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Suicide risk screening in pediatric hospitals: Clinical pathways to address a global health crisis

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Abstract

Introduction: Youth suicide is on the rise worldwide. Most suicide decedents received healthcare services in the year prior to killing themselves. Standardized workflows for suicide risk screening in pediatric hospitals using validated tools can help with timely and appropriate intervention, while attending to The Joint Commission Sentinel Event Alert 56. Here we describe the first attempt to generate clinical pathways (CPs) for patients presenting to pediatric emergency departments (EDs) and inpatient medical settings.

Methods: The workgroup reviewed available evidence and generated a series of steps to be taken to feasibly screen medical patients presenting to hospitals. When evidence was limited, expert consensus was used. A standardized, iterative approach was utilized to create CPs. Stakeholders reviewed initial drafts. Feedback was incorporated into the final pathway.

Results: Clinical pathways were created for suicide risk screening in pediatric EDs and inpatient medical/surgical units. The pathway outlines a 3-tiered screening process utilizing the ASQ for initial screening, followed by a brief suicide safety assessment to determine if a full suicide risk assessment is warranted. This essential step helps conserve resources and decide appropriate interventions for each patient who screens positive. Detailed implementation guidelines along with scripts for provider training are included.

Conclusion: Youth suicide is a significant public health problem. Clinical pathways can empower hospital systems by providing a guide for feasible and effective suicide risk screening implementation by using validated tools to identify patients at risk and apply appropriate interventions for those that screen positive. Outcomes assessment is essential to inform future iterations.

Keywords

Suicide Risk; Screening; Clinical Pathway; Consultation-Liaison Psychiatry; Pediatrics

Background/Introduction:

Youth suicide is the second leading cause of death worldwide (1, 2). In the United States, more than 6,000 youth under 25 years of age died by suicide in 2016 (3, 4). The suicide death rate for children ages 10 to 14 recently surpassed the death from motor vehicle accidents (5). Given that 80% of young decedents by suicide visited a healthcare provider in the year prior to their death, 40% visiting a medical setting within the month before killing themselves (6, 7) medical settings are uniquely positioned for youth suicide prevention efforts. Suicide has remained in the top 5 most frequently reported sentinel events to The Joint Commission (TJC) (8). More than one thousand patient deaths from suicide were reported from 2010 to 2014 during inpatient hospital stays or within 72 hours of discharge (including from emergency departments) (9). Under detection of suicide risk is considered a leading cause of these sentinel events (8). In 2007, TJC set forth National Patient Safety

Goal 15.01.01 requiring suicide risk screening for all behavioral health patients presenting to psychiatric and general hospitals (10). In 2016, TJC broadened their recommendations and issued Sentinel Event Alert (SEA) 56, recommending that *all* patients in medical hospitals, including those presenting with non-behavioral health chief complaints, be screened for suicide risk using validated tools. Further, SEA 56 recommends establishing appropriate interventions and supports to address the risks found on screening.

Successful implementation of screening requires senior leadership backing, tiered screening responses, management of outcomes, sufficient resources for managing positive screens, provider education, and clinical workflows (11). Parkland Health and Hospital Systems, Dallas serves as a model for successful implementation of hospital-wide universal suicide risk screening for both adults and youth. Their adult data revealed a positive screen rate between 1.6 and 6.3% depending on venue (11). The authors concluded that through thoughtful allocation of clinical resources, universal suicide risk screening was managed effectively. This might be challenging for many individual hospital systems, including pediatric hospitals, given lack of requisite mental health experts and workflows, complicating efforts to successfully identify and treat patients who are at risk for suicide. Pediatric hospitals have used **clinical pathways** (CPs) successfully to address similar limitations and concerns in asthma and antibiotic prescription (12, 13). CPs apply the available evidence to create “multidisciplinary plans of care that outline systematic progression of clinical care steps, improving consistency of care provided”(12). Adopting evidence-informed CPs as a solution for pediatric suicide risk screening in medical settings may help address the important issue for youth suicide prevention.

