



HHS Public Access

Author manuscript

Arch Suicide Res. Author manuscript; available in PMC 2024 July 01.

Published in final edited form as:

Arch Suicide Res. 2023 ; 27(3): 1105–1114. doi:10.1080/13811118.2022.2106924.

Firearms Access among Pediatric Patients at Risk for Suicide

Nathan J. Lowry, BA¹, Ian H. Stanley, PhD^{2,3}, Annabelle M. Mournet, BA¹, Elizabeth A. Wharff, PhD, M.S.W.⁴, Shayla A. Sullivant, MD⁵, Stephen J. Teach, MD, MPH⁶, Maryland Pao, MD¹, Lisa M. Horowitz, PhD, MPH¹, Jeffrey A. Bridge, PhD⁷

¹Office of the Clinical Director, National Institute of Mental Health, Bethesda, MD

²National Center for PTSD, VA Boston Healthcare System, Boston, MA

³Department of Psychiatry, Boston University School of Medicine, Boston, MA

⁴Emergency Psychiatry Service, Boston Children's Hospital, Boston, MA and Department of Psychiatry, Harvard Medical School, Boston, MA

⁵Division of Developmental and Behavioral Health, Children's Mercy Kansas City, Kansas City, MO, and University of Missouri-Kansas City (UMKC) School of Medicine

⁶Division of Emergency Medicine, Children's National Hospital, Washington, DC and Department of Pediatrics, George Washington University School of Medicine and Health Sciences

⁷The Abigail Wexner Research Institute at Nationwide Children's Hospital and The Ohio State University College of Medicine, Columbus, OH

Abstract

Background: Approximately 2,900 youth who die by suicide each year in the United States use a firearm. To inform lethal means safety counseling efforts, this study aimed to describe firearm access among youth deemed at risk for suicide in pediatric medical settings.

Methods: Youth who presented to one of four urban pediatric medical centers were screened for suicide risk and access to firearms. Suicide risk was determined by a positive screen on the Ask Suicide-Screening Questions (ASQ) tool. Firearm access was assessed via a structured questionnaire.

Results: This secondary analysis analyzed data from 1065 youth aged 10 to 17 years. Overall, 110 (10.3%) participants screened positive for suicide risk. Among those at risk, 28% (31/110) reported guns kept in or around their home, 8% (9/110) had access to a firearm, and 5% (6/110) reported that bullets were not stored separately from the guns.

Corresponding author: Lisa Horowitz, PhD, MPH, horowitzl@mail.nih.gov, phone number: 301.435.6052, fax: 301.480.0184, 10-CRC, Room 6-5362, 10 Center Drive, National Institute of Mental Health, National Institutes of Health, Bethesda, MD 20892-1276.

Disclaimers: The views expressed in the article do not necessarily reflect the views of the National Institute of Mental Health, National Institutes of Health, Centers for Disease Control and Prevention, U.S. Department of Veterans Affairs, U.S. Department of Health and Human Services, or the U.S. government.

Conflict of Interest disclosure: Dr. Bridge receives research grant support from the National Institute of Mental Health, the Centers for Disease Control and Prevention, and the Patient-Centered Outcomes Research Institute; he is also a member of the Scientific Advisory Board of Clarigent Health. The other authors have no conflicts of interest relevant to this article to disclose.

Conclusions: Over a quarter of youth at risk for suicide reported a firearm stored in or around their home. To ensure the safety of young people at risk for suicide, clinicians should assess whether youth have access to firearms and conduct lethal means safety counseling with youths, as developmentally appropriate, and their parent/caregivers.

Keywords

firearms; suicide risk; youth

In 2019, approximately 2,900 youth aged 10 to 24 years in the United States (U.S.) died by an intentional, self-inflicted gunshot wound, accounting for nearly half of all suicide deaths in this age group (Centers for Disease Control and Prevention, 2022). Notably, firearms are highly lethal; over 85% of the youth who use firearms to attempt suicide die during the index attempt (McKean et al., 2018). Firearm ownership is also related to increased risk of death by suicide (Kivisto et al., 2021; Anglemyer et al., 2014) and significantly correlated with the U.S. youth suicide rate (Knopov et al., 2019). Of concern, one nationally representative study found that a third of U.S. youth who live in households with firearms could access a loaded firearm within five minutes (Salhi et al., 2021). For these reasons, asking at risk youth about access to lethal means, such as firearms, has been identified as a critical suicide prevention strategy (Office of the Surgeon General, 2012; Barber et al., 2014).

