

# Primary and Secondary Prevention of Youth Suicide

Lisa Horowitz, PhD, MPH, Mary V. Tipton, BA, Maryland Pao, MD

abstract

Youth suicide is a national and global public health crisis. Pediatricians can use primary and secondary prevention strategies to intervene with youth before or after the onset of suicidal behaviors. Universal suicide risk screening programs can be used to identify youth in medical settings who may otherwise pass through the health care setting with undetected suicide risk. Pediatricians are uniquely positioned to help foster resilience in their young patients and equip families of at-risk youth with safety plans and lethal means safety counseling. Pediatricians on the frontlines of this critical public health crisis require education and training in detecting suicide risk, managing those who screen positive, and connecting their patients to much needed mental health interventions and treatments. Evidence-based suicide risk screening and assessment tools, paired with interventions, are feasible and potentially life-saving in the medical setting.



National Institute of Mental Health, Bethesda, Maryland

All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

**DOI:** <https://doi.org/10.1542/peds.2019-2056H>

Accepted for publication Jan 29, 2020

Address correspondence to Lisa Horowitz, PhD, MPH, Staff Scientist/Pediatric Psychologist, Director of Patient Safety and Quality, NIMH, Office of the Clinical Director, Intramural Research Program, National Institute of Mental Health, NIH, 10 CRC, Room 6-5362, 10 Center Dr, Bethesda, MD 20892-1276, E-mail: [horowitzl@mail.nih.gov](mailto:horowitzl@mail.nih.gov)

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

Copyright © 2020 by the American Academy of Pediatrics

**FINANCIAL DISCLOSURE:** The authors have indicated they have no financial relationships relevant to this article to disclose.

**FUNDING:** Supported by the Intramural Research Program of the National Institute of Mental Health of the National Institutes of Health (ZIAMH002922-11). Funded by the National Institutes of Health (NIH).

**POTENTIAL CONFLICT OF INTEREST:** The authors have indicated they have no potential conflicts of interest to disclose.

Youth suicide is a major global public health crisis. In the United States, suicide rates continue to rise, despite many decades of prevention efforts. In this article, we will describe the increasing rates of youth suicide, suicidal behavior, and ideation in the United States and discuss evidence-based strategies pediatricians can use in primary and secondary prevention. The gaps in our current knowledge and areas for future research will be also be addressed.

### **YOUTH SUICIDE: A BRIEF EPIDEMIOLOGIC OVERVIEW**

Suicide is the second leading cause of death for young people 10 to 24 years of age in the United States and worldwide.<sup>1</sup> In 2017, suicide accounted for 25% of all injury-related deaths for this age group, with a rate of 10.57 per 100 000.<sup>2</sup> In addition, more young people died by suicide than the top 17 leading medical causes of death combined.<sup>3</sup> American Indians and Alaska Natives<sup>4</sup>; lesbian, gay, bisexual, transgender, and queer or questioning youth<sup>5</sup>; individuals with neurodevelopmental disorders<sup>6</sup>; and children in the foster care system<sup>7</sup> are at greater risk for suicidal ideation and behavior.

Although underrepresented in current research, preteens and younger children think about, plan, and die by suicide. Among children 5 to 12 years of age, suicide is the fifth leading cause of death.<sup>3</sup> Notably, suicide rates in youth 10 to 14 years of age are the fastest growing, with rates of suicide now exceeding death by traffic accidents.<sup>3,8</sup> Bridge et al<sup>9</sup> uncovered a significant racial disparity for children <12 years of age, with African American children dying by suicide at higher rates than white children; this trend completely reverses at 13 years of age,<sup>10</sup> but limited data do not explain why.<sup>11</sup> In recent trends, it is shown that visits to emergency departments (EDs) for suicidal behavior have doubled over

time, with nearly half the increase due to visits by preteens.<sup>12,13</sup>

### **SUICIDE TERMINOLOGY**

Phrases like “committing suicide” or “successful suicide” are no longer considered appropriate terms for pediatricians and researchers to use. Such phrases are discouraged as they carry negative, blaming connotations and mislabel suicidal behavior as something that may be successfully accomplished. Instead phrases such as “die by suicide” or “completed suicide” are now more acceptable.<sup>14–16</sup>

### **SUICIDE RISK AMONG PATIENTS IN MEDICAL SETTINGS**

In many studies, researchers have identified medical illness as a risk factor for suicide in adults<sup>17–19</sup> and youth.<sup>20–24</sup> Youth with chronic medical conditions have increased contact with their pediatricians, allowing opportunities for detection of suicide risk. Medical settings are well positioned to screen for suicide risk. Death registry studies reveal that the majority of young suicide decedents (80%) have visited a health care setting months, sometimes weeks, before death,<sup>25,26</sup> and only 20% had contact with a mental health professional.<sup>27</sup> Importantly, >1.5 million young people will have an ED visit as their sole contact with the health care system,<sup>28</sup> which may be the only opportunity to recognize their distress and intervene. Despite these statistics, few pediatric health care settings screen for suicide risk, and fewer use evidence-based methods.<sup>29</sup>

