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

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Abstract

Objective—To examine changes in ED provider self-reported attitudes and practices, including concerning assessment of access to "lethal means" like firearms, as part of a three-phase quasi-experimental trial involving implementation of emergency department (ED) protocols for suicidal patients.

Methods—1,289 **providers at the** eight participating EDs completed a voluntary, anonymous survey offered at three different points (71% response rate): at baseline; after introduction of universal suicide screening; and after introduction of suicide prevention resources for nurses and a secondary risk assessment for physicians.

Results—The median participant age was 40 years and 64% were female. 872 (68%) were nurses and 417 (32%) attending physicians, with no demographic differences across study phases. Increasing proportions of nurses reported screening for suicide (36% in phase 1 vs. 95% in phase 3; p<.001) and increasing proportions of physicians reported further assessing suicide risk (63% in phase 1 vs. 80% in phase 3; 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/almost always asking suicidal patients about firearm access, although these numbers remained low relative to ideal practice (18-69% depending on scenario). Physicians were more likely than nurses to ask about firearms (35-84%; no change over study phases).

Conclusions—These findings support the feasibility of implementing universal screening for suicide in EDs, assuming adequate resources. Opportunities for provider education exist, especially concerning the need to ask suicidal patients about firearm access.

INTRODUCTION

Emergency departments (EDs) are a key site for recognizing and treating of suicidal patients (1)because of the relatively high prevalence of suicidal ideation among all ED patients (estimated at 3 to 8% (2-5)), increasing ED visits for mental health reasons (6, 7), and the large proportion (39%) of suicide decedents who visited 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 on Accreditation of Healthcare Organizations (Joint Commission) requires suicide screening for "patients hospitalized for emotional or behavioral problems," including in EDs (10). Universal screening can identify additional patients with suicidal thoughts or behaviors (5), but its effect on morbidity, mortality or healthcare utilization is unclear. Standardized screening protocols, if 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 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 provider level. 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). Provider training as part of a robust program implementation plan for suicide screening may address some of these issues, as in a study where universal screening for suicide risk in an inpatient setting appeared feasible in terms of work-flow and 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, offers a unique opportunity to examine the relationship of provider knowledge, attitudes and behavior to ED process changes. Our objective was to describe changes in ED provider knowledge, attitudes, and practices related to assessment of suicidal patients before and after implementation of (1) universal screening for suicide risk and (2) brief ED interventions for suicidal patients. We also sought to compare changes between nurses and physicians.

METHODS

Sample and procedure

The ED-SAFE study was a multi-site project examining ED assessment and interventions for suicidal patients (19). The study, performed at eight EDs in seven US states, included three phases: treatment-as-usual; introduction of universal suicide screening (4 questions, <1 minute to complete) by nurses; and introduction of brief ED interventions for suicidal patients (outpatient suicide prevention resources for nurses and secondary risk-assessment tool for physicians) (19).

Providers at each of the EDs were invited to complete the same voluntary, anonymous survey at three time points: 1) before the treatment-as-usual study phase (6/2010-5/2011); 2) three months after implementation of universal screening (2/2012-12/2012); and 3) three months after the implementation of the ED intervention (10/2012-9/2013).

The Emergency Medicine Network (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 resident physician responses (n=521) because of wide variability in their actual clinical exposure to the ED-SAFE EDs. We also excluded responses from social workers and mid-level providers because of the small number (n=71), and we excluded responses missing provider type (n=2). Among the 1,289 completed surveys across all phases, 743 (58%) were from different individual respondents; of these 743, 22% completed the survey at all three time points, 29% at two and 49% at just one. Consequently, data analyses treated the groups as if they were

independent. Sensitivity analyses examining the participants who provided responses for just one phase (i.e., 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 access to lethal means like firearms; the surveys were based on previous surveys (20) and expert opinion. Knowledge, attitudes and practices related to the care of suicidal patients were assessed with 4- or 5-point Likert scale response options (e.g., strongly agree, agree, uncertain, disagree, strongly disagree). For analysis, we collapsed responses into 2 categories (e.g., agree/strongly agree vs. uncertain/disagree/strongly disagree). For behaviors related to means restriction, we asked providers about their typical practice in asking suicidal patients about firearm access in five scenarios: 1) suicidal in past month but not presently; 2) currently suicidal without a plan; 3) current suicide plan involving firearms; 4) current suicide plan not involving firearms; and 5) in the ED for an intentional overdose but no longer suicidal.

