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BARRIERS AND FACILITATORS OF SUICIDE RISK ASSESSMENT
IN AN EMERGENCY DEPARTMENT: PERSPECTIVES
FROM HEALTH CARE PROVIDERS

by

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ABSTRACT
BARRIERS AND FACILITATORS OF SUICIDE RISK ASSESSMENT
IN AN EMERGENCY DEPARTMENT: PERSPECTIVES
FROM HEALTH CARE PROVIDERS

Megan L. Petrik, M.S.

Marquette University, 2014

Emergency departments (EDs) are critical sites for identifying patients with heightened suicide risk but there are no practice guidelines for identifying such patients. This study aimed to inform ED suicide risk assessment practices by examining ED providers' perspectives on this practice via a mixed methods approach. ED providers ($n = 92$) from two hospital systems completed an online survey that assessed demographic information, occupational information related to screening for suicide risk and related conditions, attitudes toward suicide prevention, and knowledge of suicide risk factors. A subset of ED providers ($n = 19$) completed a qualitative interview to gain further information about their views on the barriers and facilitators of suicide risk assessment and their perspectives on the strengths and weaknesses of different assessment methods. The results suggested that negative attitudes toward suicide prevention were related to less knowledge about suicide risk factors. Furthermore, knowledge of suicide risk factors, attitudes toward suicide prevention, and marital status predicted providers' comfort in asking patients about suicidal ideation. Hospital system and provider type were not significantly related to attitudes toward suicide prevention, knowledge of suicide risk factors, or occupational experiences related to assessing suicide-related concerns. Qualitative results suggested that suicide risk assessment practices in EDs should be brief, place little demand on the patient, involve a standardized protocol, and include consultation with others. Findings are further discussed in the context of improving suicide prevention efforts in this critical setting.

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Introduction

Suicide is a notable public health concern. In 2009 in the United States, 36,909 individuals died by suicide (United States Department of Health and Human Services [USDHHS], 2012). The suicide mortality rate is twice the homicide mortality rate, and it translates into one death every 14 minutes (USDHHS, 2012). Even more Americans experience suicidal thoughts and engage in non-lethal, self-injurious behaviors each year. In 2008, 8.3 million adults seriously thought about suicide, 2.3 million had a suicide plan, and 1.1 million made a suicide attempt (Substance Abuse and Mental Health Services Administration, 2009).

The mental health care system is fragmented and difficult to navigate. Thus, it is difficult for a person in a psychiatric crisis to obtain emergency psychiatric treatment (American College of Emergency Physicians, 2008; Glick, Berlin, Fishkind, & Zeller, 2008; Little, Clasen, Hendricks, & Walker, 2011). As a result, emergency department (ED) presentations for suicide attempts and self-injurious behavior have nearly doubled over the last two decades (Brickman & Mintz, 2003; Doshi, Boudreaux, Wang, Pelletier, & Camargo, 2005; Hazlett, McCarthy, Londer, & Onyike, 2004; Larkin, Smith, & Beautrais, 2008).

Given the increased burden placed on emergency medicine to assess and treat psychiatric crises, there is a need to improve suicide risk assessment practices in EDs (Boudreaux et al., 2013; Houry et al., 2009; Larkin et al., 2009; Larkin & Beautrais, 2010). There currently are no evidence-based practice guidelines for the identification, management, and disposition of patients who present to EDs with a heightened risk for

suicide (Chang, Gitlin, & Patel, 2011). It is necessary to gain a better understanding about the factors that facilitate or obstruct suicide risk assessment in ED clinical practice.

This study addressed this need by conducting a mixed methods investigation of ED providers' perspectives regarding the integration of suicide risk assessment into emergency medical care. ED providers completed an online survey that assessed demographic and occupational information, attitudes toward suicide prevention, and knowledge of suicide risk factors while a subset of these providers also were interviewed to gain further information about their views on suicide risk assessment. In order to provide context for this study, the significance of identifying suicide-related concerns in EDs is presented. Second, the literature related to the barriers to assessing suicide in EDs is discussed. Next, the methods and current best practices for assessing suicide risk in EDs are discussed. Finally, the aims of the current study are described.

Significance of Assessing Suicide-Related Concerns in EDs

EDs are a common treatment setting for psychiatric emergencies. In 2007, approximately 472,000 ED visits related to self-inflicted injury occurred in the United States (Niska, Bhuiya, & Xu, 2010). A person who dies by suicide is approximately twice more likely to have sought care at an ED in the year before death than from a mental health professional (Ahmedani et al., 2014; Da Cruz et al., 2011; Gairin, House, & Owens, 2003; Luoma, Martin, & Pearson, 2002). Research suggests that between 6-12% of patients seeking ED treatment for nonpsychiatric complaints endorse suicidal ideation (Claassen & Larkin, 2005; Ilgen et al., 2009; Kemball, Gasgath, Johnson, Patil, & Houry, 2008) and approximately 12% endorse past suicide attempts (Allen et al., 2013). However, suicide risk often goes undetected in EDs (Kemball et al., 2008).

Evaluating suicide-related concerns is a necessary task for ED providers. The Joint Commission National Patient Safety Goal 15.01.01 (2011) mandates that ED providers assess patient and environmental suicide risk factors, consider immediate safety needs related to suicide risk in the ED, and provide at-risk patients with suicide prevention information when discharged. Emergency physicians are typically only permitted psychiatric consultation after medical clearance of a patient (Lukens et al., 2006; Shah, Fiorito, & McNamara, 2012), which necessitates ED providers to interact with patients in psychiatric crisis.

Failure to accurately identify and appropriately manage suicide risk is associated with significant negative consequences for both ED patients and staff. Patients who present with self-inflicted injuries utilize ED services more frequently (Colman et al., 2004) and have increased suicide mortality rates when compared to patients who seek ED care for other problems (Choi, Park, & Hong, 2012; Crandall, Fullerton-Gleason, Agüero, & LaValley, 2006). Suicide risk is especially elevated within one week of discharge from an ED, making it important to ensure continuous mental health care in order to prevent suicide (Knesper, American Association of Suicidology, and Suicide Prevention Resource Center, 2010).

Regarding providers, the negative consequences of failing to identify and manage patients at risk of suicide include job dissatisfaction and potential litigation if a patient commits suicide after discharge (Simon, 2004). ED providers who treat frequently returning psychiatric patients are more likely to experience job dissatisfaction and burnout (McKenna, 2011). Emergency physicians carry a higher risk for malpractice lawsuits than other physicians because of the complexity involved in emergency

medicine, the lack of an enduring patient-physician relationship, and patient dissatisfaction with overcrowded EDs (Zane, 2009). The risk of malpractice litigation is compounded when an emergency physician is treating a patient who has a heightened risk for suicide.

Despite the influx of suicide prevention efforts since the early 1990's (e.g., President's New Freedom Commission on Mental Health, 2003; USDHHS, 2001), the rates of suicidal ideation and suicide attempts have remained relatively unchanged over the last two decades (Baca-Garcia et al., 2010; Kessler, Berglund, Borges, Nock, & Wang, 2005). Additionally, many accrediting bodies and licensing organizations for health care professionals have not required increased suicide prevention training during this time frame (Schmitz et al., 2012). The most recent *National Strategy for Suicide Prevention* (USDHHS, 2012) asserted that suicide prevention is no longer exclusively the domain of mental health services. Rather, various groups (i.e., health care systems, government agencies, community organizations) need to coordinate efforts to reduce deaths by suicide (USDHHS, 2012). EDs have been specifically identified as a critical site for identifying patients with heightened suicide risk (Larkin & Beautrais, 2010; National Action Alliance on Suicide Prevention, 2014; Olfson, Marcus, & Bridge, 2014; USDHHS, 2012).

Barriers to Effectively Assessing Suicide Risk in EDs

There is empirical support for screening and providing early care to reduce the morbidity and mortality associated with domestic violence, substance use, and various medical conditions in EDs (e.g., Bernstein & Haukoos, 2008; Bernstein & D'Onofrio, 2009; Wilson & Zeller, 2012). Related to these successes, the *National Strategy for*

Suicide Prevention (USDHHS, 2012) specified that EDs should increase their suicide prevention efforts by implementing the following practices: 1) improve suicide risk screening efforts; 2) increase staff training on the recognition and management of suicide risk; 3) increase accurate diagnosis and documentation of suicide risk; 4) increase referrals to mental health providers; and 5) increase education about suicide risk factors and warning signs to an at-risk patient's support system. These efforts have the potential to prevent suicide through increasing the continuity of a patient's mental health care and improving aftercare options (Knesper et al., 2010; USDHHS, 2012). However, several factors associated with emergency medicine make assessing suicide risk in EDs a complicated task.

ED-based suicide prevention initiatives must address the institution-specific "barriers of time, space, funding, and staffing" that would prevent the successful implementation of these interventions (Bernstein & D'Onofrio, 2009, p. 1038; McKay, Vaca, Field, & Rhodes, 2009). In a national survey of ED directors' views on barriers to disease prevention in EDs, Delgado et al. (2011) found that the directors commonly feared increased costs, increased length of visit, improper allocation of ED resources, and inadequate follow-up care once a concern was identified. Most directors were not opposed to integrating preventative health services into ED care, but a sizable portion of directors (27%) asserted that this practice was inappropriate (Delgado et al., 2011). Likewise, Kelen (2008) stated that given the numerous logistical barriers associated with this practice, preventative health services conflict with emergency medicine's "philosophy of stabilizing acute illness and decompensated chronic conditions" (p. 194).

Two barriers associated with the ED work environment – overcrowding and hospital size – have the potential to impact the implementation of suicide risk assessment in an ED. In order to further understand the barriers specific to suicide risk assessment, the shortage of mental health resources in EDs and the stigma associated with mental illness are also discussed.

Overcrowding. ED overcrowding occurs when patient demand for emergency medical treatment exceeds the facility’s capacity (Cowan & Trezciak, 2005). Numerous factors play a role in ED overcrowding. At the individual level, persons without adequate insurance coverage or social support tend to use ED services more readily (Liaw, Petterson, Rabin, Bazemore, & Richmond, 2014; Little et al., 2011). The decreasing rates of psychiatric hospitalization, the decreasing proportion of health care expenditures spent on mental health, and the Emergency Medical Treatment and Active Labor Act (EMTALA) are society-level factors that contribute to ED overcrowding, especially with regard to psychiatric crises (Currier, 2000; Larsen, 2002; Richardson, Asplin, & Lowe, 2002). EMTALA requires EDs that accept federally funded health care payment to provide care regardless of a patient’s ability to pay (Institute of Medicine, 2006). While EMLATA prevents “dumping” of vulnerable patients, many EDs have closed because of the financial strain incurred from providing care without reimbursement. In fact, ED visits increased 20% over the 1990’s while ED facilities decreased by 15% (McCaig & Burt, 2003).

Overcrowding has important implications for integrating preventative health services, as it can constrain the length of time an ED provider can spend with a patient. Chisholm, Weaver, Whenmouth, and Giles (2011) captured the essence of working in

such a time sensitive setting through conducting an observational study of emergency physicians' workplace activities. During an average two-hour work period, emergency physicians engaged in the simultaneous treatment of seven patients, interacted with up to 35 people, and spent more than half of their time on indirect patient care (i.e., medical record documentation). In addition to working with multiple patients and providers at once, emergency physicians are frequently interrupted during patient care. The pressure to provide immediate care to high volumes of patients likely prevents the integration of a preventative health service such as suicide risk assessment.

Hospital size. McAllister and colleagues (2002) surveyed 352 ED nurses from various hospitals about their attitudes toward working with patients who present with self-inflicted injuries. The nurses who worked in larger hospitals (more than 40 nurses employed in the ED) reported significantly lower perceived self-efficacy in assessing patients with self-inflicted injuries and significantly less empathy towards these patients than the nurses who worked at smaller hospitals (less than 40 nurses employed in the ED). The authors posit that this result was due to the increased volume of patients seen by nurses at larger hospitals. In addition to lower ratings of perceived competency in assessing suicide risk, the lower ratings of empathy in nurses at larger hospitals also may negatively impact patient experience in EDs.

Limited mental health resources. ED patients who present with psychiatric concerns, either primary or comorbid to a medical concern, often require assessment and treatment that is dissimilar to patients who present with medical concerns only, which puts further stress on ED providers (Clarke, Dusome, & Hughes, 2007; Zun, 2012). EDs

are typically not staffed with mental health professionals and there tends to be inadequate access to psychiatric consultants (Baraff, Janowicz, & Asarnow, 2006).

ED providers also report limited psychiatric training, especially related to understanding the assessment and management of suicide (Giordano & Stichler, 2009; Gordon, 2012). For emergency physicians, these feelings may stem from the limited specialty mental health training in the typical medical school curriculum. The comprehensive psychiatric interview taught in medical school can take 30 to 60 minutes, and the length may paradoxically act as a deterrent to following up on mental health problems in emergency care settings (Lake, 2008). Mental health training also is limited in graduate medical education, as 76% of emergency medicine residency programs do not offer formal training in psychiatric concerns (Santucci, Sather, & Baker, 2003).

The lack of mental health resources in EDs has practice implications, including potential differences in rates of psychiatric admission following ED treatment and provider anxiety. Douglass, Luo, and Baraff (2011) found moderate rates of disagreement between emergency medicine residents and psychiatry residents when evaluating the necessity of involuntary hospitalization (33%) and disposition (24%) for ED patients with psychiatric complaints. Psychiatry residents were more likely to believe that psychiatric admission was warranted. The authors hypothesized that this was due to the psychiatry residents spending more time accessing historical and collateral information and believing that admission was necessary for medication management. Thus, patient care can be notably impacted if there is access to mental health specialists in ED treatment.

Assessing suicide risk often engenders anxiety, even in experienced mental health professionals (Oordt, Jobes, Fonseca, & Schmidt, 2009). This anxiety tends to elicit two

extreme and inappropriate approaches (Wingate, Joiner, Walker, Rudd, & Jobes, 2004). First, a “better safe than sorry” method assumes that any patient who mentions suicidal ideation will act on his or her thoughts, which can lead to improper treatment planning and the misuse of limited clinical resources (Wingate et al., 2004, p. 652). Second, a “dismissive” approach underestimates suicide risk and places both the patient’s safety and clinician’s liability in jeopardy (Wingate et al., 2004, p. 652). The increasing demands placed on emergency physicians, paired with limited mental health resources, may lead ED providers to take either a dismissive or an overly cautious approach. For example, Baraff et al.’s (2006) survey of ED directors in California found that 23% of ED directors reported occasionally discharging patients with suicidal ideation to home without further psychiatric evaluation. Alternatively, ED physicians may err on the side of safety and overuse emergency detention and physical/chemical restraints when treating suicide-related concerns (Allen, Carpenter, Sheets, Micro, & Ross, 2003).

Stigma associated with mental illness and suicide. Numerous studies have found that ED providers hold negative attitudes toward working with patients who have psychiatric and suicide-related concerns (e.g., Anderson & Standen, 2007; Mackay & Barrowclough, 2005; McAllister et al., 2002). Moreover, ED patients with psychiatric concerns commonly present with agitation or intoxication, and these symptoms may elicit the stereotype that persons with mental illness are dangerous (Knesper et al., 2010). Providers’ negative attitudes likely influence ED patients’ perceptions of care. Cerel, Currier, and Conwell (2006) investigated the experiences of patients who sought ED treatment after a suicide attempt, and their results found that greater than 50% of patients felt that their interactions with ED staff were punishing or stigmatizing.

Suicide risk is especially elevated within one week of discharge from an ED (Knesper et al., 2010; Olfson et al., 2014). Psychiatric deterioration after discharge from an acute care setting is largely due to patient noncompliance with the recommended treatment (Cremniter et al., 2001). ED providers can play an important role in preventing psychiatric deterioration by building an effective alliance with patients, as this may improve patients' adherence with treatment recommendations. However, providers' negative perspectives toward working with psychiatric patients may prevent the development of an effective working alliance.

Wilstrand, Lindgren, Gilje, and Olofsson (2007) interviewed six nurses at a psychiatric hospital to gain insight into their experiences when caring for patients with self-harming behaviors. Qualitative content analysis revealed that the nurses experienced fear related to patients' self-injurious behaviors, frustration, and abandonment by co-workers. The authors acknowledged the importance in addressing the feelings of fear, frustration, and abandonment to improve patient care. It was recommended that the workplace offer more training to improve providers' knowledge of suicide and more support for these providers. While this study was not conducted with ED providers, the results highlight the burden that caring for patients with suicide-related concerns can place on health care providers.

Hadfield, Brown, Pembroke, and Hayward (2009) interviewed five emergency physicians about their reactions to providing care to ED patients with self-inflicted injuries. The authors used interpretive phenomenological analysis to extract themes from the interviews. The results suggest that the prevailing medical culture influenced physicians' attitudes when working with these patients. One theme suggested that

physicians felt obligated to focus on patients' physical/medical concerns, rather than their psychosocial needs, when providing care for self-inflicted injuries. A second theme captured physicians' personal reactions to working with patients who self-harm, suggesting that working with patients who self-injured challenged their motivation to work in emergency medicine. Thus, the context of the ED and medical culture negatively impacted how providers viewed working with patients who self-injured.

Methods to Assess Suicide Risk in EDs

EDs demand quick and accurate assessment of suicide risk with limited resources. Providers would benefit from having efficient assessment tools and recommendations on how to implement such tools in patient care, as these may ameliorate the barriers to identifying ED patients' suicide-related concerns. This section reviews various aspects related to the methods to assess suicide risk in EDs. First, several suicide risk assessment tools that have psychometric support for use in EDs are briefly reviewed. Second, the limited work on ED provider opinions regarding methods to assess suicide risk in EDs is discussed. Third, the burgeoning evidence for the best practices to implement such tools in pediatric EDs is presented.

Suicide risk assessment tools amenable for ED use. Larkin and colleagues (2009) provided specific guidelines for an ED-specific suicide risk assessment tool. These guidelines stated that the tool must be "brief, easily understood by patients, available in multiple languages, readily administered in busy general hospital settings, and be capable of generating rapidly available responses for review by ED staff" (p. 1112). The majority of the existing suicide risk assessment tools are not well suited for ED use due to their length, the lack of easy scoring procedures, and the lack of validation

with ED patients (Brown, 2001; Knesper et al., 2010; Larkin et al., 2009). The ability of suicide risk assessment tools to predict suicide has not been supported, even among high-risk groups (Bryan & Rudd, 2006; Hughes, 1995; Randall, Colman, & Rowe, 2011). It is now recommended that suicide risk assessment tools be used to identify the salient risk and protective factors in order to inform treatment planning, intervention, and follow-up care (Rudd, 2006; Simon, 2002). Furthermore, assessing and managing suicide risk can be an iterative process that requires a provider to gather information from multiple sources, making it challenging for ED providers to complete this process alone.

A brief review of the suicide risk assessment tools that are amendable for ED use is presented. The tools that embodied at least two of Larkin et al.'s (2009) five criteria and that had been used with adults in a general medical clinic (i.e., primary care) or ED were reviewed. Upon review of the literature, the Behavioral Health Measure-20 (Kopta & Lowry, 2002), the Columbia-Suicide Severity Rating Scale (Posner et al., 2011), and the Risk of Suicide Questionnaire (Horowitz et al., 2001) were selected for examination.

Behavioral Health Measure-20 - Suicide Items. The Behavioral Health Measure-20 (BHM-20; Kopta & Lowry, 2002) is a 20-item self-report tool that provides an overall measure of mental health. The measure has high internal consistency (Cronbach's α range = .89 - .90) in college and community adult outpatient samples, adequate test-retest reliability ($r = .80$) for a college student sample over a two-week period, and adequate construct and concurrent validity (Kopta & Lowry, 2002). Two items on the BHM-20 assess suicidality. If a respondent answers between 0 (*almost always*) and 3 (*a little bit*) to Item 10 ("Have you been distressed by thoughts of ending your life"), a 21st item, "Indicate your overall risk of suicide" is rated from 0 (*extremely high risk*) to 4 (*no risk*).

Evaluation of the BHM-20 in a general medical setting. Bryan, Corso, Rudd, and Cordero (2008) evaluated the concordance between 338 primary care patients' report of suicidal ideation on the BHM-20 Item 10 at a behavioral health consultant appointment in comparison to their verbal report to a primary care provider in a routine medical appointment. Approximately 12% of the patients had a positive suicide screen during the behavioral health consultant visit while only 2.1% disclosed suicidal ideation to their primary care provider in the previous medical appointment. This result highlighted a near 600% increase in the detection of suicidal ideation when comparing disclosure via verbal report to a primary care provider versus disclosure on a self-report measure to a behavioral health consultant.

Appraisal of the BHM-20's usefulness in an ED. The main strengths of the BHM-20 are its brevity and ease of administration. The measure also provides easily interpreted results, as it requires examination of two items. Bryan et al. (2008) only used Item 10 to assess suicide risk, and the use of a single item may lead to false positives in detecting individuals at risk of suicide. Item 10 does not automatically determine the severity of suicidal ideation. Consequently, endorsement of suicidal ideation should be followed by a more complete evaluation of that patient's suicide risk, which may encumber care in an ED. A limitation of this measure is that it is not available in multiple languages.

Columbia-Suicide Severity Rating Scale. The Columbia-Suicide Severity Rating Scale (C-SSRS; Posner et al., 2011) evaluates the following four domains: 1) severity of suicidal ideation (one item rated 1 [*wish to be dead*] – 5 [*suicidal intent with plan*]); 2) intensity of suicidal ideation (five items assessing the frequency, duration, controllability, deterrents, and reason for ideation rated 1 [*less intense*] – 5 [*more intense*]); 3) suicide

behavior (rated on a nominal scale that includes suicide attempt history, history of self-injurious behavior, and preparations for suicide); and 4) lethality of an attempt (one item rated 1 [*less lethal*] – 6 [*more lethal*]). The measure was designed to assess suicide risk in clinical trials (Posner, Oquendo, Gould, Stanley, & Davies, 2007). The C-SSRS is available in 103 languages and it has been widely used in general medical settings (Posner, www.cssrs.columbia.edu).

Evaluation of the C-SSRS in a general medical setting. Posner et al. (2011) evaluated the psychometric properties of the C-SSRS with 237 adults presenting to three EDs for psychiatric concerns. Research staff administered the C-SSRS as well as the Scale for Suicidal Ideation (SSI; Beck, Brown, & Steer, 1997) and the Columbia Suicide History Form (Oquendo, Halberstam, & Mann, 2003). The C-SSRS severity ($r = .69, p < .001$) and intensity ($r = .34, p < .001$) subscales were correlated with the SSI. There were strong relationships between the C-SSRS and the Columbia Suicide History Form on the identification of lifetime suicide attempts (actual, aborted, and interrupted; phi values = .92 - .99, all p values $< .001$). In comparison to the Columbia Suicide History Form, the C-SSRS had 100% sensitivity and specificity in correctly identifying lifetime actual attempts, as well as 99% specificity and 94% sensitivity in correctly identifying lifetime aborted suicide attempts.

