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Evaluating the Effectiveness of a Suicide Prevention Training Program  
for Nurses' Continuing Education

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**Abstract**

Evaluating the Effectiveness of a Suicide Prevention Training Program  
for Nurses' Continuing Education

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**Purpose:** To examine the effectiveness of a suicide prevention training program for increasing participants' knowledge related to assessment, treatment, and management of individuals at risk for suicide. Additional aims were to compare the in-person and online training formats, assess training satisfaction, and explore themes of reflections and themes in application of training.

**Design:** Cross-sectional, two-group, pre-test/post-test design to evaluate performance on knowledge test. In-person participants enrolled September 2016 to October 2017, online participants enrolled November 2016 to February 2018. Content analysis was used to identify themes in participants' responses to open-ended questions.

**Setting:** The online training was available on the University of Washington Continuing Nursing Education (UW CNE) website. In-person training sessions were conducted at conference centers in Seattle.

**Subjects:** Convenience sampling for recruitment. Knowledge test responses: Total N=2,107; Online n=1,642; In-person n=465. Evaluation survey responses: Total N=2,088; Online n=1,452; In-person n=636. Qualitative “ah-ha!” question responses: Total N=50; Online n=29; In-person n=21. Population of interest were registered nurses in Washington State affected by the mandatory suicide prevention training requirement; training was not restricted to this group.

**Intervention:** UW CNE collaborated with subject matter experts to develop suicide prevention training for registered nurses that fulfilled Washington State Department of Health’s required content areas. The training was offered in both in-person and online formats. Participants self-selected into the online or in-person version of the six-hour, suicide prevention training.

**Primary outcome measures:** Mean pre-test, post-test, and change in score on the knowledge test. Training satisfaction ratings. Themes of applying of training to practice and reflections on training.

**Results:** For both training formats, there were considerable gains in knowledge, when examining each knowledge test item. The mean difference in pre-test scores between the in-person and online formats was not significantly different ( $t=1.79, p=0.074$ ), nor was the difference between pre-test and post-test scores ( $t=0.42, p=0.677$ ). In both formats, the majority of participants rated teaching effectiveness highly and the overall course as “excellent.” Effective communication, adjusting personal attitudes, and knowledge of resources were themes from qualitative responses on applying training to practice. Themes from “ah-ha!” responses indicated positive outcomes of the training on nurses’ practice, attitudes, individual development, and ability to impact others.

**Conclusions:** Participants exhibited comparable increases in knowledge across both formats. The majority rated the training as effective in delivery and in addressing learning aims. The

study was limited in access to demographic variables and restricted by one observational time point for assessing knowledge.

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## Chapter 1. Introduction

### Statement of Problem

A national goal to reduce the annual suicide rate by 20% by the year 2025 was developed by the National Alliance for Suicide Prevention and over 250 partners (NASP, 2017). To address suicide nationwide, prior U.S. Surgeon General reports recommend each state develop a prevention plan specific to their needs (General & Prevention, 2012). To date, all states in the U.S. have a suicide prevention plan in place, however the components vary widely. Washington State released its most recent suicide prevention plan in 2016, which describes the mandatory suicide prevention training requirement passed in 2012, the first of its kind in the U.S (WSDOH, 2016). The current rate of suicide in Washington is 14.83 per 100,000 population (1,141 deaths), which is slightly higher than the national average of 13.42 per 100,000 population (44,965) (AFSP, 2018a, 2018b). The non-profit organization Mental Health America ranks Washington State as 34<sup>th</sup> overall in access to mental health care when taking prevalence of mental illness into context (MHA, 2018). The prevalence of adults with serious thoughts of suicide is among the indicators used to develop this ranking. The Washington State Suicide Prevention Plan's strategic direction on clinical and community preventative services includes a goal that "Designated health professions are trained in suicide assessment, treatment, and management" (WSDOH, 2016). In 2012, Washington State passed Engrossed Substitute House Bill (ESHB 2366), requiring some health care providers to complete mandatory continuing education on suicide risk assessment, treatment, and management (Stuber & Quinnett, 2013; WSL, 2016b). This law was later expanded in 2016, to include a minimum training requirement for additional health care providers, such as nurses and physicians (WSL, 2016b). Given the infancy of the mandatory suicide prevention training for health care providers, evaluation of training outcomes

is necessary for understanding the effectiveness of these requirements. To date, research evaluating the impact of mandatory training requirements on nurses and other health care professionals is not available. In order to address this gap in the literature, the current study evaluates the effectiveness of one suicide prevention training program designed for nurses, used to satisfy the mandatory training requirement.

### **Purpose**

The purpose of the study was to examine the effectiveness of a suicide prevention training program for increasing participants' knowledge related to assessment, treatment, and management of individuals at risk for suicide. A secondary purpose was to assess training satisfaction and explore reflections and application of training. The following aims and research questions were addressed in this study:

### **Specific Aims**

**Aim 1.** To examine the effectiveness of a suicide prevention training program for increasing participants' knowledge related to assessment, treatment, and management of individuals at risk for suicide.

**Research question 1.1.** Is an educational intervention effective in increasing RNs' knowledge related to the assessment, treatment, and management of individuals at risk for suicide?

**Aim 2.** To compare in-person and online versions of the training.

**Research question 2.1.** Is there a difference in the knowledge gained when comparing the in-person versus the online version of the educational intervention?

**Research question 2.2.** Is there a difference in training satisfaction when comparing the in-person versus the online version of the educational intervention?

**Aim 3.** To explore themes of nurses' reflections and application of the content post-training.

**Research question 3.1.** What themes are identified by participants regarding applicability of training to future practice?

**Research question 3.2** What are the themes of "ah-ha!" moments reported by training participants?

## **Background**

**The state of the field.** In the field of suicide prevention, universal strategies are approaches that target the whole population. Conducting suicide risk assessments in the health care setting provides a prime opportunity for health care providers to identify and intervene with individuals at risk for suicide, even when emotional and behavioral health diagnoses are not the primary cause for seeking health care. The diverse population of individuals served in the health care setting and the private nature of health concerns discussed with providers positions providers to assess and intervene. Previous research demonstrating high health care utilization patterns among individuals who die by suicide in the month prior to their death (Ballard et al., 2014; Luoma, Martin, & Pearson, 2002) supports health care settings as an avenue for assessment and intervention. One study confirmed the feasibility of universal suicide risk screening in the emergency department, under the conditions of adequate resources (Betz et al., 2015). A screening protocol led to increased identification of individuals at risk for suicide who typically would not have been recognized. Feasibility was supported by providers' attitudes in response to screening, as they did not believe that screening would slow down care (Betz et al., 2015). Additional studies support the utility of suicide risk screening in the health care setting for identifying individuals at risk for suicide (Boudreaux et al., 2016; King, Horwitz, Czyz, &

Lindsay, 2017; King, O'Mara, Hayward, & Cunningham, 2009). Patients' receptivity to suicide risk screening is found acceptable, and is an appropriate role for health care providers given most patients' reluctance to volunteer suicidal ideation information without inquiry (King et al., 2017).

### **Significance**

**Suicide assessment.** The nature of suicide risk assessments varies widely, and a national standard of practice for screening has not been adopted (Horowitz, Bridge, & Boudreaux, 2014). To implement universal screening, a validated tool with high sensitivity and specificity appropriate to the population being assessed is required. Examples of measures used to assess for suicide risk include the following: the Risk of Suicide Questionnaire, the Ask Suicide Screening Questions, the Behavioral Health Screen, and the Columbia Suicide Severity Rating Scale (Horowitz et al., 2014). Other tools which are easily accessible to nurses include the Nurses' Global Assessment of Suicide Risk, the Suicide Assessment Scale, High-Risk Construct Scale, the Multi-Attitude Suicide Tendency Scale, and Assessment for Risk of Suicide (Taur et al., 2012). The depression screen Patient Health Questionnaire-9 (PHQ-9) is often used as a tool to assess for suicide risk as well (Uebelacker, German, Gaudiano, & Miller, 2011). A systematic review and meta-analysis found that psychosocial and behavioral interventions that directly address suicidal thoughts and behaviors, rather than indirectly addressing the symptoms of suicide risk, are effective immediately and in the long-term, as compared with only long-term effectiveness through indirect approaches (Meerwijk et al., 2016).

**Suicide treatment.** Treatment of suicidal behavior focuses primarily on short-term activities that promote the safety of the individual at risk for suicide. A primary nursing intervention used in suicide treatment involves collaborating with the patient in developing a safety plan. Safety Planning Interventions are brief treatments that can be administered to

patients in emergency departments, inpatient units, on crisis hotlines, and in acute care settings (Stanley & Brown, 2012). Safety plans outline what a patient at risk for suicide should do in the event of a suicidal crisis (Bryan et al., 2017). Safety planning includes identification of warning signs, internal coping strategies, people and social settings that provide distraction, people to ask for help, professionals or agencies to contact in a crisis, and steps to make the environment safe. The previous standard of care involved use of no-suicide contracts, alternatively known as contracts for safety. These are agreements between a provider and a patient on what to avoid doing during a crisis, and entail endorsement from the patient that they will not engage in suicidal behavior. Increasingly, no-suicide contracts have been found to be ineffective and potentially harmful (Rudd, Mandrusiak, & Joiner Jr, 2006). When safety planning was compared with a no-suicide contract in a randomized controlled trial as a treatment for soldiers at risk for suicide, safety plans were associated with a reduction in suicide attempts, a faster decline in suicidal ideation, and fewer days spent in inpatient psychiatric hospitalization (Bryan et al., 2017). Working collaboratively with a clinician increased the meaning and helpfulness perceived by suicidal Veterans in developing a safety plan (Kayman, Goldstein, Dixon, & Goodman, 2015). The Suicide Prevention Resource Center endorses safety planning as part of the Best Practices Registry for Suicide Prevention (Brown & Stanley, 2009).

**Suicide management.** Management involves long-term interventions to prevent suicidal behavior, given the chronicity of its nature. Current standards supported by the best available evidence include Cognitive Behavioral Therapy (CBT) and Dialectical Behavior Therapy (DBT). Literature supports the efficacy of CBT in managing depression and suicidal states by teaching coping skills and emotion regulation (Spirito, Esposito-Smythers, Wolff, & Uhl, 2011). DBT has been found to reduce suicide attempts and non-suicidal self-injury episodes in individuals with

high risk for suicide (Linehan et al., 2015). Although it may be out of the scope of practice for most registered nurses to deliver therapy, it is within their scope to identify appropriate professional referrals and agencies to refer patients to.

### **Innovation**

In 2012, Washington State became the first U.S. state to adopt an educational requirement for certain health care providers receiving and maintaining licensure to receive continuing education in suicide prevention (Stuber & Quinnett, 2013). The legislation is known as the Matt Adler Suicide Assessment, Treatment, and Management Act of 2012, or ESHB 2366. The stipulations of the law require a minimum of 3-6 hours of continuing education (dependent on the profession) every 6 years for the following health care professionals: psychologists, occupational therapists, mental health counselors, marriage and family therapists, advanced social workers, chemical dependency professionals, certified counselors, and certified advisors (Stuber & Quinnett, 2013; WSDOH, 2018c, 2018d). In recent years, the law was expanded to include osteopaths, pharmacists, physicians, physician assistants, physical therapists, licensed practical nurses, registered nurses, and advanced registered nurse practitioners as well (WSDOH, 2018c; WSL, 2016b). The requirement is supported by previous research demonstrating the effectiveness of employing a gatekeeper suicide-awareness program for nursing staff, a program which increased awareness of suicide warning signs and improved attitudes towards psychiatric referrals (Tsai, Lin, Chang, Yu, & Chou, 2011). The new law stipulated that beginning January 1, 2016, the 6-hour educational requirement for nurses must include the following core training components and content: 1) suicide assessment, treatment and management; 2) imminent harm via lethal means or self-injurious behaviors; and 3) content on Veterans (WSDOH, 2018c, 2018d; WSL, 2016a). The 2017 Model List of training options for fulfilling the requirement

represents diversity in the formats of training, with options for in-person and online training sessions offered by a variety of continuing education providers (WSDOH, 2018d). Given the infancy of the recent legislation, evaluation of the effectiveness of required suicide prevention training has not yet been conducted. Monitoring for effectiveness will help establish evidence on best practices for educating nurses on their role in suicide prevention.

## Chapter 2. Review of Related Literature

### Introduction

Suicide is a serious public health issue responsible for significant rates of premature loss of life, both globally and in the United States. This preventable cause of death has been historically linked with mental illness, restricting the scope of preventative efforts primarily to mental health providers. Given that many individuals who go on to die by suicide do not have a documented mental health diagnosis prior to death, yet many seek health care services prior to suicide, this highlights the need to expand preventative efforts beyond mental health.

Understanding the scope of suicide in the United States is pertinent to recognizing the pervasiveness of this phenomenon. Strategies for prevention relevant to health care providers have been identified and supported by research. A current issue is translation of prevention research into policies and practice, and efforts in Washington State provide an example of the translation process of suicide prevention research into health care providers' practice. Evaluation of mandatory suicide prevention training programs for health care providers is important for understanding the effectiveness of current policy efforts and future directions for research and action.

### Overview of Suicide in the United States

**U.S. statistics and suicide rates.** According to the Centers for Disease Control (CDC), suicide is the second leading cause of death for individuals aged 10-34, the fourth leading cause among 35-54 year-olds, and the tenth leading cause of death across all ages in the United States (CDC, 2016a). In 2016, there were a total of 44,965 reported deaths by suicide (CDC, 2016a). The United States' annual age-adjusted suicide rate as of 2016 is 13.42 per 100,000 individuals (AFSP, 2018b). Approximately 105 Americans die by suicide each day (CDC, 2018; SAVE,



2018). The primary methods underlying suicide deaths are firearms (22,963 deaths), suffocation (11,642 deaths), and poisoning (3,662 deaths) (CDC, 2016b). The most common method among males is by firearm (56.6%), and among females, poisoning (33.0%) and firearm (32.1%) (NIMH, 2018). The World Health Organization reports that the global age-standardized suicide rate, derived from 2012 data, is 11.4 per 100,000 (WHO, 2018). In comparison, the U.S. suicide rate is the 9<sup>th</sup> highest out of 26 Organization for Economic Co-operation and Development (OECD) countries (OECD, 2018).