Studies show that youth are at lower risk of death by suicide when firearms are stored unloaded and locked (Grossman et al., 2005). In a 2016, study of U.S. gun owners in urban settings, 46% of respondents indicated they used safe storage practices for their firearms (Crifasi, Merrill-Francis, et al., 2018). Furthermore, research shows a discordance between parent perceptions about their children's access to guns and their children's self-reports (Salhi et al., 2021; Baxley & Miller, 2006), emphasizing the importance of asking at-risk youth explicitly about access to firearms. Additionally, providing lethal means safety counseling to parents/caregivers of youth with access to a firearm has been identified as a best practice in suicide prevention (Chu et al., 2015; Bryan et al., 2011). Examples of lethal means counseling include recommendations to store a gun unloaded, locked, in a secure location (e.g., a gun safe), and separate from its ammunition (Bryan et al., 2011).

Firearm safety among children is a challenge that pediatric providers face, regardless of suicide risk. This concern is further intensified when a patient is identified as having suicidal ideation or behaviors. Given that 80% of youth who die by suicide visited a medical setting in the months prior to their death (Ahmedani et al., 2015; Rhodes et al., 2013), healthcare providers are well-positioned to detect suicide risk through screening. These medical visits also afford the opportunity to ask about access to firearms and provide lethal means safety counseling for both the patient and their family. The present study aims to describe the prevalence of self-reported access to firearms in the home among youth who screen positive for suicide risk in medical settings. These data can further inform the importance of lethal means safety counseling efforts with youth, as developmentally appropriate, and parents/caregivers to prevent intentional injury among youth.

Methods

Sample and Setting

This study is a secondary analysis of cross-sectional data collected from several multisite studies that developed and validated the Ask Suicide-Screening Questions (ASQ) instrument (Horowitz et al., 2012). Participants were youth ages 10 to 17 years, inclusive, who presented to either the emergency department (ED), inpatient medical/surgical units, or outpatient specialty and primary care clinics of one of four urban pediatric medical centers (Children's National Hospital, Washington, DC; Nationwide Children's Hospital, Columbus, OH; Boston Children's Hospital, Boston, MA; and Children's Mercy Hospital Kansas City, Kansas City, MO). Data collection for these studies was conducted between 2008 and 2019. These instrument validation studies were approved by National Institutes of Health Institutional Review Board (IRB) and the IRBs at all participating institutions. Assent was obtained from all patients per local guidelines, and written informed consent was obtained from the parent/guardian. Further methodologies of these studies have been described elsewhere (Horowitz et al., 2012; Horowitz, Wharff, et al., 2020; Aguinaldo et al., 2021).

Measures

Ask Suicide-Screening Questions (ASQ).—The ASQ is a 4-item suicide risk screening instrument that was developed for youth in medical settings (Horowitz et al., 2012). The ASQ identifies youth who have clinically significant suicidal ideation/past suicidal behavior and require further mental health evaluation. Respondents are presented with four Yes/No questions (Figure 1); a response of “Yes” to any one of the items indicates a positive screen. The ASQ was first developed and validated in the pediatric ED, with a sensitivity of 96.9% and specificity of 87.6% for detecting suicide risk (Horowitz et al., 2012). The ASQ has since been validated for use in pediatric inpatient medical/surgical units and outpatient specialty and primary care settings, as well as among adult medical patients, with equally strong psychometric properties (Horowitz et al., 2012; Horowitz, Wharff, et al., 2020; Aguinaldo et al., 2021; Horowitz, Snyder, et al., 2020).

Firearm access.—All participants were asked a question about firearms in the home (“Are any guns kept in or around your home?”). Each participant was given a forced choice response option of “Yes,” “No,” or “No Response.” If the participant answered “Yes,” follow-up questions with the same response set assessed knowledge of gun storage (“Do you know how to access these guns?”) and storage of bullets (“Are the bullets kept in or around your home locked and separate from the guns?”). Firearm access questions were read aloud verbatim to the participant by a study staff member.

Data Analytic Strategy

A positive screen on the ASQ was considered *at risk* for suicide. Not all patients who participated answered items about firearm access, resulting in missing data. Patients who did not answer the first firearm access question (“Are any guns kept in or around your home?”) were excluded for the purposes of this analysis. Descriptive statistics, univariate analysis (chi-square), and multivariate regression (logistic regression) were utilized to describe and compare youth firearm access by suicide risk status. Significance was defined as a $p < 0.05$.