Appraisal of the C-SSRS' usefulness in an ED. A strength of the C-SSRS is its availability in multiple languages. Posner et al.'s (2011) results also provide support for the C-SSRS to accurately assess the severity of current suicidal ideation and the history of lifetime suicide attempts. In comparison to Larkin et al.'s (2009) recommended criteria, the measure's brevity, ease of administration, and ease of interpretation may

limit the use of the C-SSRS in EDs. Posner et al. (2011) did not provide an administration time or scoring instructions. Lengthy scoring instructions are provided on the tool's website (Posner, www.cssrs.columbia.edu), and this scoring method seems unlikely to provide readily available results to ED providers.

Risk of Suicide Questionnaire. Horowitz et al. (2001) created the Risk of Suicide Questionnaire (RSQ), a four-item suicide risk questionnaire, for pediatric ED patients with psychiatric concerns. The RSQ assesses current suicidal behavior (Item 1: "Are you here because you tried to hurt yourself?"), past suicidal ideation (Item 2: "In the past week, have you been having thoughts about killing yourself?"), past self-destructive behavior (Item 3: "Have you ever tried to hurt yourself in the past?"), and current stressors (Item 4: "Has something very stressful happened to you in the past few weeks").

Evaluation of the RSQ in a general medical setting. Folse, Eich, Hall, and Ruppman (2006) and Folse and Hahn (2009) assessed the RSQ's psychometric properties with a convenience sample of adolescent and adult ED patients who presented with any type of chief complaint. A research nurse verbally administered the RSQ and average completion time was 90 seconds. Each item was correlated with the patients' chief complaint, primary and secondary discharge diagnoses (psychiatric or nonpsychiatric), and suicide diagnosis (yes or no; included notation of suicidal ideation or of self-harm) to establish criterion validity.

Folse et al. (2006) and Folse and Hahn (2009) found that the four-item internal consistency was low for adults (Cronbach's $\alpha = 0.46 - 0.49$) and moderate for adolescents ($\alpha = 0.63$). Internal consistency improved when using the first two items (Cronbach's $\alpha = .56$; Folse & Hahn, 2009). For adults, Item 1 (current suicidal behavior)

was related to the chief complaint, and primary, secondary, and suicide diagnoses (all p values $< .01$; r 's = .36 - .70). Concordantly, Item 2 (past suicidal behavior) was related to the primary, secondary, and suicide diagnoses (all p values $< .01$; r 's = .28 - .49). However, Items 3 (past self-destructive behavior) and 4 (current stressors) were not related to the chief complaint or diagnoses. The authors attributed the low internal consistency to the fact that a sizeable proportion of the sample (17%) was over the age of 65, as the RSQ was originally developed with a pediatric psychiatric sample.

Appraisal of the RSQ's usefulness in an ED. Overall, there is support for using a two-item RSQ (current suicidal behavior and past suicidal ideation) to screen adults for suicide risk. Strengths of the two-item RSQ include its brevity and ability to be administered by a nurse during triage. An answer of "yes" or "no" to questions provides easily interpretable results. This would allow for the nursing staff to quickly enact further clinical evaluation for suicidality if necessary. A limitation of this measure is that it is not available in multiple languages.

ED provider perspectives on integrating suicide risk assessment in EDs. This section reviews the few studies that examined ED providers' perspectives on integrating suicide risk assessment into ED care with adults. Folse and Hahn (2009) included a small amount of qualitative information regarding ED nurses' opinions on using the RSQ to screen adults and adolescents for suicide risk. The nurses stated the RSQ was an "easy-to-use tool" (p. 268) and they thought it was beneficial to use the RSQ to assess the patient's entire health and to increase identification of suicide risk for patients who would likely not be assessed elsewhere. However, the nurses noted that assessing suicide risk

may be perceived as “intrusive” by patients and it could be viewed by providers as “one more thing” to do (p. 269).

Wynaden et al. (2003) provided a qualitative examination of 11 ED providers’ perspectives on access to an emergency psychiatry triage and consultation service. The providers were interviewed at the end of a three-month trial of integrating a psychiatric consultation service in ED care. Qualitative content analysis revealed one theme that suggested ED providers found the consultation service improved the quality of care for patients needing psychological services. Another theme was that ED providers’ found a benefit in the increased support with treating psychiatric problems. While this study did not evaluate how ED providers viewed implementing suicide risk assessment themselves, the results suggested that providers felt that a consultative mental health service is a welcome and valued component of overall ED care.

Best practices to implement suicide risk assessment in ED care. Given the multiple barriers to assessing suicide risk, it is important to focus on recommendations to improve the integration of this practice in EDs. Brief educational programs and anti-mental health stigma campaigns emerge as possibilities to positively influence providers’ opinions about integrating suicide risk assessment into their care. Examinations of how to feasibly integrate suicide risk assessment in pediatric EDs are burgeoning (i.e., Chun, Duffy, & Linakis, 2013), so the available best practices for suicide risk assessment in pediatric EDs are also discussed.

Brief educational programs have been shown to be simple ways to increase providers’ knowledge regarding the assessment and management of suicide risk. For example, exposure to a clinical guide and poster related to suicide risk factors increased

ED providers' knowledge and perceived comfort in assessing suicide risk (Currier et al., 2012). Giordano and Stichler (2009) exposed ED providers to a brief computerized educational program regarding suicide risk, which also improved providers' knowledge about suicide risk.

Research on anti-mental health stigma campaigns lends itself to understanding how to reduce ED providers' negative attitudes about patients with mental health concerns. Increasing one's familiarity with individuals who have a psychiatric disorder is more effective in changing the commonly-held, inaccurate negative perceptions of mental illness than refuting negative perceptions or providing education about mental illness (Corrigan & O'Shaughnessy, 2007). Wright and colleagues (2003) also supported this notion, as they found that ED providers who personally knew a person with a psychiatric problem had increased understanding of the special needs of ED patients with mental health problems.

Regarding pediatric settings, Horowitz et al. (2010) evaluated the feasibility of the Risk of Suicide Questionnaire-Revised (RSQ-R) to screen for suicide risk with 159 pediatric ED patients who presented with nonpsychiatric concerns. The authors examined the acceptability, practicality, and patient opinions about suicide screening. The majority of the parents consented to letting their child participate (60%), suggesting the screening was widely accepted. Reasons for declining participation included physical pain (18%), objection to the parent leaving the room (12%), and objection to asking the child about suicide (12%). Screening also was found to be practical, as the psychiatric follow-up for patients with a positive screen did not increase the length of the ED visit. Finally, attitudes about the screening procedure were assessed by asking the children their opinion

on what it was like to answer the screening questions. The majority (66%) of the patients gave a neutral response, while 18% stated it was a positive experience (relieved to “tell the truth,” p. 790) and 16% stated it was a negative experience (screening was “stressful” or “awkward,” p. 790).

Using the same sample as Horowitz et al. (2010), Ballard et al. (2012) conducted further qualitative analysis of pediatric ED patients’ reactions to suicide screening in EDs. Specifically, this study examined patients’ beliefs regarding if ED nurses should ask children about suicidal ideation. The majority of the children (96%) supported the idea that youth should be screened for suicide risk in EDs. The patients’ responses endorsed the following benefits of screening: 1) identify more children at risk of suicide (20% of respondents); 2) help children feel understood by clinicians (20%); 3) help children gain access to mental health resources, if necessary (18%); 4) prevent suicide-related behaviors (16%); and 5) provide children an outlet to speak about these issues (12%).

Summary and Critique of the Literature

Health care accreditation bodies and government organizations have historically made recommendations for integrating preventative health care services in a top-down manner. For example, the Joint Commission (2011), the *National Strategy for Suicide Prevention* (USDHHS 2012), and the National Action Alliance on Suicide Prevention (2014) all have specified broad goals and sub-goals to integrate suicide risk assessment into ED care. However, there are no specific recommendations or practice strategies to help providers achieve these goals. Additionally, little to no additional resources are provided to help EDs achieve such goals. This top-down approach may be associated with staff resistance to a new protocol or the lack of successful accomplishment of the

specified goals. This problem is illustrated in the status of the literature that examines how to integrate suicide risk assessment in EDs, as reviewed next.

The literature provides recommendations for ideal ED suicide risk assessment tools (Larkin et al., 2009). Several measures that fit some of these specifications have preliminary psychometric support in general medical settings and EDs (e.g., Folse & Hahn, 2009; Kopta & Lowry, 2002; Posner et al., 2011). Recent studies have supported initial feasibility and acceptability of integrating suicide risk assessment in pediatric EDs (i.e., Ballard et al., 2012; Chun et al., 2013; Horowitz et al., 2010). However, research staff rather than ED providers conducted the screenings in these feasibility studies and the providers had direct access to a psychiatric consultant (Ballard et al., 2012; Horowitz et al., 2010). The ability to generalize the feasibility of suicide risk assessment to an ED without these resources is limited. Nevertheless, this work provides a foundation of literature that suggests identifying suicide-related concerns in EDs is feasible. The field would benefit from future work that exports this knowledge to improving techniques to identify suicide-related concerns in adult ED patients.

Previous work also suggests that EDs are complex, fast-paced environments that have inherent logistical barriers to implementing preventative health procedures in patient care (Bernstein & D'Onofrio, 2009; Delgado et al., 2011). Workplace factors, such as overcrowding and hospital size, limit the length of time providers spend with patients and negatively impact providers' feelings toward patients who self-harm (Chisholm et al., 2011; McAllister et al., 2002). Health care providers typically hold negative views toward treating patients who present with suicide-related concerns (i.e., Hadfield et al.,

2009; Wilstrand et al., 2007). ED providers also have limited access to mental health resources (Baraff et al., 2006; Gordon, 2012).

There also have been no studies that examined ED providers' perspectives on the appropriateness of suicide risk assessment as a preventative health service in EDs. Other preventative health services, such as screening for medical conditions or domestic violence, have been generally well received in the emergency medicine literature (Bernstein & D'Onofrio, 2009; Delgado et al., 2011). Yet, preventative health practices do face critics (Kelen, 2008). In order to improve the integration of suicide risk assessment in EDs, it would be beneficial to understand ED providers' views on this practice in comparison to their views on screening for other comparable conditions.

In summary, the literature is sparse, especially from the perspective of the ED staff, in providing information about the factors that would either facilitate or obstruct this practice in ED care for adults. There also are no studies that utilize a bottom-up, inductive approach (i.e., asking for providers' perspectives) to create recommendations for integrating suicide risk assessment in routine ED care. Recommendations derived from the experiences of front-line ED staff have the potential to generate a more widely acceptable and feasible protocol.

Current Study

This study was a mixed methods investigation of ED providers' perspectives regarding the incorporation of suicide risk assessment into emergency medical care. Participants were ED providers from two hospital systems in southeastern Wisconsin. The aim of this study was to elucidate the barriers and facilitators of assessing suicide

risk in EDs and to provide feasible recommendations for better integrating suicide risk assessment into emergency medical care.

A mixed methods design combines qualitative and quantitative methodologies to gain breadth and depth in understanding (Johnson, Onwuegbuzie, & Turner, 2007). A strength of the quantitative approach is its ability to examine trends and generalize findings to a larger population (Creswell & Plano Clark, 2011). However, a drawback of a purely quantitative research design is that a researcher's assumptions of the phenomenon under investigation can be forced upon the project (Creswell & Plano Clark, 2011). Gathering qualitative information let ED providers describe their views regarding the integration of suicide risk assessment into ED care without potential bias influencing their responses.

As displayed in Figure 1, this study employed a convergent parallel mixed methods design to obtain a comprehensive examination of the opinions of ED providers on integrating suicide risk assessment in EDs. This design placed equal emphasis on qualitative and quantitative methods in order to obtain corroborated results about the same topic (Creswell & Plano Clark, 2011). This design is consistent with recent calls to increase the used of mixed methods research in suicidology as a means to ameliorate this serious public health problem (Hjelmeland & Knizek, 2010; Kral, Links, & Bergman, 2012; Niner et al., 2009). Authors in implementation research have also suggested increased use of mixed methods designs to better translate science to practice (i.e., Landsverk, Brown, Chamberlain, Palinkas, & Horwitz, 2012).

All participants first completed an online survey that gathered qualitative and quantitative data. The survey contained three qualitative prompts that assessed views on

the incorporation of suicide risk assessment into emergency medical care. The quantitative measures gathered information about 1) demographic and occupational factors, 2) experience, comfort, and attitudes related to screening for suicide, domestic violence, and asthma in EDs, 3) attitudes toward suicide prevention efforts, and 4) knowledge of suicide risk factors. After the online survey, a subset of participants completed a phone interview to gather further qualitative information concerning their perspectives on integrating suicide risk assessment in emergency medicine.

Quantitative aims. The following aims were examined via quantitative analyses:

1. There has been support for brief educational programs to improve ED providers' knowledge and comfort with suicide risk assessment (i.e., Currier et al., 2012; Giordano & Stichler, 2009). Based on previous work, it was expected that ED providers who endorsed higher ratings of comfort in assessing suicide would have a better knowledge of suicide risk factors and endorse more positive attitudes toward suicide prevention efforts.
2. Personal experience with stigmatized issues has been shown to reduce negative stereotypes and increase positive feelings toward a stigmatized group (i.e., Corrigan & O'Shaughnessy, 2007; Wright et al., 2003). Based on previous work, it was expected that ED providers who have had experience with suicide in their personal life would endorse more positive attitudes toward suicide prevention efforts.
3. Workplace factors, such as size of the hospital, have been shown to impact providers' attitudes toward working with patients who self-injure (McAllister et al., 2002). Therefore, it was predicted that the providers at the larger hospital

would endorse more negative attitudes toward suicide prevention and would endorse less comfort asking patients about suicide-related concerns than the providers at the smaller hospitals.

4. Other analyses of the quantitative data collected were exploratory in nature.

Specifically, the following relationships were examined:

- a. There is a lack of literature examining the impact of provider type (i.e., attending physician, registered nurse, social worker) on aspects related to suicide risk assessment in emergency medicine. Thus, it was of interest to explore the relationship between provider type and screening for suicide-related concerns, attitudes toward suicide prevention efforts, and knowledge of suicide risk factors.
- b. There is no previous work comparing ED providers' perspectives on screening for suicide and their perspectives on screening for other medical and psychosocial conditions. The relationships between the experience, comfort, and attitudes related to screening for suicide, domestic violence, and asthma were exploratory.

Qualitative and mixed methods aims. The majority of the previous qualitative research conducted with ED providers had investigated their attitudes toward patients who self-harm rather than examining their views on the procedure of screening for suicide risk. This study aimed to further investigate and describe a wider range of ED provider perspectives on integrating suicide risk assessment in ED care. In order to accomplish this aim, participants responded to qualitative prompts on an online survey and a phone interview. The online survey gathered qualitative information from all

participants to ensure mixed methods analyses could be conducted. The data gathered in the phone interview allowed for a more in-depth understanding of this topic. Grounded theory analysis was used to identify themes in the providers' qualitative responses. In contrast to using quantitative strategies, which inherently use preconceived labels or categories to evaluate data, grounded theory allows for categories to be constructed from the data (Charmaz, 2006). Therefore, hypotheses for the qualitative and mixed methods analyses were not generated a priori.

Methods

Participants

ED health care providers ($n = 92$) were recruited by email from two hospital systems in southeastern Wisconsin. Fifty-seven providers participated from an ED at Froedtert Hospital, which is an academic medical center in Milwaukee, Wisconsin that records approximately 63,000 visits annually (U.S. News and World Reports, 2014a). Additionally, 35 providers participated from two community hospitals in the ProHealth Care system – Waukesha Memorial Hospital ($n = 21$) a tertiary-care hospital in Waukesha, Wisconsin with 39,321 annual ED visits and Oconomowoc Memorial Hospital ($n = 14$) an acute-care hospital in Oconomowoc, Wisconsin with 13,856 annual ED visits (U.S. News and World Reports, 2014b,c). All attending physicians, advanced practice providers (nurse practitioners, physician assistants, medical residents/fellows), registered nurses, and social workers who were over the age of 18 and were employed more than half time in their ED were eligible for participation.

At the end of data collection there were 145 initial attempts at the online survey, but 53 of these attempts had more than 90% missing data. In these cases, participants entered the online survey via the link but they did not begin the survey. Thus, these 53 attempts were excluded from the study. The reasons for these providers entering but not beginning the survey are unknown, but could include a lack of time, lack of interest in the topic, or a lack of comfort in the topic. The impact of self-selection bias will be further discussed as a limitation of this study in the Discussion section.

Table 1 displays the demographic and occupational information for the providers who completed the online survey. The average age of the sample was approximately 38-

years-old (range = 26 – 63). The majority of the sample was female, married, European American, had personal experience with a friend/family having a suicide-related concern, and identified belonging to a religious group. The distribution of gender in the sample is consistent with the fact that approximately 70% of the providers who participated in the study were registered nurses, which is a female-dominated profession (USDHHS, 2010). Two participants selected “other” for their occupation, and one of these participants further specified that he/she was employed in the ED as an “educator.” The mean time employed was approximately 10 years (range = 0.25 – 32 years).

Table 2 displays the demographic information for the subset of 19 participants who volunteered to complete the follow-up phone interview. There were no significant differences between the full sample and the participants completed the phone interview on any demographic variables: age ($t = -1.04, p = .30$), gender ($\chi^2 [1, N = 91] = .92, p = .34$), marital status ($\chi^2 [4, N = 90] = 3.30, p = .51$), ethnicity ($\chi^2 [3, N = 89] = 1.65, p = .65$), or religious/spiritual beliefs ($\chi^2 [2, N = 91] = .67, p = .72$). Additionally, there were no differences between the groups in history of experiencing a suicide in the participant’s personal life ($\chi^2 [1, N = 91] = .00, p = .99$), years employed in emergency medicine ($t = -1.16, p = .25$), hospital system ($\chi^2 [1, N = 91] = 1.50, p = .22$), or proportion of types of providers who participated (physicians, advanced practice providers, and registered nurses/social work; $\chi^2 [2, N = 91] = .40, p = .82$). Thus, the 19 providers who completed the phone interview are a representative subset of the larger sample.

Recruitment rate. At the time of data collection in spring 2013, Froedtert employed 170 ED providers and the ProHealth Care system employed 91 ED providers. The recruitment rate for the online survey was 35.25%. Approximately 39% of the

eligible ProHealth Care providers participated and 33.5% of the eligible Froedtert providers participated. In previous studies that sampled ED providers, the response rates ranged from 35-64% (Baraff et al., 2006; Currier et al., 2012; McAllister et al., 2002). Thus, this study's response rate was consistent with previous response rates with ED provider samples.

Power analysis. An a priori power analysis was completed to minimize the likelihood of a Type II error when conducting between groups comparisons (G*Power 3; Faul, Erdfelder, Lang, & Buchner, 2007). McAllister et al.'s (2002) comparison of nurses' perceived self-efficacy in the assessment of patients who presented with self-inflicted injuries provided a previous effect size when comparing nurses at smaller and larger hospitals. Specifically, nurses who worked in larger hospitals reported significantly lower perceived self-efficacy in assessment of patients who presented with self-inflicted injuries than those who work at smaller hospitals (Cohen's $d = .22$). Based on this, a two-tailed t -test with anticipated effect size of Cohen's $d = 0.22$, alpha = .05, and power = .80 would require 77 participants in each hospital system (total $n = 154$) to have adequate power.

Despite several efforts to ensure adequate participation from the hospital employees, as discussed in the Procedures section, the sample size of 92 is 59.35% of the proposed sample size for the survey data. This may limit the ability to accurately detect statistically significant results in the quantitative analyses. For example, a post hoc power calculation on a comparison between Froedtert and ProHealth Care employees' average scores of attitudes toward suicide prevention efforts revealed a power of .42 (G*Power 3; Faul et al., 2007).

Sample size and power are of less concern in qualitative work (Onwuegbuzie & Leech, 2007). Rather, data collection ends when saturation of the themes occurs in grounded theory analysis (i.e., new codes are not being found; Charmaz, 2006). Additionally, Creswell (2002) suggested that saturation can generally occur after 15 to 20 qualitative interviews. In regard to the phone interview, saturation was reached after 19 phone interviews. In order to complete mixed methods analyses, all participants who completed the online survey responded to the qualitative prompts in the survey.

Materials

Online survey. The participants completed an online survey via Opinio (<http://www.objectplanet.com/opinio>). The survey administered three qualitative prompts as well as gathered demographic and occupational information, attitudes toward suicide prevention efforts, and knowledge of suicide risk factors. Marquette University's license with Opinio included several security precautions, such as a 256-bit secure sockets layer (SSL) encryption and secure web address links to the survey (i.e., https:). See Appendix A for the online survey.

Qualitative prompts. Participants were told that their opinion was important in understanding how to improve suicide risk assessment in EDs and they were asked to take their time in responding to these questions. They responded to three open-ended questions at the beginning of the online survey that assessed providers' perspectives on the barriers to assessing suicide risk, preferred assessment methods, and facilitators to assessing suicide risk (see Appendix A).

Demographic and Occupational Information questionnaire. This questionnaire gathered demographic information, work experiences related to screening for suicide-

related concerns, and work experiences related to the comparable screening conditions of domestic violence and asthma.

Demographic information. To collect demographic information, participants provided their age, gender, race/ethnicity, marital status, and religious beliefs.

Additionally, participants provided information regarding their hospital of employment, position, years employed in emergency medicine, and history of experiencing a family member or friend die by suicide.

Screening for suicide-related concerns. A section of this questionnaire evaluated providers' work experiences related to assessing suicide-related concerns. To be specific, 23 items were selected from a survey used in Currier et al.'s (2012) evaluation of a brief suicide educational poster program at five EDs in New York. Providers estimated the frequency of identifying and caring for patients with suicide-related concerns on a 1 [*no experience*] to 4 [*experience with greater than 50 patients*] scale. Other items assessed providers' perceived competency in assessing suicide risk; need for additional training on suicide risk; beliefs about the value of identifying, documenting, and assessing suicide risk in ED care; and behaviors when treating patients who attempted suicide or had suicidal ideation. These items were rated on a 1 (*strongly disagree*) to 5 (*strongly agree*) scale. Currier et al. (2012) did not provide psychometric properties for this survey. This section was scored by taking the mean of the 23 items regarding screening for suicide-related concerns. Higher scores indicated more positive opinions and more experience with assessing for suicide-related concerns in the ED. Internal consistency of these 23 items was adequate (Cronbach's $\alpha = .74$). Average scores for individual items were also examined in selected analyses.

Comparable screening conditions. In order to compare ED providers' experiences and attitudes toward assessing for suicide risk with other medical and psychosocial conditions, a section of this questionnaire asked providers to respond to three questions about screening for asthma and three questions about screening for domestic violence. Asthma was used as a comparison medical condition as it is associated with frequent ED use (Adams, Smith, & Ruffin, 2000; Colman et al., 2004; Hamdan et al., 2012; Moorman, Person, & Zahran, 2013). Domestic violence served as a comparable psychosocial condition as it requires ED providers to utilize risk assessment strategies in patient care (Daugherty & Houry, 2008; Delgado et al., 2011; Houry et al., 2009; Todahl & Walters, 2011).