**Trends in data.** Recent longitudinal data released from the Centers for Disease Control reveals a significant rise in the U.S. suicide rate for a 17-year period. From 1999 to 2016, the age-adjusted suicide rate in the total population increased by 28%, from 10.5 per 100,000 to 13.4 per 100,000 (NIMH, 2018). During this time, suicide rates increased significantly in 44 states, with rates increasing by more than 30% in 25 of these states (Stone et al., 2018). A closer examination of 27 states conducted in 2015 found that at least 54% of those who died by suicide did not have a documented mental health condition (Stone et al., 2018). Circumstances surrounding death that are thought to play a contributory role include problematic substance use (28%), relationship problems or loss (42%), life stressors (e.g., criminal or legal matters (9%)), eviction or loss of home (4%), job or financial problems (16%), physical health problems (22%), and recent or impending crises in the past or upcoming two weeks (29%) (Stone et al., 2018). Those who had diagnosed mental health conditions, prior to death, were more likely to have these circumstances occur. Rates of emergency department visits for self-directed non-suicidal self-harm represent a significant risk factor for suicide. During the period of 2001-2016, the rate in ED visits for self-harm increased by 42% (Stone et al., 2018). In response to these rises in suicide rates, in October 2015, the National Alliance for Suicide Prevention, and over 250 of its

partners, developed a national goal to reduce the annual suicide rate by 20% by the year 2025, translating to the averting of 20,000 preventable deaths (NASP, 2017).

**Prevalence of suicidal ideation and behavior.** According to data from the 2016 National Survey on Drug Use and Health from the Substance Abuse and Mental Health Services Administration, an estimated 4.0% of individuals aged 18 and older experienced thoughts of suicide in the past year (NIMH, 2018; SAMHSA, 2017). Although this percentage seems small, it accounts for 9.8 million adults who reported serious thoughts of killing themselves. The group of adults with the highest rate of reported suicidal thoughts comprises those aged 18-25 (8.8%) (AFSP, 2018b; CDC, 2018). It is estimated that for every death by suicide, there are 25 attempts (AFSP, 2018b; CDC, 2018). In 2016, an estimated 0.5% of adults aged 18 and older, or 1.3 million people, reported making a suicide attempt (AFSP, 2018b; CDC, 2018). The group of adults with the highest rate of reported suicide attempts was the 18-25 age group (1.8%) (AFSP, 2018b; CDC, 2018). While many adults experience thoughts of suicide, less than one-third go on to develop plans for suicide (AFSP, 2018b). In 2016, an estimated 2.8 million adults ages 18 and older made plans for suicide (NIMH, 2018). From the available data, it was observed that developing a plan is not a definitive predictor for an attempt; among 2.8 million adults who developed plans, less than half, 1.0 million, both made plans and attempted suicide (NIMH, 2018). There is also a small, concerning fraction of the population who did not make plans prior to attempting suicide (0.3 million adults) (NIMH, 2018), making risk factors and warning signs more challenging to detect.

**Vulnerable populations.** Suicide rates vary significantly across demographic groups. Variations across age and gender yield significant differences in rates. Suicide occurs at a rate four times higher among men than women, and males account for 79% of all deaths by suicide in

the United States (CDC, 2018; SAVE, 2018). Among males aged 65 and older, the rate of suicide is 32.3 per 100,000, and is even higher among males aged 75 and older (36 per 100,000) (NIMH, 2018). Among females, suicide rates are highest among individuals in the 45-54 age group (9 per 100,000) (SAVE, 2018). While women have a comparatively lower rate of deaths by suicide, the rate at which they attempt suicide is three times higher than men (SAVE, 2018).

Youth aged 10-24 have considerable rates of suicidal ideation and attempts, with an estimated 157,000 youth treated in the emergency department for self-directed violence each year (CDC, 2017). Based on a national survey of U.S. high school students, 16% endorsed serious thoughts of suicide, 13% reported suicidal ideation with a plan, and 8% reported making a suicide attempt in the past year (CDC, 2017). Consistent with patterns in the general population, males comprise the majority of youth who die by suicide, with 81% of males and 19% females accounting for the total deaths among the 10-24 age group (CDC, 2017). Females in the survey of high school students were also more likely to report suicide attempts (CDC, 2017). American Indian and Alaska Native youth are more likely to die by suicide than any other ethnic group, and Hispanic youth were more likely to attempt suicide compared with Black, White, and non-Hispanic youth (CDC, 2017).

Rates vary by ethnicity, with the highest occurring among American Indian and Alaska Native (AIAN) and White populations. In the AIAN population, contributing factors to increased risk for suicide include the following: historical trauma, discrimination, substance use, high poverty rates, isolation, cultural taboos around death and suicide, and limited access to mental health services (General & Prevention, 2012). There is limited information providing insight into the higher rates of suicide among White populations. Among older White men, the most common circumstances surrounding suicide include mental and physical health problems,

conflict in intimate relationships, alcohol dependence, and problems at work. Gender and cultural taboos also prevent White males from seeking help and supportive resources.

Individuals with comorbid psychiatric diagnoses such as depression, bipolar disorder, substance use disorder, autism, psychotic disorders, and post-traumatic stress disorder carry an increased risk (General & Prevention, 2012). Individuals with a history of prior suicide attempts also have a higher risk for future attempts and death by suicide (Fowler, 2012; General & Prevention, 2012). One study found that among individuals who made a serious suicide attempt and survived, nearly half within five years either made another attempt or died by suicide (Beautrais, 2004; General & Prevention, 2012). Approximately 10-15% of patients who have a medically serious suicide attempt die by suicide within 10 years (Shepard, Gurewich, Lwin, Reed Jr, & Silverman, 2016; Suominen et al., 2004). An especially high-risk period for suicide is the 30-day period after discharge from inpatient psychiatric hospitalization (General & Prevention, 2012; Olfson, 2017).

Engagement in non-suicidal self-directed violence such as cutting, hitting, scratching, or burning is associated with an increased risk of suicidal ideation, behaviors, and death by suicide (General & Prevention, 2012). One systematic review found that compared with the general population, risk for suicide was hundreds of times higher among individuals who self-harm (General & Prevention, 2012; Owens, Horrocks, & House, 2002). This risk increased, regardless of whether or not the self-harm was associated with suicidal intent.

Physical illnesses such as cancer (Park, Chung, & Lee, 2016), degenerative diseases (e.g., Huntington's disease) (van Duijn, Vrijmoeth, Giltay, Landwehrmeyer, & Network, 2018), multiple sclerosis (Stenager et al., 1992), Parkinson's disease (Weintraub & Stern, 2005), traumatic injuries (Hartkopp, Brønnum-Hansen, Seidenschnur, & Biering-Sorensen, 1998),

traumatic brain injury (Simpson & Tate, 2007), epilepsy (Blumer et al., 2002), migraine (Friedman, Zhong, Gelaye, Williams, & Peterlin, 2018), HIV/AIDS (Catalan et al., 2011), chronic kidney disease (Kimmel, Cukor, Cohen, & Peterson, 2007), and asthma (Kuo et al., 2010) are associated with higher risk of mental health conditions and suicide (General & Prevention, 2012). Potential reasons for the increased risk are chronic pain, cognitive changes that affect daily functioning, and emotional challenges associated with long-term, chronic conditions (General & Prevention, 2012).

Studies support that Lesbian, Gay, Bisexual, and Transgender populations experience disparities in suicidal ideation and attempts, although reporting and surveillance of data is likely inadequate (Hafeez, Zeshan, Tahir, Jahan, & Naveed, 2017). The minority stress model is a framework supported by research that sexual minorities endure stressors directly related to aspects of their identity that have negative consequences on mental health (Mereish, O’Cleirigh, & Bradford, 2014). Stigmatization, discrimination, victimization, and oppression of minority sexual identities is associated with increased suicidal ideation and attempts (Clements-Nolle, Marx, & Katz, 2006; Diaz, Ayala, Bein, Henne, & Marin, 2001; Savin-Williams, 1994). Stigmatization in society can contribute to behaviors such as isolation, a contributing risk factor for suicidal thoughts and behaviors. Increased substance use among the LGBT population has also been found to partially mediate the relationship between minority stress and increased likelihood of suicidal ideation (Mereish et al., 2014). A case-control study found that among LGBT individuals who died by suicide, factors related to death included rejection by family, negative feelings towards self related to gender and identity, and dissatisfaction with appearance (Skerrett, Kolves, & De Leo, 2016). Developing a caring and inclusive environment in the health care setting is one approach for improving cultural humility and improving care for this

population (Mereish et al., 2014). Including educational content on developing a safe and inclusive environment for assessment, treatment, and management of suicide risk across diverse identities is an important dimension to address in suicide prevention training programs to meet the needs of populations at increased risk.

The Veteran population comprises approximately 20% of deaths that occur by suicide in the United States (Karch, Logan, McDaniel, Parks, & Patel, 2012). Veterans that have recently returned from overseas deployments in Afghanistan and Iraq and Veterans who receive health care from the Veterans Health Administration (VHA) have the highest rates of suicide in this population (Karch et al., 2012). Female Veterans who receive health care from the VHA have suicide rates twice those of women in the general population (Karch et al., 2012). Identifying military service as a risk factor for suicide is important to assess in all settings. In response to these elevated rates compared with the general population, the VA developed a task force on suicide prevention comprised of members of the armed forces, a mental health strategic plan, standards of care for mental health, and a suicide prevention program (General & Prevention, 2012; Karch et al., 2012; VA, 2018). Several resources are available specific to the Veteran population, such as Veteran crisis lines, suicide prevention coordinators, and support staff in every VA medical center (VA, 2018).

**Impact on society.** Suicide has a significant impact on society, which can include emotional effects on those connected to the individual as well as economic implications.

***Emotional impact of suicide on families and communities.*** Given that individuals interact as part of a community and system, the impact of a death by suicide resonates with a network of people. Annually, approximately 13 million people report knowing someone who has died by suicide that year (Crosby & Sacks, 2002; General & Prevention, 2012). It is estimated

that at least five or six family members are directly affected from a single death due to suicide (Berman, 2011; General & Prevention, 2012). In an individual's extended network, about 30 to 60 people are estimated to be affected. Suicide loss survivors may experience subsequent guilt, depression, grief, isolation, and other psychiatric symptoms (General & Prevention, 2012; Jordan & McIntosh, 2011). Individuals bereaved by suicide carry greater risk for their own death by suicide, and suicidologists have recommended support of suicide loss survivors as a method of suicide prevention.

***Economic implications.*** Deaths by suicide present a considerable economic burden in society, particularly among adults that participate in the workforce. The economic costs associated with suicide related to direct medical costs (e.g., emergency departments and inpatient psychiatric hospitalization) and lost productivity is estimated to be between \$50.8 billion to \$70 billion annually (NIMH, 2018; Shepard et al., 2016; Stone et al., 2018). One study accounting for underreporting of suicides estimates the annual costs to be \$93.5 billion (Stone et al., 2018). Medical costs comprise approximately 2.9% of the total economic cost of suicide and lost productivity accounts for the remaining majority of these estimates (Shepard et al., 2016). An economic evaluation study conducted in Canada found that population level suicide prevention programs are cost-effective and have significant savings potential associated with implementation, based on decreased disability secondary to depression, the averting of suicide deaths, and a reduction in years of potential life lost (Vasiliadis, Lesage, Latimer, & Seguin, 2015). These studies elucidate the economic benefit of investing in suicide prevention efforts for reducing long-term costs of premature loss of life.

## **Suicide Theories, Models, and Frameworks**

**Adverse Childhood Experiences (ACEs).** Adverse Childhood Experiences are traumatic experiences that occur during a child's life. Examples of adverse experiences include emotional, physical, or sexual abuse; neglect, household violence, substance use, mental illness, having a member of the family incarcerated, and other dysfunction at home (Perez, Jennings, Piquero, & Baglivio, 2016). Estimates of up to 52.1% of people in the population have experienced at least one adverse childhood experience (Felitti et al., 1998). These exposures are likely to yield maladaptive outcomes over the progression of the lifespan, with cumulative effects. Children exposed to adversity and trauma are more likely to endure challenges in emotion regulation, relationships, self-concept, adaptation to school, and other psychopathological symptoms throughout their development (Cicchetti & Toth, 1995). Correlations have been found between ACEs and development of physical health problems such as hypertension, high blood pressure, chronic lung disease, skeletal fractures, liver disease, cancer, and premature death (Perez et al., 2016). ACE scores are also correlated with alcoholism, drug use, depression, obesity, and suicide (Felitti et al., 1998; Perez et al., 2016). Consistent with the developmental psychopathology framework, higher ACE scores have been used to directly predict the likelihood of suicidal ideation and behavior (Mazza & Reynolds, 1998). Early life exposure to adversity and traumatic events is associated with development of low self-concept, which is linked to higher likelihood of suicidal ideation (Perez et al., 2016; Wilburn & Smith, 2005). An increased number of adverse experiences is directly associated with negative outcomes later in life, with each additional ACE increasing the odds of a suicide attempt by two to five times (Dube et al., 2001; Perez et al., 2016). Adolescents with seven or more ACEs have been estimated to have a suicide rate of 31.1% (Dube et al., 2001; Perez et al., 2016).



Adolescents exposed to adversity or maltreatment were three times more likely to have suicidal ideation, and among children who experienced sexual abuse, the risk of suicide attempts was eight times higher than their non-abused counterparts (Brown, Cohen, Johnson, & Smailes, 1999; Perez et al., 2016). Overall, early life exposure to adversity and trauma have been highly correlated with development of suicidal ideation, behaviors, and death by suicide as early as adolescence.

**Interpersonal Theory of Suicide.** The Interpersonal Theory of Suicide (ITS) posits that an individual is more likely to die by suicide when they feel as though they are a burden to others, lack a sense of belongingness, and feel hopeless about a change in their life circumstances (Van Orden et al., 2010). When these concepts of burdensomeness, thwarted belongingness, and hopelessness interact with suicidal ideation and acquired capability, or the ability to carry out an attempt, death by suicide is more likely (Anestis et al., 2017). Acquired capability is developed through genetic factors, prior suicide attempts, and exposure to painful and traumatic events that increase pain tolerance and fearlessness towards death (Anestis et al., 2017; Van Orden et al., 2010).

**Integrated Motivational-Volitional Model of Suicide Behavior.** The Integrated Motivational-Volitional Model of Suicide Behavior (IMV) is derived from the interpersonal theory of suicide, structuring the transition from suicidal thoughts to behaviors into three phases (Anestis et al., 2017). IMV views suicidal ideation and behavior independently from psychopathological symptoms and disorders. First, factors such as life events, disposition, and triggering events are precipitants for development of suicidal ideation (Anestis et al., 2017). Second, intent to act upon suicidal thoughts is activated by negative feeling states, such as entrapment, defeat, humiliation, and belief that suicide is a solution to life adversity (Anestis et

al., 2017). Finally, the intersection of entrapment, suicidal ideation, and intent is amplified by perceived burdensomeness and thwarted belongingness (Anestis et al., 2017). Similar to the IPTS, an individual is thought to move from suicidal ideation and intent to suicidal behavior in the setting of acquired capability (e.g., past attempts, impulsivity, access to means).