An international group of child and adolescent psychiatry consultation-liaison (CAP-CL) providers formed the Pathways in Clinical Care (PaCC) workgroup from within the Physically Ill Child committee of the American Academy of Child and Adolescent Psychiatry (AACAP) to address this challenge. The goal of the Suicide Risk Screening PaCC subgroup was to create a clinical pathway focused on early identification of suicide risk in pediatric patients presenting to emergency departments (EDs) and inpatient medical/surgical units. This pathway was created as a guide for hospitals worldwide to improve youth suicide risk screening and implementation of appropriate next steps. The Pathway includes the use of the Ask Suicide-Screening Questions (ASQ) (brief primary screener) and the Columbia Suicide Severity Rating Scale (C-SSRS) or the ASQ Brief Suicide Safety Assessment (secondary screeners) for screening and risk stratification of suicidality in children and adolescents in medical settings (14–17). This paper details the first interdisciplinary and international effort to generate CPs for pediatric suicide risk screening in general hospital settings.

Methods:

A standardized pediatric model for clinical pathway generation was utilized by the Suicide Risk Screening PaCC subgroup (18). Here we describe each step in-depth.

1. *Identifying the need for a clinical pathway.* Suicide risk is the most frequent reason for consultation to CAP-CL providers across the US (19) signaling its

high prevalence in hospital settings. Failing to identify and intervene with patients experiencing suicidal thoughts and behaviors confers a high potential for morbidity and mortality. A growing body of evidence about the importance and feasibility of suicide risk screening provides a framework for addressing this issue in pediatric patients (11, 15, 20, 21). All of these factors were essential in confirming the need for a clinical pathway to address suicide risk screening and assessment in pediatric patients.

2. *Assembling a team of content experts:* PaCC subgroup members were leaders in the area of CAP-CL and included a health services researcher in the area of suicide risk assessment (LH). Members had academic and clinical expertise as well as a self-identified interest in addressing suicide risk screening in pediatric hospitals. Members practiced across a wide geographic area, within hospitals with variable resources and included interdisciplinary representation (Table 1). Ongoing consultation with a pediatrician with expertise in clinical pathway generation was key to the successful generation of the CPs.
3. *Compiling and reviewing existing research:* The literature on suicide risk screening and intervention in medical and psychiatric settings was reviewed individually and together by the subgroup to identify key studies that would further inform the generation of the clinical pathways. The evidence for suicide risk screening in pediatric non-psychiatric settings is evolving; thirty-two papers were identified for in-depth review by the subgroup and informed the clinical pathway. Further, pre-existing clinical workflows in development for suicide risk screening and/or assessment at five separate institutions were reviewed for common elements and differences. Given the relative dearth of evidence, subgroup and workgroup consensus was used to inform steps when appropriate.
4. *Clinical pathway development:*
 - a. Initial draft: Starting in 2016, the suicide risk screening PaCC subgroup met regularly through teleconference calls (24). Review of the background research helped generate an outline of the various steps in the suicide risk screening CPs. Consensus discussions helped inform recommendations for interdisciplinary provider involvement and proposed sequence of steps as well as a process for progression through steps. When there were differing opinions, consensus was arrived at through discussion and the overarching goal of maintaining generalizability for the pathway. An example of this was providing an “age to screen” recommendation on the pathway itself. Given differing institutional comfort level of screening young children for suicide risk, no specific age was cited on the pathway. However, a recommendation can be found in the narrative.
 - b. Second draft: The initial draft was shared with the entire PaCC workgroup and moderators at the workshop organized with the help of the AACAP Abramson Fund grant. Feedback was incorporated into the second draft of the clinical pathway.

- c. Third draft: A standard questionnaire was devised by the subgroup for collecting targeted feedback from key stakeholders at individual institutions (Table 2). Nine stakeholders reviewed the materials in depth and provided feedback. They included ED physicians, hospitalists, a social worker, hospital administrator, a bedside nurse and a nursing director with quality improvement expertise. The feedback was reviewed and incorporated into the third draft of the clinical pathway.
- d. Final Draft: The generated CPs were discussed at a member services forum at the AACAP 2017 annual conference in Washington, DC. The audience was engaged actively, comments and suggestions were noted and incorporated into the final version of the suicide risk screening CPs.

Results:

The Suicide Risk Screening Clinical Pathway developed by the Suicide Risk Screening PaCC consists of the following: 1) an introductory document to the clinical pathway (Appendix A); 2) flow diagrams with a schematic representation of the pathway for EDs and inpatient hospital settings (Appendix B); 3) a text document outlining the pathway and containing detailed information about each step of the process (Appendix C); 4) sample “scripts” which provide wording suggestions for providers to use when operationalizing the pathway in clinical care (Appendix D). The pathway was designed for flexibility and institutional customization, to allow hospitals to determine their own workflows, taking into account their local resources, culture and realities.

Introductory Document

The introductory document (Appendix A) is intended to help orient providers, managers, and administrators in a variety of disciplines and specialties to the pathway. It may serve as a summary that individuals exploring the implementation of the pathway can provide to stakeholders at their hospital or organization to begin the process. It describes the practice gap represented by the public health problem of youth suicide, the reason medical treatment settings are important for addressing this problem, and the priority set by the Joint Commission in February 2016 when it introduced its Sentinel Event Alert 56 recommending that hospitals screen all patients for suicide risk (5). The introductory document briefly describes the 3-tiered screening model and concludes by describing the results of implementing this model in U.S. pediatric hospitals.

PATHWAY Document (Flow Diagrams)

The flow diagrams (Appendix B: 1–3) visually depict the steps in the clinical pathways for suicide risk screening in the ED (Appendix B.1) and in the pediatric inpatient medical/surgical setting (Appendix B.2). Both pathways describe a similar 3-tiered screening process. Further, a brief suicide risk screening for the C-SSRS was created for hospitals that may already be using this scale (Appendix B.3). The flow diagrams utilize the American National Standards Institute standard symbols for flowcharts (22).

TEXT Document

Overview: The text document (Appendix C) contains a narrative description of the pathway that is to be used side-by-side with the flow diagrams by individuals or institutions implementing a pediatric suicide risk screening process within their institution. The document describes the general principles of screening for suicide risk in all patients ages 10 and above and when to consider screening in younger children. Pediatric-specific validated suicide risk assessment tools are required, as screening tools for depression are inadequate to identify medical patients at risk for suicide (23, 24). Asking questions about suicide is essential to determining the appropriate level of care and next steps for individuals experiencing suicidal ideation (23, 24). Further, asking these questions do not lead to an increase in suicidal thoughts or behaviors (25–28).

Initial Screen: The ASQ (www.nimh.nih.gov/ASQ) was chosen as a recommended screening tool and is available in 13 different languages. It was developed specifically for pediatric medically ill patients, has strong psychometric properties, and takes ~20 seconds to administer. The sensitivity and specificity of the ASQ in pediatric patients is 96.9% and 97.6%, respectively. The initial ASQ screening is conducted at a standardized point in the medical care, typically early after presentation to the medical setting (e.g. triage or initial nursing assessment). The parent/guardian is asked to step away while the ASQ is administered (Appendix D). If the parent/guardian refuses to leave, it can be administered with them present, keeping in mind that the patient is less likely to answer frankly with the parent present.

The pathway is initiated by asking the screening questions verbatim to all pediatric patients ages 10 and above presenting to medical settings who are medically/cognitively able to answer the questions. If a patient answers “NO” to all ASQ questions 1 through 4, the screening is complete and no further intervention is necessary. This will occur in the majority of cases (11). Importantly, clinical judgment can always override a negative screen. If, in the course of the patient’s medical care, other mental health concerns arise, outpatient mental health resources and referrals can be made available as indicated.

Interpreting Screening Results: If the patient answers, “YES” to any of the 4 ASQ questions, or refuses to answer, the screen is considered positive. Refusal to participate or answer the ASQ questions warrants further exploration due to the potential risk of missing vital safety information. A positive screen triggers a fifth question to determine acuity. If the patient answers “NO” to the acuity question (Are you having thoughts of killing yourself right now?), they are considered a NON-ACUTE POSITIVE SCREEN. These patients require the secondary screening process, known as the Brief Suicide Safety Assessment (BSSA), and should not leave the hospital until the BSSA is completed.

If the patient answers “YES” to the acuity question, they are considered an ACUTE POSITIVE SCREEN. Immediate arrangements should be made for conducting a full suicide safety assessment. Safety precautions (per institution protocol, such as keeping the patient under direct observation, removing dangerous items, etc.) should be initiated, and the

parents/guardian and medical team should be notified of the result. A full suicide safety assessment is needed before the patient is safe to leave the medical setting.

Brief Suicide Safety Assessment (BSSA): The BSSA is a critical step as it operationalizes the next steps in the pathway for patients who screen positive. It determines the need for further mental health evaluation and can make the difference between an efficient and effective screening program and one that becomes untenable. The BSSA is designed to allow clinicians to quickly (~10–15 minutes) determine if a more comprehensive safety assessment is required.

Unlike a full suicide safety assessment, the BSSA is intended to be performed by clinicians/providers who have the appropriate training in conducting suicide risk assessment. Two tools are recommended for conducting the BSSA: the ASQ BSSA (www.nimh.nih.gov/ASQ) or the C-SSRS (www.cssrs.columbia.edu). A C-SSRS BSSA was generated as a guide (Appendix B.3). The BSSA evaluation helps classify the risk of suicide as low risk, high risk, or imminent risk based on clinical judgment.

Interpretation of BSSA: A low-risk BSSA result indicates that a full suicide safety assessment is not needed in the medical setting. Some of these patients may be receiving mental health treatment already, and others may benefit from referral to mental health treatment. Standard care would involve referral to outpatient resources as appropriate, providing the patient and parent/guardian with basic safety education (e.g. lethal means safe storage and removal) and crisis resources, and a mechanism to notify the patient's PCP of the positive ASQ screen with a subsequent low-risk BSSA result. Some patients may benefit from additional mental health support and evaluation.

A high-risk BSSA result indicates that a full suicide safety assessment by a trained mental health clinician is needed before the patient leaves the hospital to determine the appropriate next steps and whether or not further mental health care in the hospital is warranted. Some of these patients may not be safe to discharge home without acute psychiatric care, while others are appropriate to discharge home with detailed safety and follow-up planning.

An imminent-risk BSSA result is a rare outcome for medical patients who are not presenting with a behavioral health complaint but should be managed similarly to an ASQ acute positive screen. The patient has endorsed active thoughts of suicide that require immediate attention to keep the patient safe in the hospital. Safety precautions (per institution protocol, such as keeping the patient under direct observation, removing dangerous items, etc.) should be initiated, the parent/guardian and medical team should be notified of the result, and a full suicide safety assessment is required. The patient cannot be discharged or left unattended until further evaluation is conducted.

Full suicide safety assessment: The full suicide safety assessment is a more comprehensive safety evaluation that is typically completed by a licensed mental health provider. The goal is to determine the appropriate measures to ensure that suicide risk factors are adequately addressed, develop an initial differential diagnosis, and to develop a treatment plan in collaboration with the patient and parent/guardian. Generally speaking, at

least a portion of the assessment is spent interviewing the patient and parent/guardian separately. Additional collateral information may be obtained from other family members, health care providers familiar with the patient, or individuals who referred the patient for evaluation (e.g., school staff). Collateral information is vital, because many children and adolescents may not share all pertinent information.

Scripts: While non-psychiatric clinicians may feel uncomfortable asking youth questions about suicide, studies have shown that the majority of youth (over 95%) are comfortable with clinicians asking them about suicide risk in the medical setting (21, 29). Addressing clinician discomfort is essential to meeting the goal of screening. Experience in hospitals that have implemented screening reveals that with adequate training, clinicians can become very comfortable asking suicide risk screening questions in a short amount of time (Horowitz L. Personal Communication, May 2018). Scripts developed include those for introducing the screening to patients and parent/guardians and for when a patient screens positive. These provide standardized sample language which providers can use when implementing the pathway. (Appendix D).

Discussion:

Given the alarming increase in the youth suicide rate in the past six decades, the PaCC workgroup suicide risk pathway is a timely, and to our knowledge, the first systematic, evidence-driven, interdisciplinary and international endeavor to address the lack of standardized suicide risk assessment in this population. By utilizing previously validated screening tools for suicide risk, we have attempted to translate the existing resources into clinical practice. The workgroup created a novel tiered clinical pathway for hospitals to implement feasible universal suicide risk screening in the ED and on the inpatient medical/surgical unit. A key element of three-tiered system incorporates a short BSSA as an intermediate step between a positive initial suicide screen and a much longer full suicide safety assessment. The BSSA provides a way to stratify the risk and may decrease the need for consulting mental health or psychiatric professionals for every positive initial screen and thus conserve valuable resources.

We have modeled our suicide risk screening pathways after the various physical illness care pathways that already exist across institutions so that facilities will have the ability to implement these pathways as part of their respective quality assessment/quality improvement (QA/QI) projects for seamless integration into the standard of care. They were developed for the child and adolescent psychiatry/behavioral health provider with the aim of assisting them in leveraging their system to address this crucial problem. In contrast to the Clinical Practice Guidelines or Practice Parameters, these clinical pathways were designed to have inherent flexibility and openness to adjustment at the institutional level. This allows for customization of care pathways and updating over time to suit local realities. Applying these care pathways, for quality improvement and standardization of care process, may help reduce variability in practice with the goal of improving outcomes by early identification and intervention for suicide risk behavior for young people. The suicide risk clinical pathways will be available on the ASQ toolkit website at www.nimh.nih.gov/ASQ.

Each of the documents generated are templated for standardization purposes, but can be adapted to local needs, resources and culture. Baseline data about the current practices at individual institutions may be contrasted with national and international information as outlined in the INTRODUCTION document to assess the gaps in current local practice and requirements as outlined by TJC. While operationalizing the pathway, identifying and training key personnel or “champions” such as a registered nurses or social workers etc., at each risk level is key. These providers may pilot the pathway using the PATHWAY and TEXT documents, educate frontline care providers and provide crucial feedback from them to inform customization of the pathway to their institutional needs and resources. Customized pathways, with order sets and scripts can be incorporated into workflows using the electronic medical record system (EMR) used by the facilities. In the absence of EMR printed copies that are readily available at each practice location may facilitate uniform implementation of the pathway.

Although a few hospitals/institutions have previously implemented suicide risk screening in some form, lack of consistency of the process has been a barrier to determining the impact of such screenings. Further, CPs have not been used systematically to address gaps in mental health care in hospital settings and limited evidence is available on its efficacy. This has implications for the CPs presented here for addressing suicide risk assessment. CPs in other areas have been criticized for limiting clinical flexibility (30), though outcomes have been noted to be encouraging overall (31, 32).

The disconcerting increase in pediatric suicide attempts as well as death by suicide is a strong potential motivator for institutions to adopt and implement this suicide risk screening pathway. Additional research would be beneficial to identify possible downstream effects of identifying hospitalized patients requiring mental health support by potentially impacting costs including length of stay, re-admission, future suicide attempts, etc. The path from evidence-informed CPs to evidence-based CPs requires high-quality data collection that would require a collective effort at an individual, departmental, institutional and organizational level. We hope that with widespread dissemination and implementation of these CPs, much-needed data can be gathered to assess the efficacy of such interventions. This may inform future iterations of pathways to address the goal of practically and optimally identifying and intervening for those youth at risk for suicide.

Conclusion:

Suicide risk detection, assessment and intervention in pediatric medical settings is the need of the hour and is emphasized by TJC recommendations. There is limited evidence and few guidelines to help realize this goal. The PaCC suicide risk screening workgroup has created a novel 3-tiered clinical pathway to address this gap. It standardizes essential elements of care, while remaining flexible to account for local clinical and resource realities. Implementation and outcomes assessment will help further refine this approach to addressing a pressing and important issue of increasing rates of suicide in youth.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1:

Suicide Risk Screening Subgroup

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Kyle Johnson (member)	Oregon Health & Science University (OHSU), Portland, OR
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Brian Kurtz (member)	Cincinnati Children's Hospital, University of Cincinnati, Cincinnati, OH

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Table 2:

Stakeholder feedback Questionnaire

<u>Suicide Risk Screening Clinical Pathway</u>	
Stakeholder Feedback	
Hospital Name:	
Stakeholder Specialty/Setting:	
Suggested Questions:	
1	Introductory document:
	a. Clarity of purpose/goal?
	b. Easy to understand?
2	Visio
	a. Easy to follow?
	b. Reflects clinical practice?
	c. Feasibility?
	d. Applicability to setting?
	e. Need for supporting documents?
	f. General comments/edits?
3	TEXT Document:
	a. Length?
	b. Format? (actual language to use, bullets vs paragraphs)
	c. Easy to follow?
	d. Individual sections
	i. Initial Screening (ASQ)
	ii. BSSA (ASQ and C-SSRS)
	iii. Full Suicide safety assessment
4	Need for executive summary?
5	Overall /General Comments?
6	Other:

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