Primary outcomes were provider knowledge, attitudes and practices in relation to changes in ED protocols. We hypothesized that universal screening by nurses (study phase 2) would increase confidence and frequency of behaviors related to screening. Similarly, we hypothesized that introduction of 1) a form that patients could use for creating a personal safety plan (22) and 2) a tool to assist physicians in conducting a secondary risk-assessment tool (study 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 the brief overview providers received on use of the form. 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 using medians (with interquartile ranges [IQR]) 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 1,828 eligible nurses and attending physicians, 1,289 completed the survey, for a combined response rate of 71% (phase 1, 76%; phase 2, 67%; phase 3, 69%). Over half (64%) of responding providers were female, and the median age was 40years (IQR: 33-48; **Table 1**). Most providers were white (93%) and non-Hispanic (98%), and two-thirds were nurses (68%). There were no significant differences in respondent characteristics across the three study phases.

For both physicians and nurses, greater proportions reported confidence in their skills to screen patients for suicide risk than in their skills to further assess suicide risk, create a safety plan, provide brief counseling, or find referral resources (**Table 2, Figure 1**). Overall, less than half (43%, 95%CI 41-46%) said that most or all suicides are preventable, with no significant difference between nurses (42%, 95%CI 39-45%) or physicians (46%, 95%CI 41-51%) or across three study phases. Nurses reported greater confidence in their skills to screen for suicidality in phase 3 versus phase 1 (p<.05; Figure 1); there were no other statistically significant changes in reported confidence for nurses or physicians across the study phases.

In our analysis of provider attitudes, increasing proportions of physicians (65% in phase 1 vs. 79% in phase 3, p<.05) and nurses (59% in phase 1 vs. 79% in phase 3, p<.001) said they believed that universal screening for suicide risk would result in more psychiatric evaluations (**Table 2, Figure 2**), but this was not accompanied by a belief that universal screening would slow down clinical care. In fact, physicians' self-reported attitudes did not change, and decreasing numbers of nurses reported believing screening would slow down care (35% in phase 1 vs. 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 (41% in phase 1 vs. 53% in phase 2, p<.05; Figure 2). There were no other statistically significant changes in self-reported physician or nurse attitudes across the study phases.

The greatest changes were in self-reported behavior. Nurses were responsible for universal screening in the protocols introduced in study phase 2, and after implementation there was a dramatic increase in the proportion of nurses who reported screening most or all patients for suicide risk (36% in phase 1 vs. 93% in phase 2 and 95% in phase 3; p<.001 for phase 1 vs. 2 and for phase 1 vs. 3; **Table 3, Figure 3**). Increasing proportions of physicians also reported screening most or all patients for suicide risk, though at much lower levels than nurses (8% in phase 1 vs. 20% in phase 2 and 36% in phase 3; p<.01 for phase 1 vs. 2; p<.05 for phase 2 vs. 3; p<.001 for phase 1 vs. 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); these changes were significant comparing phase 1 vs. phase 3 (p<.01) but not for phase 2 vs. phase 3 (p=.31).

Physicians were more likely than nurses to say they "often" or "almost always" asked about firearm access across all phases and patient scenarios (**Table 3, Figure 4**). For four of the five scenarios, 35- 63% of physicians and 18-32% of nurses reported "often" or "almost always" asking suicidal patients about firearms. Asking was more common (81-84% of physicians and 66-69% of nurses) only in the fifth scenario (current suicide plan involving a gun). Between phases 1 and 3 increasing proportions of nurses reported "often" or "almost always" asking about firearm access for patients who were suicidal without a plan (22% in phase 1 vs. 32% in phase 3, p<.01) and for patients who had a non-firearm suicide plan (23% in phase 1 vs. 32% in phase 3, p<.05).