**Ideation to Action Framework.** The Ideation to Action Framework (IAF) is a three-step theory that focuses on understanding contributing factors to suicide risk and how an individual transitions from thoughts of suicide to acting upon suicidal thoughts (Anestis et al., 2017; Klonsky & May, 2015). According to this theory, suicidal ideation occurs when pain (physical or psychological) is greater than connectedness (social, occupational, meaningful aspects), and the individual experiences hopelessness about the future (Klonsky & May, 2014, 2015). Consistent with the IPTS, in the presence of these cognitions as well as the capability of engaging in suicidal behavior, an individual is likely to make an attempt (Klonsky & May, 2014, 2015; Van Orden et al., 2010). Under these premises, acquired capability encompasses habituation to pain, fearlessness about death, and dispositional traits (e.g., genetic predisposition for high pain tolerance) which confers self-efficacy towards carrying out a suicide attempt.

Collectively, these theories convey that suicidal ideation alone does not precipitate an attempt. Thoughts of suicide are more likely to occur in the setting of early life adversity and trauma. Given that suicidal ideation alone is not a direct predictor of behaviors and attempts, assessment of additional parameters—such as negative feeling states (e.g., humiliation, shame, entrapment, and defeat), burdensomeness, hopelessness about the future, level of pain, belongingness, connectedness, dispositional traits, genetic factors, intent, belief in suicide as a solution to life challenges, habituation to pain, fearlessness towards death, self-efficacy to carry out plans, and access to resources to act on suicidal thoughts—are crucial.

## **Stigma and Language**

Individuals who deal with suicidal thoughts or who have survived an attempt struggle with experiences of shame, self-doubt, and fear regarding the reactions of others (Cedereke & Öjehagen, 2002; General & Prevention, 2012). Barriers to talking about suicide include misunderstanding, negative bias, prejudice, and discrimination. In response to dialogue on suicide, individuals anticipate or experience rejection, social isolation, and overall stigmatization. Changing discourse surrounding suicide in order to transform negative connotations presents a means for dismantling cultural barriers that isolate individuals with suicidal thoughts and behaviors (Hall, 2001). Altering the meaning of suicide through the social performance of language in its representation of this phenomenon offers potential for improving how suicide is reported, treated, and regarded in society.

In 2011, the CDC released a report recommending nomenclature and definitions to describe self-directed violence as a means of addressing inconsistent terminology in the field of suicidology (Crosby, Ortega, & Melanson, 2011). One overarching goal for standardizing the language surrounding suicide is to improve reporting and data on suicide, to accurately capture the extent of the phenomena through valid and reliable research. A second major impetus behind standardization of the language used to communicate about suicide is to address and reduce the harmful impacts of stigma in current discourse. The social barrier of stigma influences how suicide is reported, and even whether it is reported. Negative connotations embedded in current colloquialisms may cause shame and guilt, preventing individuals from disclosing suicidal thoughts or behaviors. Health care providers often do not receive training in assessment and documentation of self-directed harm in medical records, impacting accurate representation of the problem. Creating standardized terminology for researchers, clinicians, and others to use will

improve surveillance and the quality of data, while destigmatizing self-directed violence. The process of developing definitions lasted for several years and included reviews of the scientific literature, panel discussions among subject matter experts, and several reviews, discussions, and revisions of proposed drafts by key stakeholders and external reviewers. Table 2.1 lists proposed uniform terminology and definitions from the CDC Self-directed Violence Surveillance Uniform Definitions and Recommended Data Elements report (Crosby et al., 2011):

Table 2.1  
*Centers for Disease Control Uniform Definitions*

<b>Term</b>	<b>Definition</b>
Self-directed violence	Behavior that is self-directed and deliberately results in injury or the potential for injury to oneself.  Two categories: Non-suicidal and suicidal self-directed violence
Non-suicidal self-directed violence	Behavior that is self-directed and deliberately results in injury or the potential for injury to oneself.  There is no evidence, whether implicit or explicit, of suicidal intent.
Suicidal self-directed violence	Behavior that is self-directed and deliberately results in injury or the potential for injury to oneself.  There is evidence, whether implicit or explicit, of suicidal intent.
Undetermined self-directed violence	Behavior that is self-directed and deliberately results in injury of the potential for injury to oneself.  Suicidal intent is unclear based on the available evidence.
Suicide attempt	A non-fatal self-directed potentially injurious behavior with any intent to die as a result of the behavior.  A suicide attempt may or may not result in injury.

Interrupted self-directed violence <i>(by self or other)</i>	By self—A person takes steps to injure self but is stopped by self prior to fatal injury.  By other—A person takes steps to injure self but is stopped by another person prior to fatal injury. The interruption can occur at any point during the act such as after the initial thought or after onset of behavior.
Other suicidal behavior including preparatory acts	Acts or preparation towards making a suicide attempt, but before potential for harm has begun. This can include anything beyond a verbalization or thought, such as assembling a method or preparing for one's death by suicide.
Suicide	Death caused by self-directed injurious behavior with any intent to die as a result of the behavior.

Terminology determined by the expert panel to be unacceptable, and the rationale for discouraging use are listed below in Table 2.2 (Crosby et al., 2011):

Table 2.2  
*Centers for Disease Control Unacceptable Terms*

<b>Term</b>	<b>Rationale</b>
Completed suicide	This terminology implies achieving a desired outcome whereas those involved in the mission of “reducing disease, premature death, and discomfort and disability” would view this event as undesirable.  Alternate term: suicide
Failed attempt	This terminology gives a negative impression of the person's action, implying an unsuccessful effort aimed at achieving death.

	Alternate terms: suicide attempt or suicidal self-directed violence
Nonfatal suicide	This terminology portrays a contradiction. “Suicide” indicates a death while “nonfatal” indicates that no death occurred.  Alternate term: suicide attempt
Parasuicide	Formally used to refer to a person’s self-directed violence whether or not the individual had intent to die. However, the World Health Organization is now favoring the term suicide attempt.  Alternate terms: non-suicidal self-directed violence or suicidal self-directed violence
Successful suicide	This term also implies achieving a desired outcome whereas those involved in the mission of “reducing disease, premature death, and discomfort and disability” would view this event as undesirable.  Alternate term: suicide
Suicidality	This terminology is often used to refer simultaneously to suicidal thoughts and suicidal behavior. These phenomena are vastly different in occurrence, associated factors, consequences and interventions, so should be addressed separately.  Alternate terms: suicidal thoughts and suicidal behavior
Suicide gesture, Manipulative act, Suicide threat	Each of these terms gives a value judgment with a pejorative or negative impression of the person’s intent. They are usually used to describe an episode of nonfatal, self-directed violence. A more objective description of the event is preferable such as non-suicidal self-directed violence or suicidal self-directed violence.

Changes to language for the purposes of de-stigmatizing the topic of suicide has important implications for reporting, data collection, and talking with individuals about suicide. Adopting neutral terminology into common language is an important step towards developing the capacity to intervene and ultimately shift the culture from shame and isolation, towards open-dialogue.

### **Current Approaches to Suicide Prevention**

**National guidelines for suicide prevention.** The U.S. Surgeon General report, titled *The Surgeon General's Call to Action to Prevent Suicide*, released in 1999 provided a blueprint for developing a suicide prevention plan for the nation (General & Prevention, 2012; Service, 1999). This initial report significantly influenced development of the more recent 2012 National Strategy for Suicide Prevention. The current strategy includes 13 goals and 60 objectives designed to guide suicide prevention actions in the United States from 2012 to 2022. The National Strategy is considered a comprehensive approach, which identifies ways for health care providers in primary care or the emergency department to support an individual with risk factors for and current suicidal ideation. According to the strategy, health care providers should provide the following services: suicide screening, recognition of risk, accurate diagnosis and documentation, trauma-informed policies and practices, easily accessible mental health referrals, education for individuals and families on warning signs and risk, and follow-up care to monitor outcomes.

In the field of suicide prevention, there are three main classifications of strategies: 1) universal, 2) selective, and 3) indicated (General & Prevention, 2012). Universal strategies are a form of primary prevention, applied to the entire population, without regard for risk factors. Selective strategies, secondary preventative measures, are used in the setting of risk factors

associated with increased risk for suicide. Indicated strategies offer tertiary prevention, for high-risk individuals, including those who have made a suicide attempt. Suicide prevention training for health care providers, according to the National Strategy, is expected to have the capacity to address all three forms of prevention (General & Prevention, 2012).

There are four interrelated Strategic Directions in the National Strategy for Suicide Prevention: 1) Healthy and Empowered Individuals, Families, and Communities; 2) Clinical and Community Preventative Services; 3) Treatment and Support Services; and 4) Surveillance, Research, and Evaluation (NSPS 2102). Strategic Directions and goals that directly relate to the roles, responsibilities, and expectations of health care providers are described below.

Under Strategic Direction 2: Clinical and Community Preventative Services, Goal 7 is to “Provide training to community and clinical service providers on the prevention of suicide and related behaviors” (General & Prevention, 2012). The expectations of this goal are that community and clinical professionals, including health care providers, who come into contact with potentially suicidal individuals have the training to address and respond to individuals with suicidal thoughts and/or behaviors, as well as those affected. The National Strategy recommends that training should be specific to the role of the provider, and regularly updated to reflect changes in knowledge and evidence. The following objectives for Goal 7 are (General & Prevention, 2012):

- “Objective 7.1: Provide training on suicide prevention to community groups that have a role in the prevention of suicide and related behaviors.
- Objective 7.2: Provide training to mental health and substance abuse providers on the recognition, assessment, and management of at-risk behavior, and the delivery of effective clinical care for people with suicide risk.



- Objective 7.3: Develop and promote the adoption of core education and training guidelines on the prevention of suicide and related behaviors by all health professions, including graduate and continuing education.
- Objective 7.4: Promote the adoption of core education and training guidelines on the prevention of suicide and related behaviors by credentialing and accreditation bodies.
- Objective 7.5: Develop and implement protocols and programs for clinicians and clinical supervisors, first responders, crisis staff, and others on how to implement effective strategies for communicating and collaboratively managing suicide risk.”

Strategic Direction 3: Treatment and Support Services is also pertinent to suicide prevention services as they relate to health care providers. Goal 8 is to “Promote suicide prevention as a core component of health care services” (General & Prevention, 2012) and the objectives are as follows:

- “Objective 8.1: Promote the adoption of “zero suicides” as an aspirational goal by health care and community support systems that provide services and support to defined patient populations.
- Objective 8.2: Develop and implement protocols for delivering services for individuals with suicide risk in the most collaborative, responsive, and least restrictive settings.
- Objective 8.3: Promote timely access to assessment, intervention, and care for individuals with heightened risk for suicide.
- Objective 8.4: Promote continuity of care and the safety and well-being of all patients treated for suicide risk in emergency departments or hospital inpatient units.

- Objective 8.5: Encourage health care delivery systems to incorporate suicide prevention and appropriate responses to suicide attempts as indicators of continuous quality improvement efforts.
- Objective 8.6: Establish linkages between providers of mental health and substance abuse services and community-based programs, including peer support programs.
- Objective 8.7: Coordinate services among suicide prevention and intervention programs, health care systems, and accredited local crisis centers.
- Objective 8.8: Develop collaborations between emergency departments and other health care providers to provide alternatives to emergency department care and hospitalization when appropriate, and to promote rapid follow-up after discharge.”

Goal 9, to “Promote and implement effective clinical and professional practices for assessing and treating those identified as being at risk for suicidal behaviors” (General & Prevention, 2012), is also pertinent to guiding the practice of health care providers surrounding suicide prevention. The objectives of this goal include the following (General & Prevention, 2012):

- “Objective 9.1: Adopt, disseminate, and implement guidelines for the assessment of suicide risk among persons receiving care in all settings.
- Objective 9.2: Develop, disseminate, and implement guidelines for clinical practice and continuity of care for persons who treat persons with suicide risk.
- Objective 9.3: Promote the safe disclosure of suicidal thoughts and behaviors by all patients.

- Objective 9.4: Adopt and implement guidelines to effectively engage families and concerned others, where appropriate, throughout entire episodes of care for persons with suicide risk.
- Objective 9.5: Adopt and implement policies and procedures to assess suicide risk and intervene to promote safety and reduce suicidal behaviors among patients receiving care for mental and/or substance use disorders.
- Objective 9.6: Develop standardize protocols for use within emergency departments based on common clinical presentation to allow for more differentiated responses based on risk profiles and assessed clinical needs.
- Objective 9.7: Develop guidelines on the documentation of assessment and treatment of suicide risk and establish a training and technical assistance capacity to assist providers with implementation.”

Many of the objectives from these goals were adopted in the development of the 2016 Washington State Suicide Prevention Plan (WSDOH, 2016) to frame the training guidelines and requirements for health care providers likely to come into contact with suicidal individuals.

### **Mandatory Training Recommendations**

The 2001 National Strategy for Suicide Prevention provided recommendations for states to adopt comprehensive suicide prevention plans (Services & General, 2001). The 2012 report highlighted that while many states have developed prevention plans, there is significant variation in the approaches incorporated (General & Prevention, 2012). The 2012 report emphasized areas which states should continue to develop, including mandatory suicide prevention education requirements for obtaining and maintaining health care licensure and credentials. It also encourages pre-health sciences undergraduate and graduate curriculum to incorporate education

into programs in preparation for entry into practice. A policy analysis found that as of October 2017, all states had a suicide prevention plan in place (Graves, Mackelprang, Van Natta, & Holliday, 2018). Sixteen states have a policy related to suicide prevention training for health care professionals in either general practice or those specifically working in mental health (Graves et al., 2018). Most of these state requirements apply to those working in behavioral health. Only three states—Nevada, Washington, and West Virginia—require general health care professionals to complete mandatory training (Graves et al., 2018). Among these states, the training requirements vary, with requirements in Washington State considered to be comparatively more extensive (six hours every six years, or three to six hours once), versus other states with a requirement of one or more hours. As states move towards policy changes establishing minimum requirements for health care professionals' education in suicide prevention, monitoring outcomes in regard to ultimate outcomes of suicide rates across the nation will be imperative for evaluating current and future legislation.

**Assessment, treatment, and management.** These three components comprise basic competencies for health care providers in working with individuals at-risk for suicide.

