Journal of the American Podiatric Medical Association

Online Early

DOI: 10.7547/21-062

ORIGINAL ARTICLE

Making the Case for Suicide Risk Screening in Outpatient Podiatry Patients: An Opportunity for Injury Prevention

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Online Early

DOI: 10.7547/21-062

Background: Despite prevention efforts, suicide rates continue to rise, prompting the need for novel evidence-based approaches to suicide prevention. Patients presenting with foot and ankle disorders in a podiatric medical and surgical practice may represent a population at risk for suicide, given risk factors of chronic pain and debilitating injury. Screening has the potential to identify people at risk that may otherwise go unrecognized. This quality improvement project (QIP) aimed to determine the feasibility of implementing suicide risk screening in an outpatient podiatry clinic and ambulatory surgical center.

Methods: A suicide risk screening QIP was implemented in an outpatient podiatry clinic and ambulatory surgical center in collaboration with a National Institute of Mental Health (NIMH) suicide prevention research team. Following training for all staff, patients ages 18 years and older were screened for suicide risk with the Ask Suicide-Screening Questions (ASQ) as standard of care. Clinic staff were surveyed about their opinions of screening.

Results: Ninety-four percent of patients (442/470) agreed to be screened for suicide risk and nine patients (2%; 9/442) screened non-acute positive; zero for acute risk. The majority of clinic staff reported that they found screening acceptable, felt comfortable working with patients who have suicidal thoughts, and thought screening for suicide risk was clinically useful.

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Conclusions: Suicide risk screening was successfully implemented in an outpatient podiatry clinic. Screening with the ASQ provided valuable information that would not have been ascertained otherwise, positively impacting clinical decision-making and leading to improved overall care for podiatry patients.

In the US, suicide is a public health crisis, ranking as the tenth leading cause of death among adults.[1] A large portion of individuals who die by suicide had contact with a healthcare professional in the weeks leading up to their death.[2,3] Medical patients are at increased risk of suicide, making medical settings key venues for detecting suicide risk.[4,5] With the Joint Commission's recommendation for suicide risk screening of medical patients,[6] various settings have implemented screening, including outpatient specialty clinics for pediatrics, sports medicine, and diabetes.[7]

Outpatient podiatry clinics may be particularly effective venues for suicide risk screening, as evidence suggests podiatry patients may be at increased suicide risk. Podiatry clinics see large numbers of individuals with diabetes, injuries, and chronic pain, all of which have been shown to increase risk of suicide.[8-11] Type 1 diabetes is associated with an approximate doubling of suicide risk relative to the general population.[9,11] Notably, suicidal thoughts are strongly associated with noncompliance with medical treatments such as insulin

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management.[12] Additionally, some injured athletes experience serious and lasting depression following an injury,[10,13] with 7.3% of all student athlete deaths attributable to suicide.[14] While suicide research among podiatry patients is limited, there have been case studies highlighting the mental health toll of podiatry complications.[8,15]

This quality improvement project (QIP) aimed to determine the feasibility of implementing suicide risk screening in an outpatient podiatry clinic. Feasibility was operationalized in terms of a positive screen rate that is common enough to warrant screening[16,17] (i.e. studies of large samples of hospital patients screened for suicide risk report positive screen rates ranging from 1.3%-6.3%),[18] acceptability to patients (operationalized as the percent of approached patients agreeing to complete the screening questions), and staff comfort with screening. Case studies are provided to depict the process and benefits of screening podiatry patients for suicide risk in an outpatient clinic.

Methods

Sample

This QIP was implemented at one of 50 clinics of the Foot and Ankle Specialists of the Mid-Atlantic (FASMA). The clinic has 5000 annual patient encounters, providing care to primarily English and Spanish speaking patients. This divisional office has several podiatric medicine

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doctors who treat patients for a variety of lower extremity complaints. Patients with injuries, infections, diabetes, and structural deformities are commonly seen. All patient data, including patient self-report medical history forms and questionnaires, medication lists, and medical treatments are documented and stored in an electronic medical record system. Data used in this QIP was de-identified and was exempt from IRB approval.