DISCUSSION

In this multi-site 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 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 adequate resources. Conversely, the finding that many providers still did not believe that suicide was preventable may argue against long-term sustainability. There was an unexpected increase in the proportion of nurses reporting 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 provides 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 reporting screening most or all patients for suicide risk. The most dramatic increases were for screening by nurses, who were the providers responsible for this task. Nurses were tasked with screening because of the importance of identification early in the ED visit and the fact that 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 in, or reported practice of, creating a safety plan. This may be because even though providers were given blank patient safety forms and brief training, 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. While increased proportions of physicians did report assessing suicidal patients for risk severity, the changes were significant only for phase 3 vs. phase 1 (not vs. phase 2), suggesting the change was due not just to the new risk-assessment tool but could have been influenced by the simple increase in primary suicide risk detection that resulted in physicians being called to perform additional secondary screening.

Across all study phases, more providers reported confidence in their ability to screen patients for suicide risk than in their skills for further risk assessment or care. The Joint Commission requires both an assessment of risk and immediate safety needs as well as provision of outpatient resources for discharged patients (10). Thus the persistent skill gaps we observed, consistent with prior work (25), are concerning and highlight the need for focused training for ED providers. The introduction of universal screening for suicide risk will identify additional ED patients at risk but may not lead to decreased morbidity or mortality without appropriate intervention. Consultation with a mental health professional would ideally be part of such intervention but is not always standard or possible (1, 26, 27), especially in small EDs, so adequate preparation of the ED workforce 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, 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 physician beliefs remained steady. This suggests that, in these sites, there were adequate pathways and resources to care for the newly-identified suicidal patients in a way that did not slow down overall care. This 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 they see 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 after initial implementation efforts end.

A surprising behavior change was that increasing proportions of nurses reported asking most or all suicidal patients about firearm access. Lethal means restriction education by ED providers 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, though, that ED providers may not routinely or frequently assess a suicidal patient's access to lethal means (17, 31-34). For ED-SAFE study phase 3, 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 came from a generally heightened awareness about suicide risk and suicide prevention, given that nurses were asking every patient about suicidal thoughts or actions. The change might also reflect national events, as between the study phases there were several mass shootings and an intensified nationwide debate about firearms. Whatever the reason, it is encouraging that increasing proportions of nurses recognized the importance of asking about firearm access even in cases without a firearm suicide plan. 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 among patients seen in the hospital for an intentional overdose or cutting, most of those who go on to 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 include that results might not generalize to other settings, including non-academic EDs. However, the survey response rate was reasonably high (67-76%), the sample included physicians and nurses with a range of experience, and the study sites varied (including in mental health staffing and baseline protocols for suicidal patients). Because of staff turnover at the sites across the study phases, we could not examine individual providers' changing beliefs or practices over time, but our primary intent was to examine changes between provider groups. Another possible limitation is self-report bias, as 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 description of factors not measurable via medical record review. Survey design limitations included the wording of certain questions; for example, the safety plan question did not specifically define "safety plan," so providers may have interpreted this in various ways. Questions about safety plans and referrals did not clarify whether the hypothetical patient had been evaluated by a mental health professional, but it is possible a consultation might decrease the intensity of an ED provider's care (if the provider assumed the mental health consultant was identifying referral options). Finally, survey questions did not include patient risk factors (e.g., prior attempts) that might affect ED providers' behaviors. These different issues will need to be addressed by future studies that aim to replicate and extend our results.

