provides a realistic, discipline-driven approach that improves patient safety while remaining fully achievable within the scope of routine hospital operations.

The first layer of the proposed model centers on universal EHR-integrated screening, which standardizes suicide-risk assessment at critical points of hospital care. This process involves administering the PHQ-9 and ASQ during both admission and discharge, allowing clinicians to identify changes in mood, suicidality, or emerging psychological distress over the course of a hospital stay. Integrating automated scoring within the EHR minimizes human error and immediately notifies the care team when results indicate elevated risk. These alerts then guide clinicians to an established clinical pathway that outlines appropriate next steps, such as notifying the psychiatric liaison or initiating a telepsychiatry consultation. By integrating assessment, scoring, and clinical action into a single digital workflow, this layer minimizes inconsistencies and reduces reliance on personal interpretation by clinicians.

After establishing standardized EHR screening, the model's second and third layers work together to strengthen clinical interpretations and ensure timely support for at-risk patients. The training component requires clinical staff to participate in mandatory sessions every two weeks, completing brief learning modules and simulation-based exercises to maintain eligibility for providing care within the hospital. This recurring schedule reinforces consistent skill development and minimizes the variability that contributes to missed warning signs during patient encounters. The structured follow-up process activates as soon as a patient is flagged for elevated risk, beginning with same-day contact to assess

immediate needs and initiate safety planning. A behavioral-health coordinator continues monitoring progress through scheduled check-ins, coordinating telepsychiatry consultations, and adjusting intervention frequency based on the individual's evolving psychological status. By pairing consistent mandatory training with an ongoing structured follow-up pathway, the model establishes a reliable safety net for post-COVID patients whose psychological distress may evolve unpredictably over time.

IMPLEMENTATION PLAN

Implementing the three-layer model requires a structured, step-by-step adoption plan that fits within the operational capacity of a single hospital. The first stage involves integrating the PHQ-9 and ASQ into the EHR system, a process that typically costs between \$25,000 and \$40,000 per hospital to cover software configuration, automated scoring functions, and testing to ensure smooth routing of alerts to the designated behavioral-health coordinator. Once this technical foundation is established, the second stage introduces a mandatory training schedule in which staff complete biweekly modules and participate in simulation-based clinical scenarios designed to improve confidence and accuracy in interpreting screening results. Training expenses generally include approximately \$150 per employee per quarter for learning materials and simulation facilitation. The final stage activates the structured follow-up system by assigning a behavioral-health coordinator who conducts same-day outreach for flagged patients, schedules subsequent telepsychiatry visits, and monitors recovery progress over time. Because each stage builds on systems already present in most hospitals, including EHR platforms, existing professional-development programs, and facility-based behavioral-health teams, the full model can be implemented efficiently without major structural changes or reliance on outside agencies. Taken together, all three stages can be fully implemented within approximately six months, allowing hospitals sufficient time for testing, staff adjustment, and workflow refinement. Potential challenges include temporary increases in staff workload during training cycles, variability in clinician adoption of new digital prompts, and limited telepsychiatry capacity during periods of high demand, although each of these issues can be addressed through routine monitoring and incremental adjustments during the adoption process.

The proposed model is practical for hospitals to adopt because it builds on infrastructure, workflows, and training systems already present in most clinical environments, eliminating the need for entirely new operational structures. Its feasibility is strengthened by the fact that hospitals already rely on EHR platforms capable of supporting automated prompts, routine clinical training programs that can accommodate biweekly modules, and behavioral-health staff who can coordinate short-term follow-up. Evidence from large healthcare systems demonstrates that EHR-embedded screening tools can be integrated effectively without disrupting clinical operations; for example, Leung et al. (2024) found that embedding suicide-risk assessments into the Veterans Health Administration's EHR substantially increased screening consistency across patient encounters. A nursing research study also shows that structured suicide-prevention training improves clinician competence, confidence, and preparedness to identify risk, further supporting the feasibility of routine instructional programs for hospital staff (Okoli et al., 2021). A further justification for adopting the proposed model lies in its reasonable cost and implementation timeline. The estimated \$25,000 to \$40,000 required for EHR integration is modest compared to typical hospital IT upgrades, which often exceed several hundred thousand dollars for system-wide changes. Likewise, the quarterly training expenses represent a predictable and manageable investment within standard professional-development budgets. The entire three-layer model can be

introduced over approximately six months, allowing hospitals to phase in technical modifications, biweekly training cycles, and the structured follow-up system without disrupting daily operations. Because the required resources fall well within the scope of routine hospital budget allocations, the proposal remains financially practical and scalable across institutions of varying size and capacity.

Some may question whether the model is realistic for smaller clinics or private practices with fewer resources. However, small practices benefit from lower EHR-related costs, as installation and configuration require fewer hardware updates, fewer user accounts, and less IT labor compared to large hospital systems. Smaller staff teams in small clinics also reduce both training expenses and completion time. Biweekly training cycles finish more quickly in small practices, allowing the model to become fully operational in a shorter timeframe. Follow-up procedures can also be supported through existing regional telepsychiatry networks rather than dedicated in-house teams. Others may worry about increased staff workload; however, the training can be designed for asynchronous completion with controlled, protocol-based evaluations that ensure full engagement and reduce the likelihood of superficial participation. This structure minimizes disruptions to clinical duties and accommodates busy patient schedules, allowing staff to complete training without adding strain to daily operations.

CONCLUSION

Overall, adopting a coordinated and comprehensive framework is essential for ensuring that hospitals can meet the evolving mental health demands that emerged following the COVID-19 pandemic. Pre-existing variation in screening practices, limited integration of assessment tools into electronic records, inconsistent follow-up pathways, and uneven levels of staff training contributed to fragmented approaches across hospital systems. These gaps became even more pronounced during COVID-19, when rising psychological distress and reduced opportunities for routine evaluation made early identification of suicide risk increasingly difficult. Earlier initiatives from national health organizations and medical researchers broadened awareness and encouraged greater use of standardized screening tools, but the overall impact of these efforts remained constrained by inconsistent implementation and the absence of fully integrated workflows that could support reliable follow-up. A coordinated three-layer model that incorporates universal EHR-based screening, structured post-screening follow-up, and continuous staff training offers a feasible and sustainable approach for improving early suicide-risk detection. By standardizing assessment procedures, enhancing continuity of care, and reinforcing clinical preparedness, this model directly addresses the limitations of prior attempts. Implementing such an integrated framework will allow hospitals to respond more effectively to the complex mental health needs that continue to shape patient outcomes in the post-COVID era. Ultimately, the time and resources required to implement this framework are fully justified when measured against its potential to save lives, a goal that reflects the central mission of healthcare and the highest commitment of those who work within it.

REFERENCES

- Benavente-Fernández, A., Velásquez-Moreno, V. M., Montañés, R., Ramírez-Cervantes, K. L., Salcedo-Galán, M. A., Martínez, C., & Vázquez, C. (2022). Psychological impact and risk of suicide in hospitalized COVID-19 patients during the initial stage of the pandemic: A

- cross-sectional study. *Journal of Patient Safety*, 18(5), 499-506. <https://doi.org/10.1097/PTS.0000000000000974>
- Centers for Disease Control and Prevention. (2020). *Mental health, substance use, and suicidal ideation during the COVID-19 pandemic*. <https://www.cdc.gov/mmwr/volumes/69/wr/mm6932a1.htm>
- Fowler, J. C. (2012). Proposal to revise the definitions for common data elements for suicide attempts. *Federal Register*, 77(22), 4888-4890.
- Gondere, L. (2025). *Mental health and suicide-risk survey* [Unpublished raw data].
- Holland, K. M., Jones, C. M., Vivolo-Kantor, A. M., & Yard, E. (2021). Trends in emergency department visits for mental health conditions during the COVID-19 pandemic. *New England Journal of Medicine*, 390(6), 545-554. <https://doi.org/10.1001/jamapsychiatry.2020.4402>
- Horowitz, L. M., Ryan, P. C., Wei, A. X., Boudreaux, E. D., Ackerman, J. P., & Bridge, J. A. (2023). Screening and assessing suicide risk in medical settings: Feasible strategies for early detection. *Focus*, 21(2), 145-151. <https://doi.org/10.1176/appi.focus.20220086>
- The Joint Commission. (2016). *Detecting and treating suicide ideation in all settings* (Sentinel Event Alert No. 56). https://www.jointcommission.org/sea_issue_56
- Leung, L. B., Chu, K., Lee, M. L., Bonilla, A. G., Post, E. P., & Fortney, J. C. (2024). Depression and suicide risk screening in the Veterans Health Administration. *JAMA Network Open*, 7(12), e2451936. <https://doi.org/10.1001/jamanetworkopen.2024.51936>
- Okoli, C. T. C., Zarp, G. R., Wagner, D., Johnson, A., Kerrison, T., Bhatnagar, J., & Bhatnagar, A. (2021). Suicide prevention training for nurses: Impact on knowledge and confidence. *Journal of Psychiatric and Mental Health Nursing*, 28(2), 345-354. <https://doi.org/10.1111/jpm.12659>
- World Health Organization. (2024). *Suicide prevention in health-care settings: Policy and practice recommendations*. <https://www.who.int/publications>