Screening Implementation

In Fall 2019, the FASMA Wheaton, Maryland Division podiatric physicians decided to implement suicide risk screening for adult patients ages 18 years and above in their ambulatory surgical center and clinic. FASMA contacted the Ask Suicide-Screening Questions (ASQ) research team at the National Institutes of Mental Health for guidance on screening implementation. The ASQ research team assisted FASMA with their QIP through the use of an iterative "plan-do-study-act" (PDSA) approach.[19] The ASQ screening tool (Figure 1),[20] described in the Measures section, was selected for use based on previous validation among medical patients and its brevity. It was decided that all positive screens would be followed up in real-time with a brief suicide safety assessment (BSSA), using the ASQ BSSA,[21] which was administered by podiatrists.

Plan-Do-Study-Act (PDSA) Implementation

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Phase 1 – Plan: After establishing a collaboration between FASMA and the ASQ research team, a screening pathway was designed based on clinic workflow (Figure 1). The initial "plan" began after obtaining vital signs, when nurses or medical assistants (MA) instructed a patient to complete the ASQ, along with other medical and mental health questionnaires. Patients completed the ASQ independently and the nurse/MA scored the screening results in real time. If a patient did not complete the ASQ, the nurse/MA asked the screening questions aloud to the patient and recorded their responses. Patients who did not want to complete the screening were told they could decline without consequence. Podiatrists received training to conduct a BSSA to determine the patient's level of risk and discharge disposition and were alerted if their patient screened positive. To ensure patient safety and collaborative care, a local mental health provider was contacted in advance of implementation and an agreement was made for evaluation of any FASMA patients that screened positive for suicide risk within 72 hours. All screening materials were also made available in Spanish.

Phase 2 – Do: At the beginning of implementing screening, the clinic decided to begin by piloting the screening with surgery patients ages 18 years and older. Surgery in this office was conducted one day a week, every other week, which led to biweekly suicide risk screening of all surgery patients. For this phase, one registered nurse and two podiatrists were trained to administer the screening. Podiatrists were also trained to conduct a BSSA for any patients who

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screened positive. Any concerns about the workflow or screening process were identified and discussed with the ASQ research team.

Phase 3 – Study: Following the surgery patient pilot phase, the entire clinic staff viewed a training webinar that provided an overview of suicide risk screening in advance of an in-person training session. The in-person training session highlighted the epidemiology of suicide in the medical setting, clinical warning signs/risk factors, and the QIP aims. Staff were trained to administer the ASQ, interpret the screening results, and for podiatrists, how to manage a positive screen using the BSSA. Any challenges that arose during the pilot phase (Phase 2) were discussed with the staff to ensure that all staff members felt equipped to properly screen for suicide risk. For example, when we broadened the screening to include all clinic patients, it was more feasible to have the patients fill out the ASQ as a self-report measure than to have the staff administer verbally. Staff was surveyed about their knowledge on suicide and opinions on suicide risk screening three times during the implementation process, described in more detail below.

Phase 4 – Act: Following the training of all staff, suicide risk screening for all patients age 18 years and older at the clinic was expanded beyond surgery patients (one day a week, biweekly) to be implemented as standard of care for both surgery and non-surgery patients (daily) and data collection began. Three months after screening was implemented, the staff

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completed the knowledge and opinion surveys to assess any changes that had occurred during the data collection period. Podiatrists conducted the BSSA and took detailed notes on all patients who screened positive for suicide risk during the data collection period.

Measures

The Ask Suicide-Screening Questions (ASQ; Figure 2) is a 4-item suicide risk screening tool developed to assess recent suicidal ideation and suicidal behavior in medical patients.[20] If a patient answered "yes" to any one of the four items, they were asked a fifth question to assess current suicidal ideation. Patients who respond "no" response to all four of the initial items are considered to have screened *negative*. Patients who respond "yes" to any one of the four initial items but do not endorse the fifth item are *non-acute positive* screens. Patients who endorse the fifth item are *acute positive* screens. The ASQ is validated for use among adult medical patients, with a sensitivity of 100%, a specificity of 89%, and a negative predictive value of 100%.[22]

Patient Demographic Information **–** The patients' sex, age, and race were noted by the medical team on their ASQ questionnaire.

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Clinic Staff Questionnaires **–** All staff completed multiple self-report questionnaires during the QIP, including a 14-item suicide prevention knowledge questionnaire and an opinions questionnaire at three timepoints throughout the QIP: prior to the training webinar (pre-training), after the in-person training session (post-training), and three months after suicide risk screening became standard of care at the clinic (post-implementation). Given that there are many misconceptions and stigma surrounding suicide, a knowledge questionnaire was administered which included questions about topics including common suicide risk factors and suicide epidemiology (e.g. True or False: If a person is not suicidal and you ask them questions about suicidal thoughts, it will put ideas into their head, and they are at greater risk to attempt suicide. The correct answer is False). This questionnaire helps determine whether the training session improved staff understanding of suicide. The opinions questionnaire assessed staff comfort with screening, their perceived level of preparedness to screen, and their opinions on the training sessions. Items on the staff opinions questionnaires included Yes/No questions, short response questions, and questions with a 5-point Likert scale (e.g. 1 = very uncomfortable – 5 = very comfortable).

Data Analysis

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ASQ questionnaires and the knowledge and opinion surveys were analyzed and descriptive statistics are reported. A two sample mean t-test was performed in SPSS to compare staff performance on the knowledge questionnaires at the first and third timepoints to determine whether knowledge levels increased through the implementation process. Qualitative results from the detailed notes of patients who screened positive are summarized and reported.

Results

Demographics

A total of 470 patients were approached to be screened for suicide risk for three months between December 2019 and February 2020. Of the 470 patients seen in clinic during the data collection period, 442 completed the screening questionnaire (94.0%; n=442/470). The sample was predominantly female (58.4%; n=258/442) and White/Caucasian (55.0%; n=243/442), with an average age of 59.9 years (SD = 19.7; range = 20-98 years). Patient presenting complaints included overuse injuries (plantar fasciitis, fractures), structural deformities, diabetic foot issues, dermatologic (fungal nails, tinea pedis), and infections (paronychia, ulcerations).

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Screening Outcomes & Workflow

Of the 442 screened patients, nine patients answered "yes" to one or more of the ASQ questions, yielding a 2% screen positive rate for suicide risk (2%; n=9/442). None of the nine patients who screened positive endorsed the fifth acuity item of the ASQ, meaning that all nine positive screens were non-acute positive screens who did not require emergency care. Of the nine patients who screened positive and received a BSSA, six patients (66.7%; n=6/9) were actively receiving psychiatric care and the other three (33.3%; n=3/9) were given a referral for a mental health care. Podiatrists reported that the follow up for positive screens using the BSSA typically took five minutes or less to assess the patient and determine their disposition.

Staff Opinions & Knowledge

Pre-training opinion survey. Five nurses/MAs and two podiatrists completed the pre-training opinion survey. Prior to the training, most nurses/MAs (n=4/5) and all podiatrists (n=2/2) reported having no concerns about working with patients who have suicidal thoughts. The majority of nurses/MAs (n=4/5) and all of the podiatrists (n=2/2) further reported that they found it acceptable to ask patients about suicidal thoughts when at the doctor's office. Three nurses/MAs (n=3/5) reported that feeling comfortable or very comfortable working with patients who have any thoughts of suicide and two nurses/MAs (n=2/5) reported that they felt

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neutral about working with patients who have suicidal thoughts. Among the two podiatrists who completed the pre-training survey, one (n=1/2) reported feeling very comfortable working with patients who have thoughts of suicide and the other (n=1/2) reported feeling uncomfortable working with patients who have suicidal thoughts.

Post-training opinion survey. The post-training opinion survey was completed by seven nurses/MAs and three podiatrists. All of the nurses/MAs (n=7/7) and all of the podiatrists (n=3/3) indicated that they did not have any concerns working with patients who have suicidal thoughts and the majority of nurses/MAs (n=5/7) and podiatrists (n=2/3) found it acceptable to ask patients about suicidal thoughts at the doctor's office. Five of the seven (n=5/7) nurses/MAs reported feeling comfortable or very comfortable working with patients who have thoughts of suicide, while the other two nurses/MAs reported feeling neutral about working with patients who have suicidal thoughts. Among the podiatrists, two (n=2/3) felt comfortable or very comfortable working with patients who have suicidal thoughts, while the podiatrist who selected "uncomfortable" in the pre-survey moved their response to "neutral" about working with patients who have suicidal thoughts in the post-survey.

Post-implementation opinion survey. Three months after suicide risk screening was implemented, six nurses/MAs and three podiatrists completed post-implementation assessments. Of those who provided responses, all staff members (n=4/4 nurses/MAs, n=3/3

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podiatrists) indicated that they did not have concerns about working with patients who have suicidal thoughts. All staff members who provided data (n=5/5 nurses/MAs, n=3/3 podiatrists) reported that they found it acceptable to ask patients about suicidal thoughts when at the doctor's office. When asked about their overall comfort with working with patients who have suicidal thoughts, the majority of nurses/MAs (n=4/6) and all of the podiatrists (n=3/3) reported that they were comfortable or very comfortable doing so. In the post-implementation survey, an additional question asked staff whether they think that screening for suicide risk should continue in their clinic. The majority of the staff (n=5/5 nurses, n=2/3 podiatrists) were in favor of continuing to screen for suicide risk (1 podiatrist was undecided).

Knowledge survey. The knowledge surveys were analyzed for eight staff members who completed the pre-training, post-training, and post-implementation surveys. On the pre-training survey, staff scored an average of 12.0 points (SD = 2.1) (out of a maximum of 16 points). The average score on the post-training knowledge survey was 13.1 points (SD = 1.6). Lastly, the average score on the post-implementation knowledge survey was 13.8 (SD = 1.0). The average score on the knowledge survey was significantly greater on the post-implementation survey compared to the initial pre-training survey ($t(17) = 2.2$, $p = .025$, $d = 1.1$).

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Examples of podiatric patients who screened positive

Examining the 2% of the patients who screened positive highlights the value of screening in outpatient podiatry clinics. The podiatrists provided descriptions for seven of the nine patients (n=7/9) who screened positive for suicide risk (Table 1). Four themes emerged: the role of family stressors (n=4/7), suicide attempt history informing medical treatment (n=3/7), the intersection of medical and mental illness (n=3/7), and the impact of suicide risk screening (n=2/7).

Family stressors. Four patients (n=4/7) reported family stressors in relation to their mental health symptoms. Three of these patients (n=3/4) reported feeling increased dependency or like a burden on their family members, while the fourth patient experiencing family stressors (n=1/4) confided that they felt overwhelmed caring for their spouse with dementia, preventing the patient from caring for their own medical problem.

Suicide attempt history informing treatment. Three patients (n=3/7) reported a history of suicide attempts using pills. In these cases, information about the attempt method was used by the treating podiatrist to inform pain management recommendations. For one patient with difficulty walking due to a severe tendinopathy, the knowledge of her previous attempt using opiates helped the patient and the podiatrist mutually agree to avoid medication to treat her lower extremity pain. Instead, she was prescribed physical therapy and a brace.

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Intersection of medical and mental illness. An additional theme was intersection of medical and mental illness (n=3/7). One patient reported that the combination of physical therapy and referral for a psychiatric evaluation improved their mental health which subsequently reduced their physical pain symptoms. For one athlete with an injury where there was concern about the mental health impact of the patient being unable to perform their sport for an extended period of time, the podiatrist was able to assist the patient by creatively modifying their training to keep the patient as active as possible without compromising healing to the injured body part.

Impact of screening. The experiences of two patients (n=2/7) highlighted that screening for suicide risk in this podiatric setting allowed the patient to be open about their mental health problems. After being screened for suicide risk for the first time, one patient had an emotional release of tears and felt comfortable discussing the seriousness and depth of their depression and hopelessness. Another patient who screened positive on the ASQ disclosed that no other doctor had ever inquired about suicide risk before. This patient, who previously did not seek psychiatric care after a suicide attempt years prior, was willing to be referred for mental health care.

Discussion

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Suicide risk screening was successfully implemented in an outpatient podiatry clinic and was found to be feasible based on a 2% screen positive rate, 94% of approached patients agreeing to complete the screening questions, and positive opinions towards screening among clinic staff. The prevalence rate was high enough to make screening worthwhile; yet, it was manageable so as not to overburden a busy podiatry practice.[18] Many healthcare providers are concerned that they do not have time to screen patients for any more conditions; yet these data demonstrate that it can be done effectively and efficiently.

Typically, mental health is inadequately screened for in patients presenting for medical care.[23] Podiatric physicians function on the front line in our medical system with patients presenting with lower extremity pain, complications from diabetes, injuries, or infections, often bypassing their primary care physician. Important information about suicide risk better informs provider decision making. Podiatrists may be a patient's only medical contact over the course of years, making them an essential bridge to connect a patient to a mental health professional. Prior to this QIP, this practice's patient self-report questionnaire had multiple physical symptoms to assess but only one depression item as the sole mental health query. Through the addition of a brief suicide risk screening questionnaire, this clinic was able to screen, assess, and provide holistic treatment for podiatric patients more effectively.

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In this outpatient setting, the ASQ took less than one minute to complete and for positive screens, routinely required under five minutes of follow up to briefly assess the patient and to make appropriate recommendations. These patient-doctor discussions garnered trust and relevant treatment information. An unexpected but welcomed outcome of this study was the podiatrists altering their treatment plans based on knowledge gained from the ASQ and BSSA. For example, by screening for suicide risk, clinic staff became aware of suicidal histories, which became essential knowledge in making decisions regarding the prescribing of opiates. Future studies should examine how podiatrists utilize the suicide risk information and how this information impacts treatment decisions. Even in instances where patients do not endorse current or recent suicidal thoughts, having information about patient's mental health history has the ability to aid physicians in providing safe and effective health care.[24]

The process of implementing suicide risk screening using the PDSA framework was practical and effective. Staff opinions of screening were positive during the pre-training assessment, with the majority of nurses/MAs and podiatrists reporting they had no concerns with screening, that they found screening acceptable, and were comfortable working with patients who have suicidal thoughts. After viewing one training session and attending an hour long in person training, staff comfort and opinions remained positive. Following the training session, suicide risk screening was implemented. As evidenced by the feedback on the post-

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implementation opinion survey, staff comfort and opinions of screening remained positive after suicide risk screening began. The increase in average score on the knowledge survey from the beginning of the implementation process to the end further supports the success of the training session in preparing staff members to have informed discussions with patients about their suicide risk. As a result of the successful implementation of suicide risk screening in this clinic among adult patients, future plans for additional PDSA cycles include extending suicide risk screening to pediatric patients in the clinic as well as implementing screening at other podiatry practices.

It has long been recognized that poor mental health exacerbates physical ailments, increases the risk of surgical complications, results in prolonged resolution of injuries, and prevents adherence with medical recommendations. The successful implementation of suicide risk screening with the ASQ provided important and relevant clinical information that would not have been ascertained otherwise and led to improved overall patient care. Without interference to office workflows, podiatry providers can be leveraged as trusted partners in suicide prevention.

Acknowledgements: The authors would like to thank all the FASMA Wheaton, Maryland Division patients and staff for their participation. The authors would also like to acknowledge

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and thank the following people who were instrumental to the success of the study, including Mary Tipton, Nathan Lowry, and Jeanne Radcliffe.

Financial Disclosure: This quality improvement project was supported in part by the Intramural Research Program of the NIMH (Annual Report Number ZIAMH002922).

Conflict of Interest: None reported.

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Table 1: Description of Positive Screens and Treatment Plans

Patient Description	Treatment Plan
• Elderly patient with chronic pain • Reported feeling depressed • Reported being overwhelmed while caring for spouse with dementia • Unable to care for own medical problems effectively due to need to prioritize spouse's needs • Concern about taking any medication with side effect of drowsiness due to need to care for spouse • Unable to attend physical therapy appointments due to concerns leaving spouse at home alone	• Awareness of these issues allowed the podiatrist to not dismiss the non-compliance with medications and physical therapy • Referral made for virtual physical therapy visits • National Suicide Prevention Lifeline number and other mental health resources provided to patient to access virtually at home • Patient reported upon follow-up that the virtual physical therapy referral and mental health resources reduced physical pain symptoms
• Middle-aged female patient • Endorsed feeling depressed and endorsed wishing they were dead on the ASQ • No suicide plan reported and no self-harm history • Reported depressive symptoms to primary care provider two months prior and was given a psychiatric referral, but never made an appointment	• Podiatrist reinforced the importance of improving the patient's mental health • Provided additional referral sources including the 24-hour National Suicide Prevention Lifeline number that could be accessed around the patient's work schedule.
• Gymnast in their 20s, sidelined with a severe tendon injury • Reported two suicide attempts, one and four years prior • Currently under the care of a psychiatrist and deemed not to be at high risk presently	• Psychiatrist contacted and alerted to ASQ responses • A modified training program was created to keep the patient as active as possible without compromising healing to the injured body part

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	• Positive reinforcement was given at more frequent follow up appointments in which both mental and physical status were assessed
• Elderly female patient with arthritic foot deformities and difficulty walking • Reporting feeling depressed, anxious, wishing she were dead, and increased dependency and burden on family • No thoughts of killing herself	• Spouse joined the discussion with the podiatrist and helped facilitate a psychiatric referral that was scheduled prior to leaving the podiatrist's office • A note was made in the patient's chart to address this issue at her next appointment
• Middle-aged patient with difficulty walking due to a severe tendinopathy • Reported feeling depressed from family stressors, recent suicide ideation, and a previous suicide attempt using narcotics several years ago after death of son • No plan or desire to kill herself at present	• With knowledge of previous suicide attempt, physical therapy and bracing were emphasized and medication was avoided by mutual agreement to treat lower extremity pain
• Patient in late 30s with a relatively minor complaint of a plantar wart on left foot • Had not been evaluated by primary care physician in years, preferring to directly seek out specialists • Reported a past suicide attempt 5 years prior with pills and did not seek psychiatric care after the suicide attempt • Reported being depressed due to work stress, an ill child, and a recent divorce. but had no thoughts of suicide	• Patient was provided with a psychiatric referral and was given mental health resources, such as the National Suicide Prevention Lifeline number
• Middle-aged presented with an overuse foot injury of plantar fasciitis • Reported feeling depressed, stated that their family might be better off if they	• The doctor's willingness to engage the patient on this level fostered trust, improved compliance with treatment

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were dead, and had suicide ideation as recently as 6 months ago • Reported a previous suicide attempt over one year ago after death of spouse and father using pills and cutting	• A psychiatric referral was provided as well as the National Suicide Prevention Lifeline number

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Figure 1: Suicide Risk Screening Workflow

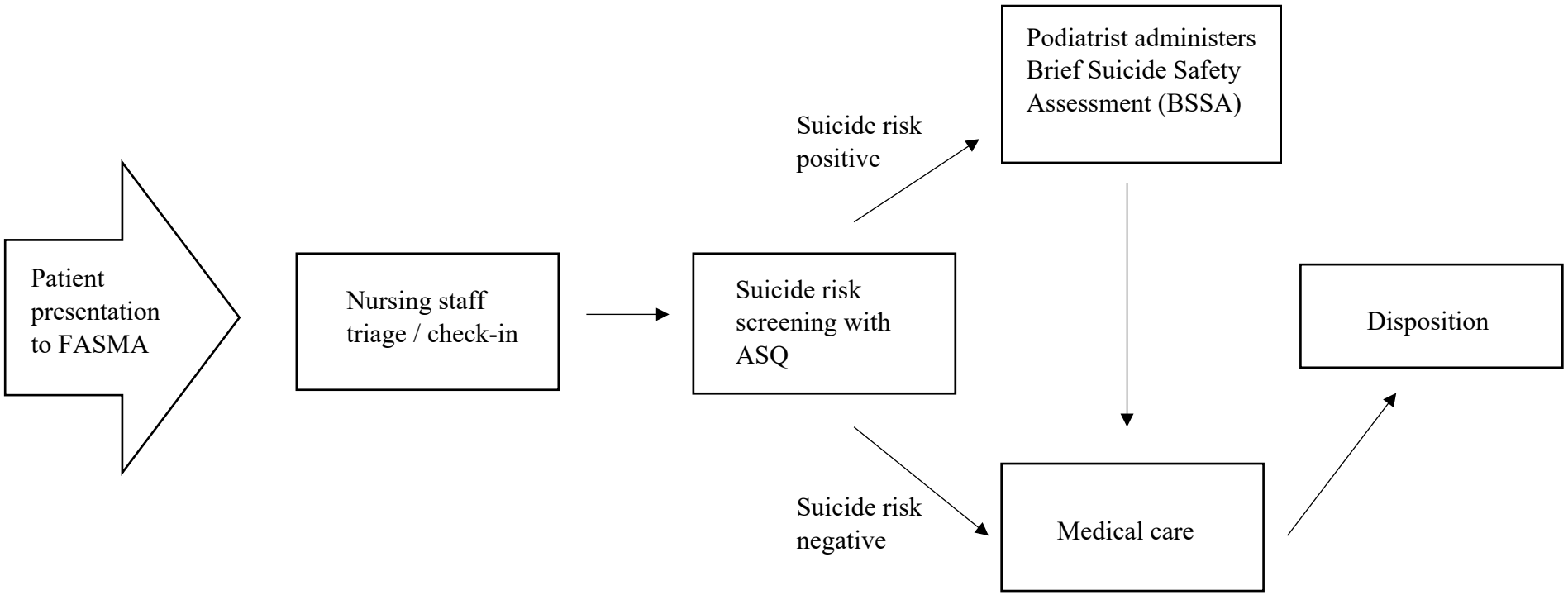

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Figure 2. The Ask Suicide-Screening Questions.