### **PRIMARY PREVENTION STRATEGIES**

There is rarely a single cause of a death by suicide but rather a combination of genetic and environmental risk factors, as well as precipitating events. Suicidal thinking in childhood is the gateway to adult

psychopathology and suicide attempts, making early detection and intervention a public health imperative. Primary prevention strategies aim to prevent the onset of suicidal thoughts and behaviors by mitigating the effects of internal and external risk factors. Potential prevention approaches include fostering resilience in young patients, promoting peer and family connectedness, and intervening on parent psychopathology.<sup>30</sup>

A young person’s ability to adapt to stress and adversity is essential for healthy development. Pediatricians, as de facto mental health providers, can be trained to help youth navigate emotional distress by suggesting individualized coping strategies to tolerate frustrations and persevere through failures,<sup>31</sup> thus intervening before the onset of psychiatric symptoms. Pediatricians can promote resilience by highlighting the patient’s strengths, encouraging self-efficacy, teaching effective problem-solving skills, and identifying protective factors, such as strong social connections, engagement in mental health treatment, and strong religious and spiritual beliefs.<sup>32,33</sup>

In some studies, researchers have found that increased feelings of school and peer connectedness are related to lower reports of suicidality among students.<sup>34,35</sup> In addition to peer support, familial and community support are protective factors against suicidal behavior.<sup>33</sup> Furthermore, research suggests a strong relationship between child and parent mental health, such that parents with mental illness are more likely to have children with psychiatric symptoms.<sup>36,37</sup> Notably, intervening and mitigating parental depression has been shown to reduce depressive and suicidal symptoms and promote better health outcomes<sup>38</sup> for their children, turning a risk factor into a protective factor.

## SECONDARY PREVENTION STRATEGIES

### Risk Factors and Warning Signs of Suicidality

Secondary suicide prevention efforts are aimed at detecting youth at risk for suicide and recognizing those exhibiting warning signs. Known risk factors for suicidal ideation and behavior include previous suicide attempt, mental illness or substance use disorder, family history of suicide, childhood abuse, trauma or neglect, impulsive or aggressive tendencies, isolation, hopelessness, interpersonal loss, and medical illness.<sup>32,33,39</sup>

However, most youth who experience one or more of these risk factors will not die by suicide, as is true of most risk factors for any serious medical condition. Yet, being aware of warning signs can be invaluable and can help pediatricians intervene with youth who are displaying signs of imminent risk. Possible warning signs<sup>40</sup> include talking about wanting to die or killing oneself, which, no matter what age, should always be taken seriously; looking to obtain lethal means to kill oneself; talking about feeling hopeless, helpless, or having no reasons to live; feeling like a burden to others; experiencing insurmountable pain; increased use of alcohol or drugs; increased agitation, anxiety, or recklessness; and sleeping too much or too little or not wanting to get out of bed in the morning.

### Detecting Suicide Risk in the Medical Setting

Suicide is one of the most frequently reported Sentinel Events to The Joint Commission (TJC) among behavioral health and medical patients. A significant percentage of Sentinel Event suicides reported to TJC occur in nonbehavioral health units (eg, ED, ICU, inpatient medical or surgical units).<sup>41,42</sup> In 2007, TJC issued National Patient Safety Goal 15,<sup>43</sup> stating that all behavioral health patients are required to be screened for suicide risk in psychiatric and

general medical settings. In 2016, TJC broadened this alert by issuing Sentinel Event Alert 56,<sup>41</sup> recommending that all patients in medical settings be screened for suicide risk using standardized, evidence-based screening tools. The National Action Alliance for Suicide Prevention<sup>44</sup> and the American Academy of Pediatrics<sup>45</sup> have also supported implementing suicide risk screening procedures in medical settings and increasing provider education about suicide risk among medical patients.

The number one root cause of suicide Sentinel Events is lack of assessment for suicide risk.<sup>41</sup> Most often, patients present with somatic chief complaints and will rarely initiate conversations about their suicidal thoughts if not asked directly, “Are you having thoughts about killing yourself?” Pediatricians should not rely solely on clinical intuition or evidence of warning signs of suicidality to screen a patient; such screening should be universally systematic with young patients 10 years of age and older.<sup>46</sup> Pediatricians will need clinical pathways that include both screening and assessment tools,<sup>46</sup> which each serve different functions. Screening tools are used to rapidly identify patients who require further assessment. Subsequently, assessment tools guide pediatricians in a more comprehensive evaluation of risk to determine the next steps of care.

### Screening Tools and the Youth Suicide Risk Screening Clinical Pathway

It is important to use tools that are evidence-based for the population in which they are intended to be used. The Ask Suicide-Screening Questions (ASQ; see Fig 1) is an example of an evidenced-based suicide risk screening tool for medical and behavioral health pediatric patients approved by TJC.<sup>47</sup> The ASQ is a brief screening tool containing 4 yes or no

questions developed to assess suicidal ideation and behavior. A positive screen result on the ASQ will flag a patient who needs further risk assessment. The ASQ was developed in the pediatric ED with 96.9% sensitivity, 87.6% specificity, and takes 20 seconds to administer. Current studies validating the ASQ among youth in inpatient and outpatient settings, and in adult medical patients, are showing promising psychometrics. An online ASQ toolkit was created to assist medical settings with implementation, including scripts for nurses and medical assistants, flyers for parents, and brief suicide safety assessments (BSSAs) ([www.nimh.nih.gov/ASQ](http://www.nimh.nih.gov/ASQ)).