Results

After removing 1 patient due to missing data, a total of 1065 patients were included in this analysis [53.4% female; 55.8% White; mean age 14.2±2.0] (Table 1). Of these patients, 23% were ED patients, 40% medical inpatients, and 37% outpatient specialty and primary care patients. When asked about access to firearms, 25.1% (267/1065) of patients reported guns kept in or around their home, 6.9% (73/1065) had access to a gun in their home, and 4.3% (46/1065) reported that bullets were not stored separately from the firearm.

Among the 1065 patients, 110 youth (10.3%, 110/1065) screened positive on the ASQ and were considered “at risk for suicide” [70% female; 57.3% White; mean age 14.9±1.7] (Table 1). Among these 110 youth, 28.2% (31/110) reported guns kept in or around their home; 8.2% (9/110) knew how to access a gun in their home and 4.5% (6/110) reported that the bullets were not stored separately from the firearm (Table 2). In multivariate analysis, comparing youth positive and negative on the ASQ and controlling for age, sex, and race/ethnicity, there were no significant differences for firearms stored in the house, firearm access, or safe storage of bullets. Table 3 reports adjusted odds ratios and confidence intervals.

Discussion

Among a large sample of youth who presented to pediatric medical centers throughout the U.S., over a quarter of patients at risk for suicide reported that guns were kept in or around their homes. Moreover, 8% of youth knew how to access a gun in their home and 4.5% reported that the bullets were not stored separate from the firearm. This study found no significant differences in firearm access between youth with and without risk for suicide, which is consistent with previous research showing that firearm access is not associated with suicidal ideation (Mann & Michel, 2016). Furthermore, these findings directly support a prior study that showed youth with mental health risk factors are just as likely to live in homes with firearm access as low risk youth (Scott et al., 2018). Of note, reported access to firearms among this sample of patients at risk for suicide is lower than that reported in recent national samples of youth (Salhi et al., 2021). This may be due to recent surges in U.S. firearm ownership (FBI, 2022).

The current findings suggest that a considerable proportion of youth at risk for suicide have access to a firearm stored in their home, representing a major safety concern. Notably, previous research has found that 82% youth who end their life with a firearm are not in mental health treatment at the time of their death (Fowler et al., 2017), emphasizing the need to better identify at risk youth and limit their access to firearms. Pediatric medical settings represent an important venue for detecting at risk youth and ensuring that their homes are kept safe (Horowitz et al., 2014; Larkin & Beautrais, 2010; King et al., 2009). If a patient screens positive for suicide risk, clinicians are optimally positioned to provide lethal means safety counseling to youth and their families (Betz et al., 2010, 2013). Asking youth and their families about the presence of a firearm in or around their home while promoting safe firearm storage is a potential first step towards preventing suicide and unintentional injury.

Increased efforts are needed to ensure that clinicians are adequately trained in not only screening and managing suicide risk, but also how to talk to youth and their families about safely storing lethal means (Schmitz et al., 2012). An important topic for clinicians to discuss when providing lethal means safety counseling is the safe storage of bullets. Notably, 21% of youth at risk in this study who reported firearms kept in or around their homes also reported that the bullets were not stored separately from the guns, which is contrary to recommendations (Grossman et al., 2005). Several studies suggest that speaking with youth and families about safe storage, clinicians should counsel families on the importance of storing bullets separately from guns and ensuring that youth do not have access to either (Miller et al., 2020; Chu et al., 2015).

Greater efforts are also needed to ensure patients and their families adhere to clinical advice to limit access to firearms during at risk periods for safety purposes. Given that most parents reportedly agree that a pediatrician should ask about firearms (Garbutt et al., 2016), more studies are needed to determine how to most effectively counsel families about risks of guns in the home and attendant suicide risk. Importantly, the way firearm lethal means safety counseling is communicated may impact patient adherence to recommendations (Stanley et al., 2017, 2020). While clinicians may not be viewed by parents/caregivers as “experts” in lethal means storage, they are experts on brain development and the negative effects of impulsivity (Crifasi, Doucette, et al., 2018). Future research on how to best deliver safety recommendations is critical.