*Assessment.* Evidence supports that asking about suicidal ideation does not precipitate an increase in suicidal ideation or attempts. A randomized trial of adults diagnosed with depression who were directly asked early in treatment about suicidal ideation or behavior versus later, demonstrated no significant differences in increased thoughts or behaviors (Crawford et al., 2011). There is support that directly asking about suicidal ideation in patients with risk-factors for suicide allows more effective treatment and management, through early intervention (Norris & Clark, 2012). A double-blind randomized controlled trial examined the emotional impact associated with suicide assessments conducted on university students and community members

(Harris & Goh, 2017). Less than 20% of respondents exhibited a clinically meaningful, negative reaction to suicide assessment, and about 20% of respondents demonstrated significant positive reactions after suicide assessment (Harris & Goh, 2017). Researchers found that asking suicide-related questions did not confer greater risk for suicide, suicide assessment is generally safe for most, and appropriate precautions should be taken for depressed individuals (Harris & Goh, 2017). Previous preconceived notions, that directly asking patients about suicide may contribute to iatrogenic suicidal ideation and behaviors, potentially presented barriers and decreased the likelihood of health care professionals properly assessing patients. These assumptions are not substantiated, as there is a lack of evidence in available research that asking directly about suicide encourages suicidal thoughts and behaviors. Therefore, it is considered an appropriate assessment by health care providers, to increase the likelihood that the presence of suicidal thoughts and behaviors are accurately identified.

Standardized scales for suicide screening and risk assessment, as recommended by the National Action Alliance for Suicide Prevention's Recommended Standard Care for People with Suicide Risk report, include the following (NAASP, 2018):

- “Ask Suicide-Screening Questions (ASQ) National Institute of Mental Health
  - Four-item suicide-screening tool used for people ages 10-24 in emergency departments, inpatient units, and primary care settings.
- Behavioral Health Measure-10
  - Ten-item tool that assesses depression, anxiety, and overall life functioning.
- Behavioral Health Screen
  - Screens across 16 domains of mental health and psychosocial risk factors, such as depression, anxiety, substance misuse, traumatic stress, eating disorders,

psychosis, and suicidality. There are versions for the categories of child, adolescent primary care, primary care, and emergency department.

- Brief Symptom Inventory 18
  - Eighteen-item tool used to measure psychological distress and psychiatric disorders in individuals 18 and older. Includes one question specifically on suicide.
- Columbia-Suicide Severity Rating Scale (C-SSRS)
  - Includes questions that help determine whether an individual is at risk for suicide. First two questions are usually used as a screening tool, and based on response, may lead to longer versions.
- Outcome Questionnaire 45.2
  - Helps mental health professionals assess symptom distress (depression and anxiety), interpersonal relationships (loneliness, conflicts with others, and marriage and family difficulties), and social role (difficulties in the workplace, school, or home). Includes questions specifically about suicide.
- Patient Health Questionnaire-9 Depression Scale
  - Nine-item, widely used tool for diagnosing and monitoring depression severity. Question 9 screens for the presence and duration of suicidal ideation.
- Suicide Behavior Questionnaire-Revised
  - Four-item self-report questionnaire that asks about past, present, and future anticipation of suicidal thoughts and behaviors. Includes question on lifetime suicidal ideation, plans for suicide, and attempts.”

Identification of risk factors has been extensively discussed in previous literature on suicide, with no definitive predictors identified. The Centers for Disease Control, National Strategy for Suicide Prevention, and Washington State Suicide Prevention Plan highlight the following suicide risk factors, organized using a social ecological framework (Crosby et al., 2011; General & Prevention, 2012; WSDOH, 2016):

- “Individual risk factors
  - Previous suicide attempts
  - History of mental health diagnoses, especially depression
  - History of alcohol and substance misuse
  - Feelings of hopelessness
  - Impulsive or aggressive tendencies
  - Significant loss (e.g., relationship, occupational, social, financial)
  - Illness and disability, including loss of physical or mental functioning
- Relationship risk factors
  - Family history of suicide
  - Family history of child maltreatment
  - Isolation, a feeling of being cut off from other people
- Community risk factors
  - Local epidemics of suicide
  - Barriers to accessing mental health treatment
- Societal risk factors
  - Easy access to lethal means

- Cultural and religious beliefs (e.g., belief that suicide is a reasonable or noble solution to personal problems)
- Unwillingness to seek help due to stigma associated with mental health, substance misuse, and/or suicidal thoughts”

**Treatment.** Treatment involves no-harm agreements versus safety planning, means reduction, and direct interventions.

*No-harm agreements versus safety planning.* The use of “no harm” agreements or suicide prevention contracts between clinicians and patients with an agreement that the patient will not harm themselves, has been historically widespread in the field of psychiatry (Assey, 1985; Bryan et al., 2017; Callahan, 1996; Kelly & Knudson, 2000; Kroll, 2000; Range et al., 2002; R. I. Simon, 1999; Weiss, 2001). However, there is limited evidence to support the effectiveness of no-harm contracts (Kelly & Knudson, 2000; Rudd et al., 2006; Shaffer & Pfeffer, 2001; Stanford, Goetz, & Bloom, 1994). Some research shows that it may increase the risk of suicide in some instances due to a false sense of security for the provider, leading to a less thorough assessment of risk factors and failure to implement preventative interventions (Rudd et al., 2006; Shaffer & Pfeffer, 2001). In addition, the absence of an ongoing, established relationship with a provider confers reduced meaning in a no-harm contract established under limited rapport, such as in the emergency department (Wortzel, Matarazzo, & Homaifar, 2013).

Alternatively, a safety plan is a patient-centered, 6-step process that a clinician collaborates with the patient to develop, to identify ways the patient can manage a mental health crisis (Wortzel et al., 2013). Components of a safety plan include patient’s identification of their warning signs leading to a crisis, internal coping strategies, identification of social support, access of professional services, and a meaningful reason for living. Unlike the no-harm contract,



a safety plan provides concrete steps for what to do during a crisis, rather than what not to do (Bryan et al., 2017). In a randomized clinical trial among Veterans comparing the use of a safety contact with a crisis response safety plan, there was a significantly faster decline in suicidal ideation and fewer inpatient hospitalization days among those receiving the crisis response safety plan versus the no-harm contract (Bryan et al., 2017). At the six-month follow-up, 5% of those receiving the crisis response plan attempted suicide versus 19% receiving the no-harm contract. Approaches to the safety plan vary, as some interventions include follow-up calls by providers, means restriction counseling appointments, and/or subsequent enrollment in additional outpatient services such as therapy (Bryan et al., 2017; Hogan, 2016). To date, there is a paucity of literature on the definitive use of safety plans alone (Bryan et al., 2017).

*Means reduction.* An intervention well supported by research for reducing death by suicide involves assessing for and reducing availability of lethal means. Restricting access to lethal means has been estimated to reduce suicide by 30 to 50% in some cases (Barber & Miller, 2014). Methods to reduce means include gun lock boxes, barriers on bridges, reduction in carbon monoxide content of motor vehicle exhaust, limiting access to weapons, and collaborating with media to manage coverage of new potentially lethal methods of suicide (Barber & Miller, 2014; General & Prevention, 2012). Controlling access to lethal means is thought to address the impulsive nature of many suicide attempts. According to a survey of individuals who made suicide attempts, it has been estimated that for 24-74% of those who make attempts, the time elapsed between a decision to attempt suicide, and an actual attempt, is 10 minutes or less (Barber & Miller, 2014; Deisenhammer, Strauss, Kemmler, Hinterhuber, & Weiss, 2009; T. R. Simon et al., 2001; Williams, Davidson, & Montgomery, 1980). Increased availability of a particular means during a period of severe suicidal ideation is associated with the use of that

means for suicidal behavior (Barber & Miller, 2014; Eddleston et al., 2006; Skopek & Perkins, 1998). Given the high lethality rate of suicide attempts that occur by firearm, controlling access to these methods by talking with patients about lethal means access in a suicide assessment, incorporating the patient's support network into limiting means, and providing counseling on lethal means access are important interventions with significant implications for patient outcomes.

*Direct interventions.* Psychosocial and behavioral interventions for addressing suicidal ideation and behavior as described in the literature include cognitive behavioral therapy (Anestis et al., 2017; Rudd, 2012) and dialectical behavior therapy (Anestis et al., 2017; Linehan, Armstrong, Suarez, Allmon, & Heard, 1991; Linehan et al., 2015). Other interventions with support for efficacy include case management, social skills training, and supportive phone calls or letters (NAASP, 2018). A systematic review and meta-analysis examining interventions to prevent suicidal attempts and death by suicide found that interventions that directly address suicidal thoughts and behaviors (e.g., dialectical or cognitive behavior therapy) are most effective after treatment and in the long-term, compared with interventions that indirectly address the symptoms associated with suicide (Meerwijk et al., 2016). The review found that the majority of interventions that indirectly address suicidal ideation and behavior did not yield significant effects in suicide prevention. One indirect intervention that did yield long-term effects was active outreach via telephone calls, post cards, and home visits. Research supports directly talking to a patient about their suicidal thoughts and behaviors and working to identify what might help them cope with those behaviors as an effective strategy for reducing suicide risk (Meerwijk et al., 2016). These findings provide support for directly addressing suicidal ideation and behaviors with patients.

**Management: Standards of care.** The National Action Alliance for Suicide Prevention recently released a 2018 report called *Recommended standard care for people with suicide risk: Making health care suicide safe* (NAASP, 2018). The main purpose of the report is to advance progress towards Goal 8 (Promote suicide prevention as a core component of health care services) and Goal 9 (Promote and implement effective clinical and professional practices for assessing and treating those identified as being at risk for suicidal behaviors) of the 2012 National Strategy for Suicide Prevention, as previously described (General & Prevention, 2012; NAASP, 2018). There are no widely accepted current standards of practice for suicide prevention in the health care setting, and this report provides standard care recommendations for improving patient care and outcomes. It outlines standards of care for various settings, including primary care, outpatient behavioral health care for mental health and substance use treatment, emergency department, and behavioral health inpatient care for psychiatric or addiction treatment. The report recommends the following standards of care for each respective setting (NAASP, 2018):

- “Primary care
  - Identify suicide risk among all patients with mental illness conditions or treatment using a standardized scale.
  - If risk is present, place active referral for inpatient hospitalization or outpatient services depending on appropriateness.
  - Enhance safety for those with risk via safety planning and means reduction.
  - If consent is obtained, discuss safety plan with family for involvement and to promote safety.

- Discuss means considered and available to patient, and assist with removal or reduction of lethal means.
- Refer to specialized care by making an appointment with a mental health professional.
- Provide one caring contact within 48 hours of a visit or on the next business day.
- Outpatient behavioral health
  - Provide treatment and support for individuals with elevated suicide risk.
  - Identify and assess risk at admission and each time a patient is seen, using standardized scale. Avoid assessing more than once per day.
  - Complete safety planning interventions when risk is identified. Update safety plan at each visit while risk remains elevated.
  - Discuss means considered and available to patient, and assist with removal or reduction of lethal means.
  - Provide caring contacts between appointments or if appointments are missed.
- Emergency department
  - Identify suicide risk among patients who have harmed or injured themselves and among those who have mental illness or substance use conditions or treatment, using a standardized scale.
  - If risk is identified, make referrals to specialized care, either coordinate an appointment with an outpatient mental health professional or plan transfer to inpatient psychiatric hospital.
  - If immediate transfer is not possible, provide a safe, monitored environment to reduce likelihood of harm to self or others.

- Complete the brief safety planning intervention to promote safety with those at risk.
- If consent obtained, discuss safety plan with family for involvement and to promote safety.
- Discuss means considered and available to patient, and assist with removal or reduction of lethal means.
- Make an appointment with a mental health professional.
- Provide one caring contact within 48 hours of a visit and a second caring contact within 7 days of visit.
- Inpatient behavioral health care
  - Emphasis is to keep patient safe while in hospital and in the period immediately after discharge.
  - Identify and assess risk at admission and daily during stay, using standardized scale.
  - Maintain safety and treatment expectations during inpatient stay, and collaborate with patient to develop safety plan for discharge.
  - Discuss safety plan with family for involvement and to garner support for promoting safety.
  - Discuss means considered and available to patient, and assist with removal or reduction of lethal means.
  - Make an appointment with a mental health professional.
  - Provide one caring contact within 48 hours of a visit and a second caring contact within 7 days of visit.”

## **Mental Health and Suicide Prevention in Washington State**

**Suicide rates in Washington State.** Washington ranks as 26<sup>th</sup> overall in the U.S. for suicide rate deaths (AFSP, 2018b). The current rate of suicide in Washington is 14.83 per 100,000 population (1,141 deaths), which is slightly higher than the national average of 13.42 per 100,000 population (44,965) (AFSP, 2018b). According to the American Foundation for Suicide Prevention, on average, there is one death by suicide every eight hours in Washington State (AFSP, 2018a, 2018b). Suicide is the eighth leading cause of death overall in the state (AFSP, 2018a). It is the second leading cause of death for ages 15-34, fourth leading cause of death for ages 35-44, fifth leading cause of death for ages 45-54, eighth leading cause of death for ages 55-64, and 16<sup>th</sup> leading cause of death for ages 65 and older (AFSP, 2018a; CDC, 2016a). The number of deaths by suicide each year in Washington among those under 65 years old accounts for 22,575 years of potential life lost. The average estimated cost of one death by suicide is \$1,164,509, which considers the lifetime medical and work loss from premature death. The total annual cost of suicide in Washington, estimated in 2016, is \$1,114,435,000 (AFSP, 2018a).

Across Washington, there is considerable difference in suicide rates depending on the county. Rates in some rural areas are much higher than urban rates. During 2010-2014, five of the six counties with suicide rates higher than the state average were located in rural areas: Clallam (22 per 100,000), Grays Harbor (20 per 100,000), Okanogan (23 per 100,000), Skamania (33 per 100,000), and Stevens (25 per 100,000) (WSDOH, 2015, 2016, 2018a). Pierce County also has a statistically higher rate of suicide (17 per 100,000), and is located in a metropolitan area (WSDOH, 2015, 2016, 2018a).

**Washington State Suicide Prevention Plan.** In 2016, the Washington State Department of Health released a state suicide prevention plan (WSDOH, 2016), modeled after the 2012 National Strategy for Suicide Prevention (General & Prevention, 2012). It includes the same four Strategic Directions: 1) Health and Empowered Individuals, Families, and Communities; 2) Clinical and Community Preventative Services; 3) Treatment and Support Services; and 4) Surveillance, Research, and Evaluation (General & Prevention, 2012; WSDOH, 2016).

