

Enablers and Barriers of Suicide Risk Assessments in Inpatient and Emergency
Department Settings: A Scoping Review

by

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An oral defense of this thesis took place on April 13, 2022 in front of the following examining committee:

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The above committee determined that the thesis is acceptable in form and content and that a satisfactory knowledge of the field covered by the thesis was demonstrated by the candidate during an oral examination. A signed copy of the Certificate of Approval is available from the School of Graduate and Postdoctoral Studies.

Abstract

According to past mental health reports, the occurrence of suicide within inpatient healthcare facilities ranges between 1.0–4.5/1000 patients amongst North American, European, Australian and Chinese hospitals each year. As the risk of inpatient suicide continues to rise, tools such as suicide risk assessments may be useful in identifying at-risk patients. The current literature places a considerable amount of focus on validating suicide risk assessment tools. However, there is limited research on the implementation of these tools within inpatient facilities. This scoping review investigated the existing mental health literature surrounding suicide risk assessments to identify barriers and enablers to implementation of suicide risk assessments. MEDLINE and PsycINFO were systematically searched in April 2021, resulting in the inclusion of 52 articles. The Consolidated Framework for Implementation Research (CFIR) was employed to code and analyze implementation enablers and barriers. The main themes that emerged from this scoping review included: interprofessional collaboration amongst healthcare disciplines; perceptions of healthcare providers regarding risk screening; feasibility of risk screening; and training and education of healthcare providers. By unveiling both enablers and barriers to implementation, these results may guide decision-makers in determining the best course of action to effectively implement suicide risk assessments within inpatient facilities.

Keywords: suicide; self-harm; suicide risk assessment; inpatient; mental health

AUTHOR'S DECLARATION

I hereby declare that this thesis consists of original work of which I have authored. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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STATEMENT OF CONTRIBUTIONS

I hereby certify that I am the sole author of this thesis and that no part of this thesis has been published or submitted for publication. I have used standard referencing practices to acknowledge ideas, research techniques, or other materials that belong to others. Furthermore, I hereby certify that I am the sole source of the creative works and/or inventive knowledge described in this thesis.

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This thesis is dedicated to all those suffering with mental health and suicidal ideation. You are noticed, you matter and it is our duty to help you

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Chapter 1. Introduction

An important issue faced by healthcare facilities is inpatient self-harm and suicide. The occurrence of suicide within inpatient healthcare facilities ranges between 1.0–4.5/1000 patients amongst North American, European, Australian and Chinese hospitals each year (Sakinofsky, 2014). Suicide risk assessment is a key component of suicide prevention in inpatient healthcare settings (Carter et al. 2018; Collins and Saxena, 2016; Ohrnberger et al. 2017). Suicide risk assessments have been widely used to evaluate the risk of self-harm and suicide in patients before, during, and after they receive care. Such settings include outpatient settings, emergency departments and various inpatient healthcare units. These assessments provide clinicians with a clearer indication of patients' risk for suicide and in determining the most appropriate course of treatment (Chu et al. 2017; Cochrane-Brink et al. 2000; Ellis et al., 2012; Hunt et al 2016; Lynch et al; 2008; Meerwijk et al. 2009; Sakinofsky 2014). However, there is still a great deal of uncertainty regarding the effectiveness of these risk assessments tools for reducing inpatient self-harm and suicide attempts.

Multiple studies have focused on validating current tools for identifying risk instead of assessing how these tools actually work to reduce the levels of suicidality within inpatient settings (Carter et al. 2018; Whiting and Fazel, 2019). Among the existing reviews, conclusions regarding the capabilities of these tools in healthcare settings are conflicting or questionable (Carter et al. 2018; Large et al. 2011). The knowledge surrounding clinical practice patterns following the implementation of suicide risk assessments is also sparse. The current literature provides sufficient evidence surrounding risk categorization, but provides limited information on the implementation of these tools and their effects on clinical practice. A review identifying the

enablers and barriers of suicide risk assessment implementation is necessary to help decision-makers ensure the effective implementation and utilization of these suicide risk screening tools.

The research question which will be investigated in this thesis is:

1) What are the enablers and barriers to implementing inpatient suicide risk assessment screening tools?

The following chapter will provide a contextual background and literature review on the burden of mental illness and suicide, access to care and service delivery, and the tools used for mitigating suicide risk within inpatient facilities. The chapter will also identify gaps in knowledge surrounding the provision of care and use of suicide risk assessments.

Chapter 2. Background and Context

2.1 Burden of Mental Illness

Globally, mental illness is one of the leading causes of disability and contributes to 90% of suicides in developed and non-developed countries (Hidaka, 2012; Collins and Saxena, 2016; Ohrnberger et al 2017). According to the World Health Organization (WHO), mental illness is a diagnosable condition that interferes with an individual's thought processing, social, emotional, and behavioral abilities (WHO, 2020). Some of the more commonly reported mental health issues include mood disorders, anxiety disorder, eating disorders, cognitive impairment, substance abuse disorder, and psychotic disorders (Bower and Gibody, 2005; Sullivan et al. 2006). Globally, it is estimated that one in every four individuals will either be directly affected by a mental health disorder or experience a form of mental illness at some point in their lives (Lake, 2017; WHO, 2020). The onset and development of mental illness can be impacted heavily by social determinants of health (Manderschied et al. 2010), including: income, housing, education, early childhood experiences, social support, and lack of access to resources (Manderschied et al. 2010). Poor recognition and failure to address these broader determinants of health contributes to a large role in the onset, re-occurrence, and worsening of mental health illnesses.

As the prevalence of mental illness continues to grow, the WHO has emphasized four objectives to mitigate mental illness and achieve optimal health for individuals worldwide (WHO, 2020). These objectives include: effective leadership and governance for mental health; the provision of integrated mental health services in community-based settings; the

implementation of strategies for promotions and prevention; and strengthened information systems, evidence and research (WHO, 2020).

2.1.1 Canadian Burden of Mental Illness

Mental illness is one of the leading causes of disability in Canada; it is estimated that at least one in five Canadians will either experience mental illness or problems with addiction (MHCC, 2014). According to the Mental Health Commission of Canada report in 2011, approximately 19.8% percent of Canadians are currently living with a mental illness. Common mental illnesses amongst Canadians include mood disorders, anxiety disorders, and substance abuse disorders (Smetanin et al. 2011). This burden also persists amongst Canadian youth as mental illness has a significant impact on their wellbeing (McMartin et al. 2014). As of 2011, approximately 1 million individuals between 9-19 years of age experienced some form of mental illness. This number is expected to reach 1.2 million in 2041, further indicating that 15-25% of youth in Canada will experience some form of mental illness by the age of 19 (Smetanin et al. 2011). The burden of mental illness also has economic impacts. Annually, approximately 51 billion dollars are spent on problems related to mental health within Canada (Lim et al 2008; Smetanin et al. 2011). This burden consists of both direct (government funding for health care services) and indirect (loss of productivity from short-term disability and unemployment) costs (Lim et al 2008; MHCC, 2016; Smetanin et al. 2011).

2.1.2 Mental Illness and Suicide

A major burden of mental illness is its association with suicidal behavior (Korczak 2015; Quarshie et al. 2020; Skegg 2005). A number of studies suggest that as many as 90% of people who have engaged in self-harm or suicidal behavior suffer from a mental disorder (Collins and

Saxena, 2016; Hidaka, 2012; Korczak 2015; Ohrnberger et al 2017; Quarshie et al. 2020; Skegg 2005).

2.2 Self-harm, Suicidal Ideation and Suicide

2.2.1 Definitions: Self-harm, Suicidal Ideation and Suicide

In the literature, self-harm without suicidal intent is often identified as a coping mechanism for individuals suffering from intense psychological and/or emotional distress (Curtis et al. 2018; Quarshie et al. 2020; Richardson et al. 2007). Self-harm is defined as intentional self-injury or self-poisoning disregarding suicidal motives (Hawton et al. 2012). Increasing global rates of self-harm has made it a major public health concern (Curtis et al. 2018; Hawton et al. 2012). The demographic profile of individuals at risk for engaging in self-harm include: youth, female, low socioeconomic status, and individuals of minority groups (e.g., LGBTQ+) (Curtis et al. 2018; Quarshie et al. 2020; Skegg 2005). Further risk factors include: psychiatric disorders, physical illness, adverse life events, media influences, intoxication and the awareness of self-harm by others (Skegg 2005). There are numerous ways in which an individual may engage in self-harm with the most common being cutting, suffocating, and substance misuse (Curtis et al. 2018; Hawton et al. 2012; Skegg 2005). Although defined as an act of deliberate self-injury regardless of having suicidal motives/intent, self-injurious activity is a strong indicator of past, present, and future suicidal ideation (Curtis et al. 2018; Hawton et al. 2012; Wilkinson, 2013; Skegg 2005).

Suicidal ideation is identified as suicidal thoughts or ideas consisting of contemplations, wishes and preoccupations with death and suicide (Harmer et al. 2021). Suicidal ideation is identified to be either passive or active (Harmer et al. 2021). Passive suicidal ideation consists of

an individual having a wish to die but no plan of execution. Active suicidal ideation involves specific suicidal thoughts with the expectation of self-harm that may be fatal (Harmer et al. 2021).

Suicide is defined as the act of intentionally causing one's own death and is usually attributed to poor mental health (Knock et al. 2008). Studies have identified potential static and dynamic characteristics of at-risk individuals, which may impact one's decision to attempt suicide (Bolten et al. 2015; Qin et al. 2003; Sadek, 2018; Van Heeringen, 2009; Welton, 2007). Static characteristics represent factors that cannot change, while dynamic characteristics represent factors that have the opportunity to change. The most common static characteristics associated to suicide in the findings include: being male, increasing age, being White or of Native decent, history of substance abuse, prior suicide attempts, and familial history of suicide. Dynamic characteristics include mental illness, emotional stress, suicidal ideation, access to lethal means (firearms), incarceration, insufficient social support, and complex medical complications (Cavanagh and Smyth, 2010; Welton, 2007). Studies have identified various methods used by individuals who die by suicide (Callanan and Davis, 2012; Cavanagh and Smyth, 2010; Welton, 2007). The three most common methods for both males and females include firearms (48.7%), hanging (21.4%), and poisoning (10.3% [substance misuse]) (Callanan and Davis, 2012). The remaining methods (<20%) included jumping off of heights, cutting, stepping in front of moving vehicles, and setting oneself on fire (Callanan and Davis, 2012; Cavanagh and Smyth, 2010; Welton, 2007).

2.2.2 Burden of Suicide

From a global perspective, suicide is growing as both a public and mental health concern, with approximately one million lives lost each year (WHO, 2018). Although close to 80% of the

global suicide burden occurs in low and middle-income countries, the incidence rates occurring in countries with high-income economies are increasing (WHO, 2018). With a global increase of 6.7% from 1990-2016, suicide has grown to become one of the top ten leading causes of death across eastern and central Europe, Asia Pacific and North America (Naghavi, 2019).

Furthermore, suicide has become the second leading cause of death amongst young individuals (Bertolote et al. 2004, Naghavi, 2019; WHO 2018). Findings indicate that approximately one-third of suicides occurred within the ages of 15-29 (Naghavi, 2019; WHO, 2018). Besides the personal health effects experienced from suicide and/or self-harm, this type of behavior can be detrimental to both the mental and physical health of surrounding family members (Jang et al. 2016; Lewiecki and Miller, 2012; Spillane et al. 2018). It is estimated that for every suicide, approximately 60 people are intimately affected, leading to adverse mental health outcomes including risk of suicide, depression, and psychiatric admission (Lewiecki and Miller, 2012; Spillane et al. 2018). Suicide bereavement is also associated with poorer general health and physical illnesses such as cardiovascular disease, chronic obstructive pulmonary disease and diabetes (Spillane et al. 2018).

In Canada, it is estimated that approximately four thousand people will die due to suicide each year (CIHI, 2019; Egerston, 2015; Spiwak et al. 2012). Additionally, many more individuals will be hospitalized for either attempting suicide or engaging in self-harm (Skinner et al. 2016; Spiwak et al. 2012). According to the most recent data available in Canada, rates of suicide are significantly higher in Nunavut and Northwest Territories than in other parts of the country, with 38.1 and 33.2 suicides per 100,000 individuals respectively (Statistics Canada, 2021). Amongst the other provinces and territories, the rates of suicide range between 6.8 and 13.1 per 100,000 individuals (Statistics Canada, 2021). Canadian statistics also indicate that just

over 27,000 individuals were hospitalized for attempted suicide or self-harm in 2020 alone (CIHI, 2021). As many individuals avoid hospitalization for self-harm or suicide attempts, this number is likely an underestimation. Given the severity of self-harm, suicidal ideation and suicide, it is essential to understand why mental health services are not being utilized.

2.3 Access to Care

As the occurrence of mental illness and suicidal ideation becomes more prominent, there is an increasing demand for effective mental health services (Bertolote et al. 2004; Butler and Pang, 2014; Collins and Saxena, 2016; Patterson and Edwards, 2018). Although mental health services may be available, nearly two-thirds of individuals suffering from mental illness receive little to no treatment (Patterson and Edwards, 2018; Tempier et al. 20089). The under usage of mental health services is commonly attributed to a lack of mental health literacy, stigma, and systemic limitations (Fante-Coleman and Jackson-Best, 2020; Fluery et al. 2014; Patterson and Edwards, 2018).

Insufficient mental health literacy prevents those who have mental illness from getting the necessary treatment they need through mental health services (WHO, 2020). Jorm and colleagues (1997) describe mental health literacy as the knowledge and beliefs of mental health alongside the ability of these to influence an individual's recognition, management, and prevention of mental illness. Mental health literacy is often influenced by previous experiences of mental illness and communal support. However, in many instances, both cultural and social environments disregard the use of mental health services to identify and treat mental illness (Fante-Coleman and Jackson-Best, 2020; Hurley et al. 2020). A systematic review of parent and caregiver mental health literacy identified that a significant percentage of Western populations fail to recognize the development of mental illness (Hurley et al. 2020). The study also

mentioned that ethnic, cultural, and religious practices relied heavily on help-seeking measures instead of mental health services (Hurley et al. 2020). Inadequate mental health literacy is detrimental as it can lead to increased stigmatization, further negatively impacting the use of mental health services (Goguen et al. 2016).

Stigma related to mental illness may often hinder the utilization of mental health services (Goguen et al. 2016; Pederson and Paves, 2014). Research completed by Jagdeo and colleagues (2009) investigated negative attitudes towards mental health treatment. From over 11,000 individuals sampled in their research study, 15-20% of respondents reported that they would probably not seek mental health treatment, even if they suffered from severe emotional issues (Jagdeo et al., 2009). Saunders and colleagues conducted a study comparing the use of primary care services by non-immigrant and immigrant youth for mental health needs. Their findings illustrated high levels of dissatisfaction with mental health services and stigma resulting from fear of disclosure, discrimination, and mistrust of primary care services amongst various immigrant populations (Saunders et al. 2020). Through a systematic review, mental health-related stigma within healthcare settings was investigated by Knaak and colleagues. Common themes that contributed to mental health related-stigma within healthcare settings included poor patient-provider interactions, negative attitudes, and inadequate training. (Knaak et al. 2017). Furthermore, these factors often contribute to an individual's reluctance to seek help and utilize mental health services (Fante-Coleman and Jackson-Best, 2020; Knaak et al., 2017; Saunders et al., 2020).

Systemic limitations can also impact access to mental health services (Fante-Coleman and Jackson-Best, 2020; Moroz et al. 2020). Despite equal or higher prevalence of mental illness, individuals of lower socioeconomic status experience disadvantages when accessing mental

health services. Studies indicate that around 80% of individuals report to their family physicians for mental health needs rather than reporting to an outpatient mental health facility (Moroz et al. 2020). Although exemplary care within an acute setting may be provided, individuals dealing with mental illness may experience inadequate access to a timely diagnosis or appropriate mental health professionals (Madi et al., 2007; Saunders et al. 2018). Aside from timely access to care, further systemic limitations include geographical barriers (Fante-Coleman and Jackson-Best, 2020). Compared to affluent communities, lower income communities have limited mental health services (Fante-Coleman and Jackson-Best, 2020; Moroz et al. 2020). In addition to geographical barriers, financial limitations may impede one's decision to seek mental health services. Many mental health services, excluding inpatient facilities, require payment out of pocket or private insurance. Therefore, individuals who work part-time, are unemployed, or unable to maintain stable employment are at a disadvantage when accessing mental health services.

The barriers (mental health literacy, stigma and systemic limitations) to proper mental health care may play a pivotal role in both the development and progression of mental illnesses. This may increase the potential for an individual to resort to self-harm, suicidal ideation, and ultimately death by suicide (Bertolote et al., 2004; Luoma et al. 2002; Nock et al., 2012). As both the act of self-harm and suicide are now recognized as mental and public health concerns, it is important to evaluate how mental health services are delivered to combat this growing epidemic.

2.4 Canadian Mental Health Service Delivery

In Canada, responsibility for the funding and delivery of healthcare services falls under provincial jurisdiction. The federal government co-finances provincial and territorial health insurance programs, which must adhere to the standards set by the *Canada Health Act* (1985).

The Act states that to be eligible for federal transfer payments, provincial governments must ensure their populations have access to “medically necessary” hospital, diagnostic and physician services free at the point of care (Hutchison et al., 2011; Marchildon, 2017). Since provincial health insurance programs only guarantee coverage for hospital, diagnostic and physician services, only a limited set of mental health services are covered, e.g., physician and inpatient mental health services. Coverage for other mental health services vary both within and across provinces. According to Mulvale et al. (2007) mental health services are one of the most underfunded sectors of Canadian healthcare systems (Mulvale et al. 2007). Each year, approximately 5 million Canadians express their need for mental health services. In 2020, 22% reported that their needs were partially met while 21% indicated that their needs went fully unmet (Moroz et al. 2020). Even though mental illness accounts for 23% of disease burden in Canada, only 7.2% of the total healthcare budget is expended on services in this area (Moroz et al. 2020). Additionally, approximately 80% of Canadians rely on their family physicians for support with mental illness (Moroz et al. 2020).

The provision of mental health services through primary care services are limited. Within primary care facilities, access to services are hindered by long wait times, shortage of mental health professionals, and community care that is not publicly funded. Allied health including psychologists, addiction counselors, and social workers are considered an essential element to the overall continuity of care for individuals suffering from mental illness. However, services provided by these professionals are not typically publicly funded and require out-of-pocket payment or coverage through private insurance plans. As community care services are often underfunded, more burden is placed on emergency and inpatient psychiatric services (Ghandi et al. 2016; Oiesvold et al. 2011; Seitz et al. 2012).

2.5 Emergency Departments (ED) and Inpatient Psychiatric Care

Emergency Departments (ED) are often the first point in contact for individuals experiencing mental health concerns (Rosenbaum Arsanow et al. 2017; Lanzillo et al. 2019; Moroz et al. 2020). As the occurrence of mental illness is becoming more prevalent, the number of individuals reporting to the ED for mental health needs continues to rise. For instance, a Canadian study identified that since 2007, a 75% increase of mental health related ED visits were seen amongst children and youth ages 5-24. Additionally, 39% of children that reported to the ED for mental health concerns returned three or more times following their initial visit (Moroz et al. 2020). These findings emphasize the importance of the ED in providing mental health care.

As the risk of suicide is highly associated with mental illness, treatment measures for individuals at risk often includes referral to psychiatric inpatient care (Chen et al. 2012; Choi et al. 2012; Lynch et al. 2008; Meehan et al. 2006). Since many people with mental illness require complex and specialized care, hospital psychiatric care units are often needed to provide care to this population (Ghandi et al. 2016; Oiesvold et al. 2011; Seitz et al. 2012). The objectives of these facilities are to provide patients with care tailored to their mental health conditions, while also maintaining a therapeutic environment (Bruer et al. 2018; Levi et al. 2016; Park et al. 2013; Sakinofsky, 2014). In these facilities, safety is not only considered a goal, but the highest level of priority, as the purpose of these facilities are to keep patients and others safe (Butcher and Ingram, 2018; Slemon et al. 2017). To reduce further suicidal ideation following a suicide attempt, the suggested standard of practice is psychiatric hospitalization (Ghahramanlou-Halloway et al. 2018). However, literature indicates that individuals receiving psychiatric care are at higher risk for self-harm and suicide than the general public (Bruer et al. 2018; Ghahramanlou-Halloway et al. 2018; Khanra et al. 2016; Levi et al. 2016; Park et al. 2013;

Sakinofsky, 2014). This risk significantly increases during the first few weeks of psychiatric inpatient care and may remain high up to a year following a self-harm or suicide attempt (Joint Commission Sentinel Alert, 2020).

In order to reduce the risk of self-harm and suicide in EDs and inpatient psychiatric care facilities, suicide prevention guidelines and programs are implemented by healthcare organizations (Mitchel et al. 2005; Verhostadt et al. 2019; Verwey et al. 2010). Suicide prevention guidelines support clinicians by aiding in the identification of risk alongside choosing the most appropriate course of treatment for psychiatric patients. Suicide risk screening tools are a key component of suicide prevention guidelines.

2.5.1 Suicide Risk Screening Tools

Suicide risk assessments are administered in an attempt to classify whether an individual is at low or high risk for future suicidal behavior (Carter and Spittal, 2018; Mokkenstorm et al. 2018; Slemon et al. 2017). Risk assessments are commonly used within institutions dealing with vulnerable populations including correctional facilities, outpatient clinics, and inpatient care (Chen et al. 2012; De Beurs et al. 2013; Ellis et al. 2012; Meehan et al. 2006; Slemon et al. 2017). There are many versions of suicide risk assessments. Some of the most commonly administered risk assessments include *Beck Scale for Suicide Ideation* (Beck et al, 1988), *Columbia Suicide Severity Rating Scale* (Posner et al. 2011), *High-risk Construct Scale* (Cochrane-Brink et al. 2000), *Suicide Intent Scale* (Stefansson et al. 2012), *Scale for Suicide Ideation-Current* (Chan et al. 2016), *Scale for Suicide Ideation-Worst* (Chan et al. 2016), *The Patient Health Questionnaire* (Runeson et al. 2017), and the *SADPERSONS Scale* (Carter and Spittal, 2018; Large et al.2018).

Suicide risk assessments include a variety of variables which may differ depending on the version of the assessment being used, the population being assessed, or the facility that is implementing the assessment. However, common variables noted in the literature include a mix of both static and dynamic risk factors such as: past psychiatric treatment, past suicide attempts, previous incidents of self-harm, age, education level, marital status, and psychiatric diagnosis (Mokkenstorm et al. 2018). In addition to these risk factors, suicide risk assessments also assess the behavior and suicidal ideation of patients and the intensity and severity of suicidal ideation. For instance, the Columbia Suicide Severity Rating Scale (Posner et al. 2011) includes questions related to suicidal ideation rated on a scale ranging from 1 (wish to die) to 5 (active thought and plan with intent). Questions related to the intensity of ideation assess factors such as: frequency, duration, controllability, deterrents, and reason for ideation (Posner et al. 2011). This scale also places an emphasis on timelines. Suicidal ideation is assessed for the past 30 days, and for the past three months with lifetime ratings for both ideation and behavior (Lindh et al. 2018; Posner et al. 2011). This assessment is widely used by many health organizations as it contains definitions for each term and standardized prompts to guide the interviewer and improve identification (Lindh et al. 2018; Posner et al. 2011).

2.5.2 Validity/Accuracy of Suicide Risk Assessments

There is debate in the literature surrounding which suicide risk assessment tool is best. In addition, there is evidence that these tools suffer from relatively low predictive accuracy. In their review of suicide risk assessment tools, Carter and Spittal (2018) reported a pooled sensitivity of 56% for the risk assessment tools listed above, and a pooled specificity of 42%. Carter and Spittal (2018) argued that suitable risk assessments should have at least 80% sensitivity and a specificity greater than 50%. However, multiple studies have indicated that there is no tool that has

significantly higher predictive properties over others (Cater and Spittal, 2018; Runeson et al. 2017).

Misclassification of suicide risk may also be higher in populations that are socioeconomically challenged (Mudler et al. 2016). Accompanying misclassification with inadequate care provision may cause patients more harm than good. Individuals classified as “high risk” may receive more restrictive treatment. This may contribute to adverse feelings towards psychiatric care and increase psychiatric complications for individuals with low-mild risk of suicide (Carter et al. 2018; Mudler et al. 2016). Practice patterns of risk assessment delivery may impact the accuracy of these screening tools. Researchers suggest that suicide risk assessments administered by clinicians be accompanied by a more empathetic engagement with psychiatric inpatients (Carter et al. 2018; Chu et al. 2017; Saunders et al. 2013).

2.5.3 Practice Methods

In inpatient and ED settings, risk assessments are usually conducted during the initial interview process to limit the amount of time before an individual can engage in potential self-harm and suicide (Chu et al. 2017). Scholars emphasize the importance of timing and frequency of administering these assessments (Chu et al. 2017; Saunders et al. 2013). Literature on suicide indicates that suicidal ideation in patients may change throughout their stay within psychiatric hospitalization (Ellis et al. 2012; Meerwijk et al. 2009; Saunders et al. 2013). To effectively manage patient risk, it is best practice to consider risk assessment not as a singular event, but as a continuing process (Chu et al. 2017; Cochrane-Brink et al. 2000; Ellis et al., 2012; Hunt et al 2016; Lynch et al; 2008; Meerwijk et al. 2009). A study completed by Meerwijk and colleagues (2009) tested the feasibility of implementing a suicide risk assessment guideline for treating patients with schizophrenia. The aim of their study was to identify if nurses’ use of the guideline

was effective in both identifying and treating suicidal ideation within these patients. The results of this study implied that the utilization of guidelines enabled nurses to effectively discuss and assess risk of suicide, while providing adequate care for patients hospitalized with schizophrenia (Meerwijk et al. 2009).

In a study conducted by Ellis and colleagues (2012) researchers administered a version of a suicide risk assessment and a series of scales to measure depression, hopelessness, suicidal ideation, and suicidal cognition. Guided by the completion of this assessment, the researchers believed they could identify the most appropriate course of guideline-based care. Their study used the Collaborative Assessment and Management of Suicidality (CAMS) framework. The CAMS framework is a therapeutic approach commonly conducted in outpatient care. This approach uses the collaborative expertise of psychologists and social workers, alongside nurses to engage with patients when increased levels of suicidality were present. Of the 24 inpatient participants included in this study, there was a significant decrease in depression, hopelessness and all suicidal drivers indicated in their initial risk assessment (Ellis et al., 2012).

Proper use of risk assessments is a critical component of facility guidelines for identifying future risk of suicide and enabling effective care if admitted for psychiatric hospitalization (Chen et al. 2012; De Beurs et al al. 2013; Ellis et al. 2012; Meerwijk et al. 2009). As such, more information surrounding the implementation and the use of risk assessments is pivotal to providing appropriate care within inpatient facilities. It is essential to understand what factors (barriers or enablers) impact the use of risk assessments and how clinical practice change accompanies these screening tools to reduce risk.

2.6 Purpose and Significance of Research

Currently, there is a wealth of knowledge surrounding risk categorization and the use of suicide risk assessments. The literature is focused mainly on the validity of these suicide risk assessments – that is, whether or not an assessment tool can reliably categorize patients as “low or high” risk rather than assessing the impact of these instruments on actually reducing the levels of suicidality within inpatient or ED settings (Carter et al. 2018; Whiting and Fazel, 2019). However, there are no current reviews on the enablers and barriers of implementing suicide risk assessment in these settings and their effects on clinical practice change.

This thesis provides a synthesis of how assessments impact changes within clinical practice, thereby informing both clinical teams and administrative decision-makers. By determining both the benefits and consequences of these tools on clinical practice, decision-makers can better ensure the effective implementation and utilization of suicide risk screening tools. Using the results of this review, this thesis provides recommendations to improve suicide prevention strategies in order to effectively reduce both the risk and onset of suicide within the EDs and inpatient settings.

Chapter 3. Study Design & Methodology

3.1 Study Design

A scoping review was used to synthesize and disseminate knowledge on the implementation of suicide risk assessments. The goal of a scoping review is to identify and summarize literature that has previously been published, while investigating areas of study that have yet to be addressed (Arksey and O'Malley, 2005). Scoping reviews aim to map the key concepts of a research topic using a comprehensive analysis of available evidence (Arksey and O'Malley, 2005). In most cases, these reviews cover a diverse literature pertaining to a broad topic. Scoping reviews influence research by drawing conclusions from already existing evidence. Scoping reviews help to clarify key concepts, examine how research is conducted, identify key characteristics, and identify potential gaps in knowledge on a topic of interest (Munn et al. 2018). In addition, scoping reviews contribute to the dissemination of research findings to practitioners and policymakers in many areas of health research (Arksey and O'Malley, 2005; Pham et al. 2014).

Many authors misinterpret scoping reviews as a less rigorous version of a systematic review (Pham et al. 2014). However, this is not the case as the purpose and objectives of these methods differ. Systematic reviews aim to answer questions that are precise in nature. This may include addressing the feasibility, appropriateness, and effectiveness of certain practices. However, when not much is known on the topic, scoping reviews help identify and report characteristics and concepts through a mapping of literature (Pham et al. 2014). Due to the broadness and complexity of my research question, a scoping review was the most suitable approach. Furthermore, due to the sparsity of knowledge surrounding suicide risk assessment

implementation, a scoping review was determined as a feasible approach to analyze an area of research that has not been deeply explored in a rigorous manner. In relation to suicide risk assessments, the literature focuses mainly on the validity of these assessment scales, while information surrounding implementation factors are limited. For the current project, a scoping review allowed for a thematic analysis of the literature's enablers and barriers to implementation of suicide risk assessments.

A scoping review was conducted by drawing upon recommendations of both Arksey and O'Malley, (2005) and Xiao and Watson (2019). For this thesis, the five essential steps outlined by Arksey and O'Malley, (2005) were followed, including: (1) identifying a research question, (2) identify relevant studies, (3) study selection, (4) charting the data, and (5) collating, summarizing, and reporting results. In addition to these essential steps, the inclusion of a review protocol as recommended by Xiao and Watson (2019) was completed after the first step of developing a research question. A breakdown of how each step was performed and applied in this thesis is presented in this chapter.

3.2 Identifying a Research Question and Protocol

A literature review was conducted to investigate the current literature surrounding the burden of suicide, access to care and service delivery, and lastly, the tools used for mitigating suicide risk within inpatient facilities. During this process, the gaps in literature surrounding the implementation of suicide risk assessments were identified which led to developing the question for this scoping review. A review protocol was developed and validated prior to conducting steps 2 to 5. Developing a protocol was important because it served as a work plan for knowledge synthesis by outlining the steps that needed to be followed throughout the scoping review

procedure. In addition, this protocol was used as reference for meetings with a librarian and to recruit a secondary reviewer in order to reduce bias in the following steps (study selection).

3.3 Identifying Relevant Studies/Search Strategy

In order to identify relevant studies, a search strategy was included. The search strategy included a three-step process. The first step consisted of a preliminary search of two databases relevant to the topic at hand. For this first step, I used the databases Ovid Medline and PsycInfo. These search engines were utilized due to their ability to identify literature based on biomedical and psychological markers. Within this step, a number of articles were identified and discussed with my thesis committee regarding their relevance to the research question for this thesis. The second step included collaborating with a health science librarian. The use of the protocol was beneficial in this step as it provided a reference point to ensure the objectives of the review were at the forefront when adjusting the search strategy. Consultations with the health science librarian occurred once a week for four weeks in order to adjust the search strategy. In this step, index terms, text words, and abstract key words of articles were included from the preliminary searches. Other terms were used in subject lines to identify literature in many places such as the title, abstract and subject headings of sources. The final step consisted of reviewing the reference lists of all articles identified in the first search for further adjustments to the strategy. Once the search strategy was confirmed and agreed upon by my committee and the health science librarian, the final searches were conducted. See Appendix B for final search strategies.

3.4 Study Selection/Inclusion and Exclusion criteria

Selected articles were peer-reviewed and published in English between the years 1990 and 2020. The PICO (Population Intervention, Comparison, Outcome) model guided further

inclusion criteria (Eriksen and Frandsen, 2018). The study populations included inpatients at healthcare facilities who received a risk assessment for suicidality, or healthcare professionals treating patients at risk for suicidality. Studies focused on populations and settings in any country. The intervention or exposure had to be a suicide risk screening tool or prevention strategy that targets patients at risk for suicide or self-harm; the intervention or exposure must be explicitly identified as one that addresses suicidality through the use of suicide risk screening tools or prevention strategies. The evaluated outcome had to be related to changes in practice or behaviors of health professionals and/or in the risk of self-harm or suicide. This review included all study designs from both primary and secondary research studies. Editorial and opinion pieces of literature were excluded.

3.5 Extracting and Charting Data

In order to reduce bias, two reviewers participated in the screening process. Covidence was used for all stages of screening. Based on the inclusion criteria, reviewers individually screened sources in the title and abstract stage. Following this initial round of screening, the reviewers discussed any disagreements regarding source selection. If the reviewers were inconclusive on whether to include or exclude a source based on information in the title and abstract, the source progressed to the final full-text screening stage. Once title and abstracts and full text screening were complete, the data extraction process began.

To extract the data from included articles, a theoretical framework was used. Within implementation science, theoretical frameworks are used to guide the implementation of programs (evidence into practice), explaining factors that impact the outcomes of implementation, and identify elements and stages that increase the success of implementation (Dintrans et al. 2019; Nilsen 2015). In addition, frameworks are useful in identifying the current

gaps in implementation strategies that can be helpful to policy-makers. The use of a framework for this thesis was beneficial in providing a structured approach to extracting implementation factors related to suicide risk assessments. For this study, the Consolidated Framework for Implementation Research (CFIR) was utilized. The CFIR was developed in 1998 by implementation scientists to improve the overall quality of healthcare amongst American veterans. The CFIR is composed of 39 constructs across five domains: inner setting, outer setting, characteristics of individuals, intervention characteristics, and process (Damschroder et al. 2009). This framework is described as meta-theoretical as it was derived from synthesizing multiple theories to promote an understanding of factors that facilitate implementation across different contexts (Damschroder et al. 2009). The use of this framework was beneficial towards answering the research question as implementation factors may arise from different contexts within the ED and inpatient facilities.

For this thesis the CFIR was used to extract and chart data, guide the analysis, and interpret findings related to implementation. In the extraction process, the CFIR was used when screening articles for implementation factors. Each domain of the CFIR was considered in this process. Once enablers or barriers to implementation were highlighted, they were then charted in an excel spreadsheet. This process was done for each of the articles used in the scoping review. The excel spreadsheet included information on the articles such as: author(s) and year, title, country of publication, research question/objectives, study design, population, intervention, comparison, outcomes, and additional relevant information. This information was then condensed into the following categories: author/year, country, study design, population, intervention, CFIR domain enabler and CFIR domain barrier (See Appendix C).

3.6 Reporting Results

The focus of this study was to identify any factors surrounding the implementation of suicide risk assessments in ED and inpatient facilities, therefore all domains of the CFIR were utilized. Following the extraction of implementation factors, they were summarized in the table found in Appendix D. This table displays information regarding all enablers and barriers of risk assessment implementation within ED and inpatient facilities. Following this, a qualitative thematic analysis of implementation factors was then conducted. This process was done to move from simple lists to themes and subthemes (see Chapter 4 Results, section 4.3).

Chapter 4. Results

4.1 Search Results

The objective of this scoping review was to determine the enablers and barriers of suicide risk assessment implementation within inpatient healthcare facilities. To meet this objective, a search using electronic databases was conducted. In the process, 572 articles met the inclusion criteria and were retrieved from two databases: Ovid MEDLINE (220) and PsycINFO (352). From the articles retrieved, 76 duplicates were removed resulting in 496 distinct articles. Two reviewers then screened articles by titles and abstracts. At this stage, 236 articles were excluded. This resulted in 230 articles moving forward to the full-text screening stage. At this stage, 178 articles were excluded for the following reasons: 74 had irrelevant study outcomes; 28 did not include suicide risk assessments; 10 lacked indication of suicide prevention strategies; 27 were either editorials, opinion pieces, or protocols; 11 were conducted in settings other than inpatient psychiatric settings; 18 were wrong patient population; and 10 were inaccessible through library databases. This resulted in a total of 52 articles meeting the inclusion criteria and used in this study (See Appendix E for PRISMA flow chart).

4.2 Study Characteristics of Included Articles

Of the 52 studies included in this review, the years of publication ranged from 1997-2020, and most were conducted in the United States (n=26). This was then followed by the United Kingdom (n=7), Canada (n=6), Taiwan (n=4), Australia (n=2), and Japan (n=2). Belgium, Brazil, Denmark, Hungary, and Singapore were all represented by one study each. Various research methodologies were used by the studies included: quantitative research studies included cross sectional (n=16), cohort (n=6), case control (n=5), randomized controlled trials (n=2), and

root cause analysis (n=1); qualitative studies included semi structured interviews (n=3) and focus groups (n=1). A total of eight mixed method studies were included. The other research designs that were included consisted of literature reviews (n=7), retrospective chart reviews (n=2), and a case study (n=1).

Only studies completed within inpatient facilities were included; more specifically they consisted of regional and district general hospitals, emergency departments, psychiatric facilities, and pediatric psychiatric facilities. Within the settings listed, the focus was on patients presenting to the ED, receiving inpatient physical health care, patients receiving inpatient psychiatric care, and educational training programs within inpatient and ED health care facilities. Studies included data from healthcare providers (physicians, nurses, mental health specialists) with a range of total participants from 7 - 743, as well as data from patients receiving care with a range of participants from 67 – 14000. The interventions assessed included a mix of both validated and unvalidated risk assessments including the Columbia Suicide Severity Scale (n=3), ASQ screening tool (n=6), Risk of Suicide Questionnaire (n=2), Beck Scale for Suicidal Ideation (n=1), Beck Hopelessness Scale (n=3), High Risk Construct Scale (n=1) Beck Depression Inventory (n=2), Sad Persons Scale (n=1), PHQ-9 (n=1), and unspecified suicide risk/mental status assessments (n=11).

4.3 Enablers and Barriers to Suicide Risk Assessment Implementation According to the Consolidated Framework for Implementation Research (CFIR)

The Consolidated Framework for Implementation Research (CFIR) was used to identify the enablers and barriers to implementing risk assessments within inpatient facilities. All domains of the CFIR were utilized when identifying implementation factors related to suicide risk assessments. Factors contributing to the enablers and barriers from each domain included:

Inner setting (n=96), Characteristics of Individuals (n=13), Intervention Characteristics (n=12), Process (n=4), and the Outer Setting (n=4). Within each domain, constructs were used to identify specific enablers and barriers. From the inner setting domain, enablers and barriers were highlighted through the constructs of networks and communication (n=23), readiness for implementation (n=43) and implementation climate (n=31). Implementation enablers and barriers were identified through knowledge and beliefs of the intervention (n=5), self-efficacy (n=3), other personal attitudes (n=2), and individual state of change (n=3) constructs of the characteristics of individual's domain. The intervention characteristics domain identified implementation factors through the evidence strength and quality (n=9), and adaptability (n=3) constructs. Constructs such as planning, and patient needs and resources each represented four (n=4) implementation factors in both the process and outer setting domains, respectively. See Appendix for B for results table.

Enabler and Barrier Frequencies According to CFIR Domains

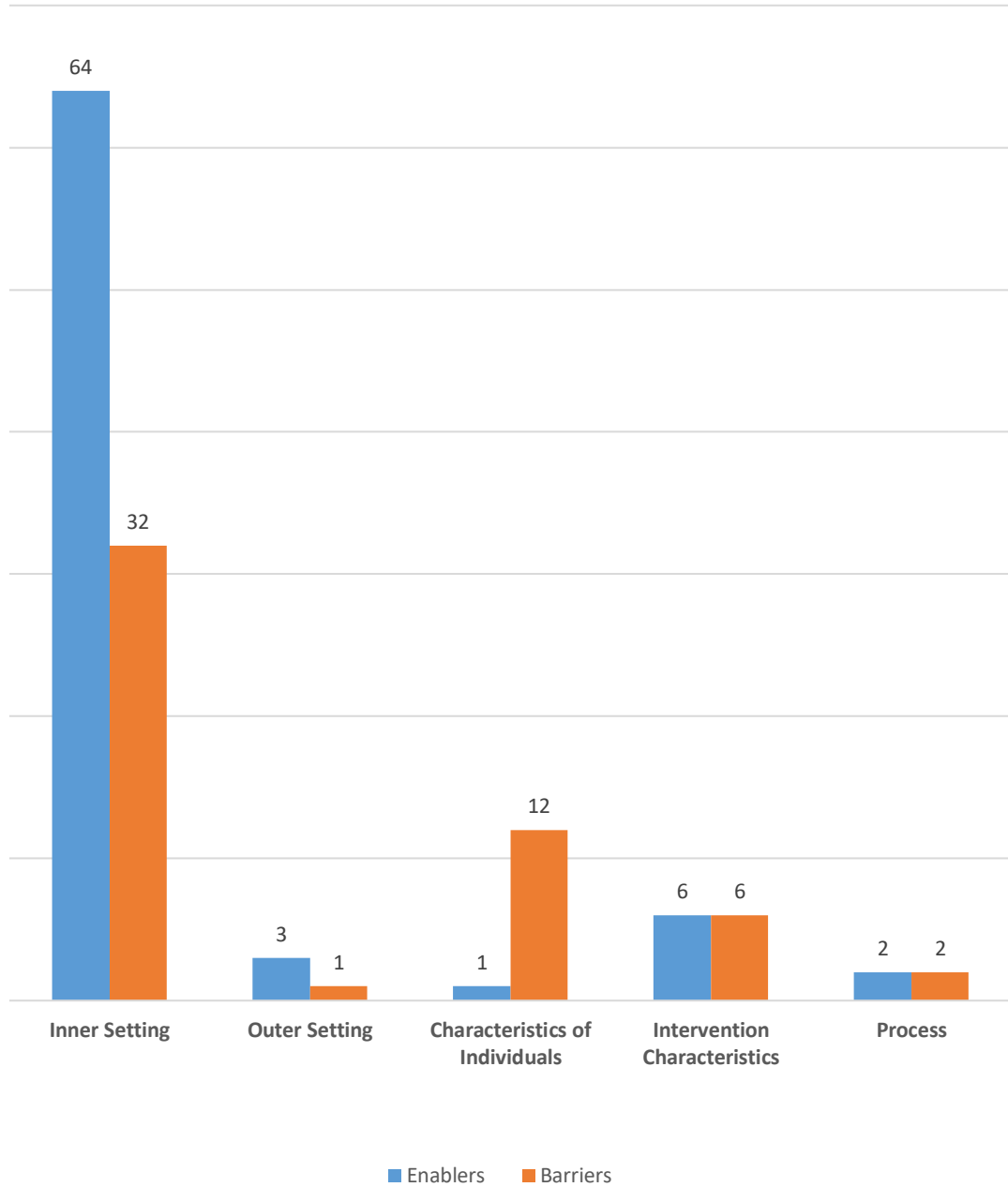


Figure 1 - Implementation Enabler and Barrier Frequency Breakdown per CFIR Domain

4.3.1 Interprofessional collaboration amongst health disciplines

Interprofessional collaboration amongst healthcare disciplines was an important facilitator and barrier to the implementation of suicide risk assessments. This was identified through the networks and communications construct within the inner setting domain of the CFIR. Thirteen studies in this review found input at team meetings and collaborative screening approaches as enablers and barriers to implementation (Azzopardi et al. 2020; Ballard et al. 2017; Barr and Leitner, 2005; Changchien et al. 2019; Horowitz et al. 2013; Inman et al. 2019; Lynch et al. 2008; Mahal et al. 2009; Petrik et al. 2015; Riblet et al. 2017; Rosenbaum Asarnow et al. 2017; Roy et al. 2016; Shand et al. 2018)

4.3.1.1 Interprofessional input within team meetings

The input from various health disciplines on the need for screening can positively impact the implementation of suicide risk assessments in inpatient and ED settings (Azzopardi et al. 2020; Ballard et al. 2017; Changchien et al. 2019; Horowitz et al. 2013; Inman et al. 2019; Mahal et al. 2009). As an enabler, various studies found that prior to implementation, it was helpful when all professionals tried to reach a consensus on the importance of conducting suicide risk assessments. For instance, studies (Azzopardi et al. 2020; Ballard et al. 2017; Inman et al. 2019) reported that the continuous gathering of clinical nurse managers, social workers, psychologists, and psychiatrists within an organization led to the implementation of suicide risk assessments. Within their studies, interprofessional collaboration at team meetings enabled in-depth discussions surrounding optimal risk screening approaches for that inpatient facility (Azzopardi et al. 2020; Ballard et al. 2017; Inman et al. 2019). Subsequently, these team meetings simplified the decision-making process for management, enabling the implementation of various clinically validated suicide risk assessments. For example, Azzopardi et al. (2020)

showed how team meetings led to the implementation of the Columbia Suicide Severity Rating Scale (CSSRS). Team meetings helped identify the specific components of risk assessments required for healthcare workers to adequately identify risk. In addition, these meetings ensured consistency across health disciplines for documenting risk factors. Similarly, Inman et al. (2019) highlighted how the convening of emergency department (ED) clinicians (physicians and nurses), epidemiologists, and psychologists over a 12-month period enabled the implementation of the risk assessment tool that best accompanied their approach to screening within their ED. Within these team meetings, discussions regarding best practices between the various health disciplines led to the implementation of the Ask Screening Questionnaire (ASQ) risk assessment (Inman et al. 2019).

A quality improvement study concerning the implementation of the two item Ask Screening Questionnaire (ASQ-2), demonstrated how interprofessional collaboration provided a broader organizational perspective surrounding the utilization of this tool (Horowitz et al. 2013). For example, nurses commented on the acceptability and impact of the tool on unit workflow. Moreover, recognizing the perspectives of front-line care workers enabled decision-makers within inpatient facilities to evaluate the effectiveness of this tool, further facilitating implementation (Horowitz et al. 2013).

4.3.1.2 Collaborative Risk Screening

Collaborative risk screening by healthcare providers was both an enabler and barrier to risk assessment implementation (Azzopardi et al. 2020; Barr and Leitner, 2005; Lynch et al. 2008; Petrik et al. 2015; Riblet et al. 2017; Rosenbaum Asarnow et al. 2017; Roy et al. 2016). Studies illustrated how integrating behavioral health specialists into the ED facilitated the implementation of risk assessments (Petrik et al. 2015; Rosenbaum Asarnow et al. 2017; Roy et

al. 2016; Shand et al. 2018). Physician participants in a qualitative study conducted by Petrik et al. (2015) expressed that due to high patient volume, there is little time to delve into suicide risk or prevention. These physicians identified that integrating behavioral health specialists into the ED increased capacity for prevention and helped identify suicide risk during assessments. Additionally, mental health professionals often help ED physicians by providing knowledge, experience, and the ability to ask difficult questions in stressful environments due to professional expertise in mental health. A qualitative study conducted by Roy et al. (2016), demonstrated that collaboration allowed ED physicians to obtain assessments and management skills from their psychiatric consultants.

Collaborative risk screening created barriers to implementation when there was limited role clarity amongst healthcare providers (Azzopardi et al. 2020; Barr & Leitner, 2005; Lynch et al. 2018; Shand et al. 2018). For instance, a study conducted by Barr and Leitner (2005), identified that poor role clarity resulted in the confusion of clinical responsibility regarding the administration of suicide risk assessments. Moreover, the lack of multidisciplinary role clarity in conducting risk assessments led to under documentation of risk, reduced quality of care, and inadequate treatment plans for patients (Barr and Leitner, 2005).

4.3.2 Perceptions of Healthcare Providers Regarding Suicide Risk Screening

The personal feelings and perceptions of healthcare providers can be both enablers and barriers to implementing suicide risk assessments. The CFIR domains represented in this theme include the inner setting, characteristics of individuals, and intervention characteristics. Twenty-nine studies displayed various ways in which the perceptions and actions of healthcare providers contribute to implementation enablers and barriers (Azzopardi et al. 2020; Bolton et al. 2015; Botega et al. 2007; Boudreaux and Horowitz, 2014; Chen et al. 2012; Choo et al. 2019 Chunduri

et al. 2017; Cochrane-Brink et al. 2000; Cooper et al. 2003; Davies et al. 2000; Desjardins et al. 2016; DeVlyder et al. 2019; Habis et al. 2007; Hackman, 2020; Horowitz et al. 2001; Horowitz et al. 2013; Inman et al. 2019; Jorgenson et al. 2016; Kishi et al. 2014; Links and Hoffman, 2005; Mahal et al. 2009; Manister et al. 2017; Nakagami et al. 2018; Pisani et al. 2012; Randall et al. 2018; Shand et al. 2018; Thom et al. 2020).

4.3.2.1 Healthcare provider compliance to suicide prevention guidelines

Poor compliance with suicide prevention protocols by health professionals may stem from disagreements with new risk screening approaches (Cooper et al. 2003; Habis et al. 2007; Randall et al. 2018). For example, a study conducted by Cooper et al. (2003) indicated that physicians deviated from risk screening protocols due to their belief that asking all questions on a suicide risk assessment may potentially induce thoughts of suicide. Physicians in this study conducted full risk assessments only when patients presented a complaint or mentioned anything related to suicide or self-harm (Cooper et al. 2003).

Similarly, several studies (Bolton et al. 2015; Cochrane-Brink et al. 2000; Chunduri et al. 2017; Links and Hoffman, 2005; McClatchey et al. 2019) illustrated physician reluctance to adhere to risk screening protocols. Negative perceptions towards risk assessment validity caused physicians to deviate from risk screening guidelines. For example, a qualitative study of physicians by McClatchey et al. (2019) implied that physicians relied solely on clinical judgment and felt that risk assessment tools missed key risk factors such as patient demeanor. Furthermore, some studies (Bolton et al. 2015; Cochrane-Brink et al. 2000; Chunduri et al. 2017) demonstrated how inconsistencies with cut-off scores on risk assessment scales caused healthcare providers to deviate from guidelines and resort to clinical judgment. Bolton et al. (2015) found that scales using cut-off scores as determinants for admission inappropriately

identified patients as high risk, leading to unnecessary clinical interventions. Researchers also identified that deficiencies with scales using cut off scores led to early discharge (Chunduri et al. 2017; Cochrane-Brink et al. 2000). This caused physicians to worry about the potential legal ramifications they may face following patient discharge (Chuduri et al. 2017). These negative perceptions towards the validity of tools were the main factors causing healthcare providers to deviate from screening protocols, often hindering the implementation of suicide risk assessments.

4.3.2.2 Healthcare provider stigma

Healthcare provider stigma towards mental health, self-harm, and suicidality within inpatient facilities has also been identified as a barrier to implementing suicide risk assessments. In numerous cases, healthcare provider stigma was linked to limited or inadequate amount of prior mental health and suicide risk training (Botega et al. 2007; Inman et al. 2019; Kishi et al. 2014; Mahal et al. 2009; Manister et al. 2017; Nakagami et al. 2018). Specifically, increased levels of discomfort accompanied by negative attitudes towards suicidal patients decreased the confidence that providers had to conduct detailed risk assessments (Manister et al. 2017; Nakagami et al. 2018). Additionally, studies found that stigma caused healthcare providers to distance themselves from patients dealing with suicidal ideation (Kishi et al. 2014). This negatively impacted the ability of healthcare providers to manage and treat patients at risk for self-harm and suicide (Botega et al. 2007; Inman et al. 2019; Kishi et al. 2014; Mahal et al. 2009; Manister et al. 2017; Nakagami et al. 2018).

4.3.3 Feasibility of Risk Screening

The feasibility of conducting risk assessment had an impact on implementation. This theme aligned with the implementation climate construct of the inner setting domain of the CFIR. Time constraints, privacy, and complexity of screening tools have been shown to impact the implementation climate for suicide risk assessments (Azzopardi et al. 2020; Boudreaux and Horowitz, 2014; DeVlyder et al. 2019; Chen et al. 2012; Choo et al. 2019; Cochrane-Brink et al. 2000; Desjardins et al. 2016; Hackman, 2020; Horowitz et al. 2001; Horowitz et al. 2013; Jorgenson et al. 2016; McClatchey et al. 2019; O'Connor et al. 2020; Petrik et al. 2015; Roy et al. 2016; Shand et al. 2018; Thom et al. 2020).

4.3.3.1 Time constraints

Researchers indicated that time constraints experienced by overworked healthcare providers impacted the feasibility of administering suicide risk assessments (Azzopardi et al. 2020; Cochrane-Brink et al. 2000; Desjardins et al. 2016; Habis et al. 2007; McClatchey et al. 2019; Petrik et al. 2015; Roy et al. 2016). A study by Roy et al. (2016), indicated that in a high-volume ED (averaging roughly 200 concurrent patients), healthcare providers did not have adequate time to discuss suicide risks with every patient; high patient volume caused healthcare providers to focus on acute issues rather than searching for suicidal risk (Roy et al. 2016).

4.3.3.2 Privacy to Conduct Risk Assessments

Lack of privacy is another factor that hindered the ability of healthcare providers to conduct risk assessments. A study conducted by Petrik et al. (2015) identified that many patients presented to the ED with family members or significant others. As a result, healthcare provider-patient privacy was frequently inhibited. Consequently, patients were often reluctant to truthfully

answer questions regarding suicide risk, which negatively impacted the validity of suicide risk assessments (Petrik et al. 2015; Roy et al. 2016).

4.3.3.3 Complexity of Screening tools

Studies indicated that length and complexity of certain risk assessments negatively impacted the feasibility of conducting risk assessments as a part of clinical practice. For instance, a study completed by Azzopardi et al. (2020) identified that risk assessments were not always easily understood by children or individuals with cognitive deficits. Furthermore, this limited the feasibility of conducting risk assessments often causing physicians to need extra time to rephrase certain questions (Azzopardi et al. 2020). Multiple studies indicated that the simplicity of risk assessments increased the feasibility and success of implementation (Boudreaux and Horowitz, 2014; DeVlyder et al. 2019; Hackman, 2020; Horowitz et al. 2001; Horowitz et al. 2013; O'Connor et al. 2020; Thom et al. 2020). Researchers found that short or reduced versions of existing risk assessment tools were more easily understood across patient populations with differing levels of competency. In addition, these assessment tools were identified to have an insignificant impact on patient flow (Horowitz et al. 2001; Horowitz et al. 2013).

4.3.4 Training and Education of Healthcare Providers

The training and education of healthcare providers positively impacted the implementation climate for suicide risk assessments within inpatient and ED facilities (Alavi et al. 2017; Azzopardi et al. 2020; Bolton et al. 2015; Botega et al. 2007; Choo et al. 2019; Chunduri et al. 2017; Cochrane-Brink et al. 2000; Davies et al. 2000; DeVlyder et al. 2019; Hermes et al. 2009; Kishi et al. 2014; Links and Hoffman, 2005; Mahal et al. 2009; Manister et

al. 2017; Morgan and Ruth, 1997; Nakagami et al. 2018; Pisani et al. 2012). This theme aligns with the inner setting and characteristics of individual domains of the CFIR.

4.3.4.1 Training Prior to Implementation

The training of non-mental healthcare providers prior to the implementation of suicide risk assessments positively impacted implementation efforts (Azzopardi et al. 2020; Ballard et al. 2017; Cochran 2019; Hackman 2020; Hermes et al. 2009; Horowitz et al. 2013). Prior to implementing suicide risk assessments, studies indicated that many healthcare providers exhibited a low level of practical experience in both the assessment and management of suicidal patients. These concerns were addressed via mandatory healthcare provider training sessions prior to the implementation of suicide risk assessment tools. With the guidance of mental health professionals, clinicians were able to acquire the skills needed to effectively conduct suicide risk assessments and handle complex situations (Azzopardi et al. 2020; Ballard et al. 2017; Horowitz et al. 2013). Training sessions also focused on communication between healthcare providers (Hermes et al. 2009; Mahal et al. 2009). This resulted in more effective communication between healthcare providers and increased clinician awareness of suicide risk factors (Hermes et al. 2009; Mahal et al. 2009).

4.3.4.2 Impact of Continued Mental Health and Risk Assessment Training

Education and training reduced healthcare provider stigma towards patients experiencing suicidal ideation. In turn, this increased the confidence in clinicians to engage with suicidal patients, conduct risk assessments, and manage suicidal risk (Botega et al. 2007; Hermes et al. 2009; Inman et al. 2019; Kishi et al. 2014; Manister et al. 2017; Morgan and Ruth, 1997). For instance, a study conducted by Botega et al. (2007) illustrated how a 6-hour suicide prevention

training course positively impacted the attitudes of nursing personnel. Led by three senior psychiatrists, this training course focused on the stigma towards suicidal behavior, common mental disorders associated with inpatient suicide, and basic interview skills to assess and manage suicidal patients. A questionnaire measuring cognitive, affective, and behavioral components administered before the course was re-administered at 3- and 6-months. The results showed an improvement in nurses' attitudes towards suicidality and estimation of suicide cases (Botega et al. 2007). These findings were similar to those of Manister et al. (2017); following a one-hour training session, researchers identified reduced levels of stigma and increased confidence in the performance of suicide risk assessments. Additionally, training sessions were shown to clarify hospital policies regarding suicide risk management. Prior to training sessions, Manister et al. (2017) reported that many nurses were unaware of hospital policies regarding documentation and room safety measures. Training sessions were able to emphasize the importance of documenting risk factors, and the removal of risk hazards from a patient's room (Manister et al. 2017).

Studies have also illustrated the negative impacts of limited or inadequate mental health and suicide risk assessment training (Alavi et al. 2017; Cheng et al. 2008; Cochrane-Brink et al. 2000). Knowledge gaps between non-trained and trained mental health care providers often led to increased levels of suicide risk that went undetected (Alavi et al. 2017; Cheng et al. 2008). For instance, a study conducted by Alavi et al. (2017) compared the risk identification practices of ED physicians to trained mental health specialists (residents and faculty in the department of psychiatry). Major discrepancies in suicide risk identification were recognized; compared to psychiatrists, most ED physicians were generally concerned with maintaining physical health instead of investigating non-somatic complaints. This led to both undetected and increased risk

of self-harm and suicide for patients later admitted into inpatient care (Alavi et al. 2017). Some studies attributed these discrepancies to limited access to mental health training. For example, a study conducted in the United Kingdom found that most physicians were trained to utilize risk assessments. However, less than half of nurses within the hospital trusts sampled in this study did not receive risk assessment training (Davies et al. 2000). Reports from this study indicated that training sessions were often planned, yet not upheld by management or scheduled during times which conflicted with the clinical commitments amongst trust nurses. This further hindered the ability of nurses to access training opportunities (Davies et al. 2000). However, there were instances in which efforts were made to increase access to training, through shortened versions of training programs (Nakagami et al. 2012; Pisani et al. 2012). In a study evaluating the effectiveness of a shortened training program, Nakagami et al. (2012) found improvements in the perceived confidence and skill in administering assessments amongst healthcare providers. Additionally, the increase in staff attendance rates led to an increased adherence to suicide prevention guidelines (Nakagami et al. 2012).

Chapter 5. Discussion

5.1 Overview

The aim of this study was to determine factors that impact the implementation of suicide risk assessments within inpatient facilities. To identify implementation factors, a scoping review of literature surrounding the use of suicide risk assessments within ED and inpatient facilities was conducted. In this chapter, I provide a summary of the themes surrounding the implementation of suicide risk assessments, and discuss the clinical and administrative implications of these findings. I also highlight the strengths and limitations of this study, identify gaps in understanding, and lastly, propose ideas and recommendations for future research.

5.2 Summary of Results

This scoping review included 52 studies, the majority of which took place in the United States and utilized a variety of research methodologies. To uncover implementation factors, the Consolidated Framework for Implementation Research (CFIR) was applied. Guided by this framework, this review highlighted four themes that could act as both enablers and barriers to implementation including: interprofessional collaboration; perceptions and actions of healthcare providers; feasibility of risk screening; and training and education of health care providers.

Enablers to implementation included clinician input at team meetings and collaborative risk screening. The examples of interprofessional collaboration identified in this study simplified the decision-making process, increased consistency of risk screening, and provided clinicians with the opportunity to learn from each other. However, effective collaboration was not always present in all inpatient facilities. Studies revealed inadequate healthcare provider collaboration

resulted in poor role clarity between health professionals. This decreased risk screening efficiency and increased under documentation of suicide risk.

Clinician perceptions of implementation was also important. For example, clinician disagreement on how to utilize risk assessment tools was a barrier to implementation. Additionally, physicians exhibited negative perceptions towards using quantitative measures to assess for suicide risk resulting in physicians deviating from risk screening protocols. Clinicians often relied on clinical judgment and intuition to identify risk, rather than using a risk assessment tool. Stigma amongst clinicians was also a barrier to implementation. My results highlighted the link between clinician stigma towards suicidal behaviors and limited training and experience in treating suicidal patients. These views caused clinicians to distance themselves from suicidal patients.

Practicality of risk screening also impacted implementation. Enablers to implementation included utilizing risk assessments that were short and easy to administer. However, privacy during risk screening was a barrier. Training and education of healthcare providers contributed to the implementation of suicide risk assessments. General mental health education, and risk assessment training more specifically, increased clinician confidence on tool usage. Training sessions led by mental health professionals developed the skills of clinicians to both identify and communicate risk. This also lowered levels of clinician stigma towards patients experiencing mental illness and suicidal ideation. In turn, this not only enabled implementation, but improved quality of care.

5.3 Implications

The results of this review have both clinical and administrative implications. These implications are presented as a series of recommendations to increase the identification and management of suicide risk.

5.3.1 Clinical Practice

The studies in this review stressed the importance of effective collaboration in both team meetings and the administration of suicide risk assessments (Azzopardi et al. 2020; Ballard et al. 2017; Changchien et al. 2019; Horowitz et al. 2013; Inman et al. 2019; Mahal et al. 2009). Team meetings allowed for an in-depth discussion on best practices, while also raising awareness on the importance of implementing suicide risk assessments. Previous research identified similar findings (Jacques van Dongen et al. 2017; Lau et al. 2015; Heckman et al. 2017; Riley et al. 2016). For example, a systematic review of the delivery of mental health services in community care identified that effective feedback and communication between health professionals and decision-makers in meetings were crucial in enabling the implementation of new care approaches; regular team meetings allowed care providers to resolve any gaps in knowledge and communication (Nic a Bhaird et al. 2016). Although this example refers to community mental health care, these concepts can be similarly applied in both ED and inpatient settings. This was demonstrated in a study conducted by Nilsen et al. (2019) who showed that by involving clinicians in the implementation process, providers are able to share their observations and expertise on suicide risk. This also may increase the uptake of guidelines amongst clinicians. An important finding was that physicians often deviated from suicide prevention guidelines. By including the input of clinicians in choosing the type of risk assessment tools, this may increase the uptake and adherence to guidelines.

Collaboration in team meetings was also instrumental towards facilitating collaborative risk screening (Petrik et al. 2015; Roy et al. 2016). This review highlighted the importance in sharing skills and knowledge through active partnerships towards risk identification and management. This was demonstrated through studies that highlighted the integration of mental health professionals into the ED. These partnerships led to increased levels of shared decision-making amongst healthcare professionals regarding suicidal risk identification (Petrik et al. 2015; Roy et al. 2016). These findings are similar to a recent study on team-based suicide prevention strategies in primary care (Denneson et al. 2015). Family physicians praised the ability of mental health specialists to effectively communicate with patients when engaging in conversation about suicide risk. By collaboratively screening for suicide risk, health care providers can ensure that key information relating to a patient's suicide risk status is not missed (Ahmed et al. 2021; Denneson et al. 2015; Ganzini et al. 2013; Reilly et al. 2013). Although collaborative suicide risk screening was identified as an enabler to implementation, it is important to note that this process is essentially voluntary between team members (Donnelly et al. 2019). Mental healthcare professionals not willing to commit to the collaborative risk screening process can not only create barriers to implementation, but also negatively impact suicide risk management. Therefore, it is important for administrators to encourage collaborative risk screening approaches. For this to occur, specific processes for collaboration amongst clinicians should be established within and between care settings (ED and inpatient). This may be in the form of protected time, design of physical spaces, or with the use of specific communication tools.

5.3.2 Administrative Responsibilities

It is important for facility administrators to recognize the requirements needed for successful implementation of suicide risk assessments. Implementation factors related to

administrative responsibilities included: role clarity amongst clinicians, practicality of risk screening, and clinical training and education. Limited role clarity regarding who should conduct suicide risk assessments caused significant barriers to implementation. Numerous studies identified that this led to poor adherence of suicide prevention guidelines (Azzopardi et al. 2020; Barr and Leitner, 2005; Lynch et al. 2018; Shand et al. 2018). These findings stress the importance of administrative policies and guidelines to ensure clarification on the process of conducting risk assessments. These should clearly outline which health care providers should conduct risk assessments. Additionally, these guidelines should provide specific instructions on when clinicians should include clinical judgment in risk detection. The literature expresses the importance of clinical judgment for detecting risk (Ng et al. 2017; Runeson et al. 2017). However, it also mentions that clinicians over rely on clinical judgment; although, clinical rating scales are often more accurate (Ng et al. 2017; Runeson et al. 2017). In turn, this may compromise risk detection and the quality of patient care as clinicians become more inclined to not utilize suicide risk assessment tools. Therefore, suicide prevention guidelines should outline when it is appropriate for clinicians to refer to clinical expertise and override clinical rating scales.

Clinical judgement in risk detection is heavily relied on due to the ambiguity of sensitivity and specificity threshold values in suicide risk assessments (Zortea et al. 2020). The sensitivity of a risk assessment is the ability of the assessment to detect true positives (those at risk for suicide). Specificity is the ability of the assessment to detect true negatives (those not at risk for suicide) (Trevethan et al. 2017). In some instances, trade-offs between sensitivity and specificity in suicide risk assessments may take place (Runeson et al. 2017; Ryan and Oquendo, 2020). These trade-offs often have implications regarding the implementation of suicide risk

assessments. Findings from this scoping review highlighted how clinicians were often hesitant to administer risk assessments due to variations in predictive properties. Instead, they resorted to clinical judgement. A reason for why this may occur is the lack of evidence surrounding threshold values for sensitivity and specificity. For instance, a systematic review conducted by Runeson and colleagues (2017) developed pragmatic threshold values for both sensitivity and specificity (80% and 50%). However, there was no theoretical basis for the selection of these values. Thus, it can be inferred that further research is needed to identify appropriate threshold values for sensitivity and specificity of suicide risk assessments. Until this ambiguity is addressed, it can be speculated that suicide risk assessments require both high levels of sensitivity and specificity (Rice et al 2017; Ryan and Oquendo, 2020). Identifying all possible risk is important. Therefore, tools need to be highly sensitive. However, it is also important to not identify false positives. Thus, a tool must be highly specific to ensure non-at-risk individuals are not misclassified and receive unnecessary treatment or stigmatized when labeled suicidal.

Administrative and management responsibilities within hospitals also include ensuring the feasibility to conduct suicide risk assessments. This review identified many instances in which limitations in both time and privacy exhibited barriers to implementation (Petrik et al. 2015; Roy et al. 2016). These are common factors expressed by studies in the literature when implementing any risk screening tool (D'Onofrio and Degutis, 2004; Hawk and D'Onofrio, 2018; Matukaitis Broyles et al. 2012). Researchers Matukaitis Broyles et al. (2012) demonstrated this through a study of ED nurses' perspectives on alcohol abuse screening in the United States; overburdened with many patients and competing tasks, nurses expressed time and privacy as factors limiting their ability to build a strong rapport with patients. Consequently, this decreased their chances to obtain valid responses from these patients (Matukaitis Broyles et al. 2012). In

busy emergency departments, the timing of risk assessments is particularly important. However, conducting in-depth risk assessments are not always feasible. To accommodate these factors, there is potential for administrators in emergency departments to deploy preliminary risk screening measures that strike a balance between effectiveness and efficiency. These measures may not be as specific as in-depth suicide risk assessment tools. However, they can be highly sensitive and conducted quickly. This may trigger whether the use of a comprehensive suicide risk assessment is further needed. From reviewed studies, researchers demonstrated that short or condensed versions of suicide risk assessments were successful in achieving this goal, without obstructing patient flow in busy environments (Boudreaux and Horowitz, 2014; Horowitz et al. 2001; Horowitz et al. 2013; O'Connor et al. 2020).

A final requirement critical for successful implementation is the training and education of clinicians. Individuals at risk for suicide may interact with clinicians who have basic (non-mental health professional) and expert (mental health professional) levels of knowledge regarding mental illness. The difference between these clinicians are often the levels of mental health training they have obtained in the past. For instance, Alavi and colleagues (2017) demonstrated that general physicians were more likely to focus solely on somatic concerns compared to psychiatrists when caring for patients presenting to the ED (Alavi et al. 2017). This might suggest that those trained in dealing with patients experiencing mental illness may be more likely to identify suicide risk, but more research is needed.

As the occurrence of mental illness continues to rise, it is essential to address knowledge gaps that are present amongst healthcare providers towards suicide risk assessments and prevention procedures. Numerous studies demonstrated how this is especially important prior to the implementation of suicide risk assessments (Azzopardi et al. 2020; Ballard et al. 2017;

Cochran 2019; Hackman 2020; Hermes et al. 2009; Horowitz et al. 2013). Led by mental health professionals, training sessions increased confidence and competency amongst healthcare providers. In addition, these sessions gave clinicians the opportunity to ask questions and clarify any doubts regarding the different situations they may encounter.

Training also reduced levels of clinician stigma towards patients experiencing suicidal ideation. Studies identified that clinician stigma may negatively impact the ability of clinicians to interact with and conduct risk assessments with at risk patients. Consequently, this not only caused barriers to implementation, but also decreased quality of care (Botega et al. 2007; Inman et al. 2019; Mahal et al. 2009; Manister et al. 2017; Shand et al. 2018). These findings are similar to existing mental health literature. For instance, a study conducted by Artis and Smith (2013) identified that ED nurses often display negative attitudes towards patients experiencing suicidal ideation. In addition, those nurses were often unaware of their own attitudes. These findings highlight the importance of hospital administrators prioritizing clinician training. As most healthcare providers are not extensively trained in conducting suicide risk assessments during their formal education, hospital administrators must ensure continuous education is provided. Studies identified different aspects of training, such as group discussions, presentations, role play, and simulations, which led to positive attitude changes towards at-risk patients. Additionally, these sessions had a positive impact on use of risk assessments, risk documentation, and communication of risk amongst healthcare providers (Cochrane-Brink et al. 2000; Davies et al. 2000; DeVylder et al. 2019; Hermes et al. 2009). As adopting new practices may be difficult, implementation strategies should ensure clinicians are supported with adequate access to training (Guissi et al. 2017; Menaker 2009; White et al. 2019). Administrators should not only secure equal access to training but mandate it as well. In doing so, administrators allow

healthcare providers opportunities to update their skillset. In turn, this positively impacts the overall quality of care that patients receive.

5.4 Strengths and Limitations of this Study

This scoping review had many strengths. First, was the use of a theoretical framework for data extraction. The CFIR was used in this scoping review as a guide to identify and group implementation factors according to domains and constructs. As a meta-theoretical framework, the CFIR was beneficial when searching the literature for implementations across different contexts. To my knowledge, this is the first study reviewing suicide risk assessment implementation through the use of a theoretical framework. Therefore, it provides a contribution to the literature by identifying interrelationships between domains resulting in implementation factors. Second, this review involved a secondary reviewer in the title/abstracts and full-text screening stages. Involving a secondary reviewer reduced the potential for bias when selecting articles for review.

This study also had several limitations. First, scoping reviews do not assess the quality or strength of the reviewed literature compared to systematic reviews. Given this review involved a thematic analysis of the text of the included articles and included studies incorporating a wide range of study designs, quality assessment of the literature was considered out of scope. Second, validation interviews were not conducted. According to Arksey and O'Malley (2005), validation interviews are an optional step that can be taken to increase the strength of scoping reviews. These interviews allow researchers to identify if the results found within the literature accurately depict real-life outcomes. However, this step is optional and due to time constraints, was not feasible for this study. By not including validation interviews, this may decrease the credibility of results identified in this review. Future research could interview a variety of stakeholders to

obtain their perspectives on the implementation of suicide risk assessments; these stakeholders could include physicians, mental health professionals, hospital administrators, and service users (patients). A final limitation was using only two databases when screening for articles.

Consequently, this may have led to missed articles containing relevant information. However, scoping reviews are not intended to be as extensive to that of a systematic review. Therefore, the use of only two databases is still adequate in providing enough access to literature to answer the research question.

5.5 Gaps in Literature/Recommendations for Future Research

This review identified several gaps in the literature that could benefit from further research. First, the literature mainly focuses on implementation factors from the perspective of healthcare providers. Although beneficial, the perspectives of hospital administrators or policy-makers regarding implementation would allow for a more comprehensive understanding of barriers and enablers. Therefore, future research could conduct qualitative studies of hospital administrators and decision-makers. In doing so, this may allow a broader understanding of implementation factors. Second, when coding implementation factors according to the CFIR, factors from the outer setting and the process domains seemed to be lacking. Understanding key features regarding external influences and the process of implementation would be beneficial in determining further barriers and enablers to the implementation of suicide risk assessments. For example, collaborative risk screening was identified to facilitate the implementation of suicide risk assessments. However, the information concerning the process of implementing collaborative screening or integrating mental health professionals into the ED was sparse. This highlights a need for future research on what factors facilitate this type of collaboration. Perhaps this could be answered through a study focusing on incentives and how they influence clinicians.

A final gap was the limited amount of information surrounding the impact of implementation on clinical practice change. Future research could use quantitative measures to assess the levels of care experienced in different risk categorizations. By comparing the care procedures in different risk categories, this may allow researchers to understand how risk assessment tools impact clinical practice.

Chapter 6. Conclusion

Globally, suicide takes the lives of nearly one million individuals each year. As this number is expected to rise, a great deal of importance should be placed on the services that treat patients for mental health and suicidality. The aim of this thesis was to address the following question: What are the enablers and barriers to suicide risk assessment implementation within ED and inpatient facilities? By conducting a scoping review of the existing mental health literature and utilizing the CFIR to highlight implementation factors, this study was able to map concepts into four main themes: interprofessional collaboration amongst healthcare providers; perceptions of healthcare providers regarding risk screening; feasibility of risk screening; and training and education of healthcare providers. The literature identifies the use of risk assessments within the ED and inpatient facilities as crucial towards managing suicidal risk as well as improving patient care. However, these tools are not always implemented within all ED and inpatient settings. Therefore, it was important to fill the gap in knowledge and understand what factors impact implementation. This scoping review highlighted factors that both enable and hinder implementation. Key concepts discussed in this review identify the need for collaboration in team meetings, collaborative risk screening, reduced stigma, adequate suicide risk screening tools, and healthcare provider training and education. The findings of this study emphasize how important it is for hospital administrators to recognize the need for suicide risk screening and provide the resources needed to effectively implement risk assessments. By doing so this may decrease the chance of suicide risk going undetected within ED and inpatient facilities. The findings of this thesis can serve as a resource to build upon for future research. In addition, this thesis may be beneficial to clinicians and policymakers interested in implementing suicide risk assessments within their respective ED or inpatient facilities.

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Appendices

Appendix A: Consolidated Framework for Implementation Research Domain Definitions and Constructs

Domain	Definition	Constructs
Intervention Characteristics	Includes eight constructs related to the characteristics of the intervention being implemented into a particular organization	<ul style="list-style-type: none"> -Intervention Source -Evidence Strength & Quality -Relative Advantage -Adaptability -Triability -Complexity -Design Quality & Packaging -Cost
Inner Setting	Includes 12 constructs related to features such as the structural, political and cultural contexts through which the implementation process will proceed	<ul style="list-style-type: none"> -Structural Characteristics -Networks & Communications -Culture -Implementation Climate -Tension for Change -Compatibility -Relative Priority -Organizational Incentives & Rewards -Goals & Feedback -Learning Climate -Readiness for Implementation -Leadership Engagement -Available Resources

		-Access to Knowledge & Information
Outer Setting	Includes four constructs related to factors such as the economic, political and social context within which an organization resides	- Patient Needs & Resources -Cosmopolitanism -Peer Pressure -External Policy & Incentives
Characteristics of Individuals	Includes five constructs related to the individuals involved with the intervention and/or implementation process	- Knowledge & Beliefs about the Intervention -Self-efficacy -Individual Stage of Change -Individual Identification with Organization -Other Personal Attributes
Process	Includes eight constructs related to essential activities of the implementation process that are common across organizational change	-Planning -Engaging -Opinion Leaders -Formally Appointed Internal Implementation Leaders -Champions -External Change Agents -Executing -Reflecting & Evaluating

National Collaborating Center for Methods and Tools (2021)

Appendix B: Search Strategies

MEDLINE – April 1, 2021

- 1 Risk/ or Risk Assessment/ or risk.mp. (2363201)
- 2 suicide/ or suicidal ideation/ or suicide, attempted/ or suicid*.mp. (88261)
- 3 1 and 2 (27423)
- 4 (suicide adj2 risk adj3 assess*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (1017)
- 5 (suicide adj2 risk adj3 screen*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (190)
- 6 4 or 5 (1169)
- 7 3 and 6 (1169)
- 8 health facilities.mp. or Health Facilities/ (25571)
- 9 hospital.mp. or Hospitals/ (1179191)
- 10 emergency room.mp. or Emergency Service, Hospital/ (84221)
- 11 psychiatric hospital.mp. or Hospitals, Psychiatric/ (28097)
- 12 ambulatory.mp. or Ambulatory Care Facilities/ or Ambulatory Care/ (155620)
- 13 8 or 9 or 10 or 11 or 12 (1343439)
- 14 7 and 13 (235)
- 15 limit 14 to (english language and yr="1990 - 2020") (220)
- 16 from 15 keep 1-220 (220)

PsycINFO – April 1, 2021

- 1 Risk/ or Risk Assessment/ or risk.mp. (399706)
- 2 suicide/ or suicidal ideation/ or suicide, attempted/ or suicid*.mp. (72489)
- 3 1 and 2 (26338)
- 4 (suicide adj2 risk adj3 assess*).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh] (1637)
- 5 (suicide adj2 risk adj3 screen*).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh] (229)
- 6 4 or 5 (1800)
- 7 3 and 6 (1800)
- 8 suicide prevention/ or suicide prevention centers/ (5205)
- 9 7 or 8 (6694)
- 10 health facilities.mp. or Health Facilities/ (2170)
- 11 hospital.mp. or Hospitals/ (127204)
- 12 emergency room.mp. or Emergency Service, Hospital/ (3535)
- 13 psychiatric hospital.mp. or Hospitals, Psychiatric/ (13352)
- 14 ambulatory.mp. or Ambulatory Care Facilities/ or Ambulatory Care/ (14162)
- 15 10 or 11 or 12 or 13 or 14 (142810)
- 16 9 and 15 (538)
- 17 limit 16 to (english language and yr="1990 - 2020") (446)
- 18 limit 17 to peer reviewed journal (354)
- 19 18 not book.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh] (352)

Appendix C: Article Summary Characteristics

Citation	Country (C) Study Design (SD)	Population/Sample Size	Intervention	CFIR Domain Enabler	CFIR Domain Barrier
Alavi et al. 2017	C: Canada SD: Retrospective Chart Review	51 physicians	45 Item survey of suicide predictors	IS	IS, CI,
Azzopardi et al. 2020	C: Canada SD: Mixed Methods	132 Patients ages 10-17 7 clinicians	Columbia Suicide Severity Rating Scale (CSSR), Home, Education, Activities, Drugs, Sexuality, Suicide (HEADSS)	IS	IS, CI
Ballard et al. 2017	C: USA SD: Retrospective Cohort Study	970 patients	ASQ screening tool	IS	/
Barr & Leitner, 2005	C: UK SD: Prospective Case Control	4329 hospital visits for self-harm between the years 1996-2000	Specialist psychosocial assessment	IS	IS, CI
Betz et al. 2015	C: USA SD: Cross Sectional	743 ED clinicians	Universal Screening and brief ED treatment protocols (ED-SAFE)	/	IS

Bolton et al. 2015	C: USA SD: Literature Review	/	/	/	IC, CI
Botega et al. 2007	C: Brazil SD: Cross Sectional	317 Nurses	Training module	IS	/
Boudreaux & Horowitz, 2014	C: USA SD: Literature Review	/	Suicide risk screening	P, IS, IC	/
Brunero et al. 2008	C: Australia SD: Cross Sectional	139 Nurses	Survey (ATSP Scale)	IS	/
Changchien et al. 2019	C: Taiwan SD: Cross Sectional	Care providers within a General Hospital	Quality improvement program using the Healthcare Failure Mode and Effect Analysis (HFMEA)	IS	/
Chen et al. 2012	C: Taiwan SD: Cross Sectional	Psychiatric inpatients that met the definition of a sentinel event according to the Joint Commission between the years 2004 -2011	Prevention Programs	/	P, IS
Cheng et al. 2009	C: Taiwan SD: Retrospective Cohort	110 patients identified by the adverse event reports of suicidal acts during hospitalization between 1995-2004	Inpatient care for Suicide risk	IS	/

Choo et al. 2019	C: Singapore SD: Cross Sectional	460 inpatient cases over three years of medical records	Non-Specific Suicide Risk Assessment Form	IS	/
Chunduri et al. 2017	C: UK SD: Qualitative	15 Psychiatric care providers	Non-Specific Suicide risk assessment	CI, IS	CI, IS
Cochran, 2019	C: USA SD: Mixed Methods	51 Individuals receiving care for suicide risk	Non Specific Suicide risk assessment	IS	/
Cochrane-Brink et al. 2000	C: Canada SD: Mixed Methods	55 Adults receiving inpatient care	Modified Sad persons scale, Beck depression inventory, beck anxiety inventory, beck hopelessness scale, beck scale for suicidal ideation, and the high risk construct scale	/	IS, IC
Cooper et al. 2003	C: UK SD: Cross Sectional	2922 patients clinically assessed for suicide risk over a 2 year period	Non-Specific Suicide risk assessment	IS	CI
Davies et al. 2001	C: UK SD: Case Study	159 Hospital trusts	Questionnaire	/	IS

Desjardins et al. 2016	C: USA SD: Cross Sectional	429 Patients	Non-Specific Suicide risk assessment	IS	IS
DeVylder et al. 2019	C: USA SD: Retrospective Cohort	87 patients aged 8-18 having a diagnosed psychotic disorder including: schizophrenia, schizoaffective disorder, major depressive disorder and bipolar disorder as recorded in their electronic health record	ASQ screening questionnaire	IS	/
Hackman, 2020	C: USA SD: Cross Sectional	175 Nurses	ASQ screening questionnaire	IC, IS	/
Habis et al. 2007	C: USA SD: Cross Sectional	576 Pediatric emergency physicians across the USA	Mental health screening	/	CI, IS, IC
Hermes et al. 2009	C: USA SD: Case Control	75 patients within a psychiatric facility	Hermes Deakin Suicide Risk Assessment	IS	/
Horowitz et al. 2001	C: USA SD: Cross Sectional	155 consecutive children and adolescents arriving in the ED of a major tertiary care teaching hospital in Boston between 1997 and 1998 with chief complaint judged to	Risk of Suicide Questionnaire and the Suicidal Ideation Questionnaire	IS, OS	/

		be psychiatric in nature by the triage nurse.			
Horowitz et al. 2010	C: USA SD: Prospective Cohort	159 patients ages 10-21 presenting to the ED with both psychiatric and non-psychiatric complaints	Risk of Suicide Questionnaire-Revised and the Suicidal Ideation Questionnaire	IS	/
Horowitz et al. 2013	C: USA SD: Cross Sectional	331 patients over the age of 18 screened and 55 nurses completing follow-up surveys	2-item ASQ screening questionnaire	IS	/
Inman et al. 2019	C: USA SD: Mixed Methods	67 children ages 12 and older	ASQ screening questionnaire	IS	/
Jorgenson et al. 2016	C: Denmark SD: Case Control	3209 patients between 2004-2011	Mental Health Care defined as receiving processes of care recommended in guidelines	IS	IS
Kishi et al. 2014	C: Japan SD: Case Control	52 emergency room nurses	One day (7hr) educational workshop focusing on suicide risk assessments, management of the crisis, appropriate referral for patients, and the changing	IS	CI

			attitudes towards suicide in patients and suicide prevention.		
Kuramoto-Crawford et al. 2015	C: USA SD: Cross Sectional	8459 US mental health facility	Risk assessments and suicide prevention guidelines	IS	/
Links & Hoffman, 2005	C: UK SD: Literature Review	/	Suicide prevention guidelines	IS	/
Lynch et al. 2008	C: USA SD: Literature Review	Nurses	Nurses Global Assessment of Suicide Risk	IS	/
Mahal et al. 2009	C: USA SD: Retrospective Chart Review	145 patients admitted to psychiatric emergency services for involuntary psychiatric assessment under the category of danger to self	Structured abstraction form comprised of 19 process indicators noted to be determinants of hospitalization or discharge based on the American psychiatric association publication of practice guidelines for the assessment and treatment of patients with	IS	/

			suicidal behaviour.		
Manister et al. 2017	C: USA SD: Cross Sectional	200 Nurses	Inpatient suicide prevention program class	IS	/
McAuliffe & Perry, 2007	C: Canada SD: Mixed Methods	220 Mental Health Staff	Applied Suicide Intervention Skills Training	IS	IC
McClatchey et al. 2019	C: UK SD: Mixed Methods	51 emergency department clinicians six of which participated in follow-up interviews	SAD PERSONS Scale or Locally developed suicide risk screening tools	IS	IS, IC, CI
Morgan & Ruth, 1997	C: UK SD: Cross Sectional	Psychiatric patients that have died by suicide while receiving in-patient care or within two months of discharge from a hospital	Psychiatric Inpatient Care	/	IS
Nakagami et al. 2018	C: Japan SD: Cohort	74 medical staff members between two hospitals	Shortened/2 hour version of the Mental Health First Aid training program	IS	/
O'Connor et al. 2020	C: USA SD: Case Control	399 patients amongst 3 ED departments	Seven novel risk rulers	IS, IC	/

Parczel et al. 2011	C: Hungary SD: RCT	14,000 randomly selected individuals over the age of 18	Shortened version of the Beck Hopelessness Scale	IS	/
Petrik et al. 2015	C: USA SD: Qualitative	92 healthcare providers from two Midwestern State hospitals	Suicide risk screening in the ED	IS	IS
Pisani et al. 2012	C: USA SD: Cross Sectional	338 diverse mental health professionals	3-hour workshop	IS	/
Randall et al. 2019	C: Canada SD: Cohort	5376 patient visits across two main psychiatric emergency departments in Winnipeg Canada between the years 2009-2012	Columbia Classification Algorithm of Suicide Assessment	/	CI, IC
Rosenbaum Asarnow et al. 2017	C: USA SD: Literature Review	Youth Presenting to the ED with Suicidal Ideation	/	CI, IS	IS
Roy et al. 2016	C: USA SD: Qualitative	16 physicians	Suicide Risk Assessment and Management	IS	CI, IS
Riblet et al. 2017	C: USA SD: Retrospective Root Cause Analysis	152 Veterans Administration medical Hospital	PHQ-9	IS	IS

Ross et al. 2016	C: USA SD: Mixed Methods	200 pediatric medical inpatients ages 10-21	Suicide risk screening	OS	/
Shand et al. 2018	C: Australia SD: Literature Review	/	Crisis Care and After Care	IS	IS
Snyder et al. 2017	C: USA SD: Mixed Methods	56 adult medical/surgical patients aged 18 or older	ASQ screening questionnaire	OS, IS	OS
Thom et al. 2020	C: USA SD: Literature Review	/	ASQ screening questionnaire, Beck hopelessness scale, CSSR	IC, P	IS
Vandewalle et al. 2019	C: Belgium SD: Qualitative	19 Nurses on wards of four psychiatric hospitals	Suicide risk assessments	IS	/
Wu et al. 2014	C: Taiwan SD: RCT	111 nurses	Additional five hour group discussion on suicide risk assessment skills aside from the baseline suicide gatekeeper lecture.	IS	/

Appendix D: Barrier and Enabler According to CFIR

Citation	Enabler to Implementation According to CFIR Domains and Constructs	Barrier to Implementation According to CFIR Domains and Constructs
<p>Alavi et al. 2017</p>	<p>Inner Setting-Implementation Climate-Relative Priority- Adoption of a clinical tool that represents risk factors that were rated as important to clinicians but not always documented may increase the rate of documentation</p>	<p>Characteristics of Individuals: Knowledge and beliefs about the intervention- This article focused on the differences between psychiatric physicians and physicians in what they look for when assessing the risk of suicide. The findings in this article indicate that within the busy setting of an emergency department. There is a major divide in the opinion and documentation rates amongst the two specialties.</p> <p>Inner Setting-Readiness for Implementation-Access to Knowledge and Information: Psychiatrists were found to have received far more formal training and have greater exposure to patients with suicidal ideation during their residency than emergency medicine physicians. The difference in medical training is a barrier to effectively administering and documenting assessments in a fast-paced environment. Within the emergency department, ER physicians focus solely on maintaining physical health instead of bringing out its deterioration.</p> <p>Inner Setting- Implementation Climate-Compatibility: emergency department of a hospital can be a chaotic and busy environment, where many emergency physicians may not have the time to fully screen and document a patient presenting with mental health issues.</p>
<p>Azzopardi et al. 2020</p>	<p>Inner Setting-Networks and Communication - Collaboration of interprofessional healthcare teams: When buy-in is reached by different healthcare providers (pediatricians, NP,</p>	<p>Characteristics of Individuals-Individual stage of Change: The barrier to implementation of the CSSRS was that the changes in practice were not always followed right away by clinicians. Complete adherence</p>

<p>social workers, psychologists, patient flow coordinators) The implementation of risk assessment screening tools can be made. Enhancement of interprofessional collaboration and communication with shared expectations and common languages when dealing with patients at risk allows for the facilitation of risk assessment tools.</p> <p>Inner Setting-Implementation Climate-Compatibility- Another enabler of implementation was the use of a validated clinician-administered tool that employed a user-friendly format that allows for the integration of information from multiple sources. Another enabler would be integrating suicide risk assessments into assessments that are commonly used. Many physicians use the HEADSS interview with adolescents. However, it does not provide a standardized method for suicide screening leading to subjectivity and discretion. Integrating the assessments tailored explicitly to suicide along with the HEADSS assessment can advance clinical care without causing a significant change in practice.</p> <p>Inner Setting-Readiness for Implementation-Access to knowledge and Information: Prior to the implementation of a protocol, educational and training programs were offered to all clinicians and staff members on research teams. This included mandatory interactive CSSRS training and an in-person education session with simulated patient screenings facilitated by a child and adolescent psychologist. Clinicians</p>	<p>to the protocol, including the administration of the CSSRS within the first year, was in fewer than two-thirds. Systemic challenges act as a barrier due to protocol-driven decision-making and service pathway changes requiring a shift in thinking. Documentation was also identified as a barrier due to clinicians confusion and discrepancies in recording.</p> <p>Inner Setting-Networks and Communications: Clinicians often deviated from protocols when immediate consultation with behavioral health specialist was made, in which suicide screening was deferred to them. This seemed to be attributed to a lack of multidisciplinary role clarity, often leading to under documentation.</p> <p>Inner Setting-Implementation Climate - Compatibility Other barriers include time constraints on certain patients whose medical visits were deemed "acute and chaotic"; thus, clinician confidence to effectively screen patients was not always present. Suicide risk assessments (CSSR) were not always useful when assessing risk in younger adolescents and individuals with cognitive deficits due to verbiage of the tool. This led to clinicians often reframing questions.</p>
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	<p>appreciated the education and training opportunities, procedural uniformity, and guidance on clinical pathways afforded by the protocol. This appeared to impact perceptions of professional competency and ease of complex decision-making</p>	
<p>Ballard et al. 2017</p>	<p>Inner Setting: Networks and Communication- The use of an interdisciplinary team with knowledge in different areas of healthcare facilitated the implementation of the ASQ screening tool. This included collaboration between emergency medicine physicians, emergency department nurses, epidemiologists, and psychologists.</p> <p>Inner Setting-Implementation Climate-Compatibility: The characteristics of the screen also contributed to the decision to implement as the ASQ is very brief, easily scored, and in the public domain.</p> <p>Inner Setting-Readiness for Implementation-Access to Knowledge and Information: Nurses were trained via a series of brief in-services on the floor of the ED; charge nurses were given additional training in order to facilitate monitoring of the screening efforts. The trainer was a clinical psychology postdoctoral fellow who was part of the team that developed and conducted validation studies of the ASQ instrument. After a few months of implementation, an additional presentation was made to the charge nurses in June 2013 to share initial compliance rates and problem-solve any administration concerns</p>	<p>/</p>

<p>Barr & Leitner, 2005</p>	<p>Inner Setting – Networks and Communication: A team approach which included jointly conducted assessments by psychiatrists and psychiatric liaison nurses was identified to have potential benefits</p>	<p>Inner Setting – Readiness to Implementation: Access to knowledge and Information: Assessments made solely by staff with no specific mental health training have been found to be of poor quality.</p> <p>Inner Setting-Networks and Communication: within this study a lot of confusion of who should be giving out risk assessments was indicated. The lack of policy guidelines on who should assess for risk was identified to lead to this issue.</p> <p>Characteristics of Individuals- Other personal attitudes: This study suggests that negative attitudes of clinicians towards patients with suicide risk might influence the influence a poor screen or may even cause them to distance themselves.</p>
<p>Betz et al. 2015</p>	<p>/</p>	<p>Inner Setting-Readiness for Implementation-Access to Knowledge and Information: Making provider training part of a robust plan to implement suicide screening programs was identified to address issues related to provider level barriers of stigma, skepticism about the suicide prevention and discomfort in asking sensitive questions of suicide. During the implementation of this screening protocol no training on suicide risk assessments were given which highlighted a persistent skills gap.</p> <p>Inner Setting-Implementation Climate-Compatibility: A barrier of implementation was the increased orders for psychiatric consultations. This was seen to slow down care. This barrier is a problem in an already busy ED environment. This also highlights the need for clearer guidelines and some training.</p>
<p>Bolton et al. 2015</p>		<p>Intervention Characteristics- Evidence strength and quality:</p>

		<p>Within this review, challenges to implementation of risk assessments are the issues often identified with positive predictive values and identifications of true positives. This may lead to individuals being inappropriately identified as high risk and receiving care they do not need. Subjectivity of information is also another barrier expressed in this review as some studies found that a high percentage of individuals that commit suicide deny it when receiving a risk assessment.</p> <p>Characteristics of Individuals-Knowledge and Beliefs of the Intervention: A barrier to suicide risk assessments is the belief of some clinicians that asking about suicidal thoughts will induce further thoughts in patients.</p>
<p>Botega et al. 2007</p>	<p>Inner Setting-Readiness for implementation- Access to Knowledge and Information: This study identified that the management of suicide risk within inpatient settings is challenging when assessments are poor and communication is limited. This study identified that staff who come into close contact with suicidal patients often have little formal mental health training. Pre and post test questionnaires were administered before the training program and 6 months after to see if attitudinal and skills in assessment administration remained consistent over a long period of time. The use of these training sessions improved nurses' perceptions of suicidality.</p> <p>Inner setting-Implementation Climate-Tension for Change: Part of the reason for the implementation of these training courses was the concern amongst directors of the hospital</p>	<p>/</p>

	<p>regarding suicides and attempted suicides over the past 3 years.</p> <p>Inner setting-Implementation Climate-Compatibility: In order to increase the number of participants in risk training without interfering with clinical duties, the training session was offered fifteen times; five times in each of the morning, afternoon and evening shifts.</p>	
<p>Boudreaux & Horowitz, 2014</p>	<p>Process Planning: Some frontline personnel may be reluctant to screen for suicide risk because they are not aware of how to handle positive screens. This can be mitigated by establishing clear protocol for further assessing and managing suicide risk for specific settings.</p> <p>Inner Setting-Readiness for Implementation-Access to Knowledge and Information: training was identified to help aid the implementation of suicide risk assessments. In this study, a good screen included</p> <p>Inner Setting- Networks and communication: This study indicated that to make screening and assessment go hand in hand through networks and communication between care providers, a good screen includes 1) detection of clinically actionable risk, 2) identification when and individual requires immediate safety precautions and 3) identification when a mental health consult is required. Following these steps, a further risk assessment provided by a mental health professional should then guide whether a patient should be admitted to a hospital or not.</p>	<p>/</p>

	<p>Intervention Characteristics- Adaptability/Evidence Strength and Quality: This study also mentioned how it was important to choose a tool that is best suited for the setting within inpatient facilities. The example mentioned in this study included The BSSI vs The ASQ screening tool. The authors identified that the BSSI was too complicated to use as primary screening tools whereas the ASQ tool was quick and easily administrable within the ED.</p>	
<p>Brunero et al. 2008</p>	<p>Inner Setting-Readiness for implementation- Access to Knowledge and Information: The difference between trained and non trained staff was key in identifying attitudes towards suicide prevention initiatives. Targeted training can improve attitudes, skills and knowledge.</p>	/
<p>Changchien et al. 2019</p>	<p>Inner Setting-Networks and Communication: After definition of the problem and the formation of a hypothesis, a multidisciplinary team including psychiatrist, nursing supervisors and head nurse, members of information technology, faculty maintenance, and a full-time social worker was formed to collaborate to conduct step-by-step assessments and develop improvement strategies under the supervision of a hospital advisor. The development of a flow diagram outlining the inpatient suicide prevention process was key to success. Through the use of clinical experience steps where things could go wrong were modified and improved.</p> <p>Inner Setting-Readiness for implementation-leadership engagement: Team meetings were held</p>	/

	weekly and any feedback and comments regarding suicide prevention were discussed and recorded.	
Chen et al. 2012	/	<p>Process- planning- Evaluation of caregiver performance: This study found that systemic shortcomings within the general hospital were known to contribute to suicide attempts. Inadequate screening and assessment, care planning and observations were mentioned in the discussion as some factors that may contribute to the increased levels of inpatient suicide.</p> <p>Inner Setting-Readiness for implementation- Access to Knowledge and Information: Inadequate training alongside poor staff communication was a barrier to mitigating the risk of suicide.</p> <p>Inner Setting-Implementation climate- Compatibility: Within a general hospital, patient flow is much higher than that of a psychiatric facility, thus acting as a barrier to implementing risk assessments that provide enough information regarding suicidal capability</p>
Cheng et al. 2009	<p>Inner Setting: Readiness for Implementation-Access to Knowledge and Information:</p> <p>The findings in this study show that increment of awareness in suicide risk among nonmental health professionals is essential for establishing effective suicide prevention. Standard operational procedures for suicide prevention, including routine identification of the suicide risk in admission and periodically checking of the patient's condition and searching aggressively for them if they are absent without giving notice, should be incorporated into the</p>	/

	basic training courses for nonpsychiatric medical personnel	
Choo et al. 2019	<p>Inner Setting-Networks and Communication: The development of a suicide risk assessment form was based on consensus from consult psychiatrists at the hospital based on their experience in suicide risk assessment.</p> <p>Compatibility: The use of a semi structured interview was beneficial if it was brief. Allowing assessments to be done quickly without missing important items on the assessment.</p>	/
Chunduri et al. 2017	<p>Characteristics of Individuals-Self efficacy: Although not all suicide attempts are preventable, clinicians often feel confident in their practice patterns once they think they've reached the standard of care. The use of a risk assessment improves their confidence and allows them to fall back on it, identifying that they've asked all the proper questions.</p> <p>Inner Setting-Readiness for Implementation-Access to Knowledge and Information: Care providers voiced their opinion for more continuing education not only for themselves but also for social workers and nurses. The ability to conduct a proper risk assessment without leading questions and being able to determine the need for involuntary detainment or a psychiatric consult are specific areas of training that ED staff need, especially being the first points of contact.</p>	<p>Characteristics of Individuals-Knowledge and Beliefs of the Intervention: Provider information regarding risk assessments identify that tools don't score for patient demeanor and affect in answering questions. Further barriers are clinicians uptake of the assessment. This study identified that some clinicians don't always ask every question on a screening tool unless they indicated suicidal thoughts. Some clinicians indicated that a checklist cannot replace good clinical judgment while questioning the utility of the tool. Clinical judgement is also chosen over a risk assessment tool because of the potential legal ramifications and harm to their reputations that a patient committing suicide once discharged as "not at risk" can cause.</p> <p>Inner Setting-Readiness for Implementation-Access to Knowledge and Information/Implementation Climate-Compatibility: Issues with Documentation were also identified as a barrier to implementation. In many cases with risk assessments, boxes are just checked off and not enough documentation on the patient is included. Documentation needed to be used as a way that the information on the chart can be used by colleagues</p>

<p>Cochran, 2019</p>	<p>Inner Setting-Readiness for Implementation-Access to Knowledge and Information: Education regarding proper use of the screening tool and discharge protocols was provided by the PI to the clinics nursing staff during a team meeting. In addition, a face to face education session took place approximately one week later and consisted of similar content and additional time for questions and practice which included role play.</p>	<p>/</p>
<p>Cochrane-Brink et al. 2000</p>	<p>/</p>	<p>Inner setting-Implementation Climate-Compatibility: Although many patients agreed to discuss and openly express their thoughts of suicidal ideation through a one-on-one format, the authors mention that this may lead to a more subjective rating due to interviewer bias and skill level. Another barrier to implementing interviewer-based risk assessments is the time-consuming component of excessive training required to initiate the verbal risk assessment. An interview-based format would also take up too much time within a fast-paced clinical environment.</p> <p>Intervention Characteristics-Evidence Strength and Quality: Another barrier was the use of "cut-offs" in clinical risk assessment scales to determine whether a person is admitted or not. These scales often lead to false positives.</p>
<p>Cooper et al. 2003</p>	<p>Inner setting-Readiness for Implementation-Access to Knowledge and Information: The discussion section of this article highlights the importance of training. Findings from this study indicated that only immediate or substantial suicidal intent prioritized an assessment of risk. After appropriate</p>	<p>Characteristics of Individuals- Self efficacy: In this article, they were more likely to administer some sort of risk assessment without any guide when they felt the immediate risk was evident in patients. This acts as a facilitator of implementation as they execute trust in their capabilities to identify</p>

	<p>training emphasizing both the importance of primary and background risk factors, ED physicians and non-mental health specialists can make satisfactory assessments.</p>	<p>at-risk individuals to make sure they receive an adequate amount of care.</p>
<p>Davies et al. 2001</p>	<p>/</p>	<p>Inner Setting-Readiness for Implementation-Access to Knowledge and Information: 76% of hospital trusts provided training to junior psychiatrist on suicide risk assessments but only half provided this training to community psychiatric or ward nurses.</p> <p>Inner setting Readiness for implementation- Leadership engagement: Most trusts provided training in mental health legislation. Risk assessment training included skills and valuable information however it was not always compulsory.</p> <p>Inner setting- Implementation Climate-Compatibility:</p> <p>Nurse attendance at training sessions were not always well represented due to the fact that they were not compulsory and because staff were often unable to take time off from their clinical commitments.</p>
<p>Desjardins et al. 2016</p>	<p>Inner Setting-Networks and Communication: For the development and implementation of a suicide risk assessment tool, this study identified that experts were chosen based on their contribution to the literature and policy making surrounding suicide risk assessments. These individuals discussed the best current practices and reviewed simulated cases.</p> <p>Inner Setting-Implementation Climate- Compatibility: The tools created by the team of experts were identified as quick while adequately detecting risk in patients especially in</p>	<p>Inner Setting-Implementation Climate-Compatibility: A lot of individuals preferred the interview assessment over the electronic questionnaire however the time to administer the electronic questionnaire is a fraction of the time needed for a one-on-one interview assessment.</p>

	<p>settings with high volume and rapid turnover when psychiatric expertise is not available.</p> <p>Inner Setting-Readiness for Implementation-Available resources: This tool was identified to aid clinicians in providing decision support by allowing them to efficiently meet safety regulations and optimize the use of limited resources by eliminating the need of excessive screening for low risk groups.</p>	
<p>DeVylder et al. 2019</p>	<p>Inner Setting-Implementation Climate-Compatibility: The ASQ screening tool was implemented due to its ability to be rapidly used by existing staff without specialized training.</p> <p>Inner Setting-Networks and Communication: A multidisciplinary committee of stakeholders was formed to choose and implement this tool as a part of routine care in the pediatric ED.</p> <p>Intervention Characteristics-Evidence Strength and Quality: The ASQ screening tool was identified to have predicted more risk for suicide than regular treatment measures that based risk on solely suicide as a main concern.</p>	<p>/</p>
<p>Hackman, 2020</p>	<p>Intervention Characteristics-Adaptability/Evidence Strength and Quality: This study identified that the ASQ screening tool was both quick and easy to administer for patients with non psychiatric complaints. Within an ED setting the ability of the tool to be quick allowed patient flow to not be interrupted.</p>	<p>/</p>

	<p>Inner Setting-Readiness for Implementation-Access to Knowledge and Information: This study identified that during the implementation of the ASQ screening tool, nurses were provided with training on how to effectively use this tool through PowerPoint and video lessons. The training was beneficial in implementation and also increasing nurses comfort and confidence when assessing for suicide risk while removing stigma surrounding youth Self-harm.</p>	
<p>Habis et al. 2007</p>	<p>/</p>	<p>Characteristics of Individuals-Individual State of Change: Clinicians were more likely to not likely to screen for suicide risk unless guided by a chief complaint. Age related bias towards pre-adolescent patients often hindered physicians to screen this population.</p> <p>Inner Setting-Implementation Climate-Compatibility: Around 93% of individuals participating in this study identified that screening was most likely not to occur due to a lack of time.</p> <p>Inner Setting-Readiness for Implementation-Access to Knowledge and Information: From this study, 44% of clinicians identified a lack of training as a barrier to screening for suicide risk. Only 4 % of physicians strongly agreed that they possessed an adequate amount of training In screening.</p> <p>Intervention Characteristics-Evidence Strength and Quality: 63% of physicians identified a barrier to risk assessments was the lack of a validated tool. Of this group 32% strongly indicated that a validated tool would improve the ability to detect risk within the ED.</p>

<p>Hermes et al. 2009</p>	<p>Inner Setting-Networks and Communication: The authors in this article mentioned six steps to developing an evidence-based risk assessment for psychiatric inpatient units. The final step was implementing the change. Within this stage, the new instrument had to pass a formed committee and be approved by the unit-based council for the psychiatric unit. All members of the Unit based council supported the evidence based project.</p> <p>Inner Setting-Readiness for implementation-Access to Knowledge and Information: Part of the pre-implementation stage was intensive in-service sessions held by two psychiatric nurses involved in the study. The nurses focused on 1) how to use the instrument as not just a method of assessment but a method of opening up communication and developing a therapeutic relationship, 2) The importance of vigilance for those on suicide precautions for heightened agitation and anxiety 3) The importance of communication of any behavior changes to the nurse and other staff members to enable rapid intervention</p> <p>Inner setting- Goals and Feedback: After 6 weeks of implementation a representative of the unit-based council asked the nursing staff their opinions on the assessment tool. The tool was overall well accepted and easy to use while opening up communication in addition to focusing on signs of agitation, anxiety and suicidal ideation.</p>	<p>/</p>

<p>Horowitz et al. 2001</p>	<p>Inner Setting-Implementation</p> <p>Climate Compatibility: The results of this research project suggest that non mental health clinicians can successfully detect suicidality in children and adolescents seeking treatment in the ED by administering a 4-item screening tool. A primary facilitator of implementation regarding this screening tool is the brief amount of time needed to help this tool. Further implications acting as barriers include the guide of proper structured tools to administer risk evaluations. As clinicians may avoid many evaluations of suicide risk due to lack of formal mental health training or confidence in psychological evaluations, tools that are both easy and quick to administer will allow for increased confidence amongst clinicians and help detect risk in vulnerable populations.</p> <p>Outer Setting-Patient Needs and Resources: The article found that patient reaction towards using a quick and easily administered tool resulted in a high degree of satisfaction with suicidal symptom inquiry. The patient's response indicated that being asked those questions made them feel acceptable to begin discussing suicidal thoughts. Regarding very young patients, parents felt relief when clinicians asked queries that they feared discussing with their children, acting as a significant facilitator for implementing these screening tools.</p>	<p>/</p>
<p>Horowitz et al. 2010</p>	<p>Inner setting-Implementation</p> <p>Climate-Compatibility: Practicality was one of the domains that determined feasibility. The researchers found that conducting an assessment in both patient populations (Non-psychiatric</p>	<p>/</p>

	<p>and psychiatric) resulted in an average of 12 minutes/patient. This finding determined that patient flow in the ED was not impeded, and overall lengths of stay were unaffected. Therefore, the insignificant amount of time used to administer an assessment acts as an enabler to implementing suicide risk assessments within the ED department</p>	
<p>Horowitz et al. 2013</p>	<p>Inner Setting-Networks and Communication: The inclusion of nursing administration and staff, physician leaders, social work department and senior hospital administrators throughout the process was critical to the acceptance and delivery of the Quality improvement project which included suicide risk assessments.</p> <p>Inner Setting-Readiness for Implementation-Access to knowledge and Information: Training was offered to unit nurses during the implementation of this screening tool. Nurses participated in these formal education sessions. Psychiatrists attended service rounds for each physician group associated with selected units and presented educational information. This was critical as most clinicians had limited practical experience in the assessment and management of suicidal patients.</p> <p>Inner setting-Implementation Climate-Compatibility: with nurses administering this tool on inpatient units, findings indicated that this tool was easy and quick to administer averaging 2 minutes per screen. For patients that screened positive, it took an</p>	<p>/</p>

	<p>average of 5 minutes. Both indicated quick assessments.</p> <p>Nurses also found this assessment tool easy to administer and found patients comfortable when answering questions about suicide. They also believed that the tool accurately identified the presence of risk.</p>	
<p>Inman et al. 2019</p>	<p>Inner Setting-Networks and Communications: Prior to Implementation, a committee was convened by the senior nursing chief operating officer at the hospital. The committee consisted of the nurse managers from units, clinical nurse specialists, psychiatric consult services, medical psychiatrists and psychiatric nurse practitioners. This committee met over the course of 12 months and reviewed best practice approaches to screen for suicide risk.</p> <p>Inner Setting-Readiness for implementation-Access to Knowledge and Information: Before implementing the Ask Suicide Screening assessment tool, an instructional educational PowerPoint was viewed and a 5-minute forum was downloaded and completed to validate the understanding of the study and the tool. Nurses also completed a feedback survey and a evaluation survey to assess comfort and knowledge of suicide risk assessments and ease of use of the ASQ instrument. Nurses were also provided with copies of the study and information on the new tool that would be used. Post Implementation feedback from nurses stressed the importance of training on using these assessments as it enables</p>	<p>/</p>

	nurses to ask tough questions more confidently.	
Jorgenson et al. 2016	<p>Inner Setting-Readiness for implementation-Available Resources: This study identified that underlying mechanisms in high and very high-volume psychiatric hospital units may explain the overall quality of care for patients diagnosed with mental health disorders. These mechanisms may include specialization, greater clinical experience, and better resources.</p>	<p>Inner setting-Implementation Climate-Compatibility: This article identified that when patients were sent to units where high-volume psychiatric care was provided, patients were more likely to receive a risk assessment and additional post-discharge support. Patients admitted to units with low admission volume received poorer quality of care than those admitted to high volume units. Therefore, time and size are barriers to implementing and administering risk assessments and the overall quality of care that a patient receives.</p>
Kishi et al. 2014	<p>Inner Setting- Readiness for Implementation-Access to knowledge and Information: This study found that the use of a training program positively impacted how to effectively use risk assessments and care for patients at risk for suicide. Enabling more clinicians to become comfortable with these tools can allow for implementing assessments that are better suited for detecting risk. Enhanced attitude changes may be the result of increased knowledge and confidence in the management of suicidal patients.</p> <p>Inner Setting-Tension for change-Compatibility: This study touched on the feasibility of providing a training program. With only one session and a follow-up session a month later, attitudes of emergency nurses were positively impacted.</p>	<p>Characteristics of Individuals-Individual stage of change: This article mentioned that risk detection is partly based on health professionals' attitudes towards suicide prevention. The authors mention that past researchers indicate that emergency department staff do not always have sufficient skills and knowledge to assess suicidal intent. Increased training and access to knowledge can mitigate this barrier.</p>
Kuramoto-Crawford et al. 2015	<p>Inner Setting Readiness for Implementation-Access to Knowledge: Within the context of US mental health facilities, the authors indicate the need for system-level</p>	/

	<p>changes to implement suicide risk assessments effectively. The authors identify that adopting policies and procedures related to suicide prevention while improving collaboration and communication can be beneficial towards the reduction of attempted suicides. System-level changes in this article also refer to the access to knowledge and information. System-level changes in this context refer to the assurance that professionals working in these environments have adequate skills and training to respond appropriately to individuals at risk of suicide. The article also mentions that although suicide prevention is considered part of graduate training for mental health professionals, concerns have been raised about the lack of adequate training in suicide risk assessment required amongst these professionals.</p>	
<p>Links & Hoffman, 2005</p>	<p>Inner Setting-Readiness for Implementation- Access to Knowledge and Information: Within the screening tools section of this review, the authors mentioned that they didn't identify research on the development of screening tools relevant to the psychiatric hospital setting. Therefore, they noted that clinical assessments were considered essential during the suicide assessment process. What can be seen as a barrier is that no measurement scale has been developed with adequate predictive validity to replace clinical assessment by a skilled clinician. The authors then mention that continuous training and regular training updates would be beneficial for the</p>	<p>/</p>

	assessment process when dealing with patients at risk for suicide.	
Lynch et al. 2008	<p>Inner Setting-Networks and Communications: This study identified that poor staff communication was identified to impact the onset of inpatient suicide. As a critically important authority in the multidisciplinary treatment team, nurses must collaborate and communicate effectively to prevent inpatient suicides.</p> <p>Inner Setting-Readiness for Implementation-Access to Knowledge and Information: Nurses should be well informed on the associated risk factors of suicide for patients along with how to properly administer suicide risk assessments.</p>	/
Mahal et al. 2009	<p>Inner Setting-Readiness for Implementation-Access to Knowledge and Information: Documentation was seen as a problem in identifying risk factors associated with suicidal psychiatric patients. The authors indicate that early training of residents in suicide assessment and documentation can be beneficial towards the overall communication between clinicians and treatment measures towards patients. A part of the training would be direct supervision from expert psychiatrists providing feedback and reinforcement. Supervision and training act as enablers to the implementation of risk assessments as standard practice within inpatient settings.</p> <p>Inner Setting-Networks and Communication: A facilitator of</p>	/

	implementation would be the input of physicians when developing a tool that tests for risk factors. When clinicians within the same facility are all on board with what risk factors to look for, documentation becomes easy	
Manister et al. 2017	<p>Inner Setting-Readiness for Implementation-Access to Knowledge and Information: After a one-hour class on suicide risk prevention including the use of risk assessments, a significant difference was identified between pre and posttest scores for clinician self-confidence regarding suicidality and the use of assessments. Preventative measures for after a person was identified as suicidal also increased following the one-hour session. Discussion by the educators regarding the use of hospital policy provided an opportunity to clarify nursing assessments and actions to express feelings about inpatient suicide. Adequate training and education on the utilization of suicide risk assessments allowed for more nurses to build confidence and effectively administer risk assessments and take the proper precautions.</p>	/
McAuliffe & Perry, 2007	<p>Inner Setting-Readiness for Implementation-Available resources: Initiatives for best practices of patient safety included the organizations commitment to improve patient care by equipping staff with tools, education, and training to effectively identify risk.</p> <p>Inner Setting-Readiness for implementation-Access to Knowledge and Information: Part of the provision of resources included training and</p>	<p>Intervention Characteristics-Evidence, Strength and Quality of the Tool: Despite months of development of a risk management tool, it was not seen as helpful. Staff indicated that the tool did not prompt them to ask the right questions or improve communication with the treatment team. The score on the tool did not accurately reflect a clients actual suicide risk and may give false positives. When there was a difference of opinions it was identified that the tool could not overrule clinical judgment.</p>

	<p>education and clinical supervision with safety audits of the Inpatient Units. It was identified that it was important to choose a education package that promoted the integration of the suicide risk assessment into all therapeutic interventions in order to maintain a therapeutic alliance with the client while assessing risk.</p> <p>Inner Setting-Networks and Communication/Implementation Climate Relative Priority: Recognition that system-wide changes in practices would require understanding of the practices and culture within different programs and “buy-in” from staff at every level resulted in the development of a strong interprofessional task force which represented the health centers diverse programs. This team included both formal (Chief of psychiatry, Clinical nurse specialists, and a manager) and informal leaders and was sponsored by the director of mental health who attended meetings and provided a broad organizational perspective to team discussions and decision making. Participation from front line staff and management allowed the group to make timely decisions and implement the project with ease.</p>	
<p>McClatchey et al. 2019</p>	<p>Inner Setting-Readiness for Implementation-Access to Knowledge and Information: Training was highlighted as an essential factor in whether physicians used screening tools. The authors mentioned that junior physicians could benefit from training courses specific to administering suicide risk assessments to help them in a fast-</p>	<p>Inner Setting-Readiness for Implementation-Access to Knowledge and Information: There is limited mental health training. It was also indicated that there is little to no training in suicide risk assessments other than what is completed in medical school. Clinicians identify this area of medicine as the least comfortable.</p>

	<p>paced environment. Risk assessments that incorporate structured professional judgment or an adjusted actuarial approach would act as an enabler towards the implementation of these tools. Risk assessments that focused on scoring and patient cues were beneficial towards physician buy-in on the use of risk assessments.</p>	<p>Intervention Characteristics-Evidence Strength and Quality: Clinicians often mention that they use the tool as a guide however they do not always tally up the scores. Clinicians are also aware of the literature suggesting that tools lack validity and feel that no robust tool has been developed. Clinicians also mention that tools don't assess for patient demeanor such as interaction and behavioral cues mentioning that they are more interested in how the patient interacts with them. Characteristics of Individuals-Knowledge and Beliefs of the Intervention: Qualitative responses from this mixed methods study indicated that clinicians found the administration of suicide risk assessments as challenging in the emergency department.</p> <p>Inner Setting: Tension for Change-Compatibility: According to clinicians, suicide risk assessments were identified as time consuming especially in the emergency department. To get someone warmed up was indicated to take around 15-20 mins and to get a psychiatrist to come and do assessments could possibly take up to an hour. Clinicians also feel that having clinical experience is beneficial towards deciding whether to refer a patient to psychiatry. They mention that clinical judgment is the best means of making decisions</p>
<p>Morgan & Ruth, 1997</p>	<p>/</p>	<p>Inner Setting Readiness for Implementation-Access to knowledge and Information: The article highlights the importance of clinicians' perception of risk before admission into psychiatric care. The authors compared characteristics of psychiatric patients that committed suicide to those who did not and found that it was difficult to distinguish between the two</p>

		groups. Therefore, the attitudes towards risk assessments by clinicians act as a barrier toward implementing further adjustments. Training tailored towards engagement with patients while conducting risk assessments may prove beneficial in identifying true risk.
Nakagami et al. 2018	<p>Inner Setting-Readiness for Implementation-Access to Knowledge/Implementation Climate-Compatibility: The development of a 2 hour training program for physicians, nurses, and medical residents was seen to be effective in perceived self-skill and confidence in administering assessments towards patients at risk. As clinicians are often busy with work, the shortened duration of programs was vital towards staff members' attendance. The use of suicide prevention training programs was seen to be beneficial towards the interview skills of professionals to detect suicidal intent and behavioural rehearsals.</p>	/
O'Connor et al. 2020	<p>Inner Setting-Implementation Climate-Tension For Change: This study mentioned the need for a better screening tool that can be easily administered to non-psychiatric patients that present to the ED.</p> <p>Intervention Characteristics-Adaptability/Strength, evidence and quality of the tool: the use of this new ED based tool indicated the ability to be brief, easy for a healthcare provider or staff member to administer in a standardized fashion which are easy to understand and predictive of suicide risk with high specificity and sensitivity. This tool also was identified to help avoid biased framing of binary suicide items by providers as such negative</p>	/

	framing has been seen to increase the risk that a patient will deny suicidality.	
Parczel et al. 2011	<p>Inner Setting-Implementation Climate-Compatibility: An enabler towards implementing the shortened BHS was the ability to assess for suicidal ideation in a timely matter. The authors mentioned that apart from the original 20-item scale, the 4 item scale showed great validity when cross-referenced for key risk indicators. By shortening risk assessments that focus on key indicators for risk, clinicians can administer these assessments in a timely matter while not disrupting patient flow in inpatient facilities while accurately detecting risk</p>	/
Petrik et al. 2015	<p>Inner Setting-Implementation Climate-Compatibility: Integration of suicide risk screening into a routine in standardized care. By incorporating the risk assessments into the initial assessment, this allows for increased levels of charting.</p> <p>Inner Setting-Networks and Communication: A collective effort across multiple disciplines and providers facilitates the use of suicide risk assessments. The use of collaboration with mental health professionals or social workers during the risk assessments are beneficial as they are trained to speak to patients on the topic.</p>	<p>Inner Setting-Implementation Climate-Compatibility: Time was mentioned as a barrier to risk assessments due to high patient volume in the ED. Clinician responses indicated that there is little time to delve in suicide risk or talk about any sort of preventative medical topics</p> <p>Inner Setting-Readiness for Implementation-Available Resources: Privacy was identified as a barrier especially when patients come into the ED with family or significant others. It is hard to assess suicide risk when patients are often reluctant to answer potentially leading to not honest answers.</p> <p>Inner Setting-Readiness for Implementation-Access to Knowledge and Information: Clinicians often indicated that they have a lack of training or continued education to feel knowledgeable addressing the topic of suicide with patients. In many cases this becomes more apparent when access to psychiatric consultation is limited.</p>

<p>Pisani et al. 2012</p>	<p>Inner Setting-Readiness for Implementation-Access to Knowledge and Information: This article indicated that training was practical. The curriculum demonstrated promising methods for teaching about risk assessment and response. Through visual concept mapping, documentation-driven delivery and a structured procedure for customizing education towards different clinicians within the mental health workforce, the curriculum was tailored to the local clinical context for each worker. The use of an educational system supports the implementation of suicide risk assessments within inpatient healthcare settings.</p>	<p>/</p>
<p>Randall et al. 2018</p>	<p>/</p>	<p>Characteristics of Individuals-Knowledge and Beliefs about the intervention/Intervention Characteristics-Evidence Strength and Quality: When discussing the implementation of risk assessments in practical settings, the authors mention that researchers do not believe that risk assessments hold much value that clinicians should focus on the treatment of conditions. However, the findings of this article suggest that clinical assessments of risk are not more effective than a tool-based risk assessment. Authors also mention that researchers should resist overemphasizing scales' abilities to predict risk due to common deficiencies. A barrier hindering the implementation of these risk assessments is that there has been no assessment method that has proved to be exceptionally accurate across multiple validation sites.</p>
<p>Rosenbaum Asarnow et al. 2017</p>	<p>Characteristics of Intervention: Strength, Evidence and Quality of the Intervention: This study mentioned the use of brief validated tools at initial</p>	<p>Inner Setting-Readiness for Implementation-Available resources: Shortages in terms of behavioral health or</p>

	<p>contact such as the ASQ screening tool. This tool was identified as efficient enough to address risk while allowing more time for a therapeutic intervention.</p> <p>Inner Setting-Networks and communication/Process-planning: this study mentioned how screening should be done multiple times by different professionals. Integration of behavioral health professionals into emergency department flow. Emergency departments are often busy with multiple priorities, and there are limited BH resources. Enhanced training and in behavioral health will allow for improving comfort and skill among ED staff and allow for more emergency department clinicians to perform initial evaluations</p>	<p>psychiatric staff acts as a barrier to implementation of suicide risk assessments.</p>
<p>Roy et al. 2016</p>	<p>Inner Setting-Networks and Communication: Physicians indicated that psychiatrists and social workers were helpful in the assessment of suicide and management of psychiatric problems in the ED. The use of this collaborative service allows ED physicians to obtain assessments and management skills from their psychiatric consultants.</p>	<p>Characteristics of Individuals-Other Personal Attitudes: This study found that physicians were generally uncomfortable when assessing risk and often avoid detailed risk evaluations.</p> <p>This study often identifies that risk assessments are challenging when patients are unwilling to answer questions or are reluctant to talk.</p> <p>Characteristics of Individuals-Self Efficacy/Inner Setting-Implementation Climate-Compatibility: Some physicians in this study simply record yes or no on an assessment to reduce time burden whereas others provide detailed documentation. This was apparent when there was low patient volume.</p> <p>Inner Setting-Implementation climate-Compatibility: Some physicians indicated that nurses often interrupt workflow by pressuring them to curtail patient interviews</p>

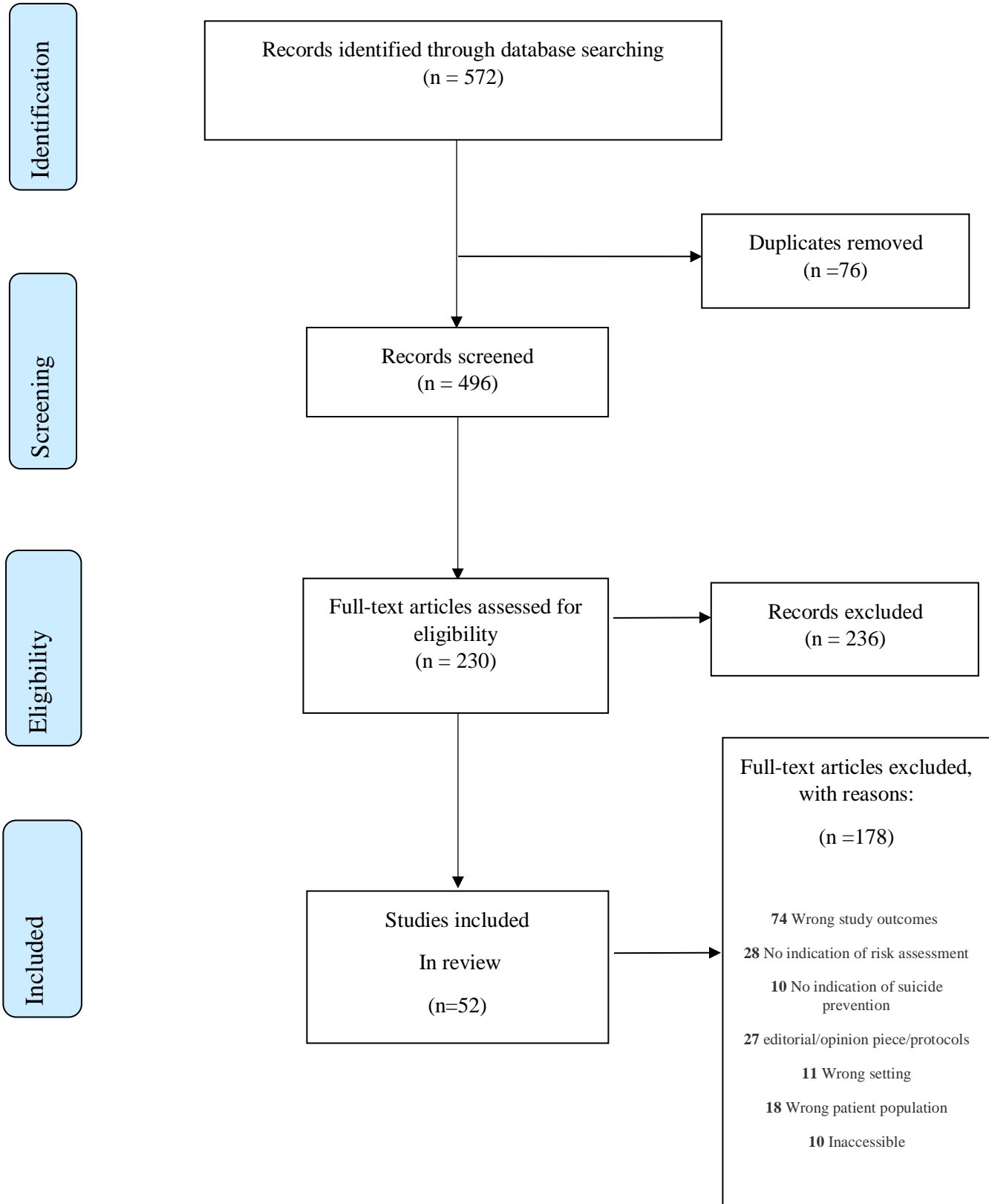
		<p>to evaluate other patients. Timeliness of assessment in a very busy emergency department is stressful when physicians have 30-40 patients under their care but also have a psychiatric patient that needs to be screened quickly. Time was identified as a barrier. Quotes from a physician indicated that 150000 patients will be seen in the ER. Commonly, 200 patients are in the ER at a time. These environments are very busy and don't have enough time to sit down and discuss suicide risk with each patient</p> <p>Inner Setting-Readiness for implementation-Available Resources: Participants in this study identified a lack of privacy to conduct risk assessments in the ED as a barrier to implementation.</p>
<p>Riblet et al. 2017</p>	<p>Inner Setting-Implementation Climate-Tension for Change: Given that poor risk assessments were found to maybe contribute to suicide. The authors mentioned that medical institutions might benefit from developing a standardized process for assessing risk. This starts at an organizational level by potentially adopting the use of validated tools such as the PHQ-9. Because it isn't always feasible to conduct universal screening on medical floors, a standardized process for suicide risk assessment that targets high-risk populations may prove beneficial.</p>	<p>Inner Setting-Networks and Communication: A major amount of concern was the poor Communication among providers about patient risk status. Many cases were found where there was a breakdown in Communication amongst providers with a clinical service and across a clinical service. This acts as a barrier to the implementation because effective Communication needs to be evident when dealing with highly vulnerable patients. Poor Communication in this article was also seen to contribute towards the development of inadequate treatment plans. Another barrier expressed in this article was the poor engagement between healthcare providers and patients.</p>
<p>Ross et al. 2016</p>	<p>Outer Setting-Patients Needs and Resources: The goal of this article was to determine if pediatric patients would benefit from suicide risk assessments. The overall consensus from this sample showed that most pediatric patients either undergoing medical surgery or</p>	<p>/</p>

	<p>admission to inpatient care expressed their support towards risk screening by clinicians. Five significant themes included contributing to their thought process were: prevention of suicide, hospital youth are at greater risk, emotional benefits, screening as the responsibility of their healthcare provider, and no harm in asking. Many of the youth in favour of risk screening expressed how beneficial it was when care providers made them feel comfortable talking about suicide, especially before undergoing an invasive procedure or having extended stays in hospitals. Others indicated that talking about suicide with healthcare providers was more accessible than with their family members.</p>	
<p>Shand et al. 2018</p>	<p>Inner Setting-Networks and Communication: The use of risk assessments become more effective when a collaborative approach by hospital staff, primary and specialist care are all involved.</p>	<p>Inner Setting-Readiness for Implementation-Access to Knowledge and Information: Barriers examined in this review include organizational factors, a lack of training. This lack of training and poor uptake of policy guidelines for suicide prevention often led to negative attitudes of staff towards people who self-harm or when administering an assessment.</p>
<p>Snyder et al. 2016</p>	<p>Outer Setting-Patient Needs and Resources: Amongst asking individuals receiving inpatient care, the three common themes that arose from the qualitative analysis included: patients should be asked directly about suicide, mental health should be an integral component in the delivery of medical care, and the importance of intervening,</p>	<p>Outer Setting-Patient Needs and Resources: This construct can also be a barrier to implementation. Some patients do not like being asked about suicidality, especially when waiting for serious surgeries. Another barrier seen within this construct is the fear of being stigmatized by staff if screened positive for suicide risk.</p>

	<p>protecting, and keeping patients safe in the hospital setting.</p> <p>Inner Setting-Readiness for Implementation-Access to Knowledge and Information: The researchers found that raising awareness and comfort about mental health screening was important for patients with mental illnesses and healthcare professionals. As part of the implementation of the ASQ screening tool, in-service training with nurses, social workers, and physicians provided by multidisciplinary members of behavioural health teams was vital towards raising awareness and increasing knowledge about suicide risk in the medical setting.</p>	
<p>Thom et al. 2020</p>	<p>Intervention Characteristics-Adaptability/Evidence Strength and Quality: In an overview of clinically validated suicide risk assessments, this article mentioned the usefulness of having tools that are both easily accessible and administrable without specific training for interpretation. Implementation is further supported by tools that are validated across multiple medical settings.</p> <p>Process-Planning- This article stresses the importance of having a plan and adequate resources in place for an appropriate response to a positive screen.</p>	<p>Inner Setting-Implementation Climate-Compatibility: Multiple risk assessment tools although clinically validated are not often implemented due to the length of time that is needed to complete an assessment. Appropriate tools should be identified and implemented in the appropriate setting.</p>
<p>Vandewalle et al. 2019</p>	<p>Inner Setting-Networks and Communication: Suicide risk assessments administered by nurses hold little value when an impersonal approach occurs. "The insight emerged</p>	<p>/</p>

	<p>that nurses involvement in suicide risk assessment is essentially underpinned by nurse-patient contact and communication"- An enabler to implementation will be the perspectives of stakeholders such as nurses to realize the need for change in the deployment of these suicide risk assessments. The authors mention that from the nurse perspective, too much focus is placed on relying on a risk assessment tool and fulfilling observing and reporting functions rather than involving in compassionate and considerate contact while communicating with patients. Advancing the suicide risk assessment tools with input from stakeholders, specifically towards a more collaborative assessment, will enable the implementation of these assessments in general practice.</p>	
<p>Wu et al. 2014</p>	<p>Inner Setting-Readiness for Implementation-Access to Knowledge and Information: Additional 5 hour discussion period was seen to boost nurses' confidence to administer the suicide risk assessments adequately. By providing these services, the implementation of risk assessments becomes achievable.</p>	<p>/</p>

Appendix E: PRISMA Flow Chart



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