Participants rated the frequency in the last year they evaluated whether an ED patient's presenting complaint was related to asthma or domestic violence on a 1 (*never*) to 5 (*more than twice per week*) scale. They also rated their comfort with asking patients about asthma or domestic violence and their belief about the importance of the role they play as an ED provider in assessing each condition. The items assessing comfort and importance were each rated on a 1 (*strongly disagree*) to 5 (*strongly agree*) scale. The mean of the three asthma items and the mean of the three domestic violence items were taken to provide an average score on views about assessing for each comparison condition. Higher scores indicated more positive opinions and experience assessing for these conditions. Internal consistency for the three domestic violence items (Cronbach's $\alpha = .70$) and the three asthma items (Cronbach's $\alpha = .78$) were adequate.

Attitudes toward Suicide Prevention (ASP) scale. The ASP scale (Herron, Ticehurst, Appleby, Perry, & Cordingley, 2001) is a 14-item measure that assessed

providers' attitudes toward suicide prevention efforts. Items are rated on a five-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The measure is scored by summing the responses from each item. Higher scores represented more negative attitudes toward suicide prevention efforts (possible range = 14 – 70).

Herron et al. (2001) developed the ASP scale through individual and group interviews discussing attitudes toward suicide prevention with 36 health professionals (10 community psychiatric nurses, eight emergency medicine nurses, 12 psychiatric residents, and six primary care physicians). Herron et al. (2001) identified 28 items from these interviews and 80 psychiatrists responded to the items. A principal components analysis with the 28 items was conducted, and the authors found that 15 items had a factor loading over 0.5. One item was dropped to improve the measure's internal reliability. The 14-item ASP scale also was found to have adequate internal consistency (Cronbach's $\alpha = .77$) and good six to eight week test-retest reliability ($r = .85$) with this sample of psychiatrists. The internal consistency of the ASP scale in this study was adequate (Cronbach's $\alpha = .72$).

Knowledge on Suicide Risk Factors (KSRF) questionnaire. Given the lack of suicide knowledge questionnaires with established psychometric properties, six questions were created to assess ED providers' knowledge of suicide risk factors. The items on this measure were adapted from the risk factors presented during a brief educational poster program designed to increase providers' identification of suicide risk in ED settings (Currier et al. 2012; Suicide Prevention Resource Center, 2008). The following risk factors were presented on the posters: increase in talking about suicide, seeking lethal means, purposelessness, anxiety or agitation, insomnia, substance abuse, hopelessness,

social withdrawal, anger, recklessness, mood changes, past suicide attempts, and access to firearms. Currier et al. (2012) found that the majority (52%) of ED providers believed their knowledge about suicide risk factors improved after being exposed to the educational poster program.

As shown in Appendix A, six items represented static risk factors (i.e., personal history of suicide attempt), dynamic risk factors (i.e., substance use and medical diagnoses), suicide screening procedures (i.e., the link between screening/communication of suicidal ideation and suicide risk), and suicide risk for ED patients following discharge. The accuracy of these items was verified with the most recent data from the National Center for Injury and Violence Prevention and Control (USDHHS, 2012). Participants rated these items on a five-point Likert scale from 1 (*strongly agree*) to 5 (*strongly disagree*). The number of correct responses was calculated by counting a response of “*agree* (4)” or “*strongly agree* (5)” as correct. The KSRF questionnaire was scored by taking the average of the correct items (possible range = 0-6, higher scores indicated more questions correct). The internal consistency of the six-item KSRF questionnaire was moderate (Chronbach’s $\alpha = .60$).

Phone interview. The phone interview was a semi-structured discussion about the following topics (see Appendix B). Participants were first asked to describe their current practices to assess suicide risk, with a follow-up question to determine if their assessment varied depending if a patient presented with a psychiatric or a nonpsychiatric complaint. Next, participants were asked open-ended questions about the current and future factors that make suicide risk assessment more difficult and more feasible in EDs. In order to gather providers’ perspectives on the various methods to assess suicide risk,

more structured questions were offered. For example, the providers were asked to discuss their opinions regarding the strengths and weaknesses about different types of assessment approaches (paper-and-pencil, verbal, and computerized administrations) and the different methods in which the assessment may be integrated into ED care (waiting room, triage, and exam room). Finally, the providers were asked to state the value of assessing suicide risk for both patients and providers and were asked to provide their opinion on the compatibility of suicide risk assessment with the philosophy of emergency medical care. The semi-structured interview involved uniform questions to ensure the data would be comparable across respondents (Padgett, 2008; Patton, 2002).

Procedure

Figure 2 displays the recruitment and data collection procedures. A recruitment email (see Appendix C) was sent to a liaison at each hospital system, who then forwarded the email to all eligible ED staff. The Froedtert Hospital liaison was Stephen Hargarten, M.D., M.P.H., Professor and Chair, Department of Emergency Medicine, Medical College of Wisconsin. The ProHealth Care liaison was Mimi Pfitzinger, Interim Director of Emergency Services. Participants received three recruitment emails, sent approximately one month apart, between March 2013 and May 2013.

The recruitment email contained a link that invited the participants to complete the online survey. Upon following the survey link, participants first read a welcome message and then were directed to a page that presented the Informed Consent Form (Appendix D). Before advancing to the survey, participants were required to indicate whether or not they consented to participate. If an ED provider did not consent, he/she

exited the survey. If a participant consented to the study, he/she was allowed to begin the survey.

In order to ensure linkage of data between the online survey and the phone interview, participants generated an anonymous identification code at the beginning of the survey, based on a method developed by Schnell, Bachteler, and Reiher (2010). This code was also provided by the participant at the beginning of the phone interview. The online survey took approximately 10 to 15 minutes to complete. At the end of the online survey, the participant received a prompt (Appendix E) that provided instructions for receiving survey reimbursement and participating in the phone interview. Reimbursement for the online survey included the choice of a \$5 gift card to Amazon.com or Starbucks. Participants provided their mailing address and the gift card was mailed within 48 business hours of completing the survey. If the participant was interested in the phone interview, they also provided their preferred contact information (e.g., phone or email) in order to schedule the interview. This method allowed the participant's contact information to be separated from the data in the online survey.

The primary investigator scheduled and completed all phone interviews. All interviews were recorded using a digital voice recorder for transcription purposes. The participants first provided the self-generated identification code and then responded to the interview questions. The average time to complete the phone interview was 24.74 minutes ($SD = 6.16$, range = 13 – 39 minutes). Participants were eligible to receive an additional \$10 gift card to Amazon.com or Starbucks for completing the phone interview. Participants provided their mailing address at the end of the phone interview and their preferred gift card was mailed to them within 48 business hours of completing the phone

interview. All funding was provided by Marquette University's Department of Psychology and College of Arts and Sciences. Following the completion of the phone interviews, an undergraduate research assistant transcribed all interviews. The primary investigator verified the accuracy of the transcriptions.

Qualitative Analysis

Grounded theory analysis (Charmaz, 2006; Glaser & Strauss, 1967) was used to identify themes in the qualitative data gathered in both the online survey and the phone interview.

Coding responses on the online survey. A three-person committee, which consisted of two undergraduate students majoring in psychology and one doctoral-level graduate student (primary investigator), worked in several stages to complete the qualitative analysis of the responses gathered in the online survey. First, each committee member initially read all responses twice to gain familiarity with the data. Next, each member of the committee began an initial coding process for each prompt. Initial coding required each committee member to evaluate the data in a line-by-line fashion and to provide codes that summarized each line in the response (Charmaz, 2006). During initial coding, the team engaged in constant comparative analysis as they examined how each participant's response was similar to and different from the other responses. Each committee member was instructed to continue coding until saturation was reached. Each committee member's initial codes for each prompt were compiled and sorted in order to begin the next stage of focused coding.

Focused coding involved analyzing the initial codes to determine the most significant and/or frequent codes (Charmaz, 2006). The research committee held

videoconference meetings to discuss how to refine the initial codes for each of the three prompts. These codes were refined in subsequent meetings and a series of focused codes were compiled for each prompt. This resulted in five themes for Prompt 1 (Barriers: time burden, patient non-cooperation, limited mental health resources, limited privacy, and communication difficulty), four themes for Prompt 2 (Preferred Methods: directly asking about suicidal ideation, integrating in established care, consultation, and interpersonal process), and five themes for Prompt 3 (Facilitators: standardized protocol, collaborative care, no facilitators, privacy, and increased time).

The primary investigator wrote a Coding Manual that provided a set of instructions on how to score the responses for each theme (see Appendix F). All responses for each prompt were scored as either present, absent, or no data for each theme. The two undergraduate student committee members scored the first 15 responses in each prompt according to the Coding Manual. An initial check of their scoring was completed via an analysis of inter-rater reliability using Cohen's kappa, which determined if the degree of agreement between the two raters was higher than expected by chance (Cohen, 1960). Cohen's kappa is the most widely accepted measure of inter-rater reliability, especially when working with nominal data (Sun, 2011). Landis and Koch (1977) provided the following benchmarks for interpreting Cohen's kappa: 1.0 to .80 indicates *almost perfect* agreement, .80 to .60 indicates *substantial* agreement, .60 to .40 indicates *moderate* agreement, .40 to .20 indicates *fair* agreement, and .20 to 0 indicates *slight* agreement. More recent work suggested that a Cohen's kappa of .50 is a minimal level of acceptability for inter-rater reliability (Stemler & Tsai, 2008).

Inter-rater reliability was strong for the first 15 ratings on Prompt 1 (Cohen's kappa = .88) and Prompt 3 (.94), while it was adequate for Prompt 2 (.65). After the three-member committee held another meeting to review the Coding Manual and to discuss the discrepancy between coders, the two undergraduates proceeded to score 10 more participants for each prompt. After this verification, inter-rater reliability for the first 25 participants was strong for all three prompts (Cohen's kappa = .88 - .94). After inter-rater reliability was deemed acceptable, the remainder of the coding was split equally between the two coders. The quality of the scoring was checked on every fifteenth response after scoring was complete and inter-rater reliability remained strong (Cohen's kappa > .80).

The themes generated from the qualitative analysis were quantitized by categorizing providers based on their endorsement of a particular theme (e.g., theme not endorsed = 0, theme endorsed = 1; Sandelowski, Voils, & Knafl, 2009). After dichotomizing each theme, these groups were compared via independent samples *t*-tests on attitudes toward suicide prevention efforts, knowledge of suicide risk factors, and Demographic and Occupational Information questionnaire items. In an effort to capture a more precise examination of the relationship between the themes and providers' perspectives on suicide risk assessment practices, individual items pertaining to assessing for suicide-related concerns from the Demographic and Occupational Information questionnaire were utilized in some group comparisons as well. Specific hypotheses are set for some themes, whereas exploratory analyses also were conducted.

Coding responses on the phone interview. Grounded theory (Charmaz, 2006) was used to analyze the qualitative data gathered in the phone interviews. The process for

qualitative analysis of the phone interview responses mirrored the process for the online survey as explained above, except the primary investigator alone completed initial coding during data collection in order to identify when saturation was reached. Since the primary investigator conducted further grounded theory analyses alone, no coding manual was created for the phone interview. Hypotheses and exploratory analyses for mixed methods analyses are further explained in the Results section.

Results

Descriptive Statistics

Scale scores. The average Attitudes toward Suicide Prevention (ASP) scale score across all providers was 31.76 ($SD = 6.39$; possible range = 14 - 70). As higher scores indicated more negative attitudes toward suicide prevention efforts, ED providers' attitudes toward suicide prevention were relatively positive. ASP scores' skewness, kurtosis, linearity, and outliers were evaluated in order to examine normality, and the scale was found to be normally distributed.

The average number of correct items on the Knowledge of Suicide Risk Factors (KSRF) questionnaire was 4.36 ($SD = 1.41$; possible range = 0 - 6). As higher scores indicated more correct items, providers' knowledge of suicide risk factors was moderately high. KSRF scores' skewness, kurtosis, linearity, and outliers were evaluated in order to examine normality. The KSRF average score was negatively skewed and violated the test of normality (Kolmogorov-Smirnov, $p < .001$). However, the 5% trimmed mean was not significantly different from the average total correct (4.43 versus 4.36, respectively). Thus, outlying cases were retained on the KSRF questionnaire.

Table 3 displays the descriptive statistics for the Demographic and Occupational Information questionnaire. Providers' average scores for occupational experiences with screening conditions were the highest for asthma, followed by domestic violence, and then suicide-related concerns. All individual items on this questionnaire and the average scores for the items assessing asthma, domestic violence, and suicide-related concerns were negatively skewed (Kolmogorov-Smirnov, all p values $< .05$). However, the 5%

trimmed mean was not significantly different from the overall mean for each item (i.e., differences were less than 0.2 points) and all items were retained as a result.

Description of views toward assessing suicide and related conditions. Table 3 also displays the percentage of participants who agreed or strongly agreed (ratings = 4 or 5) with the Demographic and Occupational Information questionnaire items. Nearly all providers endorsed being comfortable asking patients about asthma, while the majority also endorsed being comfortable asking patients about domestic violence and suicidal ideation. Some of the more relevant findings were that the vast majority of providers endorsed that they played an important role in assessing if a patient's presenting complaint was related suicidal ideation, that detecting suicidal thoughts may prevent future suicide attempts, and that the ED was an important setting for identifying suicide-related concerns. Regarding training, only about 40% of providers endorsed that they had sufficient training in how to assess suicide risk. The majority of providers also endorsed that they would want additional training in how to ask patients about suicide-related concerns and how to assess suicide risk. However, approximately two-thirds of providers endorsed that they had sufficient training in how to ask patients about suicide-related concerns.

Several Demographic and Occupational Information questionnaire items assessed how providers manage patients' suicide-related concerns. Approximately 70% of providers always asked about suicide if a patient was emotionally distressed, but a minority of providers attempted to get collateral information from others if they suspected a patient attempted suicide or was thinking about suicide. Approximately 40%

of providers agreed that documentation in ED charts tends to accurately reflect whether suicide risk was assessed.

Relationships between Attitudes, Knowledge, Screening, and Demographics

As seen in Table 4, bivariate correlations were conducted to examine the relationships between the ASP scale, KSRF questionnaire, and Demographic and Occupational Information questionnaire average scores for the items related to assessing asthma, domestic violence, and suicide-related concerns. To account for possible Type I error in multiple comparisons, statistical significance was adjusted to .01 via Bonferroni correction. ASP scores were significantly negatively related to KSRF scores ($p = .004$). The average rating of the domestic violence items was significantly related to the average rating of the suicide-related concerns items ($p = .008$) and ASP scores ($p = .02$). There were no significant relationships between the Demographic and Occupational Information questionnaire items assessing suicide-related concerns and ASP scores, KSRF scores, or the Demographic and Occupational Information questionnaire items assessing items asthma (all p values $> .05$).

The relationships between the demographic variables and the ASP scale, the KSRF questionnaire, and the averages for the Demographics and Occupational Information questionnaire items assessing asthma, domestic violence, and suicide-related concerns were completed. To account for possible Type I error in multiple comparisons in this set of analyses, statistical significance was adjusted to .004 via Bonferroni correction. Age was positively related to years in emergency medicine ($r = .76, p < .001$) and negatively related to KSRF scores ($r = -.28, p = .008$). Providers' length of employment in emergency medicine was also negatively related KSRF scores ($r = -.34, p$

= .001). Non-partnered providers (single/divorced/other; $M = 5.35$, $SD = 0.93$) had significantly higher KSRF scores than partnered providers (committed relationship/married; $M = 4.10$, $SD = 1.41$; $t[46.33] = 4.67$, $p < .001$; $\eta^2 = .20$). Further analyses to determine the possible link between marital status and knowledge suggest that age and personal experience with suicide do not mediate this relationship (p values $> .05$). Males had higher ASP scores ($M = 34.39$, $SD = 5.98$) than females ($M = 30.88$, $SD = 6.32$; $t[90] = 2.33$, $p = .02$; $\eta^2 = .06$), although this was marginally significant after Bonferroni correction. There were no significant differences on ASP, KSRF, or Demographics and Occupational Information scores on comparisons of race (82 Caucasian versus 8 providers from an ethnic minority background) and religious/spiritual beliefs (80 religious/spiritual providers versus 12 non-religious/spiritual).

Relationship between Provider Comfort Assessing Suicide and Suicide-Related Variables

Two independent samples t -tests were completed to examine the relationship between providers' perceived comfort level in suicide risk assessment and their ASP and KSRF scores. Comfort level was determined by grouping providers based on their response to the Demographic and Occupational Information questionnaire item that assessed their comfort "asking patients without mental health complaints about symptoms of suicide ideation." The 71 providers who agreed or strongly agreed (ratings = 4 or 5) with this item were compared to the 20 providers who were uncertain, disagreed, or strongly disagreed (ratings = 1, 2, 3) with this item. There were no differences between these two groups in ASP ($t[90] = 1.63$, $p = .11$) or KSRF scores ($t[90] = -0.03$, $p = .98$).

Three additional independent samples t -tests were completed to explore the relationship between providers' comfort in suicide risk assessment and the Demographics

and Occupational Information questionnaire average scores for the asthma and domestic violence items and years in emergency medicine. To account for possible Type I error in multiple comparisons in this set of analyses, statistical significance was adjusted to .02 via Bonferroni correction. Providers who were more comfortable asking about suicidal ideation had worked in emergency medicine longer ($M = 12.78$, $SD = 9.13$) than the providers who were not comfortable asking about suicidal ideation ($M = 8.78$, $SD = 6.78$; $t[89] = 2.15$, $p = .03$, $\eta^2 = .05$), although this difference was marginally significant after Bonferroni correction. There were no differences between the two groups on the Demographics and Occupational Information average scores for the items assessing asthma ($t[90] = 0.81$, $p = .42$) and domestic violence ($t[90] = 0.76$, $p = .45$).

A hierarchical multiple regression assessed the ability of ASP and KSRF scores to predict providers' comfort with asking about suicidal ideation after controlling for the influence of demographic/occupational variables (see Table 5). Four demographic and occupational variables (age, years in emergency medicine, gender, and marital status) were entered in step one. Marital status was coded as 0 = non-partnered providers and 1 = partnered providers. There was a marginally significant model fit in the first step ($F[4, 83] = 2.36$, $p = .06$), explaining ten percent of the variance in comfort assessing suicidal. Marital status was the only significant predictor in step one ($p = .02$). After the entry of ASP and KSRF scores in step two, the total variance explained by the model increased to 20%. ASP and KSRF significantly explained an additional 10% of the variance in providers' comfort asking about suicidal ideation (R^2 change = .10; F change $[2, 81] = 5.09$, $p = .008$). In the final model, knowledge of suicide risk factors ($p = .01$), attitudes

toward suicide prevention ($p = .02$), and marital status ($p = .01$) were significant predictors of comfort in asking patients about suicidal ideation.

Relationship between History of Suicide in Personal Life and Suicide-Related Variables

An independent samples t -test examined the relationship between a personal history of suicide and attitudes toward suicide prevention. ASP scores were compared between individuals who endorsed experiencing suicide of a friend or family member ($n = 48$) versus those that did not endorse this history ($n = 44$). There were no significant differences between these groups in attitudes toward suicide prevention ($t[90] = -0.80, p = .43$).

Six additional independent samples t -tests were completed to explore the relationship between providers' history with suicide and their age, years in emergency medicine, knowledge of suicide risk factors, and responses related to screening for asthma, domestic violence, and suicide-related concerns. There were no significant differences between these groups in age ($t[87] = 0.31, p = .75$), years in emergency medicine ($t[89] = -0.52, p = .60$), KSRF scores ($t[90] = 0.89, p = .38$), and Demographics and Occupational Information questionnaire average scores for the asthma items ($t[76.69] = -1.22, p = .23$), domestic violence items ($t[90] = 0.09, p = .93$), or suicide-related concerns items ($t[90] = 1.06, p = .29$).

Relationship between Hospital System and Provider Type and Suicide-Related Variables

Providers from the two hospital systems were compared on their demographic variables, ASP scores, KSRF scores, and on their Demographic and Occupational Information questionnaire scores. The same analyses were also conducted for comparisons of provider type. Given sample size considerations, attending physicians and

advanced practice providers were grouped into one category ($n = 24$) while registered nurses, social work, and providers who selected “other” as their job title were grouped in another category ($n = 68$).

Comparisons on demographic variables. Several independent samples t -tests and chi-square analyses were completed to examine the relationship between hospital system and the demographic variables. To account for possible Type I error in multiple comparisons in this set of analyses, statistical significance was adjusted to .006 via Bonferroni correction. ProHealth Care providers ($M = 41.74$, $SD = 11.83$) were older than Froedtert providers ($M = 35.91$, $SD = 7.89$; $t[51.25] = 2.54$, $p = .01$; $\eta^2 = .07$). ProHealth Care providers also had more years ($M = 12.21$, $SD = 9.06$) working in emergency medicine than Froedtert providers ($M = 8.06$, $SD = 5.86$; $t[51.93] = 2.41$, $p = .02$; $\eta^2 = .06$). However, these differences were marginal after Bonferroni correction. There were no significant differences between Froedtert and ProHealth Care providers on gender ($\chi^2 [1, N = 92] = .75$, $p = .39$), marital status ($\chi^2 [1, N = 91] = .13$, $p = .72$), ethnicity ($\chi^2 [1, N = 90] = 2.57$, $p = .11$), religious/spiritual beliefs ($\chi^2 [1, N = 92] = .13$, $p = .72$) or history of experiencing a suicide in their personal life ($\chi^2 [1, N = 92] = .56$, $p = .46$).

Several independent samples t -tests and chi-square analyses were completed to examine the relationship between provider type and the demographic variables. To account for possible Type I error in multiple comparisons in this set of analyses, statistical significance also was adjusted to .006 via Bonferroni correction. Gender was significantly related to provider type, as there were more males in the attending physician/advanced practice provider group and more females in the registered nurse/social work group ($\chi^2 [1, N = 92] = 7.62$, $p = .006$; Cramer's $V = .29$). When

examining the distribution of provider type among the providers who participated from each hospital system, there were more attending physicians and advanced practice providers from Froedtert than ProHealth Care ($\chi^2[2, n = 92] = 6.48, p = .04$; Cramer's $V = .27$). Likewise, there were more nursing/social work providers who participated from the ProHealth Care system. There were no significant differences between attending physicians/advanced practice providers and registered nurses/social workers/other on marital status ($\chi^2 [1, N = 91] = 2.45, p = .12$), ethnicity ($\chi^2 [1, N = 90] = .90, p = .34$), religious/spiritual beliefs ($\chi^2 [1, N = 92] = .008, p = .92$), or history of experiencing a suicide in their personal life ($\chi^2 [1, N = 92] = .52, p = .47$). There also were no significant differences between the provider types on age ($t[87] = -.87, p = .39$) or years in emergency medicine ($t[89] = 1.62, p = .11$).

Comparisons on suicide-related and screening variables. A two-way between groups ANOVA compared hospital system and provider type on attitudes toward suicide prevention and comfort with suicide risk assessment. There were no statistically significant main effects for hospital or provider type or interactions between these groups on ASP scores or comfort asking patients about suicidal ideation (p values = .24 - .70).

Four two-way between groups ANOVAs explored the impact of hospital system and provider type on knowledge of suicide risk factors and occupational information related to assessing asthma, domestic violence, and suicide-related concerns. To account for possible Type I error in multiple comparisons in this set of analyses, statistical significance also was adjusted to .01 via Bonferroni correction. There were no statistically significant main effects for hospital or provider type or interactions between these groups on KSRF scores (p values = .20 - .61), Demographics and Occupational

Information questionnaire average scores for the items related to asthma (p values = .15 - .63), or Demographics and Occupational Information questionnaire average scores for the items related to suicide-related concerns (p values = .67 - .89).

There was a statistically significant main effect for hospital system for the Demographics and Occupational Information questionnaire domestic violence average score, ($F[1, 88] = 13.96, p < .001; \eta^2 = .14$). The effect size for this finding was strong (Tabachnick & Fidell, 2007). Tukey HSD post-hoc tests indicated that Froedtert providers ($M = 4.04, SD = 0.72$) reported higher Demographics and Occupational Information questionnaire average scores for the domestic violence items than ProHealth Care system providers ($M = 3.29, SD = 0.61$). There was no significant main effect for provider type ($F[1, 88] = 0.93, p = .34$) or interaction between hospital system or provider type for the average score on the domestic violence items ($F[1, 88] = 0.09, p = .76$).

Three independent samples t -tests were completed to further explore how Froedtert and ProHealth Care providers differed on screening for domestic violence. Froedtert providers reported significantly more frequent experience assessing for domestic violence ($t[89.85] = -5.94, p < .001; \eta^2 = .28$), stronger beliefs that they play an important role in assessing for domestic violence ($t[90] = -3.38, p = .001; \eta^2 = .11$), and more comfort assessing domestic violence ($t[90] = -2.65, p = .009; \eta^2 = .07$) than ProHealth Care providers. Figure 3 displays the means for these comparisons.

Online Survey: Qualitative and Mixed Methods Analyses

This section summarizes the qualitative results for the online survey as well as presents mixed methods analyses based on these findings. After the themes were identified in

grounded theory analysis, hypotheses were specified and tested for each theme. Table 6 displays the frequencies at which the providers endorsed each theme.

Themes for Prompt 1: Barriers. The following five themes captured providers' beliefs on the barriers to assessing suicide risk in EDs: time burden, patient non-cooperation with assessment, limited mental health resources, limited privacy, and communication difficulty.

Time burden. The most frequently endorsed (54.3%) theme for Prompt 1 represented the perspective that the time sensitive nature of emergency medical care prevents effective suicide risk assessment. For example, providers cited that they experienced pressured to reduce the duration of patient stays, that there was a lack of time for the assessment of suicide risk in the fast-paced ED setting, and that they experienced pressured to treat numerous high acuity patients simultaneously.

An independent-samples *t*-test examined whether the providers who endorsed that limited time was a barrier to assessing suicide risk had more negative attitudes toward suicide prevention than the providers who did not endorse this theme. Providers who endorsed this theme ($M = 31.22$, $SD = 6.32$) did not have different ASP scores from the providers who did not endorse this theme ($M = 32.41$, $SD = 6.49$; $t[90] = .88$, $p = .38$).

To explore other possible group differences, the providers who did and did not endorse time burden as a theme were compared via independent-samples *t*-tests on their knowledge of suicide risk factors and the mean score of the Demographic and Occupation Information questionnaire items related to assessing suicide-related concerns. There were no significant differences between these two groups on either of the subsequent dependent variables (all *p* values > .05).

Patient non-cooperation with assessment. Forty-five percent of ED providers' responses represented the perspective that patients' cooperation with suicide risk assessment greatly impacts the likelihood of obtaining an accurate risk assessment. Specifically, their responses indicated multiple reasons, unintentional and intentional, for patients to not cooperate with suicide risk assessment. Unintentional non-cooperation included issues that would make a patient too unstable to participate in suicide risk assessment (intoxication, psychosis, acute medical illness) or cultural issues that prevented the expression of suicide risk. Intentional non-cooperation included patient refusal to answer suicide risk assessment questions and patients who alter their response to either intentionally avoid or obtain psychiatric/medical hospitalization for secondary gains.

Independent-samples *t*-tests examined whether the providers who endorsed that patient non-cooperation was a barrier to suicide risk assessment would have differences in their assessment and management of suicide-related concerns versus providers who did not endorse this theme. Providers endorsing the patient non-cooperation theme would likely alter their practice approach to discount patient self-report of suicide risk. For example, it was hypothesized that the providers who endorsed this theme would be more likely to use guides to assess and manage suicide risk or they would engage more in consultation with the patient's family or close friends in order to get information. Comparison of these two groups yielded no significant differences on the above variables (all *p* values > .05).

To explore other possible group differences, the providers who did and did not endorse patient non-cooperation as a theme were compared via independent-samples *t*-

tests on attitudes toward suicide prevention efforts, knowledge of suicide risk factors, and the mean score of the Demographic and Occupation Information questionnaire items related to assessing suicide-related concerns. There were no significant differences between these two groups on any of the subsequent dependent variables (all p values > .05).

Limited mental health resources. Approximately forty percent of providers' responses reflected the notion that a shortage of mental health resources prohibited effective suicide risk assessment practices. This included not having access to a standardized method to assess suicide risk, limited access to psychiatric/psychological consultation, or not having existing ED staff to assess suicide risk. Responses also identified that there is a lack of mental health knowledge and training in how to assess suicide risk among ED providers, such that they would prefer a mental health specialist to provide this service. This theme also included feeling that there were limited mental health resources to appropriately manage suicide risk once it was identified. For example, providers who endorsed this theme stated that there were poor mental health follow-up options available to patients once discharged from the ED and limited psychiatric bed availability for patients who required psychiatric hospitalization.

Independent-samples t -tests examined whether the providers who endorsed limited mental health resources as a barrier to assessing for suicide risk would endorse more experience in working with ED patients with suicide-related concerns, and thus would have increased awareness of patients' mental health needs. This was examined by comparing providers who endorsed this theme versus those who did not via independent samples t -tests on career experiences in providing care to patients with suicide-related

concerns and their perceived ability to identify suicidal ideation in ED patients. Providers who endorsed limited mental health resources as a barrier were more likely to have suspected a patient's presenting complaint was related to a suicide attempt ($M = 3.76$, $SD = 0.43$) versus providers who did not endorse this theme ($M = 3.40$, $SD = 0.66$; $t[89.58] = -3.13$, $p = .002$). Providers who endorsed limited mental health resources were also more likely to have suspected a patient's presenting complaint was more likely to be related to a suicidal ideation ($M = 3.70$, $SD = 0.52$) versus providers who did not endorse this theme ($M = 3.33$, $SD = 0.75$; $t[88.98] = -2.77$, $p = .007$).

To explore other possible group differences, these two provider groups were compared via independent-samples t -tests on attitudes toward suicide prevention efforts, knowledge of suicide risk factors, and the mean score of the Demographic and Occupation Information questionnaire items related to assessing suicide-related concerns. There were no significant differences between these two groups on any of the subsequent dependent variables (all p values $> .05$).

Limited privacy. Approximately 30% of providers' responses reflected the idea that patients are more reserved in responding to suicide risk assessment questions when their family or friends are present for the assessment. The responses indicated that the ED setting tends to include family members in the care and thus, caregiver/family presence prevents accurate assessment of suicide risk. This also included the notion that the patient may be asked the same questions multiple times in ED care, including questions related to suicidal ideation, which may cause patients to feel exposed or vulnerable.

Independent-samples t -tests examined whether the providers who endorsed limited privacy as a barrier to assessing suicide risk would also report more

dissatisfaction in the way suicide risk is assessed in their ED. Thus, it was expected that providers who endorsed this theme would have lower ratings on the Demographic and Occupational Information questionnaire item assessing their belief that their ED has a “very good protocol” for managing suicidal patients and would have more negative attitudes toward suicide prevention efforts than providers who did not endorse this theme. There were no significant differences between these groups on their belief regarding the quality of their ED’s protocol or ASP scores (p value $> .05$).

To explore other possible group differences, the providers who did and did not endorse limited privacy as a barrier were compared on knowledge of suicide risk factors and the mean score of the Demographic and Occupation Information questionnaire items related to assessing suicide-related concerns. There were no significant differences between these two groups on either of the subsequent dependent variables (all p values $> .05$).

Communication difficulty. Approximately 14% of providers’ responses reflected the notion that suicide risk assessment is challenging due to difficulty communicating with other individuals involved in ED care. Specifically, providers found it difficult to communicate a patient’s suicide risk accurately and in a timely way to other providers. This also involved difficulty communicating in multiple modes of communication (i.e., verbal and written format) and between multiple sources. The sources included patients, other ED providers, family members, or police officers.

An independent-samples t -test examined whether the providers who endorsed communication difficulty as a barrier to assessing suicide risk would be more frustrated with workplace factors related to suicide risk assessment than providers who did not

endorse this theme. Thus, providers who endorsed this theme were expected to have lower ratings on the Demographic and Occupational Information questionnaire item assessing providers' beliefs that their ED has a "very good protocol" for managing suicidal patients and would have more negative attitudes toward suicide prevention efforts. There were no significant differences between these groups on their belief regarding the quality of their ED's protocol or ASP scores (all p values $> .05$).

To explore other possible group differences, these two provider groups were compared on knowledge of suicide risk factors and the mean score of the Demographic and Occupation Information questionnaire items related to assessing suicide-related concerns. There were no significant differences between these two groups on either of the subsequent dependent variables (all p values $> .05$).

Themes for Prompt 2: Preferred methods. The following four themes captured providers' perspectives on the preferred methods to assess suicide risk: directly asking about suicidal ideation, integrating in established care, consultation, and interpersonal assessment.

Directly asking about suicide. Approximately 50% of providers stated that directly asking a patient about suicidal ideation is a preferred assessment method. If the patient endorses suicidal ideation, further questions related to the presence of a plan or access to means to die by suicide may be asked of the patient. These follow-up questions to assess patients' suicide risk may also include asking a patient about the factors that may prevent suicide.

Mixed methods analyses related to this theme were exploratory. There were no significant differences between the providers who endorsed directly asking about suicide

and those who did not on attitudes toward suicide prevention efforts, knowledge of suicide risk factors, and the mean score of the Demographic and Occupation Information questionnaire items related to assessing suicide-related concerns (all p values $> .05$).

Integrating in established care. Approximately 40% of providers stated that integrating suicide risk assessment into the care they already provide is a preferred method to assess suicide risk. This included integrating the risk assessment process into the history and physical interview or in triage. This also included providers' perspectives that the integration of this practice should be a set of standard questions that is a part of routine care.

Independent-samples t -tests examined whether the providers who stated that integrating assessment into established care theme was a preferred assessment method would have less negative attitudes toward suicide prevention and would be more likely to recognize the value of identifying suicide risk in ED patients than the providers who did not endorse this theme. The latter hypothesis was assessed by evaluating providers' ratings on the Demographic and Occupational Information questionnaire items that assessed their beliefs regarding the importance of identifying suicide risk in ED patients and beliefs that identifying suicide risk in ED patients has the possibility to reduce suicide attempts. Providers who endorsed this theme had higher ratings on the belief that identifying suicidal ideation in ED patients could help reduce future suicide attempts ($M = 4.33$, $SD = 0.76$) versus providers who did not endorse this theme ($M = 3.88$, $SD = 0.97$; $t[90] = -2.40$, $p = .01$). However, these groups did not differ on their views on the importance of identifying suicide risk in ED patients ($t[90] = 0.96$, $p = .38$) or their attitudes toward suicide prevention efforts ($t[90] = 0.95$, $p = .35$).

To explore other possible group differences, the providers who stated that integrating assessment into established care theme was a preferred assessment method versus those that did not were compared on knowledge of suicide risk factors and the mean score of the Demographic and Occupation Information questionnaire items related to assessing suicide-related concerns. There were no significant differences between these two groups on either of the subsequent dependent variables (all p values $> .05$).

Consultation. Approximately 20% of providers' responses reflected the idea that providers prefer to seek out and utilize information from others in the ED as a suicide risk assessment technique. The providers listed a variety of sources for consultation, such as a patient's family member(s), police officers, social workers, other health care providers in the ED, or mental health specialists. Providers typically used consultation approaches to gather outside information in order to corroborate the patient's history of his/her present illness or to get information if a patient is not cooperative with the interview process. This also included utilizing information from the patient's electronic medical record.

Independent-samples t -tests examined whether the providers who endorsed consultation as a preferred suicide risk assessment method would endorse less negative attitudes toward suicide prevention and would have higher ratings on the Demographic and Occupation Information questionnaire items pertaining to involving a patient's family or friends to gather collateral information than providers who did not endorse this theme. Comparison of these two groups via independent samples t -tests yielded no significant difference on the above items related to practice of suicide-related concerns (all p values $> .05$).

To explore other possible group differences, providers who endorsed consultation versus those that did not were compared on knowledge of suicide risk factors and the mean score of the Demographic and Occupation Information questionnaire items related to assessing suicide-related concerns. There were no significant differences between these two groups on either of the subsequent dependent variables (all p values $> .05$).

Interpersonal assessment. Approximately 20% of providers indicated that attending to a patient's nonverbal cues was a helpful suicide risk assessment strategy. This included establishing eye contact, using nonjudgmental tone and language, or ensuring privacy for the conversation about suicide risk assessment. These approaches aided in building rapport and establishing a connection with a patient in the hopes that he/she would become more forthcoming if a therapeutic relationship existed. This theme also included responses related to an ED provider using their observation of a patient's nonverbal cues to inform the accuracy of their assessment (i.e., "clinical intuition").

Independent-samples t -tests examined whether the providers who endorsed interpersonal assessment as a preferred method to assess suicide risk would endorse more experience assessing suicide-related concerns in EDs, would endorse higher ratings of comfort in asking patients about suicidal ideation, and would endorse higher ratings of confidence in their ability to detect underlying suicidal ideation in ED patients. There were no significant differences between providers who endorsed interpersonal assessment versus those who did not on the hypothesized dependent variables as well as on attitudes toward suicide prevention efforts, knowledge of suicide risk factors, and the mean score of the Demographic and Occupation Information questionnaire items related to assessing suicide-related concerns (all p values $> .05$).

Themes for Prompt 3: Facilitators. The following five themes captured providers' perspectives on the factors that facilitate suicide risk assessment in EDs: standard protocol, collaborative care, no facilitators, privacy, and increased time.

Standard protocol. Forty-seven percent of providers' responses reflected the notion that a standardized protocol would facilitate suicide risk assessment in EDs, making this the mostly commonly cited theme in this prompt. This included having suicide risk assessment questions built into established clinical procedures, such as asking about suicide risk in triage or in the initial assessment of the present illness. This theme also included provider beliefs that these suicide risk assessment questions should be physically integrated into their workplace materials, such as in their charting templates in the electronic medical record.

Mixed methods analyses related to this theme were exploratory. There were no significant differences between the providers who stated that a standardized protocol would facilitate suicide risk assessment and providers who did not endorse this theme on attitudes toward suicide prevention efforts, knowledge of suicide risk factors, and the mean score of the Demographic and Occupation Information questionnaire items related to assessing suicide-related concerns (all p values $> .05$).

Collaborative care. Forty-six percent of providers' responses reflected the theme that utilizing a collaborative care approach facilitates suicide risk assessment in an ED. This collaborative approach included using other co-workers in the ED, such as nurses, support staff, security officers, or social workers to directly assist in suicide risk assessment practices. This also included placing referrals for mental health consultation

in order to determine a patient's level of suicide risk and disposition. Finally, this theme involved accessing information from the medical records to provide comprehensive care.

Independent-samples *t*-tests examined whether the providers who endorsed collaborative care as a facilitator to suicide risk assessment would endorse less negative attitudes toward suicide prevention and would have higher ratings on the Demographic and Occupation Information questionnaire items pertaining to involving a patient's family or friends in gathering collateral information than providers who did not endorse this theme. Comparison of these two groups via independent samples *t*-tests yielded no significant differences between the groups on the above items related to practice of suicide-related concerns (all *p* values > .05).

To explore other possible group differences, providers who endorsed the collaborative care theme versus those who did not were compared on attitudes toward suicide prevention efforts, knowledge of suicide risk factors, and the mean score of the Demographic and Occupation Information questionnaire items related to assessing suicide-related concerns. There were no significant differences between these groups on any of the subsequent dependent variables (all *p* values > .05).

No facilitators. Approximately 10% of providers' responses reflected that they could not think of any workplace factors or tools that assist them when assessing suicide risk. Independent-samples *t*-tests examined whether the providers who could not identify any facilitator to suicide risk assessment in EDs would have lower ratings on the average score on occupational experiences related to assessing suicide risk. It was also expected that the providers who endorsed this theme would have less experience assessing suicide-related concerns in EDs, would have higher ratings of comfort/confidence in assessing

suicide-related concerns, and would have higher ratings related to the belief that their ED has a “very good” protocol to manage patient’s suicide-related concerns versus providers who did not identify this theme.

Providers who endorsed this theme had lower means score of the Demographic and Occupation Information questionnaire items related to assessing suicide-related concerns ($M = 2.98$, $SD = 0.34$) versus providers who did not endorse this theme ($M = 3.35$, $SD = 0.37$; $t[87] = 2.83$, $p = .006$). Additionally, providers who endorsed that there were no known facilitators to suicide risk assessment in EDs had lower ratings on confidence to detect underlying suicidal ideation ($M = 2.78$, $SD = 0.83$) versus providers who did not endorse this theme ($M = 3.66$, $SD = 0.87$; $t[87] = 2.91$, $p = .005$).

Comparison of these two groups via independent samples t -tests yielded no significant difference on beliefs about the quality about their ED’s protocol, career or recent history with assessing suicide risk, or comfort in asking patients about suicidal ideation.

Additionally, these groups did not differ on attitudes toward suicide prevention efforts or knowledge of suicide risk factors (all p values $> .05$). However, the discrepancy in number of providers who endorsed this theme ($n = 9$) and those who did not ($n = 80$) likely limited the potential for finding significant differences in the between-groups comparisons.

Privacy. This theme represented ED providers’ perspective that patients tend to be more open in responding to suicide risk assessment questions when family or friends are absent for the assessment. Approximately 9% of providers endorsed this theme. These providers stated that they have had negative experiences assessing for suicide risk while a

patient's family member(s)/friend(s) were present, as it prevented the patient from honestly responding to the suicide risk assessment questions.

Independent-samples *t*-tests examined whether the providers who endorsed privacy as a facilitator to suicide risk assessment would have lower ratings pertaining to involving a patient's family or friends in gathering collateral information. There were no significant differences between the providers who endorsed this theme and those who did not on involving family or friends in a patient's care when assessing for suicide risk. Additionally, these two groups did not differ on attitudes toward suicide prevention efforts, knowledge of suicide risk factors, and the means score of the Demographic and Occupation Information questionnaire items related to assessing suicide-related concerns (all *p* values > .05). Given the discrepancy in number of providers who endorsed this theme (*n* = 8) and those who did not (*n* = 81), the likelihood of finding significant differences in the between-groups comparisons was limited.

Increased time. This theme represented the perspective that having more time to spend with each patient would aid in assessing suicide risk in EDs. As effective suicide risk assessment practices involve follow-up questioning and referral to appropriate treatment if suicide risk is identified, assessing for suicide risk can be time consuming. Thus, this theme reflected the notion that if providers had more time with an individual patient, they could more effectively engage in suicide risk assessment practices. However, only 7.6% of providers endorsed this theme.

Independent-samples *t*-tests examined whether the individuals who endorsed increased time as a facilitator to assessing suicide risk in EDs would have less negative attitudes toward suicide prevention than the providers who did not endorse this theme.

There were no differences between the provider groups on attitudes toward suicide prevention efforts ($p > .05$).

To explore other possible group differences, providers who endorsed the theme of increased time as a facilitator of suicide risk assessment were compared to those who did not endorse this theme on knowledge of suicide risk factors and the mean score of the Demographic and Occupation Information questionnaire items related to assessing suicide-related concerns. There were no significant differences between these groups on any of the subsequent dependent variables (all p values $> .05$). Given the discrepancy in number of providers who endorsed this theme ($n = 7$) and those who did not ($n = 82$), the likelihood of finding significant differences in the between-groups comparisons was limited.

Phone Interview: Qualitative Analysis

To gather more information about ED providers' perspectives on integrating suicide risk assessment into EDs, the following five topics were assessed in further detail: 1) description of current practices; 2) barriers to suicide risk assessment in EDs; 3) facilitators of suicide risk assessment in EDs; 4) perspectives on suicide risk assessment methods; and 5) attitudes toward integrating suicide risk assessment into ED care. The participants' responses were analyzed via a grounded theory approach and are further described next.

Description of current practices. The phone interview began by asking providers to describe their typical method to assess suicide risk. Analysis of responses revealed the following three themes: mandated screening, security precautions, and differences between the suicide risk assessment with psychiatric patients. Figure 4

displays the percentage of providers from each hospital system who endorsed these themes. Providers from Froedtert and ProHealth Care Hospitals endorsed these themes at similar rates (chi-square analyses all p values $> .05$).

Mandated screening. All 19 providers stated that their practice involved screening for suicide-related concerns with all patients. Providers' responses included the belief that they are mandated to ask patients about suicidal ideation per workplace or government regulations. All providers noted that suicide risk assessment occurs with every patient regardless of their presenting problem. The following quote illustrates this theme:

The first thing that we do is ask the typical screening questions, the screening questions that are not only provided in Epic but are mandated by the, I believe it's the federal government, that say "Do you want to kill yourself or anyone else?"

Security precautions. Approximately 43% ($n = 8$) of all responses included the idea that if a patient was identified to be at risk for suicide, then a safety protocol was enacted to prevent the patient from harming him/herself in the ED. The following quotation is an example of such precautions: "We have a whole policy where I have the patient undress down to their underwear, we bag their belongings, and security then sits with them."

Differences in assessment for nonpsychiatric and psychiatric patients. The majority of all providers (78.9%, $n = 15$) reported that the mandated screening procedure did not differ if the participant presented with a psychiatric or a nonpsychiatric complaint. However, a subset of providers (21.2%, $n = 4$) stated that they would ask psychiatric patients more detailed suicide risk assessment questions.

Barriers to suicide risk assessment in EDs. Providers were asked to describe the current and future barriers to integrating suicide risk assessment in ED care.

Current barriers. Four themes reflected providers' views on the current factors that make assessing suicide risk in EDs difficult: patient non-cooperation with assessment, time burden, limited mental health resources, and privacy. Chi-square analyses revealed that there was no relationship between workplace and rate of endorsing any of these themes (all p values $> .05$). Figure 5 displays the percentage of providers from each hospital system who endorsed these themes.

Patient non-cooperation with assessment. Approximately half of providers' responses (52.6%, $n = 10$) reflected the notion that patient non-cooperation with suicide risk assessment practices was a barrier to integrating this practice in EDs. Responses included multiple reasons, both unintentional and intentional, for patients failing to give accurate or honest responses to suicide risk assessment questions. Unintentional non-cooperation included cultural barriers to expressing suicide risk, intoxication, acute psychosis, or medical problems preventing participation in suicide risk assessment. This quotation provided an example of how cultural issues in the expression of mental health could act as an unintentional way a patient may not cooperate with assessment: "Mental illness is not really a thing that like the Hispanic community will address." Intentional non-cooperation included patient refusal to answer suicide risk assessment questions or intentional alteration of responses to suicide risk assessment questions to either avoid or become hospitalized for secondary gains. One provider's response illustrated intentional non-cooperation:

What makes it difficult is that there are very very cold days and very very hot days in Wisconsin, when a patient doesn't have a place to stay and the Salvation Army is full some of our patients know that if they say they're suicidal, they'll be admitted.