‘Strategy 2: Clinical and Community Preventative Services’ focuses on increasing awareness of suicide and mobilizing individuals to take action for prevention (WSDOH, 2016). Goal 3 of this strategy is that “designated health professions are trained in suicide assessment, treatment, and management” (WSDOH, 2016). A key recommendation under this goal is to “improve trainings on suicide assessment, treatment, and management for health professionals, and consider expanding the list of health professions required to receive training” (WSDOH, 2016).

‘Strategy 3: Treatment and Support Services’ states that when an individual in crisis seeks treatment, services should be accessible, appropriate and respectful (WSDOH, 2016). To support this strategy, key recommendations pertinent to health care providers include developing follow-up protocols, coordination with health and community services, safety planning, and lethal means restriction, as well as support for at risk-patients, improved connection between behavioral health providers and community resources, and educating health care providers on best practices for integrating an at risk individual’s care network into their treatment.

**Mandatory suicide prevention requirement.** In Washington State, the Engrossed Substitute House Bill (ESHB 2366), known as the Matt Adler Suicide Assessment, Treatment, and Management Act of 2012, was passed. This legislation represents the first law in the United

States requiring health care providers to complete mandatory continuing education on suicide risk assessment, treatment, and management (Stuber & Quinnett, 2013). This initial law placed a requirement for a minimum of six hours of continuing education on suicide prevention every six years, for professions with a high likelihood of coming into contact with suicidal individuals (Stuber & Quinnett, 2013). These professions included advanced social workers, certified advisors, certified counselors, chemical dependency professionals, marriage and family therapists, mental health counselors, occupational therapists, and psychologists (Stuber & Quinnett, 2013). This law was amended in 2014 via House Bill 2315, to include additional disciplines: chiropractors, dentists, dental hygienists, naturopaths, licensed practical nurses, registered nurses, advanced registered nurse practitioners, physicians and surgeons (allopathic and osteopathic), physicians assistants (allopathic and osteopathic), physical therapists, and physical therapist assistants (Graves et al., 2018). Subsequently, House Bill 2793, Providing for Suicide Awareness and Prevention Education for Safer Homes, was passed in June 2016 (WSL, 2016b). This bill expanded mandatory continuing education to other health care professionals, placing requirements for a one-time training in suicide assessment, treatment, and management, relevant to the respective discipline. This bill established the Revised Code of Washington (RCW) that mandates certain health care professionals complete suicide prevention training requirements starting July 1, 2017. The specific law in Washington is RCW 43.70.442: Suicide assessment, treatment, and management training—Requirement for certain professionals—Exemptions—Model list of programs—Rules—Health profession training standards provided to the professional educator standards board (WSL, 2016b). The current law is listed as effective until August 1, 2020. The professions included under the most current revision of the legislation are chiropractor, naturopath, licensed practical nurse, registered nurse, advanced registered nurse



practitioner (exception granted for certified registered nurse anesthetist), osteopathic physician and surgeon, osteopathic physician assistant, physical therapist, physical therapist assistant, physician, physician assistant, pharmacist, and individuals holding a retired active license for any of the aforementioned professions (WA-DOH, 2017). Educational requirements vary depending on the profession, with a minimum training length ranging from 3-6 hours of content (WA-DOH, 2017).

**Minimum training requirements.** The minimum training requirements for health care providers are listed on the Washington State Department of Health (WA-DOH, 2017). The WA-DOH website offers a list of approved suicide prevention training programs on the 2017 Model List which satisfy minimum requirements of RCW 43.70.442 (WSDOH, 2018d). The minimum standards for training content outlined by WAC 246-12-630 are as follows (WSL, 2016a):

“(1) Training content must be based on current empirical research and known best practices.

(2) Training must reflect sensitivity and relevance to the cultures and backgrounds of the relevant client or patient populations.

(3) Content for six-hour trainings must include the following. These are minimum time requirements for each of these content areas. Additional time or content must be added to total at least six hours.

(a) A minimum of ninety minutes on suicide assessment. Content must include:

(i) How to structure an interview to gather information from a client or patient on suicide risk and protective factors and warning signs, including substance abuse;

(ii) How to use the information referenced in (a)(i) of this subsection to understand the risk of suicide;

(iii) Appropriate actions and referrals for various levels of risk; and

(iv) How to appropriately document suicide risk assessment.

(b) A minimum of sixty minutes on treatment and management of suicide risk.

Content must include:

(i) Available evidence-based treatments for patients and clients at risk of suicide, including counseling and medical interventions such as psychiatric medication and substance abuse care;

(ii) Strategies for safety planning and monitoring use of the safety plan;

(iii) Engagement of supportive third parties in maintaining patient or client safety;

(iv) Reducing access to lethal means for clients or patients in crisis; and

(v) Continuity of care through care transitions such as discharge and referral.

(c) A minimum of thirty minutes on Veteran populations.

(i) Content must include population-specific data, risk and protective factors, and intervention strategies.

(ii) Training providers shall use the module developed by the department of Veterans Affairs or a resource with comparable content.

(d) A minimum of thirty minutes on risk of imminent harm through self-injurious behaviors or lethal means.

(i) Content on self-injurious behaviors must include how to recognize non-suicidal self-injury and other self-injurious behaviors and assess the intent of self-injury through suicide risk assessment.

(ii) Content on lethal means must include:

(A) Objects, substances and actions commonly used in suicide attempts and impulsivity and lethality of means;

(B) Communication strategies for talking with patients and their support people about lethal means; and

(C) How screening for and restricting access to lethal means effectively prevents suicide.

(4) Content for three-hour trainings must include the following. These are minimum time requirements for each of these topics. Additional time or content must be added to total three hours.

(a) A minimum of seventy minutes on screening for suicide risk. Content must include:

(i) When and how to screen a client or patient for acute and chronic suicide risk and protective factors against suicide;

(ii) Appropriate screening tools, tailored for specific ages and populations if applicable; and

(iii) Strategies for screening and appropriate use of information gained through screening.

(b) A minimum of thirty minutes on referral. Content shall include:

(i) How to identify and select an appropriate resource;

- (ii) Best practices for connecting a client or patient to a referral; and
- (iii) Continuity of care when making referrals.

(c) Three-hour trainings for pharmacists must include content related to the assessment of issues related to imminent harm by lethal means.”

**Health care providers in Washington State.** Data collected from the Washington State Department of Health was used to construct the following table (Table 2.3), which represents the numbers of health care providers with active licensure in their respective fields, as of July 2018 (WSDOH, 2018b). It also identifies the professions for which mandatory suicide prevention training requirement is necessary for licensure. From this data, it is clear that registered nurses make up the majority of the health care work force in Washington State, reflecting national patterns. Registered nurses comprise 21.1% of the total health care work force in Washington. The second most common type of health care license is Nursing Assistant Certification, which accounts for 11.6% of the work force. Currently, there are no suicide prevention training requirements for nursing assistants, despite their high representation. The third most common licensure is Physician and Surgeon License, which makes up 6.1% of the health care work force. The current list is not comprehensive of all types of health care licenses issued in Washington State. It was truncated to accommodate for the majority of license types, and to encompass all types of providers affected by the mandatory training law.

Table 2.3  
*Active Health Care Provider Licenses in Washington State as of July 2018*

<b>Licensure</b>	<b>Active Licenses (N=448,880)</b>	<b>Percent of Health Care Work force</b>	<b>Mandatory training required</b>
Registered Nurse License	94.8 K	21.1%	Yes—6 hours one time
Nursing Assistant Certification	52 K	11.6%	No
Physician and Surgeon License	27.6 K	6.1%	Yes—6 hours one time
Nursing Assistant Registration	22.4 K	5%	No
Medical Assistant Certification	16.3 K	3.6%	No
Dental Assistant Registration	14.8 K	3.2%	No
Massage Therapist License	13.7 K	3.1%	No
Emergency Medical Technician Certification	13.1 K	3%	No
Licensed Practical Nurse	11 K	2.5%	Yes—6 hours one time
Medical Assistant Phlebotomist Certification	10 K	2.2%	No
Pharmacy Assistant License	8,967	2%	No
Pharmacy Technician Certification	8,779	2%	No
Counselor Agency Affiliated Registration	8,545	2%	No
Medical Assistant Registration	8,026	1.8%	No

Physical Therapist License	7,115	1.6%	Yes—3 hours one time
Mental Health Counselor License	7,024	1.6%	Yes—6 hours every six years
Advanced Registered Nurse Practitioner License	6,605	1.5%	Yes—6 hours one time
Radiologic Technologist Certification	6,576	1.5%	No
Dentist License	6,374	1.4%	Yes—3 hours one time
Dental Hygiene License	5,807	1.3%	Yes—3 hours one time
Social Worker Independent Clinical License	4,378	1.0%	Yes—6 hours every six years
EMS Evaluator	4,076	0.9%	No
Pharmacist Preceptor License	3,911	0.9%	No
Physician Assistant License	3,787	0.8%	Yes—6 hours one time
Occupational Therapist License	3,712	0.8%	Yes—3 hours every six years
Veterinary License	3,637	0.8%	No
Surgical Technologist Registration	3,058	0.7%	No
Speech Language Pathologist License	2,928	0.7%	No
Respiratory Care Practitioner License	2,921	0.7%	No

Psychologist License	2,869	0.6%	Yes—6 hours every six years
Chemical Dependency Professional Certification	2,784	0.6%	Yes—3 hours every six years
Paramedic Certification	2,682	0.6%	No
Chiropractor License	2,529	0.6%	Yes—3 hours one time
Physical Therapist Assistant License	2,372	0.5%	Yes—3 hours one time
Veterinary Technician License	2,200	0.5%	No
Osteopathic Physician & Surgeon License	2,088	0.5%	Yes—6 hours one time
Dietitian Certification	1,927	0.4%	No
Mental Health Counselor Associate License	1,823	0.4%	Yes—6 hours every six years
Social Worker Associate Independent Clinical License	1,754	0.4%	Yes—6 hours every six years
Pharmacist Intern Registration	1,690	0.4%	No
Marriage and Family Therapist License	1,689	0.4%	Yes—6 hours every six years
Certified Behavior Technician	1,649	0.4%	No
Optometrist License	1,627	0.4%	No
X-Ray Technician Registration	1,557	0.3%	No

East Asian Medicine Practitioner License	1,553	0.3%	No
Chemical Dependency Professional Trainee Certification	1,550	0.3%	Yes—3 hours every six years
Naturopathic Physician License	1,409	0.3%	Yes—6 hours one time
Physician and Surgeon Residency License	1,333	0.3%	Exempt
Medical Program Director Delegate	1,235	0.3%	No
Medical Assistant Hemodialysis Technician Certification	1,184	0.3%	No
Veterinary Medication Clerk Registration	1,174	0.3%	No
Occupational Therapy Assistant License	1,150	0.3%	Yes—3 hours every six years
Advanced Registered Nurse Practitioner Anesthetist	1,025	0.2%	Exempt

\*Note: This list has been truncated to include professions with the highest numbers of active licenses and professions affected by the mandatory training requirement

### **Suicide Prevention Training in Health Care**

Previous research examining health care utilization patterns of individuals in the one year and one month prior to death by suicide reinforces the need for adequate suicide prevention training of health care professionals. A significant percentage of individuals visit primary care



providers in the month prior to suicide, with estimates of visits from around 45% of those who go on to die (Ahmedani et al., 2014; Luoma et al., 2002). Over 60% of those die by suicide interacted with the health care system for primary care or medical specialty care in the one year prior to death (Ahmedani et al., 2014; Luoma et al., 2002; WSDOH, 2016). This data establishes primary care and other health care settings as possessing prime opportunities to identify risk and intervene to prevent suicide. One strategy considered for increasing the use of suicide screening tools in primary care and other medical settings is incorporating assessment tools into the electronic medical record (Ahmedani et al., 2014). Additionally, investment in training health care providers to identify individuals at-risk for suicide and provide appropriate referral and treatment is paramount to prevention efforts. Studies show that health care providers who receive training feel increasingly competent at assessing, working with, and treating individuals at-risk for suicide (Ahmedani et al., 2014; Graham, Rudd, & Bryan, 2011; Rutz, 2001). Barriers to performing suicide assessment and treatment in the clinical setting include the absence of clear processes in response to positive suicide risk screens, competing demands on providers, complexity of managing patients' co-morbidities, and reluctance of patients to engage in treatment (Ahmedani et al., 2014). Addressing these barriers in a suicide prevention training program and in the systems that providers function in is important for increasing health care providers' ability to assess, engage with, and appropriately respond to at-risk individuals.

**Suicide prevention training for nurses.** Nurses comprise the largest group of professionals in the health care workforce and are employed in highly diverse settings. As a result, they have multiple opportunities in their interactions to assess for suicide risk and intervene when necessary. Previous research has uncovered evidence that education in identifying and treating depression and anxiety, mental health diagnoses associated with

increased suicide risk is a useful strategy for suicide prevention (Ferguson et al., 2018; Van der Feltz-Cornelis et al., 2011). Education for nurses, specifically on suicide prevention, has been associated with improvements in nurses' knowledge, competence, and attitudes; particularly those working in general medical settings (Bolster, Holliday, Oneal, & Shaw, 2015; Ferguson et al., 2018). Currently, there are no national nursing educational standards for the assessment, evaluation, treatment, and referral of patients at risk for suicide (Betz et al., 2013; Khubchandani, Wiblishauser, Price, & Thompson, 2011). As a result, many nurses may feel unprepared, due to limited training, to respond to suicidal ideation or behaviors. A recent survey of nurses gathering qualitative and quantitative data on perceived barriers to talking about suicide, suicide awareness, and suicide prevention training needs. The identified barriers to conversations about suicide included lack of time and resources, lack of skills, training and knowledge, access to services, and stigma (Rebair & Hulatt, 2017). The nurses identified training and education to increase skills while in practice and in school as necessary for improving knowledge on suicide prevention (Rebair & Hulatt, 2017). They also identified support from the organizations that they work for and from colleagues as necessary for increasing suicide awareness and prevention (Rebair & Hulatt, 2017). Some specific examples of support included debriefs, supervision, knowledge of resources, mandatory training, reduction of stigma, compassion, and understanding.