Limitations

This study has several limitations. First, data used in this analysis was collected between 2008 and 2019. This likely resulted in an underestimate of self-reported youth firearm access, as recent trends indicate a surge in U.S. firearm ownership between 2019 and 2020 (FBI, 2022). Second, the primary study from which these data were obtained was not designed to systematically assess firearm ownership and access. Thus, nuanced information about firearm ownership (e.g., quantity, type, and storage practices) and collateral information from parents/caregivers was not collected, limiting findings to youth perceptions of firearm ownership and access. Additionally, this study used the term “bullets” when assessing participant knowledge of ammunition storage, which may have resulted in inaccurate reporting of safe storage practices. Third, small cell sizes prevented us from examining differences in firearm access by demographics. Lastly, data were collected from a convenience sample of patients presenting to one of four pediatric medical centers, limiting the generalizability of results. No outcome or follow-up data were available.

Conclusions

Regardless of suicide risk, 1 in 4 youth in this study reported a firearm kept in or around their home. Concerningly, 8% of youth at risk for suicide indicated they had access to a firearm. To ensure the safety of all young people, pediatric medical settings are well positioned to inquire about firearm access and conduct lethal means safety counseling, as developmentally appropriate, with patients and their parent/caregivers.

Sources of support:

This research was supported in part by the Intramural Research Program of the National Institute of Mental Health, National Institutes of Health (Annual Report Number ZIAMH002922). Dr. Bridge was supported by institutional research funds from The Abigail Wexner Research Institute at Nationwide Children's Hospital, CDC grant *R01 CE-002129*, and NIMH grants *K01 MH-69948* and *R01 MH-93552*. Dr. Wharff was supported by institutional research funds from the Program for Patient Safety and Quality at Boston Children's Hospital. Dr. Stanley was supported in part by a grant from the National Institute of Mental Health (T32MH019836).

Biographies

Nathan J. Lowry, BA is an Intramural Research Training Award (IRTA) research fellow at the National Institute of Mental Health (NIMH), where he studies youth suicide prevention research. At the NIMH, he manages several international multi-site suicide risk screening research studies to validate the Ask Suicide-Screening Questions (ASQ) tool among pediatric medical patients. He also engages in public health outreach by disseminating research findings through manuscript writing. He received his bachelor's degree in Psychology from Iona College in 2020 where he served as a research assistant in a self-injury/suicide prevention lab.

Ian H. Stanley, PhD is a research fellow in the National Center for PTSD at VA Boston Healthcare System and the Department of Psychiatry at Boston University School of Medicine. He received his PhD in clinical psychology from Florida State University. His research focuses on suicide prevention, with specific interests in improving suicide risk assessment, examining the interplay between PTSD and suicide risk, and developing clinical and public health strategies to reduce the risk of firearm suicide. Dr. Stanley has published over 100 peer-reviewed publications and has presented at local, national, and international venues. His work has been supported by the American Foundation for Suicide Prevention, National Institute of Mental Health, and US Department of Defense.

Annabelle M. Mournet, BA is a Clinical Psychology doctoral student at Rutgers University where she studies the use of ecological momentary assessment to understand suicidal thoughts and behaviors among high-risk populations, including adults with autism spectrum disorders. Previously, she was an Intramural Research Training Award (IRTA) research fellow at the National Institute of Mental Health, where she managed several multi-site suicide risk screening research studies and engaged in public health outreach by utilizing the data from these research studies to disseminate results through manuscript writing. She received her bachelor's degree in Public Health from the University of Rochester in 2019.

Elizabeth A. Wharff, PhD, M.S.W. is a clinician/researcher at Boston Children's Hospital where she directed Emergency Psychiatry for almost 20 years. Her research focuses on prevention of suicide through the development and testing of screening and intervention tools designed to reduce suicide risk in child/adolescent populations. Dr. Wharff developed the Family Based Crisis Intervention (FBCI) for suicidal adolescents which has been shown to reduce suicidality and prevent psychiatric hospitalization. It is validated in the Emergency Department and currently is being tested in Primary Care settings. Dr. Wharff has a particular interest in the use of technology in mental health treatment, and her research team has also developed a smartphone application (app), CrisisCare, with complementary

modalities for the child/adolescent and the parent, that is designed to provide rapid access to a personalized set of therapeutic skills for the potentially suicidal adolescent. Dr. Wharff's team has worked with other sites nationally to develop suicide screening tools, like the ASQ (Ask Suicide Screening Questions), a 4-item questionnaire which screens both medical and psychiatric patients in a variety of settings. Dr. Wharff is dedicated to improving mental health service delivery and consults nationally on the development of systems of emergency psychiatric care for youth.

