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Universal Adolescent Suicide Screening in a Pediatric Urgent Care Center

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The aim of this article is to describe the implementation of a 2-question suicide screening tool in a pediatric urgent care center to identify patients at risk of suicide. Adolescents presenting during a 12-month period completed the screening tool. Positive response to either question triggered further social work evaluation, including a Columbia-Suicide Severity Rating Scale (C-SSRS). Of 4,786 patients screened, 95 (2%) responded positively. Of these, 75 (79%) also had a positive C-SSRS. Only 7 (7%) had chief complaints related to mental health. A group of 78 patients (82%) were discharged with outpatient mental health referral, and 10 (10%) were admitted to a psychiatric facility. Universal adolescent suicide screening in an acute care setting did not significantly affect flow in our pediatric urgent care and was able to detect patients at risk of suicide, especially those with chief complaints unrelated to mental health.

Keywords adolescents, mental health, pediatric urgent care, suicide, suicide screening, youth

INTRODUCTION

Suicide is the second leading cause of death in adolescents and remains a serious public health concern (Centers for Disease Control and Prevention [CDC], 2016). In 2014 alone, 2,213 adolescents aged 12 to 19 died due to suicide, more deaths than from cancer, heart disease, influenza, and other respiratory disease combined (Centers for Disease Control and Prevention, 2016). The Youth Risk Behavior Surveillance in 2013 found that 17% of high school students seriously considered suicide, 13.6% had made a plan, and 8% had attempted one or more times in the 12 months prior to the survey (Kann et al., 2014).

Many youths are not accessing mental health services when needed nor seeking help through their parents (Husky, McGuire, Flynn, Chrostowski, & Olfson, 2009). Parents were found to be unaware of their children having suicidal ideations in 90% of suicide attempts (Kostenuik & Ratnapalan, 2010; Velez & Cohen, 1988). While adolescents are not accessing mental health services, youth are seeking non-psychiatric care in the months prior to their death and presenting with non-mental health related chief complaints (Kostenuik & Ratnapalan, 2010). Rhodes
et al. found that, in Canada, up to 80% of youth who died by suicide had visited a health care provider, either an outpatient provider or in the emergency room, in the year prior to their death (Rhodes et al., 2013). Therefore, universal screening for suicidal ideation in non-mental health care settings may help identify adolescents at unexpected risk for suicide (Horowitz et al., 2010).

With these concerning statistics in mind, in 2014 the National Action Alliance for Suicide Prevention (Action Alliance) came up with twelve Aspirational Goals to help decrease suicide in the US by 40% over the next decade. Screening is addressed in Aspirational Goal 2: to “determine the degree of suicide risk among individuals in diverse populations and in diverse settings through feasible and effective screening and assessment approaches” (National Action Alliance for Suicide Prevention Research Prioritization Task Force [RPTF], 2014, p. 24). While studies have evaluated screening tools and assessed the acceptance and feasibility of suicide screening of adolescents in the emergency department setting and primary care settings, no such studies exist in the unique and growing urgent care center setting (Horowitz, Ballard, & Pao, 2009; Horowitz et al., 2001; Horowitz et al., 2012; Wintersteen, 2010). The number of primary care providers is expected to grow by 2–7% whereas their workload is expected to increase by 29% from 2005 to 2025 (Petterson et al., 2012). Emergency Department overcrowding has become more and more common in the past few years due to demand for real-time access to care. (Holden, 2005). Urgent care centers have become one solution to ED overcrowding and the increased workload of primary care providers (Borkowski, 2012; Wang et al., 2015). Urgent care centers typically provide acute assessment and management of mildly or moderately sick or injured patients, which may give urgent care providers more time than their emergency medicine counterparts to screen for suicide (Conners, 2014). In the same vein, primary care providers’ workload is ever increasing and they may be unable to screen thoroughly during well visits and likely not at all when adolescents present for acute ill visits. It is during these acute ill visits that adolescents may present with psychosomatic complaints and screening may be the most beneficial. With the ever increasing number of patients being seen in urgent care centers and the number of pediatric urgent care centers on the rise, this acute care setting is a prime target for suicide screening due to sheer volume of patients that can be screened. The goal of this paper is to describe the implementation of a two-question suicide screening tool in a pediatric urgent care center to identify patients at risk of suicide.

MATERIALS AND METHODS

Screening Location

The intervention was conducted in an urban standalone pediatric urgent care center in Kansas City, Missouri, that has an annual census of approximately 28,000 patients and is associated with a tertiary care center. Patients undergo a brief intake process at the front desk by a registered nurse, which includes personal information, chief complaint, consent for care, and suicide screening. Patients are brought back to the exam room by a medical assistant and vital signs are assessed in the room while a medical provider, either a physician or nurse practitioner, along with an assigned nurse enters to gather the medical history.

Screening Criteria

All adolescents aged 12 years and older presenting to the urgent care center were
screened. We excluded those patients who were non-English speaking, determined to require emergent care, and/or judged to be unable to understand or answer the questions.

Screening Process

During the 1-year period from May 2014 through April 2015, all qualifying adolescents were asked by a registered nurse to complete our two-question paper based suicide screening tool in the course of the intake process. The registered nurse at the front desk determined if patients were excluded from screening due either to severity of illness or to the patient’s inability, as described by the parent or guardian, to understand or answer the questions due to developmental delay or autism spectrum disorder. All patients were fully evaluated for their chief complaint.

The suicide screening tool is a two-question, paper survey. Based on recommendations of Wintersteen, Diamond, and Fein (2007) for suicide screening in the pediatric acute care setting, the two questions are:

1. In the past week including today, have you felt like life is NOT worth living?
2. In the past week including today, have you wanted to kill yourself?

Responses were entered into the electronic health record by urgent care center staff at the front desk. Entry of a positive response to either question resulted in an automated electronic page to an on-call social worker, who reported to the facility within 30 minutes. On-call social workers were available at all times during urgent care hours, either in house or on call and available within 30 minutes. The social worker conducted a detailed evaluation of the patient and family; in a few instances, a patient claimed later to have mistakenly answered the screening questions affirmatively. Except in cases where responses to the screening tool were judged to be truly in error, assessment of patients included administration of a psychosocial assessment, which includes reason for their urgent care visit, their family/living situation, patient/caregiver functioning, psychosocial risk factors, patient’s education level and employment, as well as any current services the patient is receiving, and the Columbia-Suicide Severity Rating Scale (C-SSRS) (Posner et al., 2008), a validated tool for which the social worker had been trained. The C-SSRS for the pediatric population (Lifetime/Recent Version) includes four main constructs to determine the domains of suicidal ideation and suicidal behavior: the severity subscale, intensity of ideation subscale, behavior subscale, and the lethality subscale. The severity subscale is rated on an ordinal scale and evaluates 1 = wish to be dead, 2 = non-specific active suicidal thoughts, 3 = suicidal thoughts with methods but no plan, 4 = suicidal intent without plan, 5 = suicidal intent with plan. The behavior subscale is rated nominally and includes actual, aborted and interrupted attempts, preparatory behavior, and nonsuicidal self-injurious behavior. Both the severity subscale and the behavior subscale have shown significant predictive validity compared to the Columbia Suicide History Form and the suicide evaluation board classifications for studies involving adolescents. For aborted attempts, the C-SSRS has shown 99.4% specificity and 100% sensitivity and for both interrupted and actual attempts, the C-SSRS has shown 100% sensitivity and specificity (Posner et al., 2011). For purposes of our evaluation, the C-SSRS was considered positive if the severity and/or behavior subscale was positive. The social worker, family, and urgent care team then collaborated to recommend the patient’s disposition, potentially including referral for
outpatient psychiatric care or for inpatient psychiatric admission.

Data Collection and Analysis

Patients with positive responses to one or both of the suicide screening questions were also recorded on a separate log. After having conducted the suicide screening process for 1 year, we retrospectively reviewed the results of the 12-month period and performed content analyses for those patients that screened positive, including responses to the C-SSRS, as well as relevant information on age, gender, chief complaint of that visit, length of stay, ethnicity, and disposition, as determined from the patients’ electronic medical records. Informed consent was not obtained, as the screening process became part of the urgent care center standard of care. This study was approved by the Children's Mercy Hospital Institutional Review Board.

RESULTS

During our 1 year study period, we screened 4,786 of the 4,868 adolescents aged 12 and older who presented to our pediatric urgent care facility (Figure 1). Eighty-two patients were not screened as they either required emergent care, were non-English speaking, or determined to be unable to answer the questions based on report of developmental delays by parents/guardians. Table 1 shows the demographic information of the adolescents who presented during our first year. Fifty-six percent of these were between the ages of 12 and 14 and 56% were female. Sixty-eight percent were white and approximately 13% were black.

During our 12-month study period, we screened 4,786 adolescents, of whom 119 gave positive answers to one or both of the suicide screening questions. Twenty-one, or 18% of those patients with positive screens, were determined to have mistakenly given positive answers to one or both questions. Seventeen of the 21 were age ≤14 and 10 were male. The most common reason for a falsely positive screen was misunderstanding the negative nature of the first question as all 21 of these patients answered positively to question 1 by mistake. Six of the 21 patients who misunderstood the suicide screen answered positively to both questions and none answered positively to just question 2. In addition to the 21 patients, 3 other patients did not have a recorded C-SSRS in the chart by the social worker for an unknown reason. Charts of these 24 patients were not further reviewed.

The charts of the 95 patients who gave positive answers to one or both of the suicide screening questions and had a recorded C-SSRS were reviewed. Fifty-seven of the 95 answered positively to only question 1 of the suicide screen, 8 answered positively to only question 2, and 30 answered positively to both questions of the suicide screen. Of the 87 who answered positively to question 1 on the urgent care suicide screen, 66 or 76% also answered positively to the first question of the C-SSRS. Of the 38 who answered positively to question 2 on the urgent care suicide screen, 25 or 66% also answered positively to the second question of the C-SSRS. Twenty of the 95 patients who screened positive on suicide screen had a negative C-SSRS. Sixteen of these 20 patients answered positively to question 1, two answered positively to question 2, and two answered positively to both. The mean age was 14 years (SD = 1.7) and 70% were female. Detailed demographic information can be found in Table 2. The average length of stay for these patients was 131 minutes (SD = 62; median = 123), as compared with 89 minutes (SD = 45; median = 84) for those with negative suicide screens during the same time period. Seventy-eight of
these patients were discharged from the urgent care center with referrals for outpatient mental health follow-up or resources, including 19 with a negative C-SSRS. Ten patients ranging from ages 12 to 18 years required psychiatric admission; 9 of these 10 patients were female. Only 7 of the 95 patients with a positive suicide screen tool had mental health-related chief complaints; all of these had a positive C-SSRS. Five of the 7 patients with mental health-related chief complaints came in specifically for suicidal ideation and the other 2 were for anxiety and depression. Five of the 7 adolescents with mental health-related chief complaints were among the 10 patients requiring psychiatric admission. The other 2 were referred for outpatient mental

FIGURE 1. Adolescents screened during first year.
health follow-up. The other 88 patients with a positive suicide screen presented with non-mental health related chief complaints. Of those, 5 required psychiatric admissions and 57 were referred for outpatient mental health follow-up. The remaining 6 patients required medical admission, were transferred to the ED for non-mental health concerns, or left against medical advice.

DISCUSSION

We implemented a pediatric urgent care center-based suicide screening program for patients aged 12 years and older, in order to identify patients at risk of suicide and to refer them to appropriate psychiatric help or resources. We screened 4,786 patients aged 12 to 19 years over a period of 12 months. Of these patients, 95 (2%) gave a positive response to at least 1 of our 2 suicide screening questions. Importantly, 93% of the adolescents with a positive screen, including 5 of the 10 patients admitted for psychiatric hospitalization, had chief complaints unrelated to mental health. Identifying these patients was an important goal of the program, as each of these patients was experiencing suicidal thoughts and in psychological distress, and may not otherwise have received appropriate intervention. Universal adolescent suicide screening in acute care settings such as an urgent care center can potentially detect risk of suicide and help limit adolescent rate of suicide.

An important challenge to implementing this program was identifying a screening tool that was sufficiently brief and simple to administer. We required a tool that would adequately identify patients at risk of suicide without significantly interrupting the flow of the acute care setting. Two-question screening tools have been described in several studies as effective means of suicide screening, especially in

### TABLE 1. Demographic of Adolescent Population (n = 4868, %)

<table>
<thead>
<tr>
<th>Age</th>
<th>Total (n=4868)</th>
<th>Positive C-SSRS (n=95)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12–14 years</td>
<td>2,728 (56.0)</td>
<td>40 (53)</td>
</tr>
<tr>
<td>15–19 years</td>
<td>2,111 (43.4)</td>
<td>35 (47)</td>
</tr>
<tr>
<td>&gt;19 years</td>
<td>29 (0.6)</td>
<td>15 (20)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Total (n=95)</th>
<th>Positive C-SSRS (n=75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>61 (64.2)</td>
<td>50 (66.7)</td>
</tr>
<tr>
<td>Female</td>
<td>34 (35.8)</td>
<td>25 (33.3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race/ethnicity</th>
<th>Total (n=95)</th>
<th>Positive C-SSRS (n=75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>3,335 (68.5)</td>
<td>270 (35.4)</td>
</tr>
<tr>
<td>Black</td>
<td>623 (12.8)</td>
<td>45 (6.0)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>433 (8.9)</td>
<td>32 (4.3)</td>
</tr>
<tr>
<td>Multiracial</td>
<td>206 (4.2)</td>
<td>16 (2.1)</td>
</tr>
<tr>
<td>Other</td>
<td>93 (1.9)</td>
<td>7 (0.9)</td>
</tr>
<tr>
<td>Asian</td>
<td>89 (1.8)</td>
<td>7 (0.9)</td>
</tr>
<tr>
<td>Unknown</td>
<td>48 (1)</td>
<td>4 (0.5)</td>
</tr>
<tr>
<td>American Indian or Alaska Native</td>
<td>23 (0.5)</td>
<td>2 (0.3)</td>
</tr>
<tr>
<td>Native Hawaiian or Pacific Islander</td>
<td>18 (0.4)</td>
<td>2 (0.3)</td>
</tr>
</tbody>
</table>
the emergency department (Chun, Duffy, & Linakis, 2013; Folse, Eich, Hall, & Ruppmann, 2006; Rutman, Shenassa, & Becker, 2008). Many looked at screening adolescents aged 12 and older for depression and mental health issues that put these youth at increased risk of suicide as we have done (Grupp-Phelan, McGuire, Husky, & Olfson, 2012; Rutman et al., 2008). Our two-question suicide screening tool is administered during the registration and intake process at the front desk, adding very little time to the patient’s visit. Being paper-based, it is logistically simple for patients to complete.

Patients with a positive response to either of our two questions underwent secondary evaluations. We implemented an in-depth secondary evaluation process conducted by trained social workers. This process consisted of a widely accepted standardized screening tool, the C-SSRS, and a patient and family psychosocial assessment, followed by referrals for mental health care as appropriate. The majority of the patients that screened positive, and that were discharged home, obtained mental health referrals even if their C-SSRS was negative. Interestingly, 20 patients who screened positive on our screening tool had a negative C-SSRS, which we attributed to how the first question of our screening tool is worded versus how the C-SSRS is worded. Our first question simply asks adolescents if they feel if “life is not worth living” while the C-SSRS asks specifically about their desire “to be dead.” Despite a negative C-SSRS, 19 of these 20 patients received mental health referral when their post-screening psychosocial assessment revealed risk factors, such as depression or anxiety, which put them at risk of future suicidality. We felt that mental health referral was a proactive step in getting these adolescents the help they needed. This mental health referral process, often a challenge for acute care suicide screening programs, was an important aspect of our program, and along with the whole patient encounter added only an additional 42 minutes per positive patient.

**Limitations**

There were several limitations in our study. First, we encountered 21/4,786 (0.4%) screened patients, mostly age ≤14, who had a positive response to our screening process because they misread a question. Although this number is small, this is a genuine limitation of using brief, paper-based screening processes in this patient population. We do not know of any patients who had a negative response because of misreading a question, but this could potentially also have happened.

Second, since there are no published reports of universal adolescent suicide screening in the urgent care setting, we used a non-validated screen, albeit one based on published recommendations. Our goal was to implement use of a screening tool that could be effectively used in a pediatric urgent care center without adversely affecting patient flow. We believe our two-question suicide screening tool is brief enough to not interrupt urgent care center flow but still be able to identify suicidal adolescents that would have otherwise been missed. A future goal of the suicide screening project would be to validate the two-question suicide screening tool.

Third, we do not know the true prevalence of suicidality in our unique target population. We may have missed some suicidal patients who had negative suicide screening, including those who were motivated to conceal their suicidal thoughts or plans, due to our screen being paper based and confidentiality not being assured. Although all patients presenting with suicidality as a chief complaint had positive screens, we may in our chart review process have missed patients who presented with other mental health chief complaints.
and were potentially suicidal, yet had a negative screen. Thus, we cannot calculate our screening tool’s sensitivity and specificity. A future goal is to determine the operating characteristics of our suicide screening tool by performing a secondary evaluation by a social worker and C-SSRS of all of our adolescent patients, rather than only those with positive suicide screen.

We were limited by our IRB to an examination of factors directly related to the suicide screening process. Due to these limitations, we were unable to include the results of the psychosocial assessment completed by the social worker. This would have given us further insight into our patient population and our suicide screen especially with regard to those patients that had a positive suicide screen but a negative C-SSRS. We were also unable to determine the effectiveness of our suicide screen as our IRB did not approve chart review prior to the implementation of the suicide screen in our urgent care.

CONCLUSIONS

There are no published reports of universal adolescent suicide screening processes in the urgent care center setting. We implemented such a process with an easily administered, two-question, paper-based tool, which identified 2% of patients with accurate positive responses for potential mental health referral. Over a 12-month period, the process identified 88 out of 95 (93%) adolescents whose chief complaints were not related to mental health, but who required referral for outpatient or inpatient mental health care for significant mental health concerns that would likely have been missed without a screening process. Universal adolescent suicide screening in acute care settings such as an urgent care center can detect important mental health concerns and potentially help limit adolescent rate of suicide. Future considerations include determining the operating characteristics of our suicide screening tool, including doing a secondary evaluation on those adolescents that screen negatively on our suicide screening tool, as well as evaluating patient, caregiver, and provider perceptions on suicide screening in a pediatric urgent care.

AUTHOR NOTE

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