A literature review evaluating the current state of suicide prevention training for nurses identified four themes across studies: 1) beliefs and attitudes of nurses; 2) lack of education in suicide prevention for nurses; 3) training programs for nurses; and 4) examples of successful training programs (Bolster et al., 2015). The review identified level of education, religious beliefs, and past experiences of suicidal patients as influential on nurses' beliefs and attitudes

toward patients at risk for suicide. Negative attitudes expressed toward suicidal patients such as apathy (Staines, 2010), hostility, and absence of empathy (Berlim, Perizzolo, Lejderman, Fleck, & Joiner, 2007) may be attributed to knowledge deficits and limited training, all of which impair quality of care and outcomes of suicidal patients (Neville & Roan, 2013). Consistent with rationale of limitations in knowledge and experience, negative attitudes are more likely to be exhibited among health care providers that do not specialize in psychiatric nursing (Valente, 2011). Attitudes toward suicide influence health care providers' willingness and abilities in screening, prevention, and referral to treatment (Anderson & Standen, 2007). Patient perceptions of negative attitudes from nurses toward suicide have been found to contribute to feelings of hopelessness, rejection, and worthlessness (Osafo, Knizek, Akotia, & Hjelmeland, 2012); which, as previously discussed, are precipitating factors in the progression from suicidal ideation to behaviors, according to the IPTS, IMV, and IAF (Anestis et al., 2017). Nurses identified not knowing how to respond to a suicidal patient as a barrier that leads to silence due to discomfort, fear of saying the wrong thing, and/or worry about making patients feel worse (Valente, 2011). Viewing suicide as an event which is not preventable is also an attitude that prevents health care providers from efforts to identify and respond to patients (Betz et al., 2013; Bolster et al., 2015).

There are several different types of suicide prevention training programs available for nurses and health care providers. Although increased knowledge and experience can positively influence interactions and care of patients at risk for suicide, variation in training content can create limitations, especially in evaluation of the effectiveness of programs (Ferguson et al., 2018). Evidence supports that suicide prevention training can positively influence attitudes, confidence, comfort, knowledge, enhance belief in the value of training (Matthieu, Cross, Batres, Flora, & Knox, 2008), build suicide risk assessment skills, and increase willingness to apply

skills in practice, especially in the short-term (Chan, Chien, & Tso, 2009; Ferguson et al., 2018; Jones, 2010; Tsai et al., 2011). Training that highlights vulnerable groups with higher risk for suicide is an important component of suicide prevention that may not be consistent across programs. One study recommends that essential suicide prevention content for nurses should incorporate interview skills for identifying suicidal intent and communication techniques to gather information (Palmieri et al., 2008). In a comparison of two different types of gatekeeper trainings for nurses, it was found that attitudes changed as a result of training and that this had a constructive impact on abilities in suicide assessment (Chan et al., 2009; Jones, 2010; Osafo et al., 2012; Tsai et al., 2011). Overall, studies have found that on-going training is necessary for refreshing and maintaining skills.

**Suicide prevention training pre-licensure.** Currently, there are no mandated educational requirements enforced by nursing accrediting bodies, such as the Accreditation Commission for Education in Nursing (AECN) or the Commission on Collegiate Nursing Education (CCNE), for suicide prevention training to be included as part of nursing program curriculum (Betz et al., 2013; Khubchandani et al., 2011). A descriptive, qualitative study conducted among undergraduate nursing students evaluated the attitudes and responses of students when the QPR (question, persuade, and response) suicide prevention training was incorporated into the psychiatric nursing curriculum (Pullen, Gilje, & Tesar, 2016). An overarching theme from the data was that as a result of the training, students felt more capable of intervening with persons at risk for suicide. The attitudes towards training were positive and students reported feeling empowered to implement interventions to prevent suicide. It has been recommended by previous researchers that evidence-based suicide prevention training is made mandatory and accessible for nurses pre- and post-licensure.

**Training formats: In-person versus online.** In order to accommodate mandatory training requirements, the availability of formats that increase accessibility to training is important for feasibility. A question that arises is the comparability and effectiveness of in-person versus online training formats. In-person learning formats may confer advantage due to opportunities to ask questions in real-time, as well as opportunities to practice and demonstrate skills with peers (Magruder et al., 2015). A randomized controlled trial that examined health care providers' learning outcomes in in-person and online learning formats offers insight to address issues of comparability. In the study, the suicide prevention training program, Collaborative Assessment and Management of Suicidality (CAMS) was offered in both in-person and online formats to mental health providers at the Veterans Health Administration (Magruder et al., 2015). As a result of the study, participants in both the in-person and online formats, exhibited significant improvement as a result of the training. Measurements of the learning outcomes of health care providers in the online and in-person formats were not significantly different across conditions. This study supported the premise that in-person and online suicide prevention training formats were comparable in achieving the intended learning outcomes.

**Impact of training on practice.** According to Smith, et al. (2014), the Theory of Planned Behavior predicts that increasing awareness of suicide through knowledge on facts, risk and protective factors, and interventions for prevention may help increase knowledge, confidence, and the subsequent likelihood that an individual will act upon their knowledge (Smith, Silva, Covington, & Joiner Jr, 2014). By increasing health care providers' knowledge of suicide statistics, risk and warning signs, interventions, and resources, it is anticipated that increases in engagement with suicide prevention activities and behaviors, such as assessment and referral, will result.

One suicide prevention training program for nurses, delivering 18 hours of content and incorporating reflective learning practices, yielded statistically significant changes in attitudes and competence after training (Chan, 2008). Qualitative responses indicated that they had applied their learning into practice after the training. Their awareness of suicide was increased, and they endorsed greater comfort in working with suicidal patients. The educational program allowed them to identify barriers in their current work settings that prevent them from applying training to practice to the best of their abilities, such as lack of a protocol in their work place, inadequate support from senior staff, and insufficient staff.

Feasibility of universal screening of patients was established in a study of the implementation of universal suicide screening protocols in multiple emergency departments. In this setting, providers did not receive mandatory or structured suicide prevention training, yet it was found that the protocol increased the rates of nurses screening patients for suicide risk (Betz et al., 2015). However, beliefs regarding the potential to prevent suicide did not improve as a result of the implementation. Health care providers did report increased confidence in administration of brief risk assessment tools, and more patients were asked about access to firearms. When initial assessments indicated risk and required more in-depth assessments, providers were less confident with further assessment and care.

In one study, a 6-hour suicide prevention training conducted by psychiatrists and delivered to medical and surgical nurses resulted in positive changes in attitudes toward suicidal behavior after the training and in a 6-month follow-up (Botega et al., 2007). Given the relationship between attitudes, knowledge, and skills on suicide prevention, these long-term effects after a brief intervention appear promising for sustaining the effects of suicide prevention training.

**Conclusion**

Suicide is a pervasive, yet preventable problem in society with considerable social, relational, emotional, and economic ramifications. In the United States, several efforts have been made to establish standards for improving care of suicidal individuals to prevent suicide. Among these strategies are ways to build the knowledge and capacity of health care providers, particularly nurses, to respond to individuals at risk for suicide. Previous research demonstrates the efficacy of suicide prevention training programs. Washington State is embarking on new territory through mandatory suicide prevention training requirements for health care professionals most likely to come into contact with individuals at risk. Continued evaluation of the effects of mandatory training affecting several health care providers is important for monitoring the impact of new legislation in preventing suicide.

## **Chapter 3. Methods**

The purpose of the study was to examine the effectiveness of mandatory suicide prevention training on nurses' knowledge, to identify relevance to current practice, and to assess training satisfaction. Achieving these goals will provide insight into proximal outcomes of recent legislation designed to address the assessment, treatment, and management of suicide through mandatory education for nurses and other health care providers. These efforts are anticipated to contribute to the overarching goal of yielding subsequent long-term impacts on suicide rates. To gain a robust understanding of the impact of suicide prevention training in a sample of nurses, both quantitative and qualitative methodologies were employed to evaluate effectiveness, relevance, and satisfaction. Quantitative methods were used to measure suicide prevention knowledge before and immediately after the training, as well as to measure survey participants' satisfaction with the training content and delivery. Qualitative approaches were used to gather information about relevance of the training content to practice, elicit reflections on the training, and identify examples of how the training content was applied in clinical practice.

### **Study Design**

The present study uses a cross-sectional, two-group, pre-test/post-test design to evaluate the effectiveness of an in-person or online six-hour educational intervention in increasing nurses' competency in the assessment, treatment, and management of suicide. A short, multiple-choice test was administered to assess suicide prevention knowledge before and after the training. Survey questionnaires were administered to elicit perceived relevance of educational content on nurses' practice, assess satisfaction with the training, and identify examples of how nurses applied new knowledge in the clinical setting shortly after the training. Content analysis was



used to analyze the online, typed responses of how the course content applies to practice and examples of how participants applied the content to practice shortly after the training.

### **Study Sample**

The population of interest in this study was registered nurses in Washington State affected by the mandatory suicide prevention training requirement. According to the Washington State Department of Health, as of July 2018, the total number of registered nurses with active licensure in Washington State was approximately 94,800 (WSDOH, 2018b). Registered nurses are the largest population of health care providers in the state, comprising 21.1% of the total health care workforce.

Participants enrolled in the in-person training sessions from September 2016 to October 2017 were included in the study (total n=465). Participants enrolled in the online training sessions during the period November 2016 to February 2018 were included in the study (total n=1,642). The number of participants with at least one missing test was 370 (85% complete cases, 15% missing cases). The number of missing cases was greater than 5% of the sample. Given the large size of the total sample, the decision was made to omit the missing pairs from the analysis. Multiple imputation was not pursued due to the cross-sectional nature of the data, and insufficient availability of information upon which to infer relationships between the missing values. The number of participants with complete pre- and post-test pairs collected from the sample and included in the final analysis was 2,107. All data from complete pre- and post-test pairs on the knowledge test were analyzed, without pairwise deletion.

Enrollment in the training was not restricted to individuals with registered nurse licensure. Health care roles represented among the participants included the following: administration and management, case manager, certified nurse midwife, clinical nurse specialist,

counselor, educator, licensed practical nurse, naturopathic physician, registered nurse, nurse practitioner, physical therapist, physician, physician assistant, retired, social worker, medical assistant, psychologist, and other. Training was mandatory for Washington State registered nurses, licensed practical nurses, naturopathic physicians, nurse practitioners, physical therapists, physicians, physician assistants, psychologists, and social workers, to complete their licensure requirements per the Washington State Department of Health (WSDOH, 2018c). The health care providers enrolled in the training represented over 40 different health care specialties.

Participants were employed by a variety of entities and selected the University of Washington Continuing Nursing Education (UW CNE) training program from several available options approved by the Washington State Department of Health, to complete their licensure requirement.

The evaluation survey with quantitative questions about training satisfaction and a qualitative prompt were completed in online format for both the in-person and online participants. The total number of respondents to the evaluation survey was relatively high due to the requirement to complete the evaluation in order to receive the training certificate of completion. Evaluation survey responses were obtained from a total of  $n=2,088$  participants; Online  $n=1,452$ ; In-person  $n=636$ .

Respondents to the optional qualitative prompt for the “ah-ha!” reflection and examples of application to practice included both in-person and online participants. The total number of participants was  $n=51$ ; online participants  $n=30$  and in-person participants  $n=21$ .

### **Human Subjects**

This study was approved by the University of Washington Institutional Review Board in January 2018, prior to acquisition of the data and data analysis. The investigator of the current

study was not involved in the data collection process. The data received from the UW CNE office was de-identified to ensure participant confidentiality, and consent was not required for this study.

### **Recruitment**

Subjects were selected using convenience and non-probability sampling, based on their availability. The suicide prevention continuing education session was advertised by UW CNE using emails and postcards. Information about the training was disseminated via postal mail, planning committee members, advisory committee members, organizations, and previously established email lists. Information was posted on the UW CNE website and sessions were promoted at various CNE conferences. The intended audience for the conference included the following: registered nurses, advanced practice nurse practitioner, community and public health nurses, nurse educators, licensed practical nurses, physicians, physician assistants, occupational therapists, social workers, counselors, community members, and other interested health care professionals.

### **Data Collection**

All of the data was collected prior to the initiation of this study. Data collection was completed by instructors and staff of the in-person suicide prevention training sessions. There was no standardized manual to guide the data collection. The data collection procedures varied for the in-person and online training. At the in-person sessions, the participants were instructed to develop unique ID codes that were not linked to personal identifiers. These unique identifier codes were listed on the pre-tests and post-tests completed immediately before and after the training. The completed tests were collected by instructors and UW CNE staff facilitating the in-person sessions. Paper copies of the in-person pre- and post-tests with unique ID codes and no

participant identifiers were provided to this investigator, and maintained in a secure, locked cabinet. The pre-test and post-test data from the online training sessions, training evaluations for in-person and online formats, and responses to the “ah-ha!” question, were electronically maintained by the UWCNE. This data was obtained by the investigator in a de-identified format with assistance from the UW CNE program coordinator.

### **Intervention**

The suicide prevention training curriculum was based on the scope of practice for registered nurses. A planning committee of subject matter experts in collaboration with the UW CNE worked to address the requirements for mandatory suicide prevention training content. The educational intervention was developed with the following objectives: 1) describe risk and protective factors influencing suicide risk; 2) discuss facilitators and barriers to implementing suicide prevention measures; 3) demonstrate suicide risk assessment, treatment, and management skills; and 4) apply suicide risk assessment, treatment, and management strategies to case scenarios. The curriculum was submitted to the Washington State Department of Health for approval of the training. After approval, the training was advertised in a variety of formats to recruit participants.

Participants self-selected into the online or in-person version of the 6-hour, suicide prevention training, led by a nurse and social worker. Prior to the educational session, a pre-test consisting of ten questions covering the training content was administered to the participants (Appendix A). In the online version, the participants’ preliminary scores were revealed, without indicating which items were answered correctly or incorrectly. The in-person pre-test was completed in paper format and the participants did not receive any feedback regarding their performance. The training session was then initiated, covering topics related to the assessment,

treatment, and management of suicide. The online version consisted of handouts, videos, case studies, and interactive activities. The in-person session consisted of handouts, didactic lecture, PowerPoint slides, discussion, case studies, and interactive activities. The same handouts were provided to participants in both training formats. Immediately after the training session (either in-person or online), participants were then asked to complete a post-test consisting of the same ten questions administered in the pre-test. The in-person participants completed the pre-test in a paper format and did not receive feedback regarding their scores. The online participants received immediate feedback regarding their scores and were given the opportunity to re-take the post-test multiple times in order to achieve a passing score of 80%.

In the in-person version, the course material was available only in handout form and participants were able to take notes. After taking the post-test, the in-person participants were not immediately notified of their score. Certification was obtained based on completion of in-person attendance and completion of the online course evaluation (Appendix B). There was no minimum passing score from the in-person training in order to obtain certification of completion.

In the online version, the content was comparable to the live content, as the in-person instructors developed the online material, some of which contained videos from portions of the in-person training. The online learners were able to stop and start the training if completing it in one sitting was not feasible. Once the content was made available to the participants, they were able to access the material even after completing the post-test. Online participants were able to take the test as many times as needed to obtain a passing score of 80%, which was a requirement of obtaining certification. The online participants were also required to complete the evaluation survey for the certificate of completion (Appendix B). The online learners had access to the

online course material for 365 days after registration. Both formats were comparable in amount of time required to complete the training.

One week after the in-person conference, all participants, both online and in-person attendees, were asked via online communication from UW CNE to share lessons learned (an “ah-ha!” moment) from the suicide prevention training as it relates to their active nursing practice, as well as how they plan to apply the information learned into their practice. The participants were provided with a textbox in which they could submit a narrative of their experiences and reflections (Appendix C).

**In-person training content outline.** The following topics were covered in the in-person training session in the order below:

- Pre-test
- Suicide and self-injury assessment
- Management: Overview of medications, safety plans, tools and resources
- Treatment including Virtual Hope Box
- Special Populations and Suicide Prevention including U.S. Veterans
- Discussion of:
  - Roles of nursing in suicide prevention
  - Aftermath/Grief
  - Working with an interpreter
  - Cultural considerations
  - Self-directed violence/Self-injury
- Post-test
- Evaluation (Completed online)

**Online training content outline.** The following topics were covered in the online training session in the sequence below:

- Pre-test
- Disclosures review
- Handouts review
- Video tips review
- Introduction video (1 hour and 16 minutes)
- Assessment video (1 hour and 5 minutes)
- Management video (1 hour and 52 minutes)
- Treatment video (29 minutes)
- Other dimensions of importance (1 hour and 15 minutes)
- Post-test
- Evaluation

### **Instruments**

Quantitative and qualitative instruments were used to gather information regarding demographics, changes in knowledge from training, nurses' perceived relevance of training to current practice, training satisfaction, and examples of how nurses applied suicide prevention knowledge to active practice shortly after the training.

**Demographic questions.** Access to demographic information on the participants was limited. The availability of demographic data was variable across the two training delivery formats. This variation is due to differences in what was included by the developers for the online and in-person registration and surveys. The following demographic information was obtained for participants in the online training sessions: highest level of education, health

specialty area, and employment position/profession, and using close-ended questions during the registration and enrollment process. The demographic information available for participants in the in-person training format was highly limited, and the only data available was number of years of health care experience. This data was gathered using a close-ended question included in the evaluation survey at the end of the training. There was no data available on any other demographic variables for the in-person participant sample.

**Knowledge questions.** The survey instrument used to measure Aim 1, regarding participant knowledge of suicide prevention before and after the course, was designed by a doctoral-level nurse and a master's-prepared social worker who provided training in the in-person sessions. Both are subject matter experts in the area of suicide prevention and training. The instruments were designed specifically for the training, and face validity has been established. The representativeness of the knowledge questions included in the pre- and post-test instrument was determined by the aforementioned subject matter experts on suicide prevention. The actual instrument used to evaluate participants' pre- and post- test knowledge on suicide prevention is available in Appendix A.

The quantitative measures used to evaluate competency were administered in the format of a short test, consisting of ten multiple choice questions covering the content of the education session. The participants were provided with the same ten questions after completion of the educational content. Test scores after training were used as outcome measures to indicate the effect of the training program on participants' knowledge. The outcome of participants' knowledge was evaluated by comparing the responses to the ten knowledge assessment questions in the pre-test and post-test conditions.



After completion of the training, participants were required to complete a survey evaluating application of the content to practice and satisfaction the training. This data provided quantitative data for measuring satisfaction. The survey questions addressed the online and in-person instructors' effectiveness in teaching following five sections of content covered in the training: 1) context, assessment, and vocabulary; 2) suicide risk assessment; 3) suicide risk management including review of medications, safety planning, tools, and resources; 4) treatment, including lethal means and virtual hope box; and 5) other dimensions of importance.

**Training satisfaction questions.** The questions used to address Aim 2 of the study, regarding training satisfaction, were incorporated in the final course evaluation at the end of the training. These questions measured participants' subjective assessment of course satisfaction and were developed by the UW CNE. They are standardized evaluation measures adapted for the training, using a Likert-type response scale. The five survey questions for rating teaching effectiveness of the five content areas and one question regarding overall assessment of the training were rated on a 5-point scale (1=poor to 5=excellent). Four questions evaluating how well the course content met the learning outcomes was rated on a 3-point scale (1=not met to 3=very well). Some of the evaluation questions are used in compliance with the American Nurses Credentialing Center (ANCC) requirements. The instrument used to measure participants' subjective evaluations of the course is available in Appendix B.

**Application to practice question.** The evaluation survey included an open-ended question inviting participants to "Give one example of content presented at the conference that you will apply in practice." This question was part of the standard course evaluation measures used by UW CNE for all continuing nursing education training programs offered. This prompt was included in both the in-person and online survey administered immediately after completion

of the training. Participants were able to provide narrative text responses with no length restrictions, in response to this question.

**Practice example question.** This qualitative prompt addresses Aim 3 of the study, to explore themes of nurses' reflections and application of the content to clinical practice after the training session. An email message was sent to participants inviting them to submit a practice example, one week after completion of either the in-person or online training. The prompt was developed by the UW CNE staff and course planning committee, consisting of nurses and social workers specializing in education and suicide prevention. Respondents were provided with a text box in which they could provide a narrative response to the standard CNE question, with no length restrictions. A screenshot of the email message and "ah-ha!" prompt can be found in Appendix C.

### **Data Analysis**

The data collected consisted of quantitative data obtained from multiple choice close-ended questions, and qualitative data obtained from electronic text responses to open-ended questions.

**Overview of quantitative analysis.** Quantitative statistical analysis was conducted using IBM SPSS software version 25. The data for the knowledge test was reviewed for complete sets of pre-test and post-test pairs. Only complete test pairs were included in the analysis.

A series of t-tests, comparing pre-test and post-test responses to the suicide prevention knowledge questions, was conducted. First, the comparability of online versus live training was tested using independent t-tests. A fixed effects model with interaction for format (online vs. in-person) and time (pre-test vs. post-test) test-score as dependent variable was used to further evaluate the comparability of in-person and online formats while accounting for unobserved

confounders. The formats were not found to be different, and the analysis moved on to evaluate the effectiveness of the educational session in increasing nurses' competence related to the training overall, and in respect to each of the four content domains. A paired t-test comparing the effectiveness of the in-person versus online training was conducted to compare the two groups. A subgroup analysis of difference in means was performed according to type of health care specialty and profession, to determine if there was variation in knowledge across nursing specialty or health care role. A descriptive analysis illustrating frequency responses was used to assess participants' responses on the Likert-scale questions regarding training satisfaction. All statistical tests conducted in the study involved a 95% confidence interval. Finally, ATLAS.ti software was used to perform content analysis in identification of emergent themes in the questions about content applicability to practice, reflections on training, and examples of how participants applied content to clinical practice.

***Knowledge test analysis.*** In the knowledge test analysis, overall post-test performance from the in-person and online test were compared using independent t-tests. Performance on individual question items for both the in-person and online questions was also assessed using descriptive analysis. A subgroup analysis of test performance based on available demographic factors (highest level of education, health specialty area, and health care role) for online training participants was performed as well. Subgroup analysis of test performance for participants in the in-person training was not possible due to limitations in access to demographic information for this group.

The test questions assessing knowledge were grouped into four main domains. These domains surfaced based on overarching themes in the intended competencies for nurses, and are described below:

Domain 1: Role of nurses in prevention, addresses the role of nurses in suicide prevention, which corresponds to scope of practice content delivered in this nursing-specific training program. The content of these questions define the specific role of nurses in suicide prevention.

Domain 2: Talking about suicide pertains to knowledge on how talk about suicide and the content covered in the training on standardized nomenclature and using neutral language to minimize stigma. The first question in this domain is intended to assess for recall of vocabulary recommended by subject matter experts from the CDC, to use when describing and documenting in clinical records about suicide to improve the assessment, monitoring, and research of suicidal ideation, behaviors, and deaths. The second question addresses non-judgmental prompts that can be used to elicit thoughts about plans for suicide clinical assessments.

Domain 3: Indicators of suicide risk includes questions that assess knowledge on indicators for suicide risk. The questions included in this domain ask: “True or False: For approximately 25% of individuals, the time elapsed between making a decision to end one’s life and actually making a suicide attempt is 5 minutes or less,” “True or False: In the United States, 10 Veterans die by suicide each day,” and “IS PATH WARM is an acronym used to remember important suicide risk warning factors. What does the “H” stand for?” The first question in this domain indicates that impulsivity is a significant risk factor for death by suicide. The second question acknowledges the high risk for suicide associated with Veteran status. The last question included in this domain assesses participants’ knowledge of warning signs for suicide, for which the presence of can indicate greater risk for suicide.

Domain 4: Interventions for patient and family, describes interventions that nurses can implement for patients and their families to promote suicide prevention. The first question of this

domain addresses one of the main components of the suicide prevention training program, of discussing the difference between a no-harm contract and a safety plan, and practicing using the safety plan tool to gain familiarity of its contents. The second question requires critical thinking and knowledge of appropriate situations in which to use the safety plan. The final question addresses how to provide postvention support for friends and families who survive a suicide loss, as they can be at increased risk for suicide as well.

Grouping the knowledge questions into main themes provides insight into which areas of the training may require additional emphasis for improving competency in future curriculum.

***Evaluation survey analysis.*** Quantitative statistical analysis was conducted on the ordinal Likert-scale data collected from in-person and online participants in their ratings of effectiveness and satisfaction with the training content. There were two different scales used on the survey. Five of the survey questions rated teaching effectiveness of the educational content areas and one question rated overall assessment of the training using a 5-point scale (1=poor to 5=excellent). The four questions evaluating how well the course content met the learning outcomes were rated on a 3-point scale (1=not met to 3=very well). In the in-person training group, the evaluation survey gathered descriptive data on participants' number of years of health care experience using a close-ended question.

**Overview of qualitative analysis.** Qualitative data analysis of the online and in-person participants' electronic narrative responses to open-ended questions was conducted using ATLAS.ti software version 8.2.3. Content analysis was used to identify themes in participants' electronic responses regarding plans to apply the knowledge to their practice, reflections on lessons from the training ("ah-ha!" moments), and actual examples of applying the course

content in clinical practice. This data provides information on participants' self-efficacy as it relates to employing the knowledge gained into practice.

***Content analysis.*** Qualitative content analysis involves analysis of the content of data in narrative format, with the goal of identifying themes and patterns that occur among themes (Polit & Beck, 2011). It allows for subjective interpretation of the data through the development of a classification system that generates meaning through themes (Hsieh & Shannon, 2005). This qualitative data analysis method has grown increasingly popular among health sciences researchers due to the flexible nature of this approach (Hsieh & Shannon, 2005). Content analysis involves breaking narrative data into units, coding and naming the units based on commonalities in the data, then pooling together coded data based on shared concepts. There are five types of units that narrative data can be categorized into: physical, syntactical, categorical, propositional, and thematic. Physical units relate to the time, length, or size of the data. Syntactical units are based on grammatical structures such as words, sentences, and paragraphs. Categorical units are determined by membership to categories. Propositional units are defined based on constructions, such as propositions. Thematic units are defined based on themes; thematic units are most relevant to the approach for coding in this study. Three approaches to content analysis that have been identified in available qualitative studies, include: conventional, directed, and summative approaches. Conventional content analysis is appropriate when the purpose of a study is to describe a phenomenon, and from this approach, categories arise from the data. Data is reviewed by the researcher to derive codes, notes are made to capture key concepts, and an initial coding scheme is formed. Codes are then organized into categories based on how they are related and linked, and these categories are used to organize codes into meaningful clusters of data. Conventional analysis is the approach applied in the current study to

understand nurses' responses to mandatory suicide prevention training and intentions to apply the training to practice.

Topic/thematic and in vivo coding processes were used in the primary analysis of data gathered from the evaluation survey question prompt asking participants to give an example of content they plan to apply in practice ("Give one example of content presented at the conference that you will apply in practice"). From the primary codes, a second cycle of pattern coding was employed to lump data, then themes were discerned from the patterns that emerged.

Topic/thematic coding was also used for the primary analysis of "ah-ha!" reflections which captured lessons learned from the training and provided practice examples one-week after the session. From the primary codes, a second cycle of pattern coding was used to lump together similar responses, leading to generation of overarching themes from the data. For both sets of qualitative data, a codebook was generated after primary and secondary coding cycles.

***Quality and validity.*** A quality-enhancement strategy used in the coding, analysis, and interpretation of the qualitative data was triangulation. Investigator triangulation was employed through the assistance of a second researcher to review the coding and analytic decisions. This approach was adopted in order to reduce the risk of biased decisions and idiosyncratic interpretations of the data (Polit & Beck, 2011). The coding decisions between the two researchers were compared using peer debriefing to address possible errors, omissions, and adequate portrayal of the phenomenon, and to ensure identification of all important themes and logical flow between the relationships of themes and interpretation.

Due to the inability to link the quantitative data results on the knowledge test to the qualitative responses, the ability to evaluate the data for validity was restricted. According to Whittemore and colleagues (2001), primary criteria for establishing validity in qualitative inquiry

are: credibility, authenticity, criticality, and integrity (Polit & Beck, 2011; Whittemore, Chase, & Mandle, 2001). Credibility is evaluated post hoc by asking whether the research results reflect participants' experiences and context in a believable way, and whether adequate verification procedures were used. Having access to linked test performance and qualitative data could offer the ability to evaluate credibility based on responses to how participants planned to, and actually applied, the content to practice. Authenticity was difficult to establish because the open-ended questions were not developed by the researcher, and measures to ensure representation of participants' realities in the prompts was not known. Establishing criticality requires evidence that inquiry involved critical appraisal of key decisions and self-reflection. Criticality was addressed by the current researcher by testing coding decisions and analyses with review and comparisons by a second researcher. The integrity of the content in the data was maintained by using in vivo coding to capture the intentions and meanings embedded in participants' responses. Integrity was also supported through the assistance of a peer reviewer.

***Survey response analysis.*** Responses to the open-ended qualitative prompts were obtained in a raw, de-identified Excel spreadsheet file from the UW CNE program coordinator. All responses were in an electronic format, taken directly from typed answers participants submitted on the UW CNE website. The Excel spreadsheet was imported to ATLAS.ti for data organization, management, coding, and analysis. Quotations from participants indicating preference to keep their responses to prompts private were excluded from the results section. The conventional content analysis approach was used to understand nurses' perceived relevance of the mandatory suicide prevention training, intentions to apply the training to practice, and ways in which they did apply the new knowledge to clinical practice. Thematic units were extracted from the qualitative responses in the primary coding process. The units were then grouped into



categories based on patterns and relationships that emerged from the codes. From these categories, themes were identified to shape the understanding of the perceived and actual impact of the mandatory suicide prevention training on nurses' practice. The codebooks generated from the primary and secondary coding processes were reviewed by a second researcher to promote validity in the analysis, until consensus was achieved.