Shayla A. Sullivant, MD completed undergraduate training at Creighton University and medical school at the University of Kansas, where she also completed a residency in adult psychiatry and fellowship in child and adolescent psychiatry. Since 2010 she has been on staff at Children's Mercy Kansas City where she currently serves as an associate professor. Dr. Sullivant co-leads the suicide prevention research group at Children's Mercy and is completing research on suicide screening in conjunction with the NIMH. Her current work focuses on providing education for parents on ways to reduce suicide risk for adolescents, including safe storage.

Stephen J. Teach, MD, MPH is the associate dean for Pediatric Faculty Affairs and chair of the department of Pediatrics at George Washington University School of Medicine and Health Sciences; and director and principal investigator of IMPACT DC (Improving Pediatric Asthma Care in the District of Columbia), a care, research, and advocacy program focused on under-resourced and largely minority children with asthma. Dr. Teach also serves as the Washington, D.C., site principal investigator for the NIH/NIAID-funded Inner City Asthma Consortium. Dr. Teach's primary academic focus is on the disparities evident in the care of inner-city children with asthma, including their over-reliance on urban emergency departments for episodic asthma care.

Maryland Pao, MD is the Clinical Director and Deputy Scientific Director of the National Institute of Mental Health Intramural Research Program at the National Institutes of Health. She is board certified in Pediatrics, General Psychiatry, Child and Adolescent Psychiatry and Consultation Liaison Psychiatry. Her core research interests are in the complex interactions between medical and psychiatric symptoms in pediatric disorders and on the impact of these diseases on a person's development. She studies distress and its correlates including suicidal thoughts and behaviors in medically ill children. She is on the Clinical Faculty at Georgetown University, George Washington University and at Johns Hopkins University Schools of Medicine.

Lisa M. Horowitz, PhD, MPH is a Staff Scientist/Pediatric Psychologist in the National Institute of Mental Health Intramural Research Program at the National Institutes of Health. She is lead PI on six NIMH suicide prevention protocols that involve validating and implementing the Ask Suicide-Screening Questions (ASQ) in the ED, inpatient medical/surgical, outpatient primary care settings. Dr. Horowitz is collaborating with hospitals, outpatient pediatric clinics, and school settings around the country, assisting with implementation of suicide risk screening and management of patients who screen positive using the ASQ Toolkit and Youth Suicide Risk Screening Clinical Pathways.

Jeffrey A. Bridge, PhD is an epidemiologist and director of the Center for Suicide Prevention and Research in the Abigail Wexner Research Institute at Nationwide Children's Hospital and Professor of Pediatrics, Psychiatry and Behavioral Health at The Ohio State University College of Medicine. His research focuses on the epidemiology of suicide and suicidal behavior in young people, neurocognitive vulnerability to suicidal behavior, screening for suicide risk in medical and school settings, and on improving the quality of care for suicidal youth.

Data availability statement:

Due to the nature of this research, participants of this study did not agree for their data to be shared publicly, so supporting data is not available.

