

# Change in Emergency Department Providers' Beliefs and Practices After Use of New Protocols for Suicidal Patients

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**Objective:** The study examined changes in self-reported attitudes and practices related to suicide risk assessment among providers at emergency departments (EDs) during a three-phase quasi-experimental trial involving implementation of ED protocols for suicidal patients.

**Methods:** A total of 1,289 of 1,828 (71% response rate) eligible providers at eight EDs completed a voluntary, anonymous survey at baseline, after introduction of universal suicide screening, and after introduction of suicide prevention resources (nurses) and a secondary risk assessment tool (physicians).

**Results:** Among participants, the median age was 40 years old, 64% were female, and there were no demographic differences across study phases; 68% were nurses, and 32% were attending physicians. Between phase 1 and phase 3, increasing proportions of nurses reported screening for suicide (36% and 95%, respectively,  $p < .001$ ) and increasing

proportions of physicians reported further assessment of suicide risk (63% and 80%, respectively,  $p < .01$ ). Although increasing proportions of providers said universal screening would result in more psychiatric consultations, decreasing proportions said it would slow down clinical care. Increasing proportions of nurses reported often or almost always asking suicidal patients about firearm access (18%–69%, depending on the case), although these numbers remained low relative to ideal practice. Between 35% and 87% of physicians asked about firearms, depending on the case, and these percentages did not change significantly over the study phases.

**Conclusions:** These findings support the feasibility of implementing universal screening for suicide in EDs, assuming adequate resources, but providers should be educated to ask suicidal patients about firearm access.

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Emergency departments (EDs) are key sites for recognizing and treating suicidal patients (1) because of the relatively high prevalence of suicidal ideation among all ED patients (3% to 8%, according to estimates [2–5]), an increase in ED visits for mental health reasons (6,7), and the large proportion (39%) of suicide decedents who visit an ED in the year prior to death (8). However, several studies have shown that ED providers inadequately recognize and treat suicidal thoughts or behaviors (1,3,5,9).

One approach to increase identification of suicidal ED patients is screening all ED patients, regardless of presenting complaint, for suicide risk (universal screening). The Joint Commission requires suicide screening for “patients hospitalized for emotional or behavioral problems,” including patients evaluated for these reasons in EDs (10). Universal screening, on the other hand, can identify additional patients with suicidal thoughts or behaviors (5), but its effect on morbidity, mortality, or health care utilization is unclear. Standardized screening protocols, accompanied by appropriate

training and resources, might address institutional barriers to recognition and care of suicidal patients. Universal screening might also affect ED culture by raising awareness of the prevalence of suicidality and making a value statement demonstrating concern for patients' mental well-being.

Ideally, implementation of ED protocols for suicidal patients should address barriers at both the institution and the provider levels. Provider-level barriers include the stigma of mental illness, skepticism about suicide prevention, discomfort asking about sensitive topics, liability concerns, time constraints, and inadequate resources (11–17). Making provider training part of a robust plan to implement a suicide screening program may address some of these issues, as demonstrated in a study of universal screening for suicide risk in an inpatient setting; the screening appeared feasible in terms of work flow and was associated with patient and provider satisfaction (18).

The Emergency Department Safety Assessment and Follow-up Evaluation (ED-SAFE) study (19), which surveyed

ED providers at three points during the implementation of universal screening and brief ED treatment protocols, offered a unique opportunity to examine the relationship of provider knowledge, attitudes, and behavior to changes in typical ED care processes. In this study, our objective was to describe changes in ED providers' knowledge, attitudes, and practices related to assessment of suicidal patients before and after implementation of universal screening for suicide risk and brief ED interventions for suicidal patients. We also sought to compare changes in knowledge, attitudes, and practices between nurses and physicians.

## METHODS

### Sample and Procedure

The ED-SAFE study was a multisite project examining assessment and interventions for suicidal patients at EDs (19). The study, performed at eight EDs in seven states, included three phases: treatment as usual, introduction of universal suicide screening by nurses (four questions taking less than a minute to complete), and introduction of brief ED interventions for suicidal patients. The ED interventions consisted of a form that patients could use for creating a personal safety plan (20), a tool to assist physicians in conducting a secondary risk assessment, and outpatient suicide prevention resources for nurses to give to discharged patients.