## Chapter 4. Results

Final data analysis of pre- and post-test scores on the suicide prevention knowledge test was completed on complete data pairs only. The total number of responses included was 2,107 (465 in-person; 1,642 online). The final analysis of the evaluation survey results included responses from 2,088 participants (636 in-person; 1,452 online). The number of participants that provided responses to the qualitative “ah-ha!” prompts was 50 (21 in-person, 29 online).

### Basic Demographics of Study Participants

The availability of demographics for participants was highly limited in this study. Development of the registration process and survey did not involve the current researcher. Access to basic demographic information was not possible. The data that was collected had inconsistencies across the two training formats. In the in-person training, the only available demographic data was related to the number of years of health care experience of participants. This information was not collected from the online training participants. In the online training, demographic data collected included: highest level of education, health specialty area of online learners, and current employment positions. While this data is limited, a strength is that there were more online than in-person participants, and there is more demographic data available for the online group.

A total of 2,477 participants completed at least one of the suicide prevention knowledge pre- or post-tests in either the in-person (n=553) or online (n=1,924) training. The number of participants with complete pre- and post-test pairs collected from the sample and included in the final data analysis was 2,107 (465 in-person; 1,642 online). There was a total of 370 incomplete pre- and post-test pairs (88 in-person; 282 online), accounting for 15% of the total sample (Table 4.1).

Table 4.1  
*Complete and Missing Data from Sample*

	<b>Both Tests Complete</b>	<b>One or More Incomplete Tests</b>
<b>In-person (n=553)</b>	465 (84%)	88 (16%)
<b>Online (n=1924)</b>	1642 (85%)	282 (15%)

In the online training, 1,061 (62%) participants who completed the knowledge pre- and post-tests identified as members of the nursing profession. The number of nursing participants in the in-person training that completed the pre- and post-tests is unknown as this data was not collected. Due to uncertainty regarding the true demographic of nursing representation in the sample, all responses were included in the analysis of overall performance on the knowledge test post-training. Additional analyses stratifying performance by profession, education level, and health care specialty were subsequently performed, to better understand how nurses performed compared to other professions.

The evaluation survey was completed by a total of 2,088 participants (n= 636 in-person; n=1,452 online). There was a discrepancy in the number of participants who completed at least one of the knowledge tests in the in-person training and the number of training evaluations received. Eighty-three additional participants who completed the necessary evaluation to obtain a certificate of completion did not complete the pre- and post- knowledge test. In the online training, the reverse pattern manifested, and participants who completed at least one pre- or post-test outnumbered those who completed the evaluation survey. Evaluation data was missing for 472 of the online participants, even though they had completed at least one pre- or post-test. Among the online participants who had completed both the pre- and post-test, 282 evaluation surveys were missing.

One week after completion of the training, all participants received an e-mail inviting them to share an “ah-ha!” response or practice example of how they applied the suicide prevention education into their practice. Responses were received from 2.4% (n=51) of the sample and n=50 responses provided enough information to be included in the qualitative analysis. There was no demographic information available for these qualitative responses, apart from whether participants had completed the in-person (n=21) or online training (n=29). Limitations in information access restricted the ability to triangulate qualitative responses with performance on the pre- or post-tests.

### **In-Person Training Participant Demographics**

**Level of health care experience.** Individuals with high levels of experience in health care were well-represented in the in-person training session (Table 4.2). The majority of participants attending the in-person training had more than 30 years of experience in health care (n=238; 37%). Attendees with 11-20 years of health care experience also represented a large portion of in-person participants, comprising 21% of attendees (n=136), as did participants with 21-30 years of experience (n=125; 20%). Attendees with 6-10 years of experience (n=77; 12%), and 2-5 years of experience (n=45; 7%) were the next largest groups. Participants with less than two years of experience were the minority at the in-person sessions (n=15; 2%).

Table 4.2  
*Health Care Experience Among In-Person Participants*

<b>Level of experience in health care</b>	<b><i>n</i></b>	<b>%</b>
Less than two years	15	2
2-5 years	45	7
6-10 years	77	12
11-20 years	136	21

21-30 years	125	20
More than 30 years	238	37
Total	636	

Note: Health care experience among online participants was not available

### Online Training Participant Demographics

**Highest level of education.** In the online training session, individuals with bachelor's degrees were the majority, representing 36.3% (n=596) of participants (Table 4.3). The next largest group had master's degrees (n=350, 21.3%). The group of participants that selected Other as their education (n=244; 14.9%) and those with an Associate Degree in Nursing (n=234; 14.3) were similar in size. A small group of participants did not provide a response for the highest level of education that they had obtained (n=95; 5.8%). The smallest groups represented in the online sample were those with Doctorates (n=71; 4.3%) and Nursing Diplomas (n=52; 3.2%).

Table 4.3  
*Highest Education Level of Online Learners*

<b>Highest Level of Education</b>	<b><i>n</i></b>	<b>%</b>
Associate Degree in Nursing	234	14.3
Nursing Diploma	52	3.2
Bachelor's	596	36.3
Master's	350	21.3
Doctorate	71	4.3
Other	244	14.9
No response	95	5.8
Total	1642	

Note: Highest education level of in-person participants are not available

**Health care roles.** Nearly 97% (n=1,587; 96.7%) of online participants identified only one employment position that they worked in (Table 4.4). A small percentage reported working in two positions (n=49; 3.0%). A very small number listed three employment positions (n=5; 0.1%). Only 0.1% reported working in four positions (n=1). None of the participants reported having five or more employment positions.

Table 4.4  
*Number of Health Care Roles Reported by Online Learners*

<b>Number of roles reported</b>	<b><i>n</i></b>	<b>%</b>
<b>One</b>	1587	96.7
<b>Two</b>	49	3.0
<b>Three</b>	5	0.3
<b>Four</b>	1	0.1
<b>Five or more</b>	0	0
<b><i>Total</i></b>	1642	

The majority of participants in the online sample identified their health care role as one of the nursing-related professions (n=1,061; 62%) (Table 4.5). Among those identifying as part of the nursing-related professions, Registered Nurse (n=810; 47.5%) was the most common. All health professions represented in the sample include: Administration and Management (n=83; 4.9%), Case Manager (n=47; 2.8%), Counselor (n=5; 0.3%), Educator (n=55; 3.2%), Licensed Practical Registered Nurse (n=43; 2.5%), Medical Assistant (n=1; 0.1%), Naturopathic Physician (n=9; 0.5%), Registered Nurse (n=810; 47.5%), Nurse Practitioner (n=187; 11.0%), Other (n=58; 3.4%), Physical Therapist (n=3; 0.2%), Physician (n=4; 0.2%), Physician Assistant (n=2; 0.1%), Psychologist (n=1; 0.1%), Retired (n=8; 0.5%), and Social Worker (n=1; 0.1%). From this

available data, 62% (n=1,061) participants specifically identified a nursing-related position in their response (Certified Nurse Midwife, Clinical Nurse Specialist, Licensed Practical Nurse, Registered Nurse, and Nurse Practitioner). Professions for which it is not clear whether the respondent is a nurse or non-nurse, such as Admin/Management, Case Manager, Counselor, Educator, and Retired, account for 11.7% (n=198) of participants. In the sample, non-nurses (Naturopathic Physician, Other, Physical Therapist, Physician, Physician Assistant, Social Worker, Medical Assistant, and Psychologist) represented 4.6% (n=79) of the sample. Furthermore, a significant proportion, 21.5% (n=366), did not provide a response identifying their profession.

Table 4.5  
*Health Care Roles of Online Learners*

<b>Health Care Role</b>	<b><i>n</i></b>	<b>%</b>	<b>Health Care Role</b>	<b><i>n</i></b>	<b>%</b>
No response	366	21.5	Nurse Practitioner	187	11.0
Admin/Management	83	4.9	Other	58	3.4
Case Manager	47	2.8	Physical Therapist	3	0.2
Certified Nurse Midwife	8	0.5	Physician	4	0.2
Clinical Nurse Specialist	13	0.8	Physician Assistant	2	0.1
Counselor	5	0.3	Retired	8	0.5
Educator	55	3.2	Social Worker	1	0.1
Licensed Practical Nurse	43	2.5	Medical Assistant	1	0.1
Naturopathic Physician	9	0.5	Psychologist	1	0.1
Registered Nurse	810	47.5			
			<i>Total</i>	1704	

				<i>Missing</i>	1	
				<i>Overall Total</i>	1705	

Note: Health care roles of in-person participants are not available

**Health care specialty areas.** Over 90% (n=1,488; 90.6%) of online participants identified only one health care specialty area that they work in (Table 4.6). A small percentage reported working in two specialty areas (n=67; 4.1%). Less than 2% listed three health specialty areas (n=31; 1.9%). Only 1.4% reported working in 4 specialty areas (n=23). Less than 1% identified as having five specialty areas (n=13; 0.8%). There was also a small group that identified six or more health care specialties (n=20; 1.2%).

Table 4.6  
*Number of Health Specialty Areas Among Online Learners*

<b>Number of specialties reported</b>	<b><i>n</i></b>	<b>%</b>
<b>1</b>	1488	90.6
<b>2</b>	67	4.1
<b>3</b>	31	1.9
<b>4</b>	23	1.4
<b>5</b>	13	0.8
<b>6 or more</b>	20	1.2
<b><i>Total</i></b>	1642	

Online participants were given a list of 39 specialty areas to select from in the demographics section when registering for the training. These specialties included the following: Acute Care, Adolescent Health, Ambulatory Care, Cardiovascular Health, Case Management, College Health, Critical Care/Trauma, Education, Endocrinology, Family Practice, Forensics,



Geriatrics, HIV/AIDS, Home Care, Hospice, I.V. Therapy, Infectious Disease, Labor and Delivery, Long Term Care, Medical-Surgical, Mother/Baby, Neonatal, Neurology, Oncology, Pain, Palliative Care, Patient Education, Pediatrics, Pharmacology, Primary Care, Psych/Mental Health, Public Health, Rehabilitation, Reproductive Health, Rheumatology, School Health (K-12), Staff Development, Women's Health, and Wound Management. There was also an option for Other when participants' specialty areas did not correspond with the available list.

The majority of participants selected the option "Other" in response to specialty area (n=46; 21.1%), indicating that their specialty was not among the available options (Table 4.7). The health care specialty area with the highest number of participants was Acute Care (n=197; 8.9%). The second highest group of participants identified Psych/Mental Health as their specialty area (n=160; 7.2%). Ambulatory Care was the third most represented group (n=130; 5.8%). Critical Care/Trauma and Family Practice were tied for the fourth largest specialty represented in the online training with the same number of participants in both groups (n=100; 4.5%). The next largest specialty was Medical Surgical (n=91; 4.1%). All of the subsequent specialties each accounted for 3% or less of the online participant group.

The considerable proportion of participants identifying "Other" as their specialty introduced ambiguity in the sample demographics. The available data also demonstrates a high level of heterogeneity in the specialties included in the sample. The specialty with the highest representation, Acute Care (8.9%), accounted for less than 10% of the sample. This suggests that the sample was not skewed in favor of one particular health care specialty area, as many of the specialties have low numbers of representation. A small proportion of the online sample identified more than one specialty area (n=154; 9.4%). In order to simplify the analysis process, as the specialties could not be weighted, learners identifying more than one specialty area were

excluded from the subgroup analysis of knowledge test-performance stratified by health specialty area.

Table 4.7  
*Health Specialty Areas of Online Learners*

Specialty Area	<i>n</i>	%	Specialty Area	<i>n</i>	%
Acute Care	197	8.9	Mother/Baby	26	1.2
Adolescent Health	13	0.6	Neonatal	23	1.0
Ambulatory Care	130	5.8	Neurology	18	0.8
Cardiovascular Health	42	1.9	Oncology	35	1.6
Case Management	37	1.7	Other	468	21.1
College Health	8	0.4	Pain	8	0.4
Critical Care/Trauma	100	4.5	Palliative Care	9	0.4
Education	64	2.9	Patient Education	12	0.5
Endocrinology	7	0.3	Pediatrics	60	2.7
Family Practice	100	4.5	Pharmacology	4	0.2
Forensics	5	0.2	Primary Care	44	2.0
Geriatrics	47	2.1	Psych/Mental Health	160	7.2
HIV/AIDS	6	0.3	Public Health	45	2.0
Home Care	42	1.9	Rehabilitation	13	0.6
Hospice	39	1.8	Reproductive Health	9	0.4
I.V. Therapy	6	0.3	Rheumatology	5	0.2
Infectious Disease	8	0.4	School Health (K-12)	65	2.9
Labor and Delivery	27	1.2	Staff Development	17	0.8
Long Term Care	24	1.1	Women's Health	41	1.8

Medical-Surgical	91	4.1	Wound Management	11	0.5
			<i>Total</i>	2066	92.9
			<i>Missing</i>	157	7.1
			<i>Overall Total</i>	2223	

Note: Health specialty areas of in-person participants are not available

**Aim 1. To Examine the Effectiveness of a Suicide Prevention Training for Increasing Participants' Knowledge Related to Assessment, Treatment, and Management of Individuals at Risk for Suicide.**

**Sub Aim 1.1. Is an educational intervention effective in increasing RNs' knowledge related to the assessment, treatment, and management of individuals at risk for suicide?**

The first aim of the present study focused on the effectiveness of the suicide prevention training, using the dependent variable of test score as an indicator for knowledge gained. Aim 1 was as follows: To examine the effectiveness of a suicide prevention training for increasing participants' knowledge related to assessment, treatment, and management of individuals at risk for suicide. There were two sub-aims designated to address this main aim: Sub-aim 1 asked the research question, *Is an educational intervention effective in increasing RNs' knowledge related to the assessment, treatment, and management of individuals at risk for suicide?* Sub-aim 2 asked the research question, *Is there a difference in test performance across education level, specialty area, or position of employment?*

***Performance on knowledge test: Individual item scores.*** Descriptive statistics illustrating the percentage of correct responses for each test item on the pre- and post-test in-person, online, and overall are presented in Table 4.8. Overall performance suggests that there

were considerable gains in knowledge, when examining each test item. When combining performance on in-person and online individual items, correct answers on the pre-test range from 10.4% to 89.5%, and the post-test percentages of correct responses range from 55.4% to