References


- Aguinaldo LD, Sullivant S, Lanzillo EC, Ross A, He JP, Bradley-Ewing A, Bridge JA, Horowitz LM, & Wharff EA (2021). Validation of the ask suicide-screening questions (ASQ) with youth in outpatient specialty and primary care clinics. *General Hospital Psychiatry*, 68, 52–58. 10.1016/j.genhosppsych.2020.11.006 [PubMed: 33310014]
- Ahmedani BK, Stewart C, Simon GE, Lynch F, Lu CY, Waitzfelder BE, Solberg LI, Owen-Smith AA, Beck A, Copeland LA, Hunkeler EM, Rossom RC, & Williams K (2015). Racial/Ethnic differences in health care visits made before suicide attempt across the United States. *Medical Care*, 53(5), 430–435. 10.1097/MLR.0000000000000335 [PubMed: 25872151]
- Anglemyer A, Horvath T, & Rutherford G (2014). The accessibility of firearms and risk for suicide and homicide victimization among household members: a systematic review and meta-analysis. *Annals of Internal Medicine*, 160(2), 101–110. 10.7326/M13-1301 [PubMed: 24592495]
- Barber CW, & Miller MJ (2014). Reducing a suicidal person's access to lethal means of suicide: a research agenda. *American Journal of Preventive Medicine*, 47(3 Suppl 2), S264–S272. 10.1016/j.amepre.2014.05.028 [PubMed: 25145749]
- Baxley F, & Miller M (2006). Parental misperceptions about children and firearms. *Archives of Pediatrics & Adolescent Medicine*, 160(5), 542–547. 10.1001/archpedi.160.5.542 [PubMed: 16651499]
- Betz ME, Barber CW, & Miller M (2010). Firearm restriction as suicide prevention: variation in belief and practice among providers in an urban emergency department. *Injury Prevention*, 16(4), 278–281. 10.1136/ip.2009.025296 [PubMed: 20501472]
- Betz ME, Miller M, Barber C, Miller I, Sullivan AF, Camargo CA Jr, Boudreaux ED, & ED-SAFE Investigators (2013). Lethal means restriction for suicide prevention: beliefs and behaviors of emergency department providers. *Depression and Anxiety*, 30(10), 1013–1020. 10.1002/da.22075 [PubMed: 23495002]
- Bryan CJ, Stone SL, & Rudd MD (2011). A practical, evidence-based approach for means-restriction counseling with suicidal patients. *Professional Psychology: Research and Practice*, 42(5), 339–346. 10.1037/a0025051
- Centers for Disease Control and Prevention (CDC), National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System [WISQARS] (2022). Available from URL: www.cdc.gov/injury/wisqars
- Chu C, Klein KM, Buchman-Schmitt JM, Hom MA, Hagan CR, & Joiner TE (2015). Routinized Assessment of Suicide Risk in Clinical Practice: An Empirically Informed Update. *Journal of Clinical Psychology*, 71(12), 1186–1200. 10.1002/jclp.22210 [PubMed: 26287362]
- Crifasi CK, Doucette ML, McGinty EE, Webster DW, & Barry CL (2018). Storage Practices of US Gun Owners in 2016. *American Journal of Public Health*, 108(4), 532–537. 10.2105/AJPH.2017.304262 [PubMed: 29470124]