Providers at each ED were invited to complete the same voluntary, anonymous survey at three time points: before the treatment-as-usual study phase (June 2010–May 2011), three months after implementation of universal screening (February 2012–December 2012), and three months after implementation of the ED interventions (October 2012–September 2013).

The Emergency Medicine Network ([www.emnet-usa.org](http://www.emnet-usa.org)) coordinated survey administration, as described previously (14,21). Survey completion constituted informed consent, and the project was approved by the institutional review board of each participating ED. Eligible participants were clinicians working at least half-time in the EDs. For these analyses, we included responses from nurses and attending physicians. We excluded responses (N=521) from resident physicians because of wide variability in their actual clinical exposure to the EDs in the ED-SAFE study. We also excluded responses from social workers and midlevel providers because of the small number (N=71), and we excluded responses missing provider type (N=2).

Among the 1,289 surveys completed across all phases, 743 (58%) were from different individual respondents; of these 743 respondents, 22% (N=167) completed the survey at all three time points, 29% (N=212) at two time points, and 49% (N=364) at just one time point. Consequently, data analyses treated respondents at each time point as if they were independent groups. Sensitivity analyses examining the participants who provided responses for just one phase (truly independent responses) confirmed all of the patterns described in this article (data not shown).

### Measures

Survey questions assessed knowledge, attitudes, and practices related to the care of suicidal patients, including determining access to lethal means, such as firearms; the surveys were based on previous surveys (22) and expert opinion. Knowledge, attitudes, and practices related to the care of suicidal patients were assessed with a 4- or 5-point Likert scale, with response options ranging from strongly agree, agree, uncertain, disagree, and strongly disagree. For analysis, we collapsed responses into two categories (agree and strongly agree versus uncertain, disagree, and strongly disagree). To assess behaviors related to means restriction, we asked providers about their typical practice for asking about firearm access among patients who had been suicidal in the past month but were not presently, who were currently suicidal but had no suicide plan, who had a current suicide plan involving firearms, who had a current suicide plan that did not involve firearms, and who were being treated in the ED for an intentional overdose but were no longer suicidal.

Primary outcomes were provider knowledge, attitudes, and practices at each study phase. We hypothesized that universal screening by nurses (phase 2) would increase confidence in and frequency of behaviors related to screening. Similarly, we hypothesized that introduction of ED interventions (phase 3) would increase confidence and frequency of behaviors related to safety planning and risk assessment. Given the importance of reducing access to lethal means as a suicide prevention approach (23,24), we also sought to identify changes in provider behavior related to asking about firearm access. We provided no formal training on this topic beyond the instructions on the safety plan form and a brief overview for providers on when and how to give the form to patients. Secondary outcomes were provider attitudes concerning factors relevant for program implementation, including the ED environment and the effect of screening on patient flow.

### Analytic Procedures

We described participant characteristics and responses by using medians (with interquartile ranges [IQRs]) or proportions (with 95% confidence intervals [CIs]). We used Pearson chi square or Fisher exact test, as appropriate, to evaluate response differences among phases. All *p* values were two-tailed, with *p* < .05 considered statistically significant.

## RESULTS

Of 1,822 eligible nurses and attending physicians, 1,289 completed the survey, for a combined response rate of 71% (phase 1, N=450 of 593 eligible participants, 76%; phase 2, N=419 of 623 eligible participants, 67%; and phase 3, N=420 of 606 eligible participants, 69%). Over half (N=821, 64%) of responding providers were female, and the median age was 40 years (IQR=33–48). Most providers were white

(N=1,197, 93%) and non-Hispanic (N=1,259, 98%), and two-thirds were nurses (N=872, 68%). There were no significant differences in respondent characteristics across the three study phases (Table 1).

For both physicians and nurses, greater proportions reported confidence in their skills to screen patients for suicide risk compared with skills to further assess suicide risk, help patients create a safety plan, provide brief counseling, or find referral resources (Table 2). Overall, less than half (43%, CI=41%–46%) said that most or all suicides are preventable, with no significant difference in attitudes on this subject between nurses (42%, CI=39%–45%) and physicians (46%, CI=41%–51%) or across the three study phases. Nurses reported greater confidence in their skills to screen for suicidality in phase 3 compared with phase 1 ( $p < .05$ ). There were no other statistically significant changes in reported confidence among nurses or physicians across the study phases.

According to our analysis of provider attitudes, increasing proportions of physicians (65% in phase 1 versus 79% in phase 3,  $p < .05$ ) and nurses (59% in phase 1 versus 79% in phase 3,  $p < .001$ ) said that universal screening for suicide risk would result in more psychiatric evaluations, but this attitude was not accompanied by a belief that universal screening would slow down clinical care (Table 2). In fact, physicians' attitudes about whether screening would slow down care did not change, and decreasing numbers of nurses reported believing that screening would slow down care (35% in phase 1 versus 28% in phase 3,  $p < .01$ ). After introduction of universal screening, a greater proportion of nurses said they felt ED leadership supported improvement in interventions for suicidal patients (42% in phase 1 versus 53% in phase 2,  $p < .05$ ). There were no other statistically significant changes in self-reported physician or nurse attitudes across the study phases.

The greatest changes in outcomes were in self-reported behaviors. Nurses were responsible for the universal screening protocols introduced in phase 2. After implementation of universal screening, there was a dramatic increase in the proportion of nurses who reported screening most or all patients for suicide risk (36% in phase 1 versus 93% in phase 2 and 95% in phase 3;  $p < .001$  for comparisons between phase 1 and phases 2 and 3, respectively) (Table 3). Increasing proportions of physicians also reported screening most or all patients for suicide risk, although at much lower levels compared with nurses (8% in phase 1 versus

**TABLE 1. Characteristics of 1,289 emergency department providers who responded to surveys for the ED-SAFE study, by study phase<sup>a</sup>**

Characteristic	Phase 1 (N=450)		Phase 2 (N=419)		Phase 3 (N=420)		p
	Median	IQR <sup>b</sup>	Median	IQR <sup>b</sup>	Median	IQR <sup>b</sup>	
Age	39	33–48	40	34–49	40	33–48	.76
Years of work in medicine or health care, excluding training	12	6–22	13	7–22	13	7–22	.81
N of suicidal patients seen per month	15	10–25	15	10–30	15	10–30	.35
Characteristic	N	%	N	%	N	%	p
Sex							.89
Male	161	36	156	37	151	36	
Female	289	64	263	63	269	64	
Race							.91
White	419	94	387	93	391	94	
Black or African American	10	2	13	3	12	3	
Other	19	4	18	4	15	4	
Hispanic or Latino ethnicity	10	2	10	2	8	2	.89
Current clinical position							.41
Nurse	311	69	273	65	288	69	
Physician	139	31	146	35	132	31	
Believes that most or all suicides are preventable	199	44	184	44	171	41	.52
Enrollment site							.93
1	58	13	54	13	44	11	
2	29	6	27	7	28	7	
3	70	16	64	15	66	16	
4	56	12	48	12	37	9	
5	75	17	76	18	76	18	
6	56	12	43	10	49	12	
7	70	16	68	16	79	19	
8	36	8	35	8	32	8	

<sup>a</sup> ED-SAFE, Emergency Department Safety Assessment and Follow-up Evaluation. Provider data were missing for age (N=6, N=4, and N=7), years of work in medicine or health care (N=3, N=3, and N=8), and number of suicidal patients seen per month (N=4, N=17, and N=11) in phases 1, 2, and 3, respectively. Enrollment site data were available for 1,276 respondents.

<sup>b</sup> Interquartile range

20% in phase 2 and 36% in phase 3;  $p < .01$  for comparisons between phase 1 versus 2,  $p < .05$  for phase 2 versus 3, and  $p < .001$  for phase 1 versus 3). Between phases 2 and 3, each ED introduced a secondary risk assessment tool for physicians. Increasing proportions of physicians reported further assessing risk severity for all or most suicidal patients (63% in phase 1, 74% in phase 2, and 80% in phase 3;  $p < .01$  for the comparison between phase 1 versus phase 3).

Physicians were more likely than nurses to often or almost always ask about firearm access across all phases, regardless of the given case scenario (Table 3). For four of the five scenarios, 35–64% of physicians and 18%–32% of nurses reported often or almost always asking suicidal patients about firearms. Asking about firearms was more common (81%–87% of physicians and 66%–69% of nurses) for scenarios in

**TABLE 2. Attitudes about the care of suicidal patients at emergency departments (EDs) among ED providers, by study phase**

Attitude	Nurses						Physicians					
	Phase 1 (N=311)		Phase 2 (N=273)		Phase 3 (N=288)		Phase 1 (N=139)		Phase 2 (N=146)		Phase 3 (N=132)	
	%	95% CI										
I have the skills needed to screen patients for suicidality <sup>a</sup>	80	75–84	83	78–87	87	83–91	88	81–92	90	84–94	86	79–91
I am confident in my ability to further assess a patient's suicide risk severity <sup>a</sup>	68	63–73	71	65–76	72	67–77	70	62–77	71	63–78	80	72–86
I know how to provide brief counseling to suicide patients <sup>a</sup>	56	50–61	53	47–59	54	48–60	46	38–54	46	38–54	55	46–63
I am confident in my ability to help patients at risk of suicide create a personalized safety plan <sup>a</sup>	40	34–45	33	28–39	42	37–48	27	20–35	21	15–29	30	23–38
I am confident in my ability to help find referral resources for suicidal patients <sup>a</sup>	57	52–63	56	50–62	63	58–69	50	42–59	50	42–58	63	54–71
Staffing by mental health providers is sufficient to handle the patient care load <sup>b</sup>	22	17–27	24	19–29	32	27–37	42	34–50	40	32–48	42	34–51
Leadership supports improvement in interventions for suicidal patients <sup>b</sup>	42	37–48	53	47–59	49	43–55	61	53–69	67	59–74	72	63–79
Treatment of suicidal patients is a top priority of clinical care <sup>b</sup>	46	40–51	52	46–58	53	47–59	43	35–52	46	38–54	51	43–60
Universal screening for suicide will result in increased psychiatric evaluations <sup>a</sup>	59	53–64	74	69–79	79	74–83	65	57–73	74	67–81	79	71–85
Universal screening for suicide will slow down clinical care <sup>a</sup>	35	30–40	32	27–38	28	23–33	52	43–60	54	46–62	54	46–63

<sup>a</sup> Providers strongly agreed or agreed with the statement.

<sup>b</sup> Providers agreed that the statement was almost always or often true at the ED where they worked.

which a patient had a current suicide plan involving a gun. Between phases 1 and 3, increasing proportions of nurses reported often or almost always asking about firearm access among patients who were suicidal but had no plan (22% in phase 1 versus 32% in phase 3,  $p < .01$ ) and patients who had

a suicide plan that did not involve a firearm (23% in phase 1 versus 32% in phase 3,  $p < .05$ ).

[Figures comparing survey results for nurses and physicians are available in an online data supplement to this article.]

**TABLE 3. Self-reported behaviors among emergency department providers about care of suicidal patients, by study phase**

Behavior	Nurses						Physicians					
	Phase 1 (N=311)		Phase 2 (N=273)		Phase 3 (N=288)		Phase 1 (N=139)		Phase 2 (N=146)		Phase 3 (N=132)	
	%	95% CI										
Screens all or most patients for suicide ideation Services for suicidal patients <sup>a</sup>	36	31–42	93	89–95	95	92–97	8	4–14	20	14–27	36	28–45
Assesses for risk severity	69	63–74	63	57–69	70	64–75	63	54–70	74	66–80	80	73–86
Creates a safety plan:	50	45–56	42	36–48	47	42–53	29	22–37	37	29–45	34	27–43
Briefly counsels	36	30–41	33	28–39	41	35–47	30	23–38	36	28–44	35	28–44
Provides referrals to outpatient or community resources	42	37–48	41	35–47	44	38–49	54	46–62	57	49–65	67	59–75
Screening for firearms at home <sup>b</sup>												
Patient reports feeling suicidal in past month but not now	18	14–23	21	17–26	22	18–27	46	37–54	45	37–53	53	44–61
Patient reports feeling suicidal today but has no suicide plans	22	18–27	26	21–32	32	27–38	59	50–67	63	55–70	61	52–69
Patient has a suicide plan that does not involve a gun	23	19–28	24	19–29	32	26–37	54	45–62	64	56–71	61	53–69
Patient has a suicide plan that involves a gun	69	63–74	67	61–72	66	60–71	81	73–87	87	80–91	84	76–89
Patient is in the ED for multidrug ingestion but no longer feels suicidal	18	14–22	19	15–24	20	16–25	35	27–43	38	30–46	37	30–46

<sup>a</sup> Providers reported performing the behavior for most or all suicidal patients.

<sup>b</sup> Providers reported always or almost always screening for firearms.

## DISCUSSION

In this multisite quasi-experimental study, ED providers' knowledge, attitudes, and practices concerning the care of suicidal patients changed after implementation of universal screening and additional brief ED interventions for suicidal patients. Over time, a greater proportion of providers reported screening patients for suicide risk and more physicians conducted secondary risk assessments for suicidal patients. More providers reported believing that universal screening would result in more psychiatric evaluations, but this change in attitude was not accompanied by an increase in reported beliefs that screening would slow down care. This finding may support the feasibility of implementing universal screening for suicide in EDs, assuming resources are adequate.

Conversely, the finding that many providers still did not believe that suicide is preventable may argue against long-term sustainability of suicide prevention programs in EDs. There was an unexpected increase in the proportion of nurses who reported asking suicidal patients about firearm access; given the lack of focused training on the subject, this finding may reflect an improved general awareness of suicide prevention approaches.

This study provided useful information to inform ED-based programs for the identification and care of suicidal patients, issues with timely relevance given the larger debates over ED screening and over firearm policies. As expected, new protocols for universal screening were associated with an increase in the proportion of providers who reported screening most or all patients for suicide risk. The most dramatic increases in screening were among nurses, who were the providers responsible for this task. Nurses were tasked with screening because of the importance of identification of suicidality early in the ED visit and because nurses usually see patients before physicians. In phase 3, ED protocols called for nurses to give safety plan forms to all suicidal patients, but there was no significant change in providers' confidence or involvement in helping to create or a safety plan. That may be because even though providers were given blank patient safety forms and brief training on when and how to direct patients to complete the form, they were not expected to fill out the forms with the patients.

In phase 3, ED protocols also recommended that physicians use a new risk assessment tool. Although increased proportions of physicians reported assessing suicidal patients for risk severity, the changes were significant only for comparisons between phase 1 and phase 3 (not phase 2), suggesting that the change could have been influenced simply by the increase in primary suicide risk detection following implementation of universal screening. As a result, physicians were increasingly called to perform additional secondary screening.

Across all study phases, more providers reported confidence in their ability to screen patients for suicide risk compared with

skills for further assessing risk or providing care. The Joint Commission requires that hospital personnel both assess risk of suicide and, for those at risk of suicide, assess immediate safety needs and provide outpatient resources for discharged patients (10). Thus the persistent skill gaps we observed, consistent with prior work (25), are concerning and highlight a need for focused training for ED providers. The introduction of universal screening for suicide risk will identify additional ED patients at risk, but without appropriate interventions, it may not lead to decreased morbidity or mortality. Consultation with a mental health professional, ideally, would be part of such an intervention, but it is not standard practice nor always possible to provide (1,26,27), especially in small EDs, so adequate preparation of the ED work force through training and resources is essential (1,25,28).

One important barrier to implementing universal screening is the potential for slowing down care through increased orders for psychiatric consultations, a concern for already-crowded EDs. Confirming this impression, increasing proportions of both physicians and nurses thought that universal screening resulted in more psychiatric evaluations. However, decreasing proportions of nurses thought that universal screening would slow down clinical care, and the proportion of physicians who anticipated slower clinical care remained steady. This finding suggests that there were adequate pathways and resources at these sites to care for newly identified suicidal patients in a way that did not slow down overall care. That is an important finding that may support the feasibility of universal screening for suicide risk, at least when implemented in a structured way that includes clear guidelines and at least some training (18).

The fact that providers reported no increase in the number of suicidal patients seen each month following implementation of universal screening is puzzling, but it may help explain why there was no increase in perception that universal screening would slow down clinical care. At the same time, the fact that less than half of providers thought that most or all suicides are preventable, with no improvement across study phases, raises questions about long-term sustainability of ED-based suicide prevention programs after initial implementation efforts end.

A surprising behavior change was the increase in the proportions of nurses asking most or all suicidal patients about firearm access. Patient counseling by ED providers about lethal means restriction is included in both the 2012 National Strategy for Suicide Prevention (29) and the National Registry of Evidence-Based Programs and Practices (30). Prior work suggests, however, that ED providers may not routinely or frequently assess a suicidal patient's access to lethal means (17,31–34). For phase 3 of the ED-SAFE study, the participating EDs introduced a personal safety planning worksheet that included the recommendation to limit access to firearms and other highly lethal methods of suicide. Nurses were instructed to give the form to all patients with a positive suicide screen, but they did not receive training specifically

about means restriction. We can speculate that the change in the proportions of nurses asking about firearm access was the result of a generally heightened awareness about suicide risk and suicide prevention, given that nurses asked every patient about suicidal thoughts or actions. The change might also reflect national events, given that several mass shootings and an intensified nationwide debate about firearms took place between the study phases. Whatever the reason, it is encouraging that increasing proportions of nurses recognized the importance of asking about firearm access, even when a patient's suicide plan did not involve a firearm. Recent studies have indicated that roughly 40% of people who report having made a suicide attempt did not report having a suicide plan (35), and most patients who are seen in a hospital for an intentional overdose or cutting and who later die by suicide switch to more lethal methods (36). Providers, therefore, should counsel all suicidal patients about limiting access to firearms (23,24,37).

Study limitations included that results might not generalize to other settings, such as EDs without an academic affiliation. However, the survey response rate was reasonably high (67%–76%), the sample included physicians and nurses with a range of experience, and there was variety among the study sites, including differences in mental health staffing and baseline protocols for suicidal patients. Because of staff turnover, we could not examine individual providers' changing beliefs or practices across the study phases, but our primary intent was to examine changes between provider groups.

Another possible limitation was self-report bias, given that providers may have differentially remembered or reported their attitudes and behaviors. We chose to rely on self-report in order to make the survey anonymous and thereby enhance participation, truthfulness, and disclosure of information that cannot be measured via medical record review. Survey design limitations included the wording of certain questions; for example, the safety plan questions did not specifically define "safety plan," so providers may have interpreted the term in various ways. Questions about the use of safety plans and referrals for a hypothetical patient did not clarify whether the patient had been evaluated by a mental health professional, which could have affected the provider's response. For example, if a provider assumed the patient had received a mental health consultation, he or she might decrease the intensity of care, assuming that the consultant was identifying referral options. Finally, survey questions did not address patient risk factors, such as prior attempts, that might affect ED providers' behaviors. These issues will need to be addressed by future studies that aim to replicate and extend our results.

## CONCLUSIONS

This multisite, repeated survey of ED physicians and nurses provided new information that may support the feasibility and acceptability of universal screening for suicide. As the

national dialogue continues over universal screening and brief ED-based interventions for suicidal patients, an understanding of ED provider beliefs and behaviors will be critical in the design and implementation of effective programs.

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