Time burden. Approximately 42% ($n = 8$) of providers' responses identified the fast-paced, overcrowded ED environment as a barrier to engaging in effective suicide risk assessment. This included statements that conveyed feeling overwhelmed by the time pressure associated with treating a high number of patients at once, feeling pressured to reduce the duration of patient stays, and feeling that there is a minimal time built into ED care for assessing suicide risk. All of these factors converge to prevent a provider from spending adequate time with the patient, as cited below:

I really think it comes down to time ... we should be asking everyone about suicide risk, but if they're having like a heart attack or they're seriously ill, I'm obviously, I usually don't ask those questions to be honest.

Privacy. Approximately 37% ($n = 7$) of providers' responses included the belief that patients tend to be more reserved in responding to suicide risk assessment when their family or friends are present for the assessment. A quote from one provider reflected this idea: "I did have one person though and I was asking them and she just looked at me and she said you know it'd be better if you wouldn't ask that in front of him, her husband."

Another provider's response also illustrates impact of limited privacy in suicide risk assessment:

I think that we are very quick to allow family members to accompany patients ... I do believe that people are then more hesitant if they know their family member, their visitor, their whoever, is outside the room to waiting come in. I think they are very nonchalant about it or they don't offer truthful information.

Limited mental health resources. Approximately one-third of providers' responses (31.6%, $n = 6$) mentioned how the presence of limited mental health resources prevented effective assessment of suicide risk. This included not having access to a standardized method to assess suicide risk, limited access to psychiatric/psychological consultation, or

not having built-in staff to provide this service in the ED. This theme is illustrated in this quotation:

There's no questionnaire ... sometimes it's as simple as do you want to hurt yourself ... I've heard doctors asking patients questions when I've been in the room and they say 'You don't want to hurt yourself, do you?' and the patient's like 'No' and then I go over and they say yes they do.

Providers' responses also included the notion that there is a lack of knowledge in how to assess suicide risk among ED providers, such that they prefer a mental health specialist to provide this service. There also tend to be few, if any, in-house mental health specialists who can provide assistance with suicide risk assessment. This provider's quotation illustrates this issue:

Due to economic reasons, we've lost many of our experienced counselors...I think the newer counselors are less expensive, for lack of a better way to say it, and these new assessment counselors, they have very little experience. They're fresh out of school ... due to budget restraints I think we're losing some of our experienced people.

Additionally, providers also reported that limited mental health follow-up care (inpatient and outpatient services) acts as a barrier to appropriately managing suicide risk once it is identified.

Future barriers. Two themes reflected providers' views on anticipated future factors that could be barriers to assessing suicide risk in EDs: reduced resources in emergency medicine and reduced resources in mental health. Chi-square analyses revealed that there was no relationship between hospital and rate of endorsing either of these themes (all p values $> .05$). Figure 5 displays the percentage of providers from each hospital who endorsed these themes.

Reductions in ED resources. The majority of providers' responses (63.2%, $n = 12$) reflected the belief that future reductions in resources to EDs would prevent them

from being able to effectively assess suicide risk. This included possible budget constraints, which could cause EDs to become understaffed. Responses also included anticipation of an emphasis on shorter visits and more productivity in the future, thus having to provide more patient care with less time and resources. One provider's response illustrates this theme:

Shorter staffing, longer wait times are going to deter somebody that needs to be there for help, that just comes in for help and has to sit in the waiting room for eight hours, six hours, five hours, is also going to be deterred ... I think that ERs are getting busier and primary doctors are turfing a lot of problems to ERs that don't have the resources either.

Reductions in mental health resources. Forty-two percent ($n = 8$) of providers' responses reflected the belief that fewer resources in the mental health care system would prevent suicide risk assessment from being completed in EDs. This included reductions in mental health resources in the ED, such as decreasing or eliminating positions (i.e., social work) for providers who can help identify and manage suicide-related concerns. Responses also mentioned that continued reductions in outpatient and inpatient psychiatric referrals are possible future barriers, as discussed here:

The mental health complex itself is moving toward putting people back in the community. These are complicated patients that sometimes have multiple diagnoses and so I think we're just going to have an increase ... of what we can't place.

Additionally, future reductions in mental health resources were interconnected with future reductions in emergency medicine resources, as illustrated in this provider's statement:

The pure burden of time and the time crunch, since our EDs are getting more and more overloaded ... I think providers see assessing for mental health problems as kind of a burden, especially I think when we don't have any resources to provide them if they do screen positive. Unless like someone's actively suicidal and then I can give them emergency detention, but I feel like it's often really hard to do anything else for them.

Facilitators to suicide risk assessment in EDs. Patients were asked to describe the current and future factors that facilitate integrating suicide risk assessment in ED care.

Current facilitators. Two themes reflected providers' views on the current factors that facilitate suicide risk assessment in EDs: interpersonal assessment and collaboration/consultation. There was a significant association between hospital system and the interpersonal assessment theme, with more providers from Froedtert endorsing this theme than ProHealth Care providers ($\chi^2[1, n = 19] = 3.97, p = .04$). Figure 6 displays the percentage of providers from each hospital system who endorsed these themes.

Interpersonal assessment. The majority of providers' responses (73.7%, $n = 14$) reflected a process of using nonverbal cues to build rapport and establish a connection with a patient in the hopes that he/she would become more forthcoming if a therapeutic relationship existed. This included establishing eye contact, using a nonjudgmental tone and language, or ensuring privacy for the suicide risk assessment. This also included responses where a provider used his/her observation of a patient's nonverbal cues to inform their assessment of suicide risk (i.e., clinical intuition). One provider illustrates how nonverbal cues can inform assessment:

I look for things like eye contact, like anger... not only having to ask those screening questions kinds of opens a door, so I think that's a help ... but also knowing the subtle cues associated with some people.

Collaboration/Consultation. A little over one-third of providers' responses (36.8%, $n = 7$) incorporated notions of seeking out and utilizing information from others in the ED to assist suicide risk assessment. Providers mentioned collaborating or consulting with various other sources, which included the patient's family, police officers, social workers, other ED providers, or mental health specialists. Providers reported that it is helpful to corroborate the patient's history of his/her present illness or

to get information from others if a patient is not cooperative with assessment. This also involved the provider seeking out and utilizing information from the patient's electronic medical record to assist the suicide risk assessment process. One provider's statement illustrates how he/she utilizes several resources to assess suicide risk:

Knowing I can call social work and they have a little more time with patients ... I think the electronic medical records help also. Because that history is there and can kind of clue you in if you need to spend a little more time asking patients questions about suicide risk.

Future facilitators. Three themes reflected providers' views on the factors that could increase the ease of suicide risk assessment in EDs in the future: increased mental health resources, increased ED resources, and improved integration of assessment in practice. Chi-square analyses revealed that there was no relationship between workplace and rate of endorsing any of these themes (all p values $> .05$). Figure 6 displays the percentage of providers from each hospital system who endorsed these themes.

Increased mental health resources. The majority of ED providers' responses (68.4%, $n = 13$) identified that increased resources for mental health services, both within and outside of ED care, would improve suicide risk assessment practices. Increased mental health resources within ED care included increased training for suicide-related concerns among staff and easier access to psychiatric consultants, as illustrated by the following quotation:

More education on assessing ... you ask them those standard questions but I don't think they apply to all patients and I don't think all patients want to answer them that way so more education or different formatting of questions.

Providers' responses included a call for more mental health resources outside of ED care. Specifically, providers noted that having more referral options to inpatient and outpatient

psychiatric care would improve their suicide risk assessment practice. This sentiment is illustrated below:

Having more resources available to an ER setting, because not all of these people are going to get admitted ... doctors being able to write a referral that someone will actually see or the clinics that we can give them referrals to.

Increased ED resources. The majority of ED providers' responses (57.9%, $n = 11$) also identified that increasing the resources available to EDs would improve their ability to effectively assess suicide-related concerns. For example, providers stated that increasing ED financial resources, increasing time to provide patient care, and having more staff available during a shift would assist in integrating suicide risk assessment in EDs. One provider's response illustrated the benefit of increased patient-to-staff ratios:

Maybe even more staff, sometimes I have five referrals at once and I'm like 'Oh my gosh I have so many patients to chart' ... I think we've all had those moments where we've had our fingers crossed making that judgment call.

Improved integration. Approximately 30% ($n = 6$) of providers' responses noted that they would find suicide risk assessment more manageable if this practice was better integrated into their work duties. This would be possible through physical cues or reminders to ask patients about suicide-related concerns. One provider suggested integrating suicide risk assessment questions in the electronic medical record, as stated below:

If there is a checkbox that says ... 'Did you screen this patient for suicide risk?' or 'Do you feel that this patient is at suicide risk?' I think it would remind me after I see that box empty a couple times, say 'Oh crap, I keep forgetting to ask my patients that question' and it would trigger me to remember.

Perspectives on suicide risk assessment methods. Providers described their perspectives on preferred assessment methods and tools, approaches to administering tools, and approaches to integrating suicide risk assessment in ED care. Figures 7 and 8

display the percentage of providers from each hospital who endorsed the themes related to approaches to administration of tools and integration of suicide risk assessment in EDs, respectively. Providers from Froedtert and ProHealth Care Hospitals endorsed all themes in this section at similar rates (all chi-square analyses p values $> .05$).

Preferred assessment methods and tools. The majority of providers' responses (89.5%, $n = 17$) indicated that their preferred method to assess suicide risk was through a verbal interview. A minority of providers' responses (10.5%, $n = 2$) also indicated that they preferred to obtain historical information about the patient from previous records. All of the responses ($n = 19$) indicated that providers do not use any tools to assess suicide risk. The themes of the verbal interview and having no tools for risk assessment are illustrated in this quotation:

We just go through those questions in Epic kind of like robots because we know we have to do them. I think in the back of the nurse's minds you hope that your patient doesn't say they're suicidal because again we really don't have a clear-cut assessment tool.

Approach to administration. Providers described their perspectives on the strengths and weaknesses regarding the following methods to administer a suicide risk assessment tool.

Paper-and-pencil administration. Regarding the strengths of a paper-and-pencil administration, the majority of providers' responses (63.2%, $n = 12$) reflected the idea that patients would potentially be more likely to endorse suicidal ideation through writing as it is a minimally invasive way to collect such data. For example, one provider stated that patients may "feel less intimidated writing" about their suicidal ideation than with other modes of assessing suicidal ideation. Approximately 20% ($n = 4$) of providers' responses included privacy as a strength, as this administration method would be a good

way to assess suicidal ideation while a patient's family members/friends may be in the room. However, providers' responses noted significant weaknesses to the paper-and-pencil approach. The majority of responses (52.6%, $n = 10$) included possible illiteracy of patients as a weakness of this approach. Additionally, approximately 40% of providers ($n = 8$) stated that patients would not cooperate with completing a paper-and-pencil questionnaire.

Verbal administration. The majority of providers' responses (63.2%, $n = 12$) reflected that the ability to integrate an interpersonal process when verbally administering a suicide risk assessment tool as a strength of this approach. Similar to the interpersonal assessment theme listed in the previous section, this included the ability to build rapport via nonverbal cues using observation of a patient's nonverbal cues to inform their assessment of suicide risk. Conversely, a majority of providers (52.6%, $n = 10$) also noted that a weakness of verbally administering a tool is the possibility that a provider who was not skillful in using positive non-verbal approaches would convey judgment during an administration. For example, one provider stated this approach "depends on the personality of the interviewer, you have to ask in a sensitive way so they can be honest with you."

Computerized administration. Regarding the strengths of a computerized administration, providers' responses indicated that this approach included efficiency (31.6%, $n = 6$) and the possibility for integration into the electronic medical record (26.3%, $n = 5$). However, the majority of providers' responses (68.4%, $n = 13$) reflected that potential computer illiteracy, particularly with older adults, would be a significant weakness of this approach. Additionally, the majority of providers listed various logical

drawbacks (57.9%, $n = 11$), such as the expense of the equipment needed to administer the tool or the sanitization of equipment with each use, as another weakness to this method of administration.

Approach to integration. Providers described their perspectives on the strengths and weaknesses regarding various methods to integrate suicide risk assessment into ED care.

Integrating assessment in the waiting room. Regarding the strengths of integrating suicide risk assessment while patients are in the waiting room, providers' responses indicated that early detection (31.6%, $n = 6$) was a potential strength. For example, one provider stated that this approach would allow the providers to "act on the concern immediately if identified." However, providers' responses (47.4%, $n = 9$) more commonly included that the lack of privacy in this approach was a weakness.

Integrating assessment in triage. Regarding the strengths of integrating suicide risk assessment into triage, the majority of providers' responses indicated that early detection (57.9%, $n = 11$) was a potential strength of this approach. However, providers' responses (47.4%, $n = 9$) also indicated that a weakness of assessing suicide risk in this portion of ED care may distract from allowing the triage nursing staff to quickly determine the level of care the patient needs. In addition, as triage is not identified as a place to manage suicide risk, providers noted that identifying suicide risk would "slow down the process of triage assessment."

Integrating assessment in the exam room. Regarding the strengths of integrating suicide risk assessment in the ED exam room, the majority of providers' responses (52.6%, $n = 10$) indicated that this setting allowed for privacy. The majority of providers'

responses also indicated that this integration method would be a good use of ED resources (57.9%, $n = 11$). For example, one provider stated that assessing suicide risk in the exam room would be positive as it is a “controlled setting” and it would be more useful to assess suicide risk while the patient was “waiting for the doctor.” However, some providers’ responses (36.8%, $n = 7$) indicated that it would be inefficient to detect suicidal ideation that late in ED care, which would prevent early mobilization of the resources necessary to further assess and manage suicide risk.

Attitudes toward integrating suicide risk assessment in clinical practice.

Providers’ provided their opinions on the value of integrating suicide risk assessment for providers, the value for patients, and the compatibility of the practice with the philosophy of emergency medicine. Responses for each of these questions were rated as negative (= -1), neutral (= 0), or positive (= 1). There was no relationship between providers’ hospital of employment and their responses to these questions; (all t -tests p values $> .05$). Figure 9 displays the percentage of providers from each hospital who endorsed these themes.

Value for providers. The majority (73.7%, $n = 14$) of providers’ responses included a positive sentiment toward suicide risk assessment being of value for providers. Such responses included the belief that the practice helped providers achieve their mission at work. For example, one provider stated: “It’s our goal at least to keep patients safe and healthy and if a patient is at risk and needs further psychiatric care, it is our job to identify it.” Three providers’ responses (15.8%) were ambivalent about the value of suicide risk assessment for providers. The ambivalent responses included statements that it can be associated with negative consequences, such as preventing the provider from being fully available to other patients with life-threatening illness/injury. For example,

one provider indicated that “minimal assessment for nursing is useful and valuable. I think a thorough and detailed exam is unnecessary and potentially harmful.” Finally, two providers’ responses (10.5%) stated that suicide risk assessment practice was not beneficial to providers; rather, the practice solely benefitted patients.

Value for patients. The majority of the providers’ responses included a positive sentiment toward suicide risk assessment being of value for patients (78.9%, $n = 15$) while only four providers’ statements (21.1%) reflected a neutral stance toward the practice. The value for patients included being able to prevent self-harm or needless suicide deaths as well as possible ED recidivism. For example, one provider stated: “we want to keep patients safe, we want to prevent return visits to the ER, and death, and I mean if we could prevent that it’d be valuable for patients.” Providers’ responses also included the notion that the ED may be one of the only outlets for patients to bring up thoughts related to suicide. The neutral responses acknowledged the possible benefit to patients, but included thoughts that there were drawbacks for ED care by integrating this practice. For example, one provider stated “It’s possible [it’s valuable]... Do I think everybody should be asked about their suicidal risk? I don’t because we’re not really a primary care.”

Compatibility with philosophy of emergency medicine. The majority of the providers’ responses (73.7%, $n = 14$) stated that suicide risk assessment was compatible with the philosophy of emergency medicine. These providers tended to view suicide as an imminent potential cause of death that was as important to treat in an ED as a life-threatening medical condition. For example, one provider stated “we are trying to save lives ... suicide causes death. Again it’s no different from saving the life of a patient

having a myocardial infarction.” Another provider’s quotation also illustrates this sentiment:

I see a fair amount of suicide, unsuccessful suicide attempts, as well as successful ones, and yeah maybe we can see these people coming ahead of time. You’re treating everything, you know, not just the physical stuff, because a lot of it’s all linked, and so you’re treating the whole person.

The neutral responses ($n = 3$, 15.8%) acknowledged that while suicide risk assessment is appropriate in ED care, it also could distract providers from providing acute medical care. Finally, two providers (10.5%) identified that EDs are not the place to identify potential suicide risk, as illustrated in this quotation:

If the patient comes in after a suicide attempt then obviously that’s part of their management, but if they’re coming in for chest pain or whatever and they also happen to be suicidal, then identifying the fact they’re suicidal and getting them to the appropriate resource for that isn’t really sort relevant to medicine.

Discussion

The current study examined ED providers' perspectives regarding the incorporation of suicide risk assessment into emergency medical care via a mixed methods approach. Ninety-two ED providers from two hospital systems in Wisconsin completed an online survey, and a subset of 19 providers from the total sample completed a phone interview. The overall aim was to gather information on ED provider perspectives on the barriers and facilitators of suicide risk assessment in ED care and on the strengths and weaknesses of different assessment methods.

Quantitative Aims

This sample offered clinical expertise with an average of a decade of experience in emergency medicine. Additionally, the length of time employed in an ED ranged from 0.25 to 32 years, which provided a variety of perspectives related to the integration of suicide risk assessment in EDs. Older age and longer careers in emergency medicine were associated with reduced knowledge of suicide risk factors. This may be a function of the younger employees being in closer contact with emergency medicine curriculum, thus performing better on a test of suicide risk factors. Participants not in a committed relationship identified higher knowledge of suicide risk factors, and age and personal experience with suicide did not mediate this relationship. There is no previous literature to place this finding into context, but it may be that non-partnered ED providers are better attuned to the impact of divorce or the potential challenges of living without a significant other (e.g., American Psychiatric Association, 2003) and hence more attune to other suicide risk factors. Males reported marginally more negative attitudes to suicide prevention efforts. While there have been no previous differences found between gender

on attitudes about suicide prevention efforts (Herron et al., 2001), this finding is in line with cultural norms that stigmatize men for acknowledging or talking about mental health issues (e.g., Addis & Mahalik, 2003).

Overall, ED providers' attitudes toward suicide prevention efforts were positive and they performed relatively well on a questionnaire of suicide risk factors. Two-thirds of providers reported sufficient training in how to ask patients about suicide-related concerns. Approximately 80% of providers desired more training in how to assess suicide risk despite that 44% reported sufficient training in how to assess suicide risk. This is in line with previous work that suggested ED providers desire additional training in suicide risk assessment practices (Giordano & Stichler, 2009; Gordon, 2012). This finding also likely captured the notion there is a crucial distinction between identifying suicide-related concerns and completing a comprehensive suicide risk assessment. While asking a patient about suicidal ideation is manageable, determining a patient's suicide risk and making appropriate treatment recommendations is a complicated task that ED providers likely do not have the time or expertise to complete (Brown, 2001; Larkin et al., 2009; Knesper et al., 2010).

This study added to the literature by comparing ED providers' perspectives on screening for suicide risk versus screening for other medical and psychosocial conditions. Providers' ratings related to frequency and comfort of screening were the highest for asthma, followed by domestic violence and then suicide-related concerns. However, providers' had the highest percentage of agreement in that they play an important role in screening for suicide-related concerns, which was then followed by importance for screening for domestic violence and asthma. These results suggest that the ED providers

believed it was important they screen for suicide-related concerns. Providers' average ratings of the domestic violence Demographic and Occupational Information questionnaire items were positively related to the average ratings of the suicide-related concerns Demographic and Occupational Information questionnaire items. This result suggested that as ED providers' experiences screening for domestic violence increased so did their experiences screening for self-directed violence.

The hypothesis that providers who had higher ratings of comfort in assessing suicide would endorse more positive attitudes toward suicide prevention efforts and would have a stronger knowledge of suicide risk factors was partially supported. A hierarchical regression found that a more positive attitude toward suicide prevention efforts, less knowledge of suicide risk factors, and not being in a committed relationship accounted for 20% of the variance in comfort in asking patients about suicidal ideation. The finding that less knowledge about suicide predicted increased comfort contradicted previous findings that comfort increased after receiving education about suicide (Currier et al., 2012). This result could suggest that having more knowledge about suicide risk factors might make ED providers more aware of the nuances inherent in suicide risk assessment and thus less comfortable with the practice. While previous literature has not investigated this link, it is intuitive that as attitudes toward suicide prevention efforts are more positive, a provider would feel more comfortable engaging in this practice. Finally, the relationship between marital status and comfort was unexpected and there is no previous literature to further understand this connection. While the data in this study did not support this interpretation, there may be a relationship between marital status and younger age, such that younger providers (who also may be more likely to be non-

partnered) may feel more comfortable as they likely recently graduated from their training program. This finding warrants future investigation that directly examines the link between marital status, knowledge of suicide risk factors, and possible mediating variables that may explain this relationship (i.e., age).

The hypothesis that the providers who endorsed a personal history with suicide would have more positive attitudes toward suicide prevention efforts was not supported. However, more negative attitudes toward suicide prevention were related to decreased knowledge on suicide risk factors. This result suggested that level of knowledge about suicide could impact providers' attitudes toward preventing suicide in EDs. While contact with stigmatized groups is the most supported theory to reduce stigma, this finding provided partial support of previous work that suggested increased knowledge with stigmatized issues decreases negative feelings toward such topics (Corrigan & O'Shaughnessy, 2007). This result also suggested that brief educational campaigns could positively shape providers' attitudes toward suicide prevention efforts by increasing their knowledge about suicide.

The hypothesis that the size of the hospital would impact providers' attitudes toward suicide prevention or comfort in assessing suicide risk (McAllister et al., 2002) was not supported. There was no relationship for hospital system or provider type on attitudes toward suicide prevention, knowledge of suicide risk factors, or occupational experiences related to assessing suicide-related concerns or asthma. The lack of differences in the suicide-related dependent variables across hospital system suggested that working with patients who present with suicide risk is not dependent on the size or

type of the hospital. Rather, providers at the different hospitals had relatively similar views and experiences related to integrating suicide risk assessment into practice.

However, Froedtert providers reported significantly more experience, comfort, and stronger beliefs in the importance of assessing for domestic violence than ProHealth Care providers. Providers at ProHealth Care were also older and had more years employed in emergency medicine than Froedtert providers. It was anticipated that these differences are due to the location and type of each hospital system rather than hospital size. For example, the differences in screening for domestic violence may be a result of Froedtert being a regional level 1 trauma center that is near an urban setting, making it more likely that interpersonal violence is treated at higher rates at this hospital system than in a community hospital system. The difference in age and career length was perhaps due to Froedtert being a training facility where it was more likely that younger, less experienced medical trainees are employed.