- Crifasi CK, Merrill-Francis M, McCourt A, Vernick JS, Wintemute GJ, & Webster DW (2018). Association between Firearm Laws and Homicide in Urban Counties. *Journal of Urban Health*, 95(3), 383–390. 10.1007/s11524-018-0273-3 [PubMed: 29785569]
- Federal Bureau of Investigation (FBI). (2022). NICS Firearm Background Checks: Month/Year. National Instant Criminal Background Check System (NICS). https://www.fbi.gov/file-repository/nics_firearm_checks_-_month_year.pdf/view
- Fowler KA, Dahlberg LL, Haileyesus T, Gutierrez C, & Bacon S (2017). Childhood Firearm Injuries in the United States. *Pediatrics*, 140(1), e20163486. 10.1542/peds.2016-3486 [PubMed: 28630118]
- Garbutt JM, Bobenhouse N, Dodd S, Sterkel R, & Strunk RC (2016). What Are Parents Willing to Discuss with Their Pediatrician About Firearm Safety? A Parental Survey. *The Journal of Pediatrics*, 179, 166–171. 10.1016/j.jpeds.2016.08.019 [PubMed: 27639529]
- Grossman DC, Mueller BA, Riedy C, Dowd MD, Villaveces A, Prodzinski J, Nakagawara J, Howard J, Thiersch N, & Harruff R (2005). Gun storage practices and risk of youth suicide and unintentional firearm injuries. *JAMA*, 293(6), 707–714. 10.1001/jama.293.6.707 [PubMed: 15701912]
- Horowitz LM, Bridge JA, Pao M, & Boudreaux ED (2014). Screening youth for suicide risk in medical settings: time to ask questions. *American Journal of Preventive Medicine*, 47(3 Suppl 2), S170–S175. 10.1016/j.amepre.2014.06.002 [PubMed: 25145735]
- Horowitz LM, Bridge JA, Teach SJ, Ballard E, Klima J, Rosenstein DL, Wharff EA, Ginnis K, Cannon E, Joshi P, & Pao M (2012). Ask Suicide-Screening Questions (ASQ): a brief instrument for the pediatric emergency department. *Archives of Pediatrics & Adolescent Medicine*, 166(12), 1170–1176. 10.1001/archpediatrics.2012.1276 [PubMed: 23027429]
- Horowitz LM, Snyder DJ, Boudreaux ED, He JP, Harrington CJ, Cai J, Claassen CA, Salhany JE, Dao T, Chaves JF, Jobes DA, Merikangas KR, Bridge JA, & Pao M (2020). Validation of the Ask Suicide-Screening Questions for Adult Medical Inpatients: A Brief Tool for All Ages. *Psychosomatics*, 61(6), 713–722. 10.1016/j.psym.2020.04.008 [PubMed: 32487323]
- Horowitz LM, Wharff EA, Mournet AM, Ross AM, McBee-Strayer S, He JP, Lanzillo EC, White E, Bergdoll E, Powell DS, Solages M, Merikangas KR, Pao M, & Bridge JA (2020). Validation and Feasibility of the ASQ Among Pediatric Medical and Surgical Inpatients. *Hospital Pediatrics*, 10(9), 750–757. 10.1542/hpeds.2020-0087 [PubMed: 32826283]
- King CA, O'Mara RM, Hayward CN, & Cunningham RM (2009). Adolescent suicide risk screening in the emergency department. *Academic Emergency Medicine*, 16(11), 1234–1241. 10.1111/j.1553-2712.2009.00500.x [PubMed: 19845554]
- Kivisto AJ, Kivisto KL, Gurnell E, Phalen P, & Ray B (2021). Adolescent Suicide, Household Firearm Ownership, and the Effects of Child Access Prevention Laws. *Journal of the American Academy of Child and Adolescent Psychiatry*, 60(9), 1096–1104. 10.1016/j.jaac.2020.08.442 [PubMed: 32971189]
- Knopov A, Sherman RJ, Raifman JR, Larson E, & Siegel MB (2019). Household Gun Ownership and Youth Suicide Rates at the State Level, 2005–2015. *American Journal of Preventive Medicine*, 56(3), 335–342. 10.1016/j.amepre.2018.10.027 [PubMed: 30661885]
- Larkin GL, & Beautrais AL (2010). Emergency departments are underutilized sites for suicide prevention. *Crisis*, 31(1), 1–6. 10.1027/0227-5910/a000001 [PubMed: 20197251]
- Mann JJ, & Michel CA (2016). Prevention of Firearm Suicide in the United States: What Works and What Is Possible. *The American Journal of Psychiatry*, 173(10), 969–979. 10.1176/appi.ajp.2016.16010069 [PubMed: 27444796]
- McKean A, Pabbati CP, Geske JR, & Bostwick JM (2018). Rethinking Lethality in Youth Suicide Attempts: First Suicide Attempt Outcomes in Youth Ages 10 to 24. *Journal of the American Academy of Child and Adolescent Psychiatry*, 57(10), 786–791. 10.1016/j.jaac.2018.04.021 [PubMed: 30274653]
- Office of the Surgeon General (US), & National Action Alliance for Suicide Prevention (US). (2012). 2012 National Strategy for Suicide Prevention: Goals and Objectives for Action: A Report of the U.S. Surgeon General and of the National Action Alliance for Suicide Prevention. US Department of Health & Human Services (US).
- Rhodes AE, Khan S, Boyle MH, Tonmyr L, Wekerle C, Goodman D, Bethell J, Leslie B, Lu H, & Manion I (2013). Sex differences in suicides among children and youth: the potential impact of

- help-seeking behaviour. *The Canadian Journal of Psychiatry/La revue canadienne de psychiatrie*, 58(5), 274–282. 10.1177/070674371305800504
- Salhi C, Azrael D, & Miller M (2021). Parent and Adolescent Reports of Adolescent Access to Household Firearms in the United States. *JAMA Network Open*, 4(3), e210989. 10.1001/jamanetworkopen.2021.0989 [PubMed: 33687444]
- Schmitz WM Jr, Allen MH, Feldman BN, Gutin NJ, Jahn DR, Kleespies PM, Quinnett P, & Simpson S (2012). Preventing suicide through improved training in suicide risk assessment and care: an American Association of Suicidology Task Force report addressing serious gaps in U.S. mental health training. *Suicide & Life-Threatening Behavior*, 42(3), 292–304. 10.1111/j.1943-278X.2012.00090.x [PubMed: 22494118]
- Scott J, Azrael D, & Miller M (2018). Firearm Storage in Homes With Children With Self-Harm Risk Factors. *Pediatrics*, 141(3), e20172600. 10.1542/peds.2017-2600 [PubMed: 29467279]
- Stanley IH, Hom MA, Rogers ML, Anestis MD, & Joiner TE (2017). Discussing Firearm Ownership and Access as Part of Suicide Risk Assessment and Prevention: "Means Safety" versus "Means Restriction". *Archives of Suicide Research*, 21(2), 237–253. 10.1080/13811118.2016.1175395 [PubMed: 27077214]
- Stanley IH, Hom MA, Sachs-Ericsson NJ, Gallyer AJ, & Joiner TE (2020). A pilot randomized clinical trial of a lethal means safety intervention for young adults with firearm familiarity at risk for suicide. *Journal of Consulting and Clinical Psychology*, 88(4), 372–383. 10.1037/ccp0000481 [PubMed: 31916797]