Recently, youth suicide risk screening clinical pathways,<sup>46</sup> sponsored by the American Academy of Child and Adolescent Psychiatry, were published to provide physicians with step-by-step implementation instructions. These pathways were designed to allow each medical setting the flexibility needed to adapt their screening programs depending on available staff and resources. The pathways outline a 3-tiered system: (1) nurses and medical assistants administering the ASQ as a brief screen; (2) mental health clinicians, nurse practitioners, physician assistants, or physicians conducting a BSSA using the Columbia-Suicide Severity Rating Scale<sup>48</sup> or the ASQ BSSA<sup>47</sup>; and, if necessary, (3) a full mental health evaluation. The critical second step of the BSSA allows physicians to choose next steps for patients who are at varying intermediate levels of risk for suicide. An ASQ BSSA has been developed specifically for pediatricians for specific venues. The pathways are meant to be individualized according to each institution’s culture and, if implemented thoughtfully, can make screening more feasible and spare strapped mental health resources.



## Suicide Risk Screening Tool

NIMH TOOLKIT

Ask Suicide-Screening Questions

### Ask the patient:

1. In the past few weeks, have you wished you were dead?  Yes  No
2. In the past few weeks, have you felt that you or your family would be better off if you were dead?  Yes  No
3. In the past week, have you been having thoughts about killing yourself?  Yes  No
4. Have you ever tried to kill yourself?  Yes  No  
If yes, how? \_\_\_\_\_  
\_\_\_\_\_  
When? \_\_\_\_\_  
\_\_\_\_\_

If the patient answers **Yes** to any of the above, ask the following acuity question:

5. Are you having thoughts of killing yourself right now?  Yes  No  
If yes, please describe: \_\_\_\_\_

### Next steps:

- If patient answers "No" to all questions 1 through 4, screening is complete (not necessary to ask question #5). No intervention is necessary (\*Note: Clinical judgment can always override a negative screen).
- If patient answers "Yes" to any of questions 1 through 4, or refuses to answer, they are considered a **positive screen**. Ask question #5 to assess acuity:
  - "Yes" to question #5 = **acute positive screen** (imminent risk identified)
    - Patient requires a **STAT safety/full mental health evaluation**.
    - Patient cannot leave until evaluated for safety.
    - Keep patient in sight. Remove all dangerous objects from room. Alert physician or clinician responsible for patient's care.
  - "No" to question #5 = **non-acute positive screen** (potential risk identified)
    - Patient requires a **brief suicide safety assessment to determine if a full mental health evaluation is needed**. Patient cannot leave until evaluated for safety.
    - Alert physician or clinician responsible for patient's care.

### Provide resources to all patients

- 24/7 National Suicide Prevention Lifeline 1-800-273-TALK (8255) En Español: 1-888-628-9454
- 24/7 Crisis Text Line: Text "HOME" to 741-741

asQ Suicide Risk Screening Toolkit NATIONAL INSTITUTE OF MENTAL HEALTH (NIMH) 6/13/2017

### FIGURE 1

The ASQ tool was developed through a multisite study led by the National Institute of Mental Health. The Ask Suicide-Screening Questions (ASQ) Toolkit. Available at: <https://www.nimh.nih.gov/ASQ>. Accessed October 15, 2019.

### Depression Screening Versus Suicide Risk Screening

Some medical settings use depression screening tools to screen for suicide risk, such as the Patient Health Questionnaire-9,<sup>49</sup> the modified Patient Health Questionnaire-Adolescents,<sup>50</sup> or the PHQ-M<sup>51</sup> for adolescents. Although validated to screen for depression, the questions on these tools have not been validated to specifically identify

suicide risk. In studies, researchers have found that depression screens underdetect patients who die by suicide.<sup>52,53</sup> Not all youth who die by suicide have clinically significant depression,<sup>54</sup> suggesting that screening for depression may not be sufficient to detect suicide risk.<sup>55,56</sup> In similar data in pediatric medical inpatients, it was found that using only the Patient Health Questionnaire-Adolescents to screen

for suicide missed 28% of pediatric patients at risk.<sup>57</sup> In addition, there is also no empirical evidence to support the all too common and tedious practice of sequentially screening a patient first with the Patient Health Questionnaire-2; then, if positive, administering a Patient Health Questionnaire-9; and then, if still positive, administering a suicide risk screen. Asking directly about suicide with validated suicide-specific screening instruments is the best way to accurately identify patients at risk.

### Evidence-Based Suicide Prevention Programs for Medical Settings and Schools

There are several evidence-based treatments that have been touchstones for treating adult individuals at risk for suicide. Cognitive behavior therapy intervention for those attempting suicide was shown to reduce reattempts by 50% over an 18-month period when compared with treatment as usual.<sup>58</sup> Dialectical behavior therapy intervention reduced suicide attempts by 50% over 24 months, compared with community treatment.<sup>59</sup> More recently, in a landmark Emergency Department Safety Assessment and Follow-up Evaluation study in adults, it was demonstrated that universal suicide risk screening paired with a simple, brief intervention of safety planning and postdischarge telephone check-ins was shown to decrease suicide attempts by 30% over 12 months.<sup>60</sup>

Several suicide prevention programs are available to intervene with youth at risk for suicide in the medical setting. The Family-Based Crisis Intervention<sup>61</sup> was created in a pediatric ED to stabilize a suicidal adolescent within a single ED visit, with adaptations for primary care currently in progress. The Family Intervention for Suicide Prevention<sup>62</sup> intervenes with teens who present to

the ED with suicidal ideation or after a suicide attempt. This and similar prevention programs have been adapted for other medical, school, and community settings.<sup>63</sup> Pediatricians should also be aware of and partner with school systems that have begun to use effective school-based interventions (eg, Signs of Suicide<sup>64,65</sup> and Sources of Strength<sup>66</sup>).

Pediatricians have a renewed interest in collaborative care models of integrated mental health care within primary care settings. Currently, mental health care is not well integrated into primary care, but creative solutions are being developed to provide increased resources to those with more complex conditions. Telehealth is also an emerging method of managing mental health problems in areas where there are limited or no mental health resources.

### **Safety Planning and Lethal Means Safety Counseling**

Before discharging a patient that screens positive for suicide risk, the pediatrician, patient, and parent or guardian (if available) should create an individualized safety plan and review which lethal means are available to determine how to safely store or remove them from the home.<sup>67</sup> Firearms are the leading and most lethal method of suicide death in youth 10 to 24 years of age in the United States (46% of all suicide deaths), followed by suffocation or hanging (38%) and poisoning or overdose (7%).<sup>3</sup> Educating families about the importance of keeping firearms and medications locked away from their child's access is critical and could be life-saving.<sup>67,68</sup>

Pediatricians should not ask patients to sign "safety contracts" to "promise" not to hurt themselves because these are not valid.<sup>69</sup> Rather, pediatricians and patients together should create concrete, personalized safety plans (eg, "What will you do when you are

having thoughts of suicide? Who will you tell? How will you cope?"). Safety planning<sup>70</sup> includes developing coping strategies for times of crisis; recognizing one's own warning signs; identifying family members, peers, or professionals who can be contacted for help; and providing contact information for the National Suicide Lifeline (1-800-273-8255) and the Crisis Text Line (text "start" to 741741).

### **Scaling Up Implementation of Suicide Risk Screening With Quality Improvement Projects**

Turning suicide prevention research into real-world implementations is challenging but has been done successfully. In general, screening programs need to be flexible so that each institution can adopt validated tools and adapt processes to fit harmoniously within the workflows and culture of each site and the populations it serves. Screening programs are best implemented within a quality improvement "Plan-Do-Study-Act" iterative model,<sup>70</sup> beginning with training and education of all involved, followed by a brief pilot screening phase. A few weeks after initial implementation, stakeholder feedback should be used to revise the screening program as necessary. Using a continuous improvement model that is able to incorporate advances in research, improve tools over time, and make revisions to the screening program is important. Parkland Health and Hospital Systems in Dallas, Texas, serves as a universal suicide risk screening model program for the country; it has screened >2 million adult and pediatric patients for suicide risk without major disruptions to their inpatient and outpatient hospital workflows.<sup>71</sup> They began with a pilot phase and adjusted as needed on the basis of feedback from patients, families, staff, and physicians.

Another example of a screening quality improvement project took place in a large pediatric practice in Richmond, Virginia, which implemented the ASQ among pediatric medical outpatients seen for routine physicals.<sup>72</sup> All staff, including physicians, nurses, nurse practitioners, and front desk staff, attended trainings on suicide risk detection and prevention. An example of a revision to the program, after the pilot phase of screening all well visits for patients 12 years of age and older, was responding to parent concerns about asking children about suicide. Parents of the pediatric patients had more questions about the screening than anticipated, so the process was revised to include a flyer given out preemptively to parents during front desk registration. The flyer announced the new addition of suicide risk screening to standard practice, the reasons for universal screening, and referenced several research articles about the safety of screening young people for suicide risk. After the staff became more comfortable screening, they expanded the pilot to include all patient visits, sick or well, for patients 10 years of age and older. The iterative, "Plan-Do-Study-Act" process helped the pediatric practice gradually incorporate changes to their program informed by their own patient data. Through this participatory, experiential, monitoring, and results-oriented progression, staff are now comfortable with screening. They have created a highly functioning and potentially life-saving screening program that the practice, patients, and their families value.

Lessons learned from implementations teach us that overresponding to positive screen results can make screening programs untenable. It is unnecessary and burdensome to patients and staff to reflexively treat every patient who screens positive as an "emergency" (eg, a trip to the ED, automatic

one-to-one observer, and/or a full psychiatric evaluation). Each positive screen should be followed by a BSSA in which next steps can be determined for feasible and rational patient safety.

Challenges to implementing screening programs in medical settings include time constraints, managing patients who screen positive, discomfort with asking questions about suicide, and stigma.<sup>29,73</sup> Pediatricians have concerns about adding to their already overburdened systems of referring for mental health care. Although accessing mental health care is a public health problem nationwide, data from large screening programs reveal that screening medical patients for suicide risk has not added volume to the ED boarding crisis or overburdened systems of care.<sup>74,75</sup> Sadly, youth are struggling with suicidal thoughts whether pediatricians screen them. For most young people, screening itself can be an intervention because this could be the first encounter in which they are verbalizing their troubling thoughts to a trusted adult. In addition, much of the time a parent is unaware that their child is thinking about suicide.<sup>10</sup> Uncovering suicidal thoughts can put the parent or guardian on notice to be vigilant for signs of imminent risk.

### Current Gaps and Future Directions

In future research, investigators should determine frequency of screening, effectiveness of pediatrician- versus self-administered versions of screening tools, and mechanisms to leverage social media to mitigate suicide risk. Studies that include particularly vulnerable populations (eg, lesbian, gay, bisexual, transgender, and queer or questioning youth; neurodevelopmentally disabled youth; racial and ethnic minorities) may inform more-effective suicide prevention strategies.

Emerging research uses technology to help detect and prevent suicidal

behaviors. New research has identified implicit association tasks as helpful in identifying patients' implicit beliefs about suicidality.<sup>76</sup> In recent studies, it has been suggested that a computerized adaptive testing approach to screening may be able to capture a more-complete spectrum of suicidality.<sup>77</sup> Ecological momentary assessment research has started to use smartphones to track unique warning signs in real time that may precede or predict suicidal ideation and behavior.<sup>78</sup>

### CONCLUSIONS

Pediatricians are on the frontlines of this critical public health crisis of youth suicide. Universal screening is no longer theoretical; medical settings throughout the country are pioneering ways to successfully identify and manage suicide risk. With evidence-based guidelines in place to manage patients who screen positive, suicide risk screening paired with interventions is feasible and potentially life-saving. Every pediatrician can make a difference and move us closer to the goal of reducing youth suicide.

### ABBREVIATIONS

ASQ: Ask Suicide-Screening Questions

BSSA: brief suicide safety assessment

ED: emergency department  
TJC: The Joint Commission

### REFERENCES

1. World Health Organization. Suicide data. 2002. Available at: [www.who.int/mental\\_health/prevention/suicide/](http://www.who.int/mental_health/prevention/suicide/). Accessed May 10, 2019
2. Centers for Disease Control and Prevention. Fatal injury reports, national, regional and state, 1981-2017. Available at: <https://webappa.cdc.gov/sasweb/ncipc/mortrate.html>. Accessed May 10, 2019

3. Centers for Disease Control and Prevention. Leading causes of death reports, 1981–2018. Available at: <https://webappa.cdc.gov/sasweb/ncipc/leadcause.html>. Accessed May 10, 2019
4. Great Lakes Inter-Tribal Council, Inc. *Suicidal Behaviors Among American Indian/Alaska Native Populations: Indian Health Service Resource Patient Management System Suicide Reporting Form Aggregate Database Analysis, 2003-2012*. Lac du Flambeau, WI: Great Lakes Inter-Tribal Epidemiology Center; Great Lakes Inter-Tribal Council, Inc; 2013
5. Centers for Disease Control and Prevention. *Sexual Identity, Sex of Sexual Contacts, and Health-Risk Behaviors Among Students in Grades 9-12: Youth Risk Behavior Surveillance, Selected Sites, United States, 2001–2009*. Atlanta, GA: U.S. Department of Health and Human Services; 2017
6. Horowitz LM, Thurm A, Farmer C, et al; Autism and Developmental Disorders Inpatient Research Collaborative. Talking about death or suicide: prevalence and clinical correlates in youth with autism spectrum disorder in the psychiatric inpatient setting. *J Autism Dev Disord*. 2018;48(11):3702–3710
7. Pilowsky DJ, Wu LT. Psychiatric symptoms and substance use disorders in a nationally representative sample of American adolescents involved with foster care. *J Adolesc Health*. 2006;38(4):351–358
8. Bridge JA, Asti L, Horowitz LM, et al. Suicide trends among elementary school-aged children in the United States from 1993 to 2012 [published correction appears in *JAMA Pediatr*. 2015;169(7):699]. *JAMA Pediatr*. 2015;169(7):673–677
9. Bridge JA, Horowitz LM, Fontanella CA, et al. Age-related racial disparity in suicide rates among US youths from 2001 through 2015. *JAMA Pediatr*. 2018;172(7):697–699
10. Sheftall AH, Asti L, Horowitz LM, et al. Suicide in elementary school-aged children and early adolescents. *Pediatrics*. 2016;138(4):e20160436
11. Kann L, McManus T, Harris WA, et al. Youth risk behavior

- surveillance - United States, 2017. *MMWR Surveill Summ.* 2018;67(8):1–114
12. Burstein B, Agostino H, Greenfield B. Suicidal attempts and ideation among children and adolescents in US emergency departments, 2007–2015. *JAMA Pediatr.* 2019;173(6):598–600
  13. Lanzillo EC, Horowitz LM, Wharff EA, Sheftall AH, Pao M, Bridge JA. The importance of screening preteens for suicide risk in the emergency department. *Hosp Pediatr.* 2019;9(4):305–307
  14. Nock MK, Borges G, Bromet EJ, Cha CB, Kessler RC, Lee S. Suicide and suicidal behavior. *Epidemiol Rev.* 2008;30(1):133–154
  15. O'Carroll PW, Berman AL, Maris RW, Moscicki EK, Tanney BL, Silverman MM. Beyond the Tower of Babel: a nomenclature for suicidology. *Suicide Life Threat Behav.* 1996;26(3):237–252
  16. Silverman MM, Berman AL, Sanddal ND, O'carroll PW, Joiner TE. Rebuilding the Tower of Babel: a revised nomenclature for the study of suicide and suicidal behaviors. Part 1: background, rationale, and methodology. *Suicide Life Threat Behav.* 2007;37(3):248–263
  17. Karmakar C, Luo W, Tran T, Berk M, Venkatesh S. Predicting risk of suicide attempt using history of physical illnesses from electronic medical records. *JMIR Ment Health.* 2016;3(3):e19
  18. Zhou ES, Hu JC, Kantoff PW, Recklitis CJ. Identifying suicidal symptoms in prostate cancer survivors using brief self-report. *J Cancer Surviv.* 2015;9(1):59–67
  19. Qin P, Webb R, Kapur N, Sørensen HT. Hospitalization for physical illness and risk of subsequent suicide: a population study. *J Intern Med.* 2013;273(1):48–58
  20. Kuo CJ, Chen VC, Lee WC, et al. Asthma and suicide mortality in young people: a 12-year follow-up study. *Am J Psychiatry.* 2010;167(9):1092–1099
  21. Thibault DP, Mendizabal A, Abend NS, Davis KA, Crispo J, Willis AW. Hospital care for mental health and substance abuse in children with epilepsy. *Epilepsy Behav.* 2016;57(pt A):161–166
  22. Goodwin RD, Marusic A, Hoven CW. Suicide attempts in the United States: the role of physical illness. *Soc Sci Med.* 2003;56(8):1783–1788
  23. Wiener L, Battles H, Bedoya SZ, Baldwin A, Widemann BC, Pao M. Identifying symptoms of distress in youth living with Neurofibromatosis Type 1 (NF1). *J Genet Couns.* 2018;27(1):115–123
  24. Keil MF, Zemetkin A, Ryder C, Lodish M, Stratakis GA. Cases of psychiatric morbidity in pediatric patients after remission of cushing syndrome. *Pediatrics.* 2016;137(4):e20152234
  25. Rhodes AE, Khan S, Boyle MH, et al. Sex differences in suicides among children and youth: the potential impact of help-seeking behaviour. *Can J Psychiatry.* 2013;58(5):274–282
  26. Ahmedani BK, Simon GE, Stewart C, et al. Health care contacts in the year before suicide death. *J Gen Intern Med.* 2014;29(6):870–877
  27. Luoma JB, Martin CE, Pearson JL. Contact with mental health and primary care providers before suicide: a review of the evidence. *Am J Psychiatry.* 2002;159(6):909–916
  28. Wilson KM, Klein JD. Adolescents who use the emergency department as their usual source of care. *Arch Pediatr Adolesc Med.* 2000;154(4):361–365
  29. Diamond GS, O'Malley A, Wintersteen MB, et al. Attitudes, practices, and barriers to adolescent suicide and mental health screening: a survey of Pennsylvania primary care providers. *J Prim Care Community Health.* 2012;3(1):29–35
  30. Brent DA. Master clinician review: saving holden caulfield: suicide prevention in children and adolescents. *J Am Acad Child Adolesc Psychiatry.* 2019;58(1):25–35
  31. Ginsburg KR, Jablow MM. *Building Resilience in Children and Teens: Giving Kids Roots and Wings*, 3rd ed. Elk Grove, IL: American Academy of Pediatrics; 2014
  32. DeLeo D, Bertolote J, Lester D. Self-Directed Violence. In: Krug EG, Dahlberg LL, Mercy JA, Zwi AB, Lozano R, eds. *World Report on Violence and Health*. Geneva, Switzerland: World Health Organization; 2002:183–240
  33. McLean J, Maxwell M, Platt S, Harris FM, Jepson R. *Risk and Protective Factors for Suicide and Suicidal Behaviour: A Literature Review*. Edinburgh, United Kingdom: : Scottish Government; 2008
  34. Marraccini ME, Brier ZMF. School connectedness and suicidal thoughts and behaviors: a systematic meta-analysis. *Sch Psychol Q.* 2017;32(1):5–21
  35. Matlin SL, Molock SD, Tebes JK. Suicidality and depression among African American adolescents: the role of family and peer support and community connectedness. *Am J Orthopsychiatry.* 2011;81(1):108–117
  36. Goodman SH, Garber J. Evidence-based interventions for depressed mothers and their young children. *Child Dev.* 2017;88(2):368–377
  37. Bufferd SJ, Dougherty LR, Olino TM, et al. Predictors of the onset of depression in young children: a multi-method, multi-informant longitudinal study from ages 3 to 6. *J Child Psychol Psychiatry.* 2014;55(11):1279–1287
  38. Luby JL, Gilbert K, Whalen D, Tillman R, Barch DM. The differential contribution of the components of parent-child interaction therapy emotion development for treatment of preschool depression. *J Am Acad Child Adolesc Psychiatry.* 2019;S0890-8567(19):31430–31433
  39. US Public Health Service. *The Surgeon General's Call to Action to Prevent Suicide*. Washington, DC: US Department of Health and Human Services; 1999
  40. Rudd MD, Berman AL, Joiner TE Jr., et al. Warning signs for suicide: theory, research, and clinical applications. *Suicide Life Threat Behav.* 2006;36(3):255–262
  41. The Joint Commission. Detecting and treating suicide ideation in all settings. *Sentinel Event Alert.* 2016;56(56):1–7
  42. Williams SC, Schmaltz SP, Castro GM, Baker DW. Incidence and method of suicide in hospitals in the United States. *Jt Comm J Qual Patient Saf.* 2018;44(11):643–650
  43. Joint Commission on Accreditation of Healthcare Organizations. Patient suicide: complying with National Patient Safety Goal 15A. *Jt Comm Perspect Patient Safety.* 2008;8:7–8, 11

44. National Action Alliance for Suicide Prevention. Recommended standard care for people with suicide risk: making health care suicide safe. Available at: <https://theactionalliance.org/resource/recommended-standard-care>. Accessed September 25, 2019
45. Shain B; Committee on Adolescence. Suicide and suicide attempts in adolescents. *Pediatrics*. 2016;138(1):e20161420
46. Brahmabhatt K, Kurtz BP, Afzal KI, et al; PaCC Workgroup. Suicide risk screening in pediatric hospitals: clinical pathways to address a global health crisis. *Psychosomatics*. 2019;60(1):1–9
47. Horowitz LM, Bridge JA, Teach SJ, et al. Ask Suicide-Screening Questions (ASQ): a brief instrument for the pediatric emergency department. *Arch Pediatr Adolesc Med*. 2012;166(12):1170–1176
48. Posner K, Brown GK, Stanley B, et al. The Columbia-Suicide Severity Rating Scale: initial validity and internal consistency findings from three multisite studies with adolescents and adults. *Am J Psychiatry*. 2011;168(12):1266–1277
49. Kroenke K, Spitzer RL, Williams JBW. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med*. 2001;16(9):606–613
50. Johnson JG, Harris ES, Spitzer RL, Williams JB. The patient health questionnaire for adolescents: validation of an instrument for the assessment of mental disorders among adolescent primary care patients. *J Adolesc Health*. 2002;30(3):196–204
51. American Academy of Child and Adolescent Psychiatry. Resources for clinicians. 2019. Available at: [https://www.aacap.org/App\\_Themes/AACAP/docs/member\\_resources/toolbox\\_for\\_clinical\\_practice\\_and\\_outcomes/symptoms/GLAD-PC\\_PHQ-9.pdf](https://www.aacap.org/App_Themes/AACAP/docs/member_resources/toolbox_for_clinical_practice_and_outcomes/symptoms/GLAD-PC_PHQ-9.pdf). Accessed October 15, 2019
52. Simon GE, Rutter CM, Peterson D, et al. Does response on the PHQ-9 Depression Questionnaire predict subsequent suicide attempt or suicide death? *Psychiatr Serv*. 2013;64(12):1195–1202
53. Dueweke AR, Marin MS, Sparkman DJ, Bridges AJ. Inadequacy of the PHQ-2 depression screener for identifying suicidal primary care patients. *Fam Syst Health*. 2018;36(3):281–288
54. Cash SJ, Bridge JA. Epidemiology of youth suicide and suicidal behavior. *Curr Opin Pediatr*. 2009;21(5):613–619
55. Walker J, Hansen CH, Butcher I, et al. Thoughts of death and suicide reported by cancer patients who endorsed the “suicidal thoughts” item of the PHQ-9 during routine screening for depression. *Psychosomatics*. 2011;52(5):424–427
56. Recklitis CJ, Lockwood RA, Rothwell MA, Diller LR. Suicidal ideation and attempts in adult survivors of childhood cancer. *J Clin Oncol*. 2006;24(24):3852–3857
57. Lanzillo EC, Powell D, Bridge JA, et al. 3.61 detecting suicide risk on pediatric inpatient medical units: is depression screening enough? *J Am Acad Child Adolesc Psychiatry*. 2017;56(10):S225
58. Brown GK, Ten Have T, Henriques GR, Xie SX, Hollander JE, Beck AT. Cognitive therapy for the prevention of suicide attempts: a randomized controlled trial. *JAMA*. 2005;294(5):563–570
59. Linehan MM, Comtois KA, Murray AM, et al. Two-year randomized controlled trial and follow-up of dialectical behavior therapy vs therapy by experts for suicidal behaviors and borderline personality disorder [published correction appears in *Arch Gen Psychiatry*. 2007;64(12):1401]. *Arch Gen Psychiatry*. 2006;63(7):757–766
60. Miller IW, Camargo CA Jr., Arias SA, et al; ED-SAFE Investigators. Suicide prevention in an emergency department population: the ED-SAFE study. *JAMA Psychiatry*. 2017;74(6):563–570
61. Wharff EA, Ginnis KB, Ross AM, White EM, White MT, Forbes PW. Family-based crisis intervention with suicidal adolescents: a randomized clinical trial. *Pediatr Emerg Care*. 2019;35(3):170–175
62. Asarnow JR, Berk MS, Baraff LJ. Family Intervention for Suicide Prevention: a specialized emergency department intervention for suicidal youths. *Prof Psychol Res Pr*. 2009;40(2):118–125
63. Godoy Garraza L, Walrath C, Goldston DB, Reid H, McKeon R. Effect of the Garrett Lee Smith memorial suicide prevention program on suicide attempts among youths. *JAMA Psychiatry*. 2015;72(11):1143–1149
64. Asetline RH Jr., DeMartino R. An outcome evaluation of the SOS suicide prevention program. *Am J Public Health*. 2004;94(3):446–451
65. Asetline RH Jr., James A, Schilling EA, Glanovsky J. Evaluating the SOS suicide prevention program: a replication and extension. *BMC Public Health*. 2007;7:161
66. Wyman PA, Brown CH, LoMurray M, et al. An outcome evaluation of the Sources of Strength suicide prevention program delivered by adolescent peer leaders in high schools. *Am J Public Health*. 2010;100(9):1653–1661
67. Scott J, Azrael D, Miller M. Firearm storage in homes with children with self-harm risk factors. *Pediatrics*. 2018;141(3):e20172600
68. Dowd MD, Sege RD; Council on Injury, Violence, and Poison Prevention Executive Committee; American Academy of Pediatrics. Firearm-related injuries affecting the pediatric population. *Pediatrics*. 2012;130(5). Available at: [www.pediatrics.org/cgi/content/full/130/5/e1416](http://www.pediatrics.org/cgi/content/full/130/5/e1416)
69. Hoffman RM. Contracting for Safety: A Misused Tool. In: *Pa Patient Saf Advis*, vol. 10. 2013:82–84
70. Stanley B, Brown GK. Safety planning intervention: a brief intervention to mitigate suicide risk. *Cognit Behav Pract*. 2012;19(2):256–264
71. Roaten K, Johnson C, Genzel R, Khan F, North CS. Development and implementation of a universal suicide risk screening program in a safety-net hospital system. *Jt Comm J Qual Patient Saf*. 2018;44(1):4–11
72. Tipton MV, Abernathy T, Lanzillo EC, et al. 1.67 implementing suicide risk screening in pediatric primary care: from research to practice. *J Am Acad Child Adolesc Psychiatry*. 2019;58(10):S168–S169
73. Wintersteen MB. Standardized screening for suicidal adolescents in primary care. *Pediatrics*. 2010;125(5):938–944
74. Deming WE. *The New Economics for Industry, Government, Education*. Cambridge, MA: Massachusetts Institute of Technology, Center for Advanced Engineering Study; 1993

75. Horowitz LM, Roaten K, Pao M, Bridge JA. Suicide prevention in medical settings: the case for universal screening. *Gen Hosp Psychiatry*. 2018; S0163-8343 (18):30110–30115
76. Glenn CR, Kleiman EM, Coppersmith DDL, et al. Implicit identification with death predicts change in suicide ideation during psychiatric treatment in adolescents. *J Child Psychol Psychiatry*. 2017;58(12):1319–1329
77. Gibbons RD, Kupfer D, Frank E, Moore T, Beiser DG, Boudreaux ED. Development of a computerized adaptive test suicide scale-the CAT-SS. *J Clin Psychiatry*. 2017; 78(9):1376–1382
78. Kleiman EM, Nock MK. Real-time assessment of suicidal thoughts and behaviors. *Curr Opin Psychol*. 2018;22:33–37

## Primary and Secondary Prevention of Youth Suicide

Lisa Horowitz, Mary V. Tipton and Maryland Pao

*Pediatrics* 2020;145;S195

DOI: 10.1542/peds.2019-2056H

### Updated Information & Services

including high resolution figures, can be found at:  
[http://pediatrics.aappublications.org/content/145/Supplement\\_2/S195](http://pediatrics.aappublications.org/content/145/Supplement_2/S195)

### References

This article cites 63 articles, 7 of which you can access for free at:  
[http://pediatrics.aappublications.org/content/145/Supplement\\_2/S195#BIBL](http://pediatrics.aappublications.org/content/145/Supplement_2/S195#BIBL)

### Permissions & Licensing

Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:  
<http://www.aappublications.org/site/misc/Permissions.xhtml>

### Reprints

Information about ordering reprints can be found online:  
<http://www.aappublications.org/site/misc/reprints.xhtml>

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



# PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

## **Primary and Secondary Prevention of Youth Suicide**

Lisa Horowitz, Mary V. Tipton and Maryland Pao

*Pediatrics* 2020;145;S195

DOI: 10.1542/peds.2019-2056H

The online version of this article, along with updated information and services, is located on the World Wide Web at:

[http://pediatrics.aappublications.org/content/145/Supplement\\_2/S195](http://pediatrics.aappublications.org/content/145/Supplement_2/S195)

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2020 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 1073-0397.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