Qualitative and Mixed Methods Aims

This study also aimed to further investigate and describe ED provider perspectives on integrating suicide risk assessment in ED care through qualitative and mixed methods analyses. When asked to *describe their current suicide risk assessment practices*, 100% of providers stated that they are mandated to assess suicide risk for all patients. Providers generally did not approach suicide risk assessment differently depending on if a patient had a medical or psychiatric presenting complaint. These results are consistent with the Joint Commission's (2011) National Patient Safety Goal 15.01.01 that mandates ED providers assess patient suicide risk factors. Almost half of providers

mentioned enacting security precautions if suicide risk was identified, which is also consistent with the National Patient Safety Goal 15.01.01.

Providers' responses to the online survey and phone interview resulted in five themes that captured providers' perspectives on the *barriers to assessing suicide risk in EDs*. In both the phone interview and survey responses, providers expressed that patient non-cooperation with assessment, limited time, limited privacy, and limited mental health resources were barriers. The online survey also captured difficulty communicating with others in ED treatment as a barrier to suicide risk assessment. The barrier of limited time was consistent with the barriers previously noted for integrating preventative health services in EDs (Bernstein & D'Onofrio, 2009; Delgado et al., 2011), whereas the barriers of patient non-cooperation, difficulty communicating with others, limited privacy, and limited mental health resources were newly endorsed barriers that appear to be specific to integrating suicide risk assessment in EDs. Thus, integrating suicide risk likely has its own set of unique considerations as compared to other preventative health practices. The themes of time burden and patient non-cooperation were the most frequently endorsed barriers in the survey and phone interview, respectively. These results suggested that suicide risk assessment practices should minimize burden to a provider's workflow as well as minimize the patient's effort to complete the task.

Providers also identified reductions in emergency medicine resources and reductions in mental health resources as possible *future barriers* to assessing suicide risk in EDs. This corresponds to Delgado et al.'s (2011) finding that ED directors feared preventative health services would increase the length of a patient ED visit, would improperly allocate scarce ED resources, and would be potentially harmful due to

inadequate outpatient or inpatient follow-up services. These themes speak to the importance of ensuring that ED providers have the appropriate resources, both now and in the future, to assist with suicide risk assessment. This is especially important as EDs are trying to make changes to heed the recent calls for increasing their suicide prevention efforts (Larkin & Beautrais, 2010; Olfson et al., 2014; USDHHS, 2012). ED providers will likely remain overextended at work (Chisholm et al., 2011) and any improvements in resources would make integration of suicide risk less burdensome.

Six themes captured providers' beliefs on the *current facilitators of suicide risk assessment in EDs*. Five themes were identified in both the online survey and phone interview - standard protocol, collaboration/consultation, none, privacy, and increased time, while interpersonal assessment was also identified in the phone interview. While the current study did not examine the feasibility of a particular tool, these findings relate to previous work that provides initial support for the feasibility and acceptability of integrating suicide risk assessment into pediatric ED patients (i.e., Ballard et al., 2012; Chun et al., 2013; Horowitz et al., 2010) and with adult ED patients (Folse & Hahn, 2009). These results also extended the literature as they provided perspectives from ED providers about factors that would facilitate suicide risk assessment with adults in ED care.

The most common facilitator to assess suicide risk was the theme of having a standardized protocol. This relates to Folse and Hahn's (2009) finding that providers may view suicide risk assessment as "one more thing" to do (p. 269). Thus, suicide risk assessment would likely be most successful as a standard protocol that is seamlessly integrated into the current flow of ED care. The theme of making suicide risk assessment

a collaborative or consultative process was the second most commonly endorsed facilitator. This theme of making suicide risk assessment an interactive process is consistent with Wilstrand et al.'s (2007) finding that psychiatric nurses' often experience fear, frustration, and abandonment when providing care to patients with self-harming behaviors. Treating patients with suicide-related concerns can be burdensome, therefore making suicide risk assessment an interactive process can help combat such negative feelings. Froedtert providers endorsed the interpersonal assessment theme more than ProHealth Care providers, which suggested there might be institution-specific differences in how providers tend to use interpersonal process in assessment of suicide risk.

Of note, a small subset of providers (9.8%) stated that they were not aware of any factors that would facilitate suicide risk assessment. As predicted, providers who endorsed this theme had lower overall average scores on occupational experiences related to assessing suicide-risk and lower confidence to detect underlying suicidal ideation versus providers who were aware of factors to facilitate suicide risk assessment. This suggested that less occupational experience and confidence is related to how providers view how to integrate this practice.

Providers also identified that increasing mental health resources, increasing ED resources, and improving the integration of assessment in established practice would *better facilitate suicide risk assessment in EDs in the future*. The call for increased ED and mental health resources, relates to Wynaden et al.'s (2003) finding that ED providers believed a consultative emergency psychiatry triage service improved resources to the ED and mental health care for patients. Increasing resources to emergency medicine and to mental health is crucial in order to meet the *2012 National Strategy for Suicide*

Prevention's (USDHHS, 2012) statement that EDs should improve suicide risk screening efforts, increase staff training on suicide risk, increase accurate diagnosis and documentation of suicide risk, increase referrals to mental health providers, and increase education about suicide risk factors and warning signs to an at-risk patient's family or support system. ED providers already have multiple responsibilities (Chisholm et al., 2011) and it is near impossible to increase suicide prevention efforts without additional resources to provide this service.

Regarding *perspectives on suicide risk assessment methods*, about half of the providers on the online survey and the majority of providers' phone responses (89%) indicated that their preferred method to assess suicide risk was through directly asking a patient about suicidal ideation in a verbal manner. All phone interview respondents indicated that they do not use any tools to assess suicide risk. These results speak to the current lack of assessment tools (Brown, 2001; Larkin et al., 2009; Knesper et al., 2010) and the lack of practice guidelines for screening for suicide risk (Chang et al., 2011). Providers' perspectives on the online survey demonstrated that integrating suicide risk assessment in established care, consultation with others, and using an interpersonal assessment approach were preferred assessment strategies. Providers who endorsed the theme of integrating suicide risk assessment in established care had higher ratings on the belief that identifying suicidal ideation in ED patients could help reduce future suicide attempts. Thus, providers' perspectives of the usefulness of this practice were related to the perspectives on how to integrate this practice.

Providers noted that the various *administration methods* – paper-and-pencil, verbal, and computerized administrations – all had strengths and weaknesses. While

providers noted that patients may feel safer writing their suicidal ideation, the barriers of literacy, privacy, and non-cooperation make a paper-and-pencil approach less viable for all patients. Providers viewed the ability to verbally administer a suicide risk assessment tool to be a strong approach, but the effectiveness would vary depending on the individual provider's skill level. The computerized administration approach showed the promise to be efficient and easily integrated into care, although the ability for all patients to use a computer and the logistical problems associated with a piece of equipment were prohibitive.

Providers also identified various strengths and weaknesses related to the *approaches to integrate suicide risk assessment* into ED care. Regarding the waiting room and triage, early detection of suicide risk was listed as a strength. However, the majority of providers had concerns about privacy with waiting room assessment. Additionally, assessing suicide risk in triage also has the potential to distract from triage nurses quickly determining a patient's level of care. Providers found assessing suicide risk in the exam room to be an effective, private way to integrate this practice, with the possible drawback of failing to mobilize resources to manage suicide risk early in care.

Regarding *attitudes toward integrating suicide risk assessment into ED care*, the majority of providers found this practice to be beneficial to patient and providers as well as compatible with the philosophy of emergency medicine. This is consistent with the previous work showing there is a generally positive attitude toward integrating public health initiatives into emergency medicine (Bernstein & D'Onofrio, 2009, Bernstein & Haukoos, 2008; Delgado et al., 2011; Wilson & Zeller, 2012). Additionally, the majority support for this practice being of value to patients was consistent with previous findings

that ED providers (Folse & Hahn, 2009) and patients (Ballard et al., 2012) believe suicide risk assessment promotes overall health care and suicide prevention. A small segment of providers expressed ambivalence or negative views about the value of this practice and its compatibility with emergency medicine, which reflects a realistic view also discussed in previous work (Bernstein & D'Onofrio, 2009; Delgado et al., 2011; Kelen, 2008; McKay et al., 2009). These findings add to the literature as ED providers' opinions on the value and appropriateness of suicide risk assessment as a preventative health procedure with adults had not been specifically examined.

Limitations

While this study provides significant novel contributions to the literature, various methodological features limit the interpretation and external validity of the results. The predominately Caucasian, female, registered nurse sample may limit the generalizability of these findings to ED providers from different demographic and occupational backgrounds. Additionally, sampling from only two hospital systems in Southeastern Wisconsin may limit the generalizability of these findings to other hospital systems.

Another limitation concerns the self-selection of participants. The providers who volunteered to participate in this study might have been more inherently interested in suicide risk assessment and perhaps more likely to have stronger views (either negative or positive) towards the integration of suicide risk assessment in EDs. It could be that the providers who participated are more likely to be interested and want to discuss the issue of suicide and its treatment in emergency medicine, thus explaining the largely positive views towards integrating suicide risk assessment into ED care. While a monetary incentive was provided as an attempt to mitigate self-selection, a limitation of this work

is the possible bias of getting viewpoints from only providers who participated in this study rather than from a complete population of providers at these hospitals.

Given the shortage of empirical investigation on this topic, there was a lack of previously validated measures to ascertain providers' views on integrating suicide risk assessment in ED care and knowledge of suicide risk factors. The lack of validation of the Demographic and Occupational Information questionnaire and Knowledge of Suicide Risk Factors questionnaire with ED providers may limit the reliability and validity of the results. Even the previously validated Attitudes Toward Suicide Prevention Scale (Herron et al., 2001) had no previous use with ED providers. Additionally, providers' ratings of their experiences and comfort with screening for suicide-related concerns were gathered via self-report rather than obtaining an objective measurement of these constructs.

Regarding the assumption of normality for parametric statistical tests, all items on the Demographic and Occupational Information questionnaire and the Knowledge of Suicide Risk Factors questionnaire average score were skewed. However, it is not uncommon to have skewed variables when conducting behavioral research. Violations of normality typically are not a large concern with larger sample sizes (i.e., $n > 30$; Tabachnick & Fidell, 2007). Additionally, there were very small differences between the means and the 5% trimmed means for the items that were not normally distributed, which suggested that the impact of outliers was small.

The data collection methods should be examined in order to consider the full context of the results. Collecting data via an online survey and a phone interview helped to reduce the time burden of participating in this study. However, collecting qualitative data online included several drawbacks, such as making the participants provide

qualitative information in the time-consuming format of writing. The qualitative data gathered online also lacked any emotion or context that may have been conveyed in a phone or a face-to-face interview (Ganassali & Rodriguez-Santos, 2013; Nehls, 2013). These limitations of the online data collection method were seen in the providers' responses, as they were brief in comparison to the phone interview. Another limitation in this study is that one rater completed the grounded theory analysis of the phone interview data, which results in inherent bias in these interpretations. Nevertheless, the themes in the online survey were largely similar to the phone interview themes.

Finally, the sample was about 60% of the proposed size for the online survey, which limited the ability to accurately detect statistically significant results in the quantitative analyses. However, several efforts were taken that have been shown to improve research participation with health care providers, such as providing multiple reminders to participate from a sponsored source and monetary incentives (Cho, Johnson, & VanGeest, 2013; Flanigan, McFarlane, & Cook, 2008). Additionally, the response rate for the online survey was 35.25%, which was consistent with previous response rates with ED provider samples (Baraff et al., 2006; Currier et al., 2012; McAllister et al., 2002).

Implications and Future Directions

Emergency departments (EDs) are critical sites for identifying patients with heightened suicide risk (Larkin & Beautrais, 2010; National Action Alliance on Suicide Prevention, 2014; Olfson et al., 2014; USDHHS, 2012). However, there is limited research on the best methods to integrate suicide risk screening into ED clinical practice

(Chang et al., 2011). This study provided the first mixed methods examination of ED health care providers' perspectives on integrating suicide risk assessment into EDs.

There were no differences between the hospital system and the provider type on attitudes toward suicide prevention, knowledge of suicide risk factors, or occupational experiences related to assessing suicide-related concerns. The lack of differences on these variables suggested that providers in any position or at any hospital have relatively similar experiences assessing suicide risk. Results suggested that ED providers desire more education and training related to assessing suicide-related concerns. The relationship between attitudes toward suicide prevention efforts and knowledge about suicide risk factors also suggested that increasing provider knowledge could be a means to get providers to think more positively about suicide prevention efforts. Attitudes toward suicide prevention efforts and knowledge about suicide risk factors were also related to a provider's comfort in assessing suicide risk. Future educational programs should consider the impact of attitudes toward suicide prevention efforts when evaluating knowledge or comfort with assessing suicide-related complaints in EDs.

The qualitative results also provide a direction for better understanding how to integrate suicide risk assessment into ED care with adults. The most commonly endorsed qualitative themes suggested that suicide risk assessment practices should be brief, place little demand on the patient, involve a standardized protocol, and include consultation or collaboration with others. Providers endorsed that directly asking patient questions to assess suicide risk is a preferred assessment method. This may be a result of not having any tools available at the moment or it may be that verbal assessment is a preferred method. ED providers did not have a clear preference for any administration or

integration method, which highlighted the difficulty and nuances of integrating suicide risk assessment in ED care. Additionally, the qualitative results speak to the importance of increasing resources to emergency medicine and mental health, both inside and outside of the ED, to allow providers the adequate support to assess for suicide risk.

While this study offers suicide risk assessment guidelines based on the clinical expertise of ED providers, future research should continue to examine the perspectives of suicide risk assessment from the different stakeholders in ED care. For example, ED patients likely have insightful perspectives about the benefits and consequences of being asked about suicide-related concerns. For example, patients who are identified as at risk of suicide are required to participate in further assessment which sometimes may lead to involuntary detention or prolonged ED stays. Conversely, patients who are identified as at-risk of suicide and who subsequently receive effective treatment may be grateful for an ED intervention. Additionally, ED directors and hospital administrators could provide information related to systematic and organizational issues related to the integration of suicide risk assessment in EDs. The organizational perspective is especially important at this unique time in healthcare, as the Affordable Care Act places certain emphases on hospital systems (i.e., encouraging reduced recidivism).

In conclusion, there must be efficient recommendations for suicide risk assessment in EDs in order to improve suicide prevention efforts in this setting. Such guidelines have the possibility of improving the identification of patients who have heightened suicide risk. Identifying patients with heightened suicide risk is likely burdensome to ED providers in the short-term, but it has the potential to reduce the overuse of scarce clinical resources (i.e., one-to-one patient observation), reduce patient

recidivism, reduce provider burnout, and ultimately prevent needless deaths by suicide.

Identification of suicide risk is the first step in this process, and future research efforts on this front should be linked to how to manage and treat suicide-related concerns in the ED setting.

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Table 1

Demographic and Occupational Information for Online Survey Participants

Variable	Full Sample (<i>n</i> = 92)	Froedtert (<i>n</i> = 57)	ProHealth Care (<i>n</i> = 35)
Gender, <i>n</i> (%)			
Male	23 (25)	16 (28.1)	7 (20.0)
Female	69 (75)	41 (71.9)	28 (80.0)
Ethnicity, <i>n</i> (%)			
Asian or Asian American	1 (1.1)	0 (0)	1 (2.9)
European American	82 (89.1)	48 (84.2)	34 (97.1)
Biracial or Multiracial	3 (3.3)	3 (5.3)	0 (0.0)
Other	4 (4.3)	4 (7.0)	0 (0.0)
Latino, <i>n</i> (%)			
Yes	3 (3.3)	3 (5.3)	0 (0.0)
Marital Status, <i>n</i> (%)			
Single, never married	12 (13.0)	9 (15.8)	3 (8.6)
Committed relationship	4 (4.3)	3 (5.3)	1 (2.9)
Married	67 (72.8)	40 (70.2)	27 (77.1)
Divorced	6 (6.5)	2 (3.5)	4 (11.4)
Other	2 (2.2)	2 (3.5)	0 (0.0)
Religious/spiritual belief, <i>n</i> (%)			
Belong to religious group	50 (54.3)	31 (54.4)	19 (54.3)
Spiritual	30 (32.6)	18 (31.6)	12 (34.3)
Neither religious or spiritual	12 (13.0)	8 (14.0)	4 (11.4)
Position, <i>n</i> (%)			
Attending physician	9 (9.8)	8 (14.0)	1 (2.9)
Medical resident/fellow	9 (9.8)	9 (15.8)	0 (0.0)
Physician assistant	6 (6.5)	3 (5.3)	3 (3.6)
Registered nurse	64 (69.5)	33 (57.9)	31 (88.6)
Social worker	2 (2.2)	2 (3.5)	0 (0.0)
Other	2 (2.2)	2 (3.5)	0 (0.0)
Suicide in personal life, <i>n</i> (%)			
Yes	48 (52.2)	28 (29.1)	20 (57.1)
No or not sure	44 (47.8)	29 (50.9)	15 (42.9)
Mean age (<i>SD</i>)	38.13 (9.94)	35.91 (7.89)	41.74 (11.83)
Mean years (<i>SD</i>) in emergency medicine	9.65 (7.49)	8.06 (5.86)	12.20 (9.06)

Table 2

Demographic and Occupational Information for Phone Interview Participants

Variable	Full Sample (<i>n</i> = 19)	Froedtert (<i>n</i> = 14)	ProHealth Care (<i>n</i> = 5)
Gender, <i>n</i> (%)			
Male	3 (15.8)	3 (21.4)	0 (0.0)
Female	16 (84.2)	11 (78.6)	5 (100.0)
Ethnicity, <i>n</i> (%)			
European American	18 (94.7)	13 (92.9)	5 (100.0)
Bi/Multiracial	1 (5.3)	1 (7.1)	0 (0.0)
Latino, <i>n</i> (%)			
Yes	1 (5.3)	1 (7.1)	0 (0.0)
Marital Status, <i>n</i> (%)			
Single, never married	2 (10.5)	1 (7.1)	1 (20.0)
Committed relationship	2 (10.5)	2 (14.3)	0 (0.0)
Married	13 (68.4)	10 (71.4)	3 (60.0)
Divorced	2 (10.5)	1 (7.1)	1 (20.0)
Religious/spiritual belief, <i>n</i> (%)			
Belong to religious group	12 (63.2)	10 (71.4)	2 (40.0)
Spiritual	5 (26.3)	2 (14.3)	3 (60.0)
Neither religious or spiritual	2 (10.5)	2 (14.3)	0 (0.0)
Position, <i>n</i> (%)			
Attending physician	1 (5.3)	1 (7.1)	0 (0.0)
Medical resident/fellow	2 (10.5)	2 (14.3)	0 (0.0)
Physician assistant	1 (5.3)	0 (0.0)	1 (20.0)
Registered nurse	13 (68.4)	9 (64.3)	4 (80.0)
Social worker	2 (10.5)	2 (14.3)	0 (0.0)
Suicide in personal life, <i>n</i> (%)			
Yes	10 (52.6)	8 (57.1)	2 (40.0)
No or not sure	9 (47.4)	6 (42.9)	3 (60.0)
Mean age (<i>SD</i>)	40.17 (9.57)	38.57 (8.05)	45.75 (13.60)
Mean years (<i>SD</i>) in emergency medicine	11.21 (7.97)	10.35 (6.32)	13.60 (12.10)

Table 3

Descriptive Statistics for Demographic and Occupational Information Questionnaire

Screening Condition	Mean	SD	% Agree
Asthma	4.08	0.87	-
EVALUATED if complaints were related to asthma	3.75	1.22	-
Feel COMFORTABLE asking patients about asthma	4.35	0.94	94.6
IMPORTANT role in identifying/assessing asthma	4.13	0.96	85.9
Domestic Violence	3.75	0.77	-
EVALUATED if complaints were related to domestic violence	2.99	1.17	-
Feel COMFORTABLE asking patients about domestic violence	3.96	.88	81.5
IMPORTANT role in identifying/assessing domestic violence	4.30	.85	91.3
Suicide-Related Concerns	3.31	0.38	-
Provided care to _ patients with OBVIOUS suicide ATTEMPT	3.39	.68	-
Provided care to _ patients with OBVIOUS suicidal IDEATION	3.68	.51	-
SUSPECTED complaints were related to suicide attempt	3.55	.60	-
EVALUATED if complaints were related to suicide attempt	3.61	.68	-
SUSPECTED underlying suicidal IDEATION	3.48	.69	-
EVALUATED underlying suicidal IDEATION	3.49	.78	-
Given patient suicide prevention hotline	2.40	1.23	-
Used assessment guide to determine LEVEL OF SUICIDE RISK	2.15	1.30	-
Used guide to help in the MANAGEMENT of suicidal patients	2.18	1.39	-
Sufficient training how to ASK about suicidal thoughts/behavior	3.82	.96	66.3
Sufficient training how to ASSESS level of suicide risk	3.24	1.17	43.5
Additional training ASK about suicidal thoughts would be helpful	3.84	1.12	65.2

Screening Condition	Mean	SD	% Agree
Additional training ASSESS suicide risk would be helpful	4.10	1.03	78.3
Documentation reflects level providers inquire about suicide	3.22	1.04	38.0
ED is an important setting for identifying suicidal thoughts	4.41	.71	89.1
I play IMPORTANT role identifying underlying suicidal ideation	4.39	.65	93.5
I feel CONFIDENT to detect underlying suicidal ideation	3.57	.90	56.0
I feel COMFORTABLE asking about suicide ideation	3.99	.85	78.3
Detecting suicidal thoughts can reduce risk of suicide attempts	4.05	.92	77.2
ED has very good protocol for managing suicidal patients	3.50	1.19	60.9
Suspect emotional distress, always ask about suicidal thoughts	3.88	1.05	70.7
When suspect ATTEMPTED suicide, approach patient's family	3.12	1.12	38.0
When suspect suicidal IDEATIONS, approach patient's family	3.01	1.10	33.7

Table 4

Relationships between Suicide-Related and Screening-Related Variables

Scale/Subscale	1	2	3	4	5
1. Attitudes toward Suicide Prevention	-	-.30**	-.18	.09	-.25*
2. Knowledge of Suicide Risk Factors		-	.02	-.09	-.14
3. Occupational - Suicide-Related Concerns			-	-.02	.27**
4. Occupational - Asthma				-	.19
5. Occupational - Domestic Violence					-

Note. ** Correlation is significant at $p < .01$. * Correlation is significant at $p < .05$

Table 5

Summary of Hierarchical Multiple Regression Analysis for Variables Predicting Comfort Asking about Suicidal Ideation

Variable	Model 1			Model 2		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Age	.004	.01	.05	-.003	.01	-.03
Years in ED	-.02	.02	-.14	-.01	.02	-.11
Gender	.22	.20	.11	.11	.20	.06
Marital Status	-.53	.23	-.25*	-.64	.23	-.30**
Attitudes Suicide Prevention				-.04	.02	-.27*
Knowledge Suicide Risk				-.18	.07	-.30**
R^2	.10			.20		
<i>F</i> for R^2	2.36			3.42**		

Note. Marital status was coded as 0 = non-partnered providers and 1 = partnered providers. Gender was coded as 1 = male, 2 = female.

* $p < .05$. ** $p < .01$.

Table 6
Frequencies of Themes Endorsed in Online Survey

Theme	n (%)
Prompt 1: Barriers	
Time burden	50 (54.3)
Patient non-cooperation	42 (45.7)
Limited mental health resources	38 (41.3)
Limited privacy	27 (29.3)
Communication difficulty	13 (14.1)
Prompt 2: Preferred Assessment Strategies	
Directly ask about suicidal ideation	45 (48.9)
Integrating in established care	36 (39.1)
Consultation	19 (20.7)
Interpersonal assessment	17 (18.5)
Prompt 3: Facilitators	
Standard Protocol	44 (47.8)
Collaborative care	43 (46.7)
No facilitator identified	9 (9.8)
Privacy	8 (8.7)
Increased time	7 (7.6)

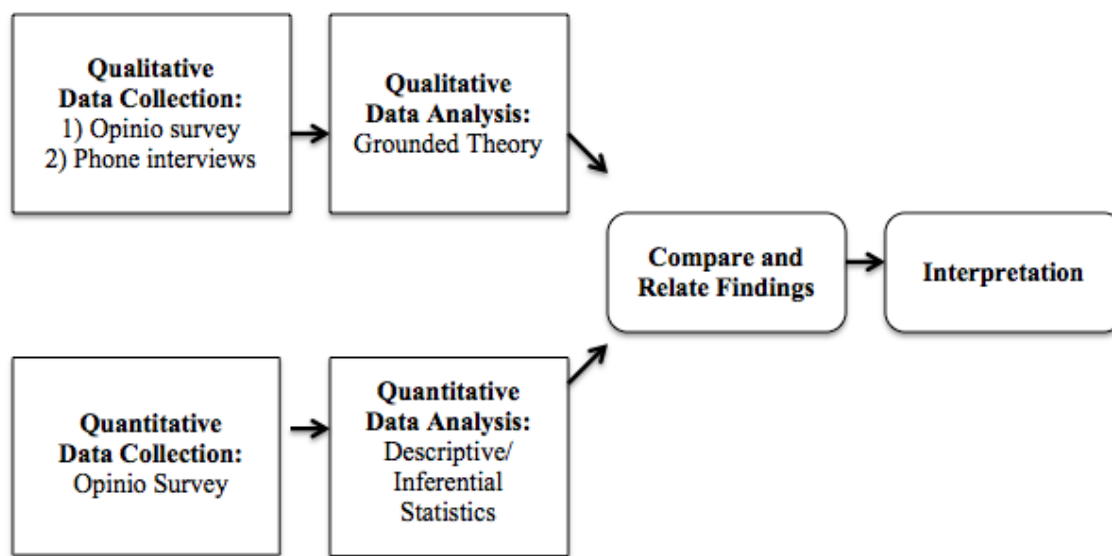


Figure 1. Graphic display of the qualitative and quantitative strands of data in a convergent parallel mixed methods design (adapted from Creswell & Plano Clark, 2011).

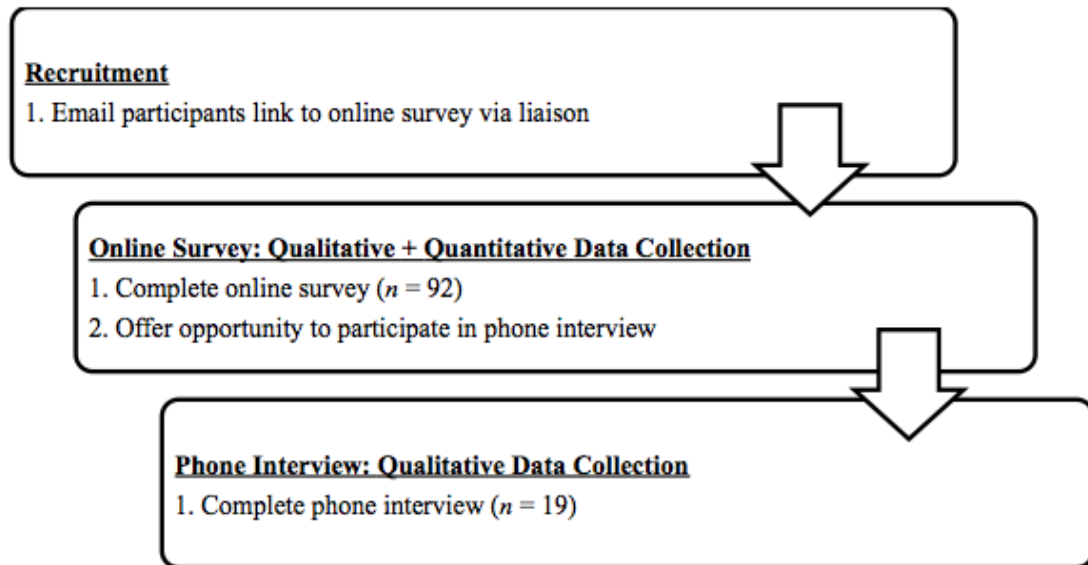


Figure 2. Flowchart of the recruitment and data collection procedures.

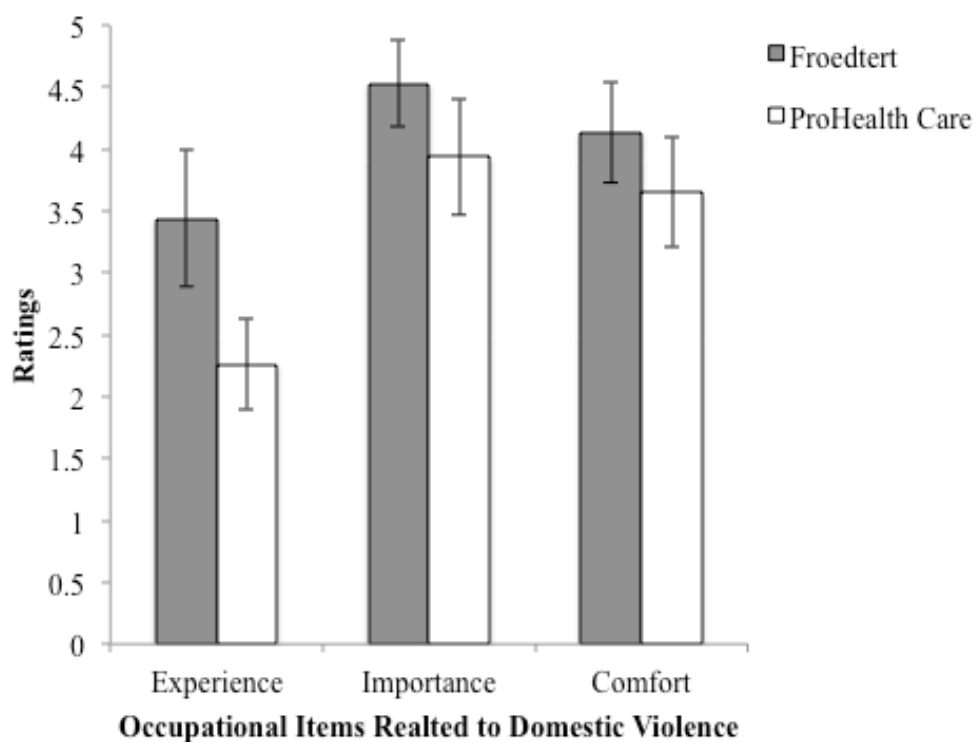


Figure 3. Mean differences between Froedtert and ProHealth Care providers on Demographic and Occupational Information questionnaire items related to domestic violence. Experience was rated on a 1 [*no experience*] to 4 [*experience with greater than 50 patients*] scale. Importance and comfort were rated on 1 (*strongly disagree*) to 5 (*strongly agree*) scale. Error bars represent standard deviations.

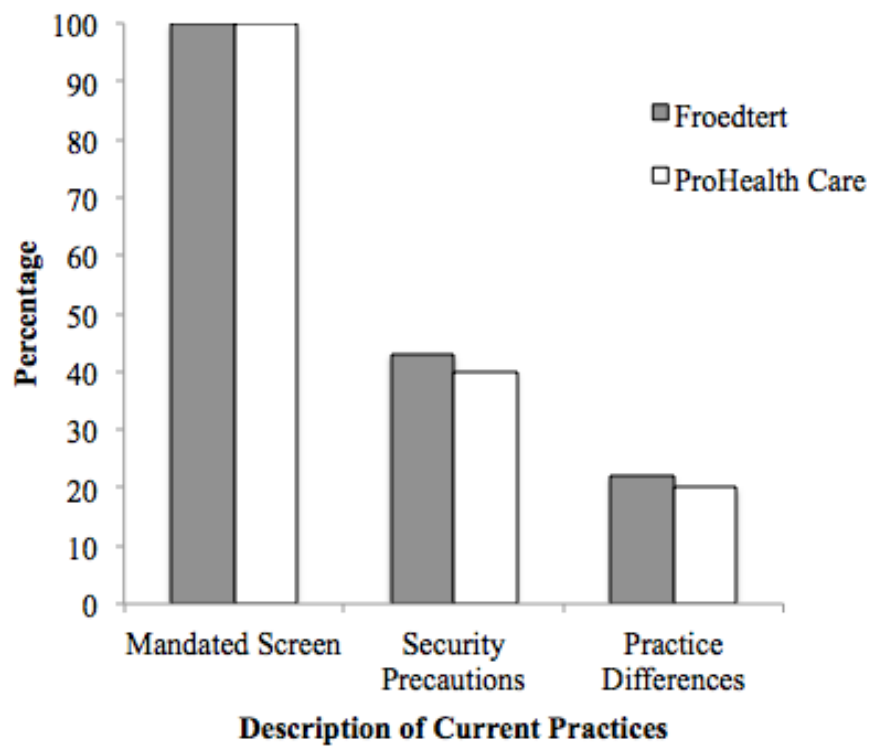


Figure 4. Percentage of Froedtert and ProHealth Care providers who endorsed the themes related to the Description of Current Practices qualitative question.

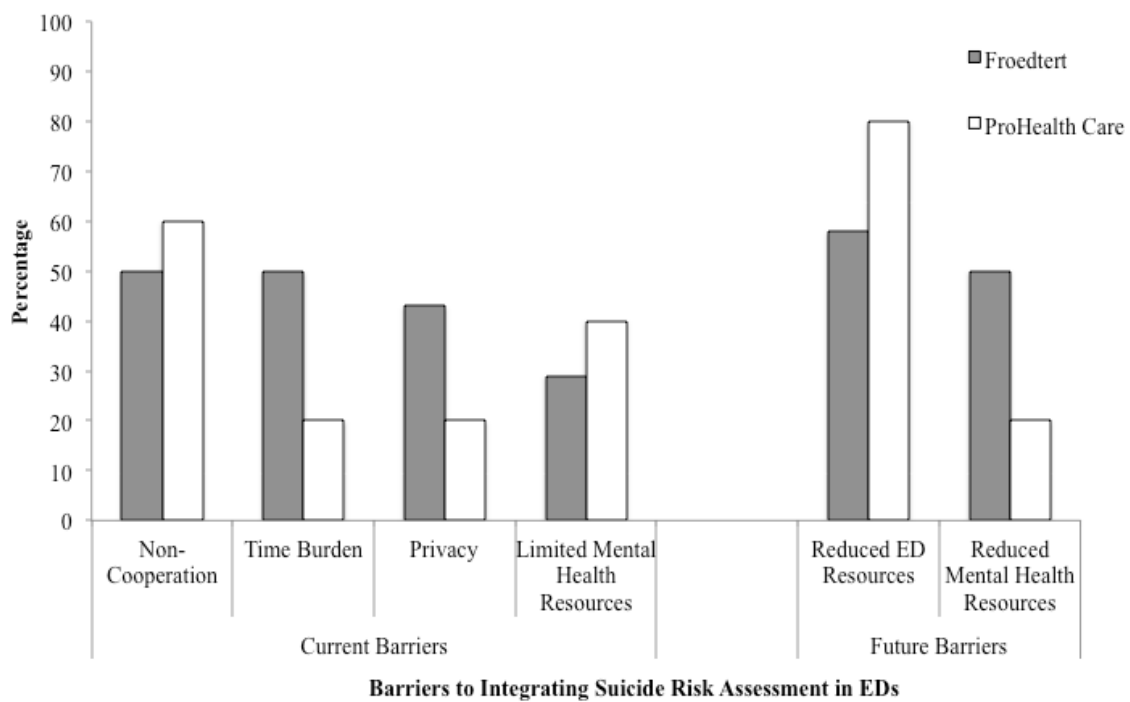


Figure 5. Percentage of Froedtert and ProHealth Care providers who endorsed the themes related to the Barriers to Integrating Suicide Risk Assessment in Emergency Departments (EDs) qualitative question.

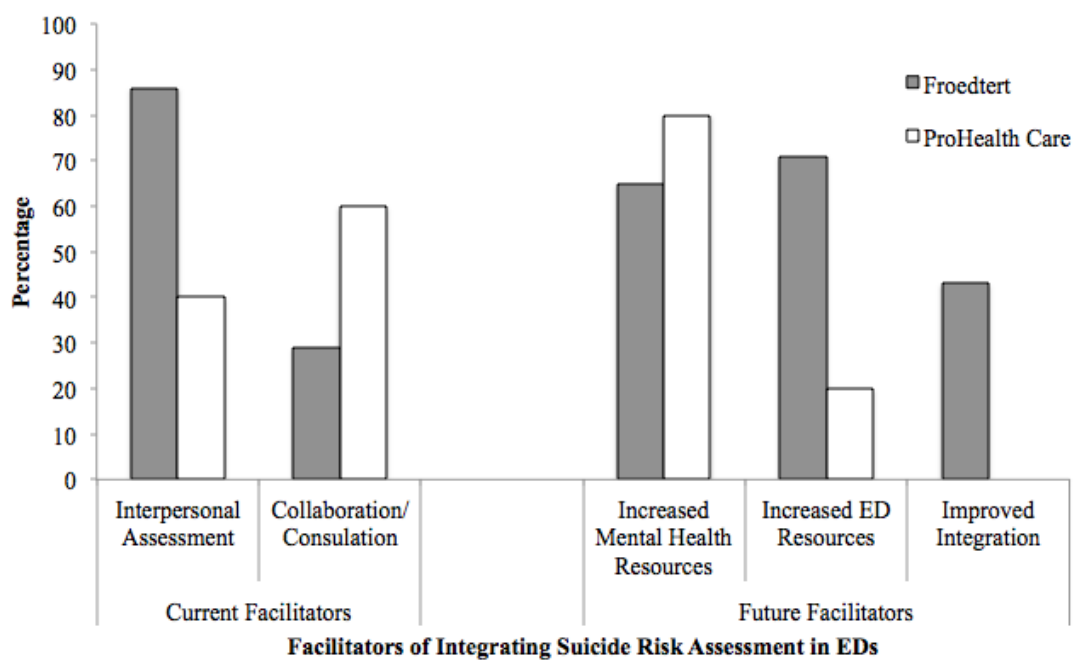


Figure 6. Percentage of Froedtert and ProHealth Care providers who endorsed the themes related to the Facilitators to the Integrating Suicide Risk Assessment in Emergency Departments (EDs) qualitative question.

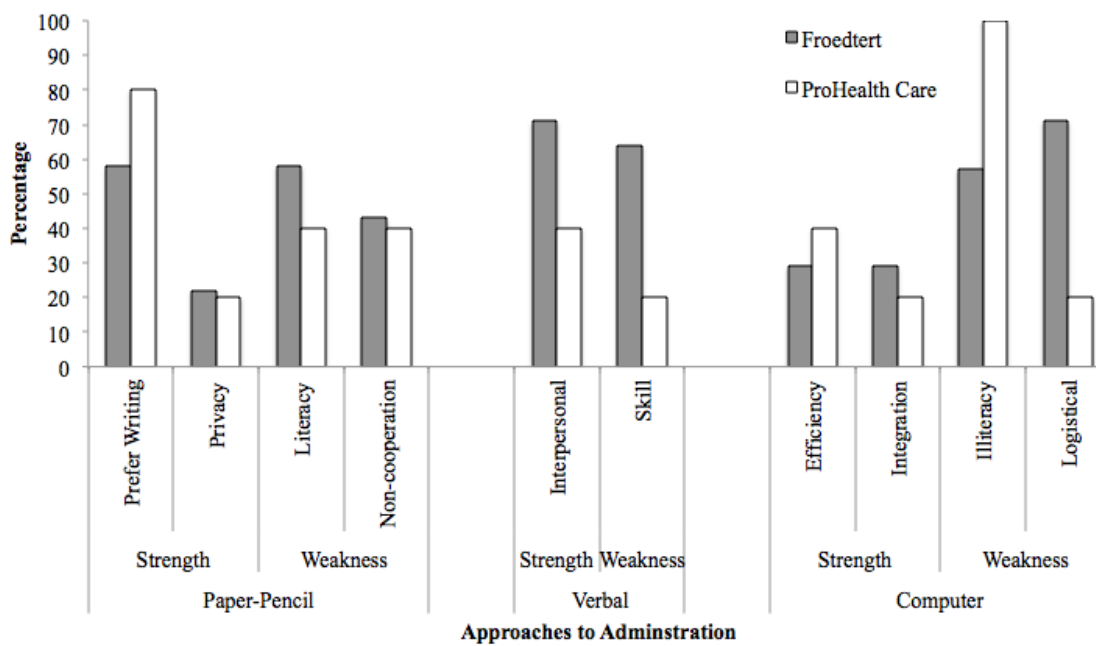


Figure 7. Percentage of Froedtert and ProHealth Care providers who endorsed the themes related to the Approaches to Administration of Suicide Risk Assessment Tools in Emergency Departments (EDs) qualitative question.

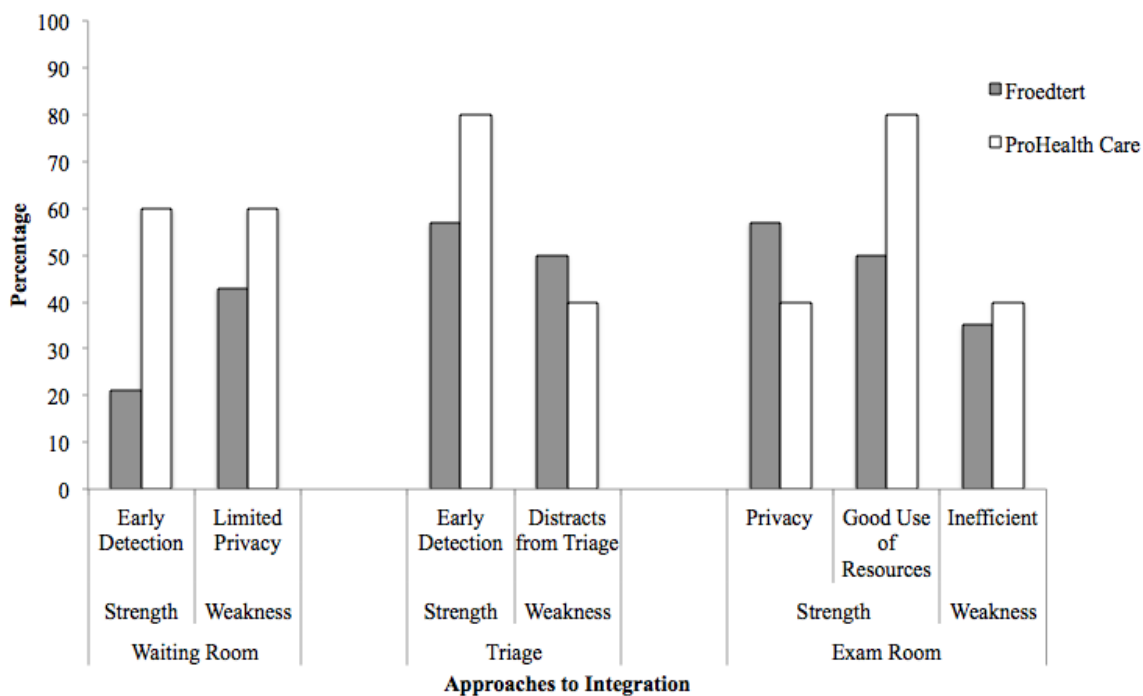


Figure 8. Percentage of Froedtert and ProHealth Care providers who endorsed the themes related to the Approaches to Integrating Suicide Risk Assessment in Emergency Departments (EDs) qualitative question.

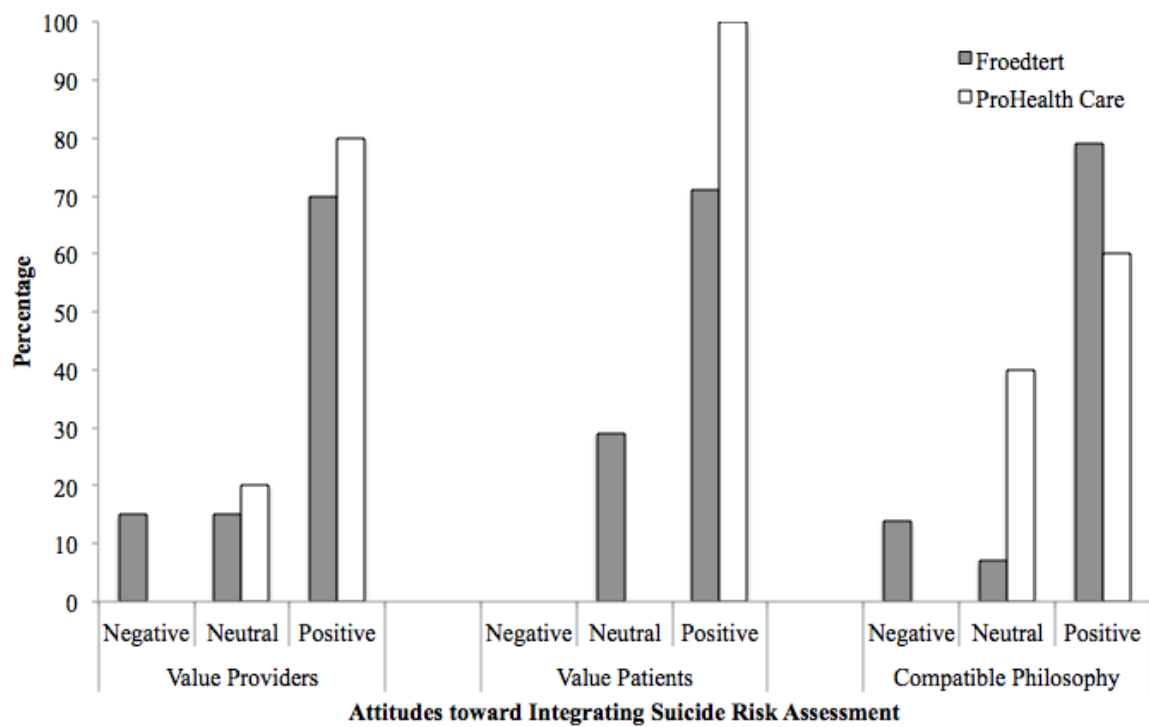


Figure 9. Percentage of Froedtert and ProHealth Care providers who endorsed the themes related to the Attitudes toward Integrating Suicide Risk Assessment in Emergency Departments (EDs) qualitative question.

Appendix A

Opinio Survey

(Note: Scale names are included in this Appendix but were not provided to participants)

Thank you for agreeing to complete this online survey. The purpose of this study is to investigate emergency department providers' opinions about assessing patients' suicide risk. In this survey, you will be first asked several open-ended questions about assessing for suicide risk in your clinical practice. Then, you will be asked a number questions about your demographic and occupational background and your perspective on screening for medical and psychiatric problems.

Qualitative Prompts

To begin, you respond to three open-ended questions that will give you the opportunity to state what your perspective is on the current methods available to you to assess suicide risk in your clinical practice. Your opinion is very important in understanding how to improve suicide risk assessment practices in EDs. Please take your time in answering them.

1. What type of factors currently makes assessing suicide risk difficult in your ED?
2. Given your current demands at work, which assessment methods work the best to assess for suicide risk?
3. What kinds of factors help you when assessing for suicide risk?

Demographic and Occupational Information Questionnaire part one

Persons seeking care at an ED often present with complaints that are caused by conditions that need to be uncovered, such as asthma, domestic violence and suicide risk. In the next several questions, please select the answer that best represents your experience and beliefs on screening for each condition.

4. Asthma
 - a. In the last year, I have EVALUATED whether the presenting complaints of a patient in the ED were actually related to a diagnosis of asthma.

_____	Never
_____	Once or twice in the last year
_____	Once or twice per month
_____	Once or twice per week
_____	More than twice per week

- b. As an ED healthcare provider, I play an important role in identifying/assessing asthma.
- _____ Strongly Disagree
 - _____ Disagree
 - _____ Uncertain
 - _____ Agree
 - _____ Strongly Agree
- c. I feel COMFORTABLE asking patients about symptoms of asthma.
- _____ Strongly Disagree
 - _____ Disagree
 - _____ Uncertain
 - _____ Agree
 - _____ Strongly Agree
5. Domestic Violence
- a. In the last year, I have EVALUATED whether a patient's presenting complaints were actually related to domestic violence.
- _____ Never
 - _____ Once or twice in the last year
 - _____ Once or twice per month
 - _____ Once or twice per week
 - _____ More than twice per week
- b. As an ED healthcare provider, I play an important role in identifying/assessing domestic violence.
- _____ Strongly Disagree
 - _____ Disagree
 - _____ Uncertain
 - _____ Agree
 - _____ Strongly Agree
- c. I feel COMFORTABLE asking my patients about domestic violence.
- _____ Strongly Disagree
 - _____ Disagree
 - _____ Uncertain
 - _____ Agree
 - _____ Strongly Agree

The remainder of the survey will focus on identifying suicidal behavior and suicide risk. Sometimes a patient's suicide risk or suicidal behaviors are obvious to recognize. The following questions are about those situations.

6. Suicide

- a. In my career, I estimate that I have provided care to _____ patients presenting for an acute suicide ATTEMPT.

_____ 0
 _____ <10
 _____ 10-50
 _____ > 50

- b. In my career, I estimate that I have provided care to _____ patients with a presenting complaint of suicidal IDEATION.

_____ 0
 _____ <10
 _____ 10-50
 _____ > 50

At other times, a patient's suicide risk or suicidal behaviors have to be asked about and uncovered. The following questions are about those situations.

- a. In my career, I have SUSPECTED that a patient's presenting complaints (e.g., injuries, poisoning) were actually related to a suicide attempt.

_____ Never
 _____ Once
 _____ A few times (2-5 times)
 _____ Many times (5+ times)

- b. In my career, I have EVALUATED whether a patient's presenting complaints (e.g., injuries, poisoning) were actually related to a suicide attempt.

_____ Never
 _____ Once
 _____ A few times (2-5 times)
 _____ Many times (5+ times)

- c. In my career, I have SUSPECTED underlying or concealed suicidal IDEATION in patients presenting to the ED.

_____ Never
 _____ Once
 _____ A few times (2-5 times)
 _____ Many times (5+ times)

- d. In my career, I have EVALUATED underlying or concealed suicidal IDEATION in patients presenting to the ED.

_____ Never
 _____ Once
 _____ A few times (2-5 times)
 _____ Many times (5+ times)

- e. In my career, I have given a patient the phone number for a suicide prevention hotline.
- _____ Never
 _____ Once
 _____ A few times (2-5 times)
 _____ Many times (5+ times)
- f. In my career, I used an assessment guide to help determine LEVEL OF SUICIDE RISK.
- _____ Never
 _____ Once
 _____ A few times (2-5 times)
 _____ Many times (5+ times)
- g. In my career, I used a guide to help in the MANAGEMENT of suicidal patients.
- _____ Never
 _____ Once
 _____ A few times (2-5 times)
 _____ Many times (5+ times)

We also are interested in your attitudes regarding screening for suicide risk. For each of the statements below, please mark your level of agreement:

- | | 1 | 2 | 3 | 4 | 5 |
|--|----------------------|----------|-----------|-------|-------------------|
| | Strongly
Disagree | Disagree | Uncertain | Agree | Strongly
Agree |
| 7. I have sufficient training in how to ASK patients about suicidal thoughts and behavior. | | | | | 1 2 3 4 5 |
| 8. I have sufficient training in how to ASSESS level of suicide risk in patients. | | | | | 1 2 3 4 5 |
| 9. Additional training in how to ASK patients about suicidal thoughts and behavior would be helpful. | | | | | 1 2 3 4 5 |
| 10. Additional training in how to ASSESS level of suicide risk in patients would be helpful. | | | | | 1 2 3 4 5 |
| 11. Documentation in ED patient charts will accurately reflect the level to which ED providers inquire about suicidal thoughts or behaviors. | | | | | 1 2 3 4 5 |
| 12. The ED is an important setting for identifying persons who may have underlying or concealed suicidal thoughts and behaviors. | | | | | 1 2 3 4 5 |

13. As an ED healthcare provider, I play an important role in identifying/assessing underlying or concealed suicidal ideation in my patients. 1 2 3 4 5
14. I feel CONFIDENT in my abilities to detect underlying or concealed suicidal ideation in my patients. 1 2 3 4 5
15. I feel COMFORTABLE asking patients without mental health complaints about SYMPTOMS of suicide ideation. 1 2 3 4 5
16. Detecting underlying or concealed suicidal thoughts in ED patients can help reduce the risk of future suicide attempts. 1 2 3 4 5
17. The ED where I work has a very good protocol for managing suicidal patients when they are identified. 1 2 3 4 5
18. If I suspect emotional distress in my patients, I always ask them directly if they are having suicidal thoughts. 1 2 3 4 5
19. When I suspect that my patient may have ATTEMPTED suicide, if available, I usually approach the patient's FAMILY or close FRIENDS (if they are available) to ask about my patient's mental health and signs of suicidal behavior. 1 2 3 4 5
20. When I suspect that my patient may have suicidal IDEATIONS, if available, I usually approach the patient's FAMILY or close FRIENDS (if they are available) to ask about my patient's mental health and signs of suicidal behavior. 1 2 3 4 5

Attitudes toward Suicide Prevention Scale

Please rate each item on the following scale:

1	2	3	4	5
Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

21. I resent being asked to do more about suicide. 1 2 3 4 5
22. Suicide prevention is not my responsibility. 1 2 3 4 5
23. Making more funds available to the appropriate health services would make no difference to the suicide rate. 1 2 3 4 5
24. Working with suicidal patients is rewarding. 1 2 3 4 5
25. If people are serious about committing suicide, they don't 1 2 3 4 5

tell anyone.

26. I feel defensive when people offer advice about suicide prevention. 1 2 3 4 5
27. It is easy for people not involved in clinical practice to make judgments about suicide prevention. 1 2 3 4 5
28. If a person survives a suicide attempt, then this was a ploy for attention. 1 2 3 4 5
29. People have the right to take their own lives. 1 2 3 4 5
30. As unemployment and poverty are the main causes of suicide, there is little that an individual can do to prevent it. 1 2 3 4 5
31. I don't feel comfortable assessing someone for suicide risk. 1 2 3 4 5
32. Suicide prevention measures are a draw on resources, which would be more useful elsewhere. 1 2 3 4 5
33. There is no way of knowing who is going to commit suicide. 1 2 3 4 5
34. What proportion of suicides do you consider preventable?
(Please rate this item from 1=none to 5=all) 1 2 3 4 5

Knowledge of Suicide Risk Factors Questionnaire

Please rate each item on the following scale:

1	2	3	4	5
Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

35. People who talk about suicide rarely commit suicide. 1 2 3 4 5
36. If you ask someone directly "Do you feel like killing yourself?" it will likely lead that person to make a suicide attempt. 1 2 3 4 5
37. A person who has made a past suicide attempt is more likely to attempt suicide again than someone who has never attempted. 1 2 3 4 5
38. People who have substance use problems (alcohol and/or drug abuse) are at greater risk for suicide. 1 2 3 4 5

39. A time of high risk for suicide is right after a person who is at-risk for suicide is discharged from an emergency department. 1 2 3 4 5
40. The diagnosis of a serious medical illness puts one at greater risk for suicide. 1 2 3 4 5

Demographic and Occupational Information Questionnaire part two

Please provide the following information about yourself:

41. What is your age (years)? _____
42. What is your gender?
 _____ Male
 _____ Female
43. Please indicate your current marital status.
 _____ Single, never married
 _____ Committed relationship/Living with romantic partner
 _____ Married
 _____ Divorced
 _____ Widowed
 _____ Other (describe): _____
44. Are you Hispanic or Latino?
 _____ Yes
 _____ No
- If yes, please specify:
 _____ Central or South American
 _____ Mexican/Mexican American
 _____ Puerto Rican
 _____ Other (describe): _____
45. What is your racial background? Select all that apply:
 _____ African American
 _____ Asian or Asian American
 _____ European American or Caucasian
 _____ Native American/American Indian
 _____ Biracial or Multiracial (describe): _____
 _____ Other (describe): _____
46. Which of the following best describes you at the present time?
 _____ I belong to a religion or a religious group

Please state your religious affiliation: _____
 _____ I am spiritual (that is, I believe in God or a higher power), but I am not
 religious
 _____ I am neither religious nor spiritual

47. Please select the name of the hospital where you are employed.

_____ Froedtert Hospital
 _____ Oconomowoc Memorial Hospital
 _____ Waukesha Memorial Hospital

48. What is your position?

_____ Emergency medicine physician
 _____ Advanced practice provider (supervised providers)
 Specify:
 _____ Medical resident/fellow
 _____ Nurse practitioner
 _____ Physician assistant
 _____ Registered nurse
 _____ Social worker

49. How many years have you been employed in emergency medicine? _____

50. In your personal life, have you had a family member, friend, or loved one attempt or complete suicide?

_____ Yes
 _____ Not sure
 _____ No

Appendix B

Qualitative Interview

- I. *Description of Current Practices*
 - a. What is the current procedure for assessing suicide risk in your ED?
 - b. Does this procedure differ for nonpsychiatric and psychiatric patients?
- II. *Barriers of Suicide Risk Assessment in ED Care*
 - a. What type of factors currently make assessing suicide risk difficult in your ED?/What are the barriers to assessing suicide risk in your ED?
 - b. What kinds of factors would make assessing suicide risk more difficult in your ED in the future?
- III. *Facilitators of Suicide Risk Assessment in ED Care*
 - a. What kinds of factors help you when assessing for suicide risk?
 - b. What kinds of factors would make assessing for suicide risk more feasible in your ED in the future?
- IV. *Perspectives on Suicide Risk Assessment Methods*
 - a. Given your current demands, which assessment methods work the best?
 - b. Are there any tools that are currently available to you that work well?
 - i. If yes, what is the tool?
 - ii. What features are the most helpful?
 - c. Discuss the strengths and weakness of the following types of assessment approaches:
 - i. Paper-and-pencil administration
 - ii. Verbal administration
 - iii. Computerized administration
 - d. Discuss the strengths and weaknesses of integrating suicide risk assessment in the following places in ED treatment:
 - i. Waiting room
 - ii. Triage
 - iii. While waiting for ED physician
- V. *Attitudes toward Integrating Suicide Risk Assessment into ED Care*
 - a. Do you find assessing for suicide risk to be valuable in ED care for providers?
 - i. Why/why not?
 - b. Do you find assessing for suicide risk to be valuable in ED care for patients?
 - i. Why/why not?
 - c. Do you find screening for suicide risk to be compatible with the philosophy of emergency medicine?
 - i. Why/why not?
- VI. *Any additional questions or comments?*

Appendix C

Recruitment Email

Hello,

In collaboration with Dr. Stephen Hargarten at Medical College of Wisconsin/Mimi Pfitzinger at ProHealth Care, we are conducting a project investigating emergency department (ED) providers' opinions about how to improve the identification of and care for ED patients who are at risk for suicide.

EDs are a critical site for identifying patients with heightened suicide risk. Approximately 40% of individuals who die by suicide seek ED services in the year before their death, making it more common for a person to have sought care at an ED than from a mental health professional. Furthermore, 6-12% of patients seeking ED treatment for medical reasons endorse suicidal ideation, yet this risk often goes undetected.

If you participate, you will complete a brief (10-15 minutes) online survey that asks about your perspective on screening for suicide risk in emergency medical care. This survey is anonymous and no one at your workplace will have access to your responses. To show our appreciation for your time and for sharing your expert opinion, we would like to send you a \$5 Amazon.com gift card for completing the survey.

To access the survey, please click here or copy/paste this link (<http://survey.marquette.edu/opinio/s?s=4357>) into your web browser:

If you have any questions or concerns please do not hesitate to contact either Megan Petrik (megan.petrik@marquette.edu) or Stephen Saunders (stephen.saunders@marquette.edu).

The Institutional Review Board at Marquette University approved this study (protocol number HR-2529).

Thank you,

Megan Petrik, M.S. (Marquette University)
Stephen Saunders, Ph.D. (Marquette University)
Stephen Hargarten, M.D., M.P.H. (Froedtert Hospital/Medical College of Wisconsin)/Mimi Pfitzinger, Interim Director of Emergency Services (ProHealth Care)

Appendix D

Consent Form

MARQUETTE UNIVERSITY AGREEMENT OF CONSENT FOR RESEARCH PARTICIPANTS

Barriers and Facilitators of Suicide Risk Assessment in an Emergency Department:
Perspectives from Health Care Providers
Protocol Number: HR-2529

Megan Petrik, M.S.
Department of Psychology

Thank you for agreeing to participate in this research study. It should take no longer than 15 minutes to complete this survey. The purpose of this research study is to investigate emergency department providers' opinions about assessing for suicide risk. You will be one of approximately 155 participants. Participating is voluntary and you can stop at any time. There are no direct benefits to you for participating in this study, however, this research will aid in further understanding how to improve care for emergency department patients who are at risk for suicide. The risks associated with participation in this study are no more than you would encounter in everyday life.

There is an option at the end of the survey to provide contact information for a 30-minute telephone follow-up interview. Contact information will not be linked to your survey responses. The phone interview will be audio recorded for accuracy. All study data will be maintained confidentially. The Marquette University Institutional Review Board or its designees may inspect your research records.

A \$5 gift card to Amazon.com or Starbucks will be awarded for completion of the online survey. A \$10 card to Amazon.com or Starbucks will be awarded for completion of the follow-up interview. At the end of the survey and the interview, you will have the option to submit your name and mailing address so the gift card can be mailed to you. Your name and address will not be linked to your survey responses.

If you have any questions about this research project, you can contact Megan Petrik by email (megan.petrik@marquette.edu) or by phone (414-288-5218 extension 1). If you have questions or concerns about your rights as a research participant, you can contact Marquette University's Office of Research Compliance by email (orc@marquette.edu) or by phone (414) 288-7570.

Appendix E

Instructions for Reimbursement and Phone Interview Participation

Thank you for completing this survey. Your clinical expertise is extremely valuable in informing the best practices for assessing suicide risk in EDs.

Gift Card

If you would like to receive the \$5 gift card to Amazon.com or Starbucks for completing this survey, please email EDstudy2013@gmail.com. In the body of the email, indicate if you would like the Amazon.com or Starbucks gift card and include your mailing address. The gift card will be mailed to the address you provide. We will do our best to accommodate your preference for the gift card, but there will be equal amounts of the Amazon and Starbucks gift cards available, and you will be able to choose which one you would like to receive as long as supplies remain.

Optional Phone Interview

We are interested in following up with 15-20 providers to further discuss their perspectives on assessing for suicide risk in emergency medicine. This would be completed through a telephone interview and the interview would be scheduled at your convenience. The anticipated time for the interview is less than 30 minutes.

If you are interested, please send an email to EDstudy2013@gmail.com that indicates you are interested in the interview and include your preferred contact information (email or phone number). A member of the research team will contact you to schedule this optional follow-up interview. You can receive an additional \$10 gift card for participating in this portion of the study.

To conclude this study, please indicate your interest in:

- 1) Participating in the follow-up phone interview (you can receive an additional \$10 Amazon.com or Starbucks gift card for participating in this interview)
- 2) Receiving the \$5 gift card for completing this survey

You will need to email EDstudy2013@gmail.com in order to indicate your interest in either of these options. We will NOT be able to match your responses to this survey to the email address attached to your request for a gift card or a phone interview.

Appendix F

Online Survey Scoring Manual

Prompt 1: What types of factors currently make assessing suicide risk difficult in your ED?

Within the response provided for Prompt 1, the participant may report any of these factors that may act as a barrier to suicide risk assessment in emergency departments (EDs). Each theme is further explained below. In scoring each theme, please use the following key:

- 0 = Theme is Absent
 - If this theme is not mentioned in the narrative, score a 0
- 1 = Theme is Present
 - If this theme is present in the narrative, score a 1
- 9 = No Data
 - If there is missing data, score a 9

1. *Communication Difficulty*

- a. This theme represents difficulty communicating about a patient's suicide risk in multiple modes of communication and between multiple sources. This includes receiving differing reports of a patient's suicide risk from the patient and an alternative source of information (i.e., history of present illness provided by family). This includes discrepancies or communication difficulties in both a verbal and written formant. This also allows for difficulty communicating about suicide risk between multiple sources, including with patients, providers, family members, or police officers.

2. *Time Burden*

- a. This theme represents the perspective that the fast-paced, overcrowded nature of the ED prevents effective suicide risk assessment. This includes feeling pressured to reduce the duration of patient stays, feeling that there is a lack of time for assessing suicide risk, and a pressure to treat a high number of patients at once. All of these factors converge to prevent a provider from spending adequate time with the patient.

3. *Limited Mental Health Resources*

- a. This theme incorporates several aspects related to having few mental health supports/resources to accurately or effectively assess suicide risk as well as appropriately manage suicide risk once identified. This includes not having access to a standardized method to ask or assess suicide risk, limited access to psychiatric/psychological consultation, or not having built-in staff to provide this service in the ED. This also includes the notion that there is a lack of mental health knowledge or training in how to assess suicide risk among ED providers, such that they would prefer a

mental health specialist to provide this service. This also includes the notion that there is poor mental health follow-up care available to patients who will be discharged or limited psychiatric bed availability for patients requiring psychiatric hospitalization.

4. *Limited Privacy*

- a. This theme represents all responses related to the fact that patients tend to be more reserved in responding to suicide risk assessment when family or friends are present for the assessment. A patient's reservation may be intentional or unintentional. This also includes that the notion that the patient may be asked the same questions multiple times, including questions related to suicidal ideation, and because of that may feel exposed.

5. *Patient Non-Cooperation with Assessment*

- a. This theme represents multiple reasons for patients' not being forthcoming in suicide risk assessment. Include both unintentional and intentional reasons for non-cooperation. Unintentional non-cooperation includes cultural barriers related to expressing suicide risk, intoxication, acute psychosis, or a patient who may be too medically unstable to participate in suicide risk assessment. Intentional non-cooperation includes patient refusal to answer suicide risk assessment questions and patients' who may alter their response to either intentionally avoid psychiatric/medical hospitalization or become hospitalized for secondary gains.

Prompt 2: Given your current demands at work, which assessment methods work the best to assess for suicide risk?

Within the response provided for Prompt 2, the participant may report any of these factors that may act as a positive assessment method. Each theme is further explained below. In scoring each theme, please use the following key:

- 0 = Theme is Absent
 - If this theme is not mentioned in the narrative, score a 0
- 1 = Theme is Present
 - If this theme is present in the narrative, score a 1
- 9 = No Data
 - If there is missing data, score a 9

1. *Consultation*

- a. This theme represents providers seeking out and utilizing information from others in the ED, whether that is from family, police, social work, other health care providers in the ED, or mental health specialists. This may include corroborating the patient's history of his/her present illness or seeking information from others if a patient is non-cooperative with assessment. This also involves the provider seeking out and utilizing

information from the patient's electronic medical record to assist the suicide risk assessment process.

2. *Interpersonal Assessment*

- a. This theme represents the process of providers using nonverbal approaches to build rapport and establish a connection with a patient in the hopes that he/she will become more forthcoming if a therapeutic relationship exists. This includes establishing eye contact, using a nonjudgmental tone and language, or ensuring privacy for the conversation about suicide risk assessment. Also include responses where the provider uses their observation of the patient's nonverbal cues to inform their authenticity of the assessment or gauge mood, etc. (i.e., "clinical intuition").

3. *Integrating in Established Care*

- a. This theme represents providers' opinions that the suicide risk assessment process should be integrated into the care they already provide. For example, the provider may stated the practice could be integrated into the history and physical or in triage. This also includes providers' perspectives that the practice should also be standardized.

4. *Directly Asking about Suicide*

- a. This theme represents providers' opinion that directly asking the patient about suicide risk factors (i.e., thoughts of suicide, plans, means, history) is a preferred method of assessment. Include responses related to also asking a patient about protective factors, or the factors that may prevent suicide.

Prompt 3: What kinds of factors help you when assessing for suicide risk?

Within the response provided for Prompt 3, the participant may report any of these factors/tools that may assist in suicide risk assessment. Each theme is further explained below. In scoring each theme, please use the following key:

- 0 = Theme is Absent
 - If this theme is not mentioned in the narrative, score a 0
- 1 = Theme is Present
 - If this theme is present in the narrative, score a 1
- 9 = No Data
 - If there is missing data, score a 9

1. *Collaborative Care*

- a. This theme represents the notion that providers utilize a collaborative care approach to facilitate suicide risk assessment. This includes using other co-workers in the ED, such as nursing, support staff, security, and social work to directly assist in patient care. For example, if a patient endorses suicide, than a provider may involve a security officer or technician to employ the necessary security precautions for a patient who is at risk of hurting him/herself. This also includes placing referrals for

psychiatric/mental health consultation in order to determine a patient's level of suicide risk and disposition for that patient. Finally, this involves accessing information from the medical records to provide comprehensive care.

2. *Increased Time*

- a. This theme represents an ED provider's perspective that having increased time in the ED helps complete an effective suicide risk assessment. This includes also being responsible for fewer patients, hence allowing for more time with an individual person.

3. *Standard Protocol*

- a. This theme represents providers' perspectives that suicide risk assessment works well when standard screening questions are built into established care protocols. This may include asking about suicide risk in triage or in the initial assessment of the present illness. Include comments related having these questions physically integrated into their workplace materials, such as in their charting templates in the electronic medical record (i.e., EPIC).

4. *No Facilitator*

- a. This theme includes all responses that indicate an ED provider could not think of any workplace factors or tools that assist them when assessing for suicide risk.

5. *Privacy*

- a. This theme represents an ED provider's perspective that patients tend to be more open in responding to suicide risk assessment when family or friends are absent for the assessment. This involves ensuring a care environment where the patient is alone during the suicide risk assessment process.