Highlights:

- Roughly 28% of pediatric patients deemed “at risk” for suicide in this study reported a firearm kept in or around their home.
- Among youth at risk for suicide, 8% reported having access to the gun.
- These results add further evidence that it is important for clinicians to conduct lethal means safety counseling with patients and their families.


NIMH TOOLKIT

Suicide Risk Screening Tool

Ask Suicide-Screening Questions

Ask the patient:

1. In the past few weeks, have you wished you were dead? OYes ONo
2. In the past few weeks, have you felt that you or your family would be better off if you were dead? OYes ONo
3. In the past week, have you been having thoughts about killing yourself? OYes ONo
4. Have you ever tried to kill yourself? OYes ONo
 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? OYes ONo
 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)
 7/1/2020

Figure 1:
Ask Suicide-Screening Questions (ASQ) Tool

Table 1:

Demographic Data by Suicide Risk

Characteristic	Entire Sample (N = 1065)	ASQ Positive (N = 110)	ASQ Negative (N = 955)	P Value
Gender				
Male	485 (45.5%)	30 (27.3%)	455 (47.6%)	<0.001
Female	569 (53.4%)	77 (70%)	492 (51.5%)	
Unknown	11 (1.1%)	3 (2.7%)	8 (0.9%)	
Race/Ethnicity				
White	594 (55.8%)	63 (57.3%)	531 (55.6%)	0.58
Black	213 (20%)	19 (17.3%)	194 (20.3%)	
Hispanic/Latino	95 (8.9%)	14 (12.7%)	81 (8.5%)	
Asian/Pacific Islander	21 (2%)	3 (2.7%)	18 (1.9%)	
Mixed	83 (7.8%)	6 (5.5%)	77 (8.1%)	
Other/Unknown	59 (5.5%)	5 (4.5%)	54 (5.6%)	
Mean age	14.2 (SD = 2.0)	14.9 (SD = 1.7)	14.1 (SD = 2.0)	<0.001
Medical Setting				
Outpatient	391 (36.7%)	52 (47.3%)	339 (35.5%)	.05
Inpatient	429 (40.3%)	38 (34.5%)	391 (40.9%)	
Emergency Department	245 (23%)	20 (18.2%)	225 (23.6%)	

Abbreviation: ASQ, Ask Suicide-Screening Questions. Significance defined at the $p < 0.05$ level.

Table 2:

Firearm Access Data by Suicide Risk

Firearm Access Item	Entire Sample (N = 1065)	ASQ Positive (N = 110)	ASQ Negative (N = 955)
Firearm stored in house	25.1% (267/1065)	28.2% (31/110)	24.7% (236/955)
Has access to a firearm	6.9% (73/1065)	8.2% (9/110)	6.7% (64/955)
Bullets not locked and separate from firearm	4.3% (46/1065)	4.5% (6/110)	4.2% (40/955)

Note: frequencies presented are for a “yes” response to firearm access items. Abbreviation: ASQ, Ask Suicide-Screening Questions.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 3:

Logistic Regression Models for Association Between Firearm Access Items and Suicide Risk

	<i>Adjusted OR (95% CI)</i>		
	Firearm stored in house	Has access to a firearm	Bullets locked and separate from firearm
ASQ Outcome			
Positive (N = 110)	1.3 (0.8-2.2)	1.2 (0.5-2.7)	1.0 (0.4-3.1)
Negative (N = 955)	Reference	Reference	Reference

Abbreviation: ASQ, Ask Suicide-Screening Questions. Significance defined at the $p < 0.05$ level. All regression models adjusted for age, sex, and race/ethnicity.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript