Suicide Prevention in an Emergency Department Population: ED-SAFE

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Summary

Suicide is the 12th leading cause of death in the United States, and the 3rd leading cause of death for people ages 15-24.[1] More than 4% of all emergency department visits are attributed to psychiatric conditions[2] and 3–8% of all patients have suicidal ideation when screened in the ED.[3] In addition, there are approximately 420,000 ED visits every year for intentional self-harm.[4] The emergency department (ED) is an ideal place to implement interventions designed to reduce suicidal behavior. However, there have been few trials conducted in clinical settings to reduce suicidal behavior.

Brown University and Butler Hospital created the Emergency Department Safety Assessment and Follow-Up Evaluation (ED-SAFE) innovation to reduce suicidal behavior among patients who present to the ED with suicidal ideation. They published the results from the initial clinical trial, ED-SAFE 1, a multicenter study of eight EDs that assessed the ED-SAFE innovation. The ED-SAFE 1 innovation provided participants with a standard universal suicide risk screening (any standard universal screening tool can be applied) plus a secondary suicide risk screening by an ED physician. It also included discharge resources (including a self-administered safety plan) and post-ED telephone calls based on the Coping with Long Term Active Suicide Program (CLASP)[5] focused on reducing suicide risk.[6] In ED-SAFE 1, there was a 5% absolute reduction in suicide attempts between the treatment as usual and intervention phases.[6] During the intervention phase, participants had 30% fewer total suicide attempts than participants in the treatment as usual phase.[6] The study

found that universal screening alone did not reduce suicide attempts, and therefore, the reduction is most likely tied to the innovation itself.[6]

The ED-SAFE 2 trial implemented two key elements that built on ED-SAFE 1: a Lean continuous quality improvement (CQI) approach and collaborative safety planning between patients and caregivers. Data were collected from 2014 to 2018 and analyzed from April 2022 to December 2022.[3] The trial included three phases: baseline (retrospective), implementation, and maintenance.[3] During implementation, each of the eight EDs formed a Lean team consisting of staff, management, information technology (IT), patient safety, and quality assurance members. The teams attended a one-day training and monthly followup meetings on Lean principles with an industrial engineering Lean expert with doctoral training.[3] The teams evaluated their workflows, identified gaps in care, designed solutions to close these gaps, and oversaw the implementation of ED-SAFE 2.[3] Additionally, the innovators implemented collaborative safety planning. Collaborative safety planning involved six-step safety plans created by clinicians and patients to help patients manage their individual suicidal crises.[3] In addition to these changes, teams were expected to increase the number of suicide risk screenings for patients.[3] The primary outcome measured was a suicide composite measure. The measure included 1) an ED visit or hospitalization due to suicidal ideation/behavior or 2) death by suicide in the six months after the index visit.[3] The composite measure improved over the three phases (baseline by 21%; implementation by 22%; and maintenance by 15.3%; p=.001).[3]

Innovation Patient Safety Focus

Although the National Action Alliance for Suicide Prevention and The Joint Commission both identify EDs as an essential setting for suicide prevention, suicide prevention interventions in EDs remain underdeveloped and understudied.[3] The Joint Commission identifies suicide within 72 hours of discharge from a healthcare setting that provides around-the-clock care, including the ED, as a sentinel event (a patient safety

event that results in death, permanent harm, or severe temporary harm).[3]

Resources Used and Skills Needed

When implementing this innovation, organizations should consider the following:

- Buy-in from hospital leadership and all staff involved in the continuum of care.
- Staff to conduct post-visit phone calls.
- Physicians willing to conduct secondary suicide prevention screenings.
- Physicians to serve as treatment advisers for the post-visit phone calls.
- Time and resources to train staff on the intervention.
- Staff to conduct data analysis.
- Leaders to train multidisciplinary teams on the Lean CQI strategy.
- Staff to participate in the Lean teams and create collaborative safety plans with patients.
- Clinicians with the bandwidth to create collaborative safety plans with patients. These clinicians must attend at least one training related to collaborative safety planning and they must demonstrate competency in collaborative safety planning through observation or other work samples.
- Staff to champion the maintenance stage of the innovation.
- Staff to measure and report results: at least one person with data related skills who can use the EHR for reporting per site; 40-80 hours are needed as an initial investment for setting up reports followed by one to two hours per month after the initial investment per site.

Use By Other Organizations

The innovator has received regular inquiries from other EDs about their ED-SAFE innovation. Much of the ED-SAFE innovation aligns with the Zero Suicide model, an emerging model for suicide prevention in healthcare.[7]

Date First Implemented

2014

Problem Addressed

The innovators created the Emergency Department Safety Assessment and Follow-Up Evaluation (ED-SAFE) 2 to build on the successes from ED-SAFE 1 (the reduction of suicidal behavior). The innovators wanted to sustain the suicide risk management that was achieved in ED-SAFE 1.[3] They deduced that a continuous quality improvement (CQI) strategy was the best way to ensure consistency, effectiveness, and the standard use of the new procedures and interventions from ED-SAFE 1.[3] This led to the development of the Lean CQI strategy, one of the key elements of ED-SAFE 2, and a focus on collaborative safety planning as a standard part of treating patients at risk for suicide who are discharged from the ED.

Description of the Innovative Activity

The ED-SAFE study was designed to assess the effect of universal screening for suicide risk and an intervention for people at risk for suicide in the ED setting.[6] ED-SAFE 1 included elements like standard universal screening, secondary risk screening, collaborative safety plans, and post-ED phone calls. Universal screening and secondary screening were carried over into the ED-SAFE 2 study.[3] The primary and secondary screener are both referred to as the Patient Safety Screener (PSS-3).[8] The first part of the PSS-3 is used to identify suicide risk for all patients who come to the acute care setting.[8] The second part of the PSS-3 takes those who have been identified with risk of suicide and guides risk stratification.[8] The second part of PSS-3 guides physicians through care pathways and mitigation procedures based on the patient's risk level. The screeners also include other risk factors, like psychiatric hospitalization. This makes PSS-3 different than many other predominate screeners that focus entirely on suicidal ideation and behavior. When all elements of ED-SAFE 1 are implemented, the intervention costs around $1,000 per patient, per month.[9]

For ED-SAFE 2, two key improvements were made: the implementation of the Lean CQI strategy and the introduction of

collaborative safety planning with clinicians and patients.[3] Each of the eight EDs created a Lean CQI multidisciplinary team.[3] The team included members from all areas of patient care and support services, including frontline providers, patient safety professionals, information technology (IT) staff, and quality assurance staff.[3] Each team participated in a day-long training on Lean principles.[3] Following the training, the team attended monthly coaching calls to ensure that they had consistent knowledge of the Lean principles.[3] The Lean teams evaluated their workflows to find gaps that could be targeted with interventions.[3] The interventions to close these gaps focused on addressing the root causes associated with negative patient care outcomes.[3] In addition, the Lean teams oversaw the implementation of the interventions they established.[3] The eight ED Lean teams reported their metrics to a coordinating center each month to ensure continuity across the whole system.[3]

Collaborative safety planning involved a six-step safety plan created by a clinician and a patient; the goal of the safety plan was to help manage individual suicidal crises for patients who screened positive for suicidal ideation but who were discharged from the ED.[3] When patients were in crisis states, they used the collaborative safety plans. The plans helped patients to cope with the crisis by providing collaborative interventions to curb suicidal thoughts. The plans included interventions that patients could do on their own and ideas for interventions they could do with others. The plans also directed patients on how and when to reach out for additional professional help. Although created collaboratively, the plans were written in the patient's voice. The clinicians attended a training with a safety planning intervention trainer. The trainers followed up with the clinicians each month to provide additional training as needed, to review safety plans, and to provide feedback to the clinicians.[3]

Context of the Innovation

Emergency departments treat many patients who are at risk for suicidal behavior. High-risk individuals are susceptible to suicide attempts after their ED visit.[10] In addition, a significant number of those who die by suicide received care in an ED in the period prior to death.[11] In a study using Medicaid data from 2008 to 2018, researchers looked at data from national cohorts of patients with mental health ED visits due to suicide attempts. Researchers

wanted to determine the rate of suicide for these patients up to one year after discharge.[12] Among these patients, the suicide rate was 325.4 per 100,000 person years.[12] This finding contrasts with the rate of suicide in the general population as reported by the Centers for Disease Control and Prevention (CDC), which was 14.1 per 100,000 person years in 2021.[13] Because of these key patient safety factors, the innovators chose to conduct this intervention to improve patient safety for those at risk of suicide or suicidal behavior who are presenting to the ED.

Results

The positive results from ED-SAFE 1 prompted the development of ED-SAFE 2. In ED-SAFE 1, compared with the treatment as usual phase, patients in the intervention phase showed a 5% absolute reduction in the risk of a suicide attempt (23% vs 18%; p=0.05).[6] Participants in the intervention phase in ED-SAFE 1 had 30% fewer total suicide attempts than participants in the treatment as usual phase.[3] For ED-SAFE 2, across all three phases (baseline, implementation, and maintenance), 2,761 patient encounters were included in the study analysis.[3] The intervention was based on a suicide composite measure. The measure included an ED visit or hospitalization due to suicidal ideation/behavior or death by suicide in the six months after the index visit.[3] The percentage of patient encounters with a suicide composite outcome decreased from 21% as baseline (216 of 1030) and 22% at implementation (213 of 967) to 15.3% during the maintenance phase (117 of 764; p=0.001).[3] The adjusted odds ratio of risk demonstrated a 43% reduction in the maintenance phase compared to the implementation phase and a 39% reduction in the maintenance phase compared to the baseline phase.[3]

Planning and Development Process

When planning and developing this innovation, it is important to ensure that the innovating site is committed to change, there is support from senior leadership, a multidisciplinary team is convened, a standard definition of suicide risk is established, and a gap analysis is completed.

The innovators recommend convening a multidisciplinary team when planning and developing this innovation. The team must consist of

members of the healthcare organization who are involved in the reduction of suicide and care pathways within the innovating organization, if possible. This may include senior leaders, frontline staff, patient safety officers, and nurse managers. The team will be instrumental in developing the innovation. Because there is no one-size-fits-all approach for EDs, the team should adapt ED-SAFE to fit their organization. Senior leadership should give the multidisciplinary team the authority to make changes in the organization that are necessary for the innovation's success. For example, there must be a suicide risk screener administered with the innovation. However, an innovating organization should have the flexibility to pick which screener they would like to use, when they would like to screen patients, who they would like to administer the screener, and whether the screener is universal for all patients who present to the ED.

Before this innovation is implemented, it is critical that the innovation organization agree on a standard definition of suicide risk. This definition will be instrumental in determining who is eligible for the innovation.

In addition, the innovating organization should conduct a gap analysis. The gap analysis will evaluate the current state of managing risk of suicide among patients presenting to the ED versus what the innovating organization would like to achieve. The organization can determine the current state by convening meetings with management and frontline staff to reconcile the differences between the policies in place to reduce suicide risk and what is actually occurring at the organization. The organization will remedy the gaps identified in the analysis with targeted interventions. In addition, the organization will use data discovered in the gap analysis to monitor the success of the innovation.

If this innovation was used in a smaller emergency department, the smaller emergency department would likely need to adjust the scope and pace of the innovation to make it successful. However, if the ED has a strong champion, the innovation could be successful. For example, the smaller organization may need to establish who their quality improvement team will be, as they may not have a dedicated quality improvement department. A nurse manager could serve as the quality improvement lead. In addition, the smaller ED

could conduct a modest amount of chart reviews rather than using EHR data reports to evaluate performance.

Resources Used and Skills Needed

When implementing this innovation, organizations should consider the following:

- Buy-in from hospital leadership and all staff involved in the continuum of care.
- Staff to conduct post-visit phone calls.
- Physicians willing to conduct secondary suicide prevention screenings.
- Physicians to serve as treatment advisers for the post-visit phone calls.
- Time and resources to train staff on the intervention.
- Staff to conduct data analysis.
- Leaders to train multidisciplinary teams on the Lean CQI strategy.
- Staff to participate in the Lean teams and create collaborative safety plans with patients.
- Clinicians with the bandwidth to create collaborative safety plans with patients. These clinicians must attend at least one training related to collaborative safety planning and they must demonstrate competency in collaborative safety planning through observation or other work samples.
- Staff to champion the maintenance stage of the innovation.
- Staff to measure and report results: at least one person with data related skills who can use the EHR for reporting per site; 40-80 hours are needed as an initial investment for setting up reports followed by one to two hours per month after the initial investment per site.

Funding Sources

The National Institute of Mental Health funded this innovation.

Getting Started with This Innovation

The innovators found that a deployment plan was necessary when getting started with this innovation. A deployment plan lays out the step-by-step process for implementing the innovation. It includes details like what to do first and includes the ways that every person

involved in the innovation will be trained. The deployment plan also describes how the organization will gather and measure metrics and tracks implementation successes and challenges when implementing the innovation. For example, the deployment plan may include metrics that track whether the innovation is being adopted within the organization. If the innovator discovers that the organization is not adopting certain elements, they can make changes to rectify the situation. For example, the innovator discovered via their deployment plan that the screener was not being used as intended. Because of this, the innovator created targeted trainings to remedy the situation and improve the success of the innovation.

Sustaining This Innovation

The innovators found a continuous quality improvement (CQI) approach to be the primary investment in sustaining the innovation. The CQI approach identifies areas for improvement throughout the lifetime of the innovation. The CQI approach monitors the training of personnel, reviews performance, identifies gaps, creates ways to remediate gaps, implements, and evaluates remediation measures, and remeasures performance after remediation. The CQI approach should be iterative and provide flexibility for staff who take part in the innovation.

One component of the innovator's CQI process were spot checks. The innovator conducted spot checks using the same measures that were created during the gap analysis. Spot checks help the innovators gauge whether the innovation is reaching the final target that was established during the gap analysis. If the spot checks find there are reoccurring gaps, an innovator may want to consider going back to a previous implementation phase to increase adoption of the innovation. The innovators found that conducting spot checks during suicide awareness month garnered strong support from leadership and frontline staff, as there was already a renewed focus on suicide prevention at that time.

The innovators found the minimum investment to maintain results included quarterly meetings with the innovation team (usually four to ten people for one hour), a core steering committee (usually three to five people for two hours a quarter, plus leading the quarterly meetings), and trainers focused on training new employees

and current staff as needed (three to five hours a quarter). An annual review of current protocols to determine if the protocols should be updated due to new care expectations or evidence-based best practices is also beneficial when sustaining this innovation.

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Footnotes

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