CONCLUSION

This multi-site, repeated survey of ED physicians and nurses provides 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.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Characteristics of Responding ED Providers, by Study Phase

Characteristics	Phase 1 (n=450)			Phase 2 (n=419)			Phase 3 (n=420)			Compare all phases
	n	Median	IQR	n	Median	IQR	N	Median	IQR	P value
Age in years, median	444	39	33-48	415	40	34-49	413	40	33-48	0.76
Years of work in medicine/healthcare, excluding training, median(IQR)	447	12	6-22	416	13	7-22	412	13	7-22	0.81
Number of suicidal patients seen per month, median(IQR)	446	15	10-25	402	15	10-30	409	15	10-30	0.35

	n	%	n	%	N	%	P value
Sex							0.89
Male	161	36	156	37	151	36	
Female	289	64	263	63	269	64	
Race							0.91
White	419	94	387	93	391	94	
Black/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	0.89
Current clinical position							0.41
Nurse	311	69	273	65	288	69	
Physician	139	31	146	35	132	31	
Believe that "most" or "all" suicides are preventable	199	44	184	44	171	41	0.52
Enrollment site (n=1276)							0.93
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	

IQR, Interquartile Range.

Table 2

Provider confidence and attitudes about the care of suicidal ED patients, by provider type and study phase.

| | 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	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI
I "strongly agree" or "agree" that I am confident:												
I have the skills needed to screen patients for suicidality	80	75-84	83	78-87	87	83-91	88	81-92	90	84-94	86	79-91
In my ability to further assess a patient's suicide risk severity	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	56	50-61	53	47-59	54	48-60	46	38-54	46	38-54	55	46-63
In my ability to help patients at risk for suicide create a personalized safety plan	40	34-45	33	28-39	42	37-48	27	20-35	21	15-29	30	23-38
In my ability to help find referral resources for suicidal patients	57	52-63	56	50-62	63	58-69	50	42-59	50	42-58	63	54-71
At my ED:												
Staffing by mental health providers is "almost always" or "often" sufficient to handle the patient care load	22	17-27	24	19-29	32	27-37	42	34-50	40	32-48	42	34-51
ED leadership "almost always" or "often" support improvement in interventions for suicidal patients in the ED	42	37-48	53	47-59	49	43-55	61	53-69	67	59-74	72	63-79
In providing clinical care, treatment of suicidal patients is "almost always" or "often" a top priority in the ED	46	40-51	52	46-58	53	47-59	43	35-52	46	38-54	51	43-60
I "strongly agree" or "agree" that universal screening for suicide will:												
Result in increased psychiatric evaluations	59	53-64	74	69-79	79	74-83	65	57-73	74	67-81	79	71-85
Slow down clinical care	35	30-40	32	27-38	28	23-33	52	43-60	54	46-62	54	46-63

Table 3

Provider self-reported behavior concerning the care of suicidal ED patients, by provider type and study phase.

	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	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI
I screen "all" or "most" patients for suicide ideation	36	31-42	93	89-95	95	92-97	8	4-14	20	14-27	36	28-45
For "all" or "most" suicidal patients I:												
Assess for risk severity	69	63-74	63	57-69	70	64-75	63	54-70	74	66-80	80	73-86
Create a safety plan:	50	45-56	42	36-48	47	42-53	29	22-37	37	29-45	34	27-43
Briefly counsel	36	30-41	33	28-39	41	35-47	30	23-38	36	28-44	35	28-44
Provide referrals to outpatient or community resources	42	37-48	41	35-47	44	38-49	54	46-62	57	49-65	67	59-75
I "almost always" or "often" ask if there are firearms at home when the patient:												
Reports feeling suicidal in past month, but is not suicidal now	18	14-23	21	17-26	22	18-27	46	37-54	45	37-53	53	44-61
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
Has a suicide plan, but the plan does not involve a gun	23	19-28	24	19-29	32	26-37	54	45-62	64	56-71	61	53-69
Has a suicide plan that does involve a gun	69	63-74	67	61-72	66	60-71	81	73-87	87	80-91	84	76-89
Is in the ED for multi-drug ingestion, but no longer feels suicidal	18	14-22	19	15-24	20	16-25	35	27-43	38	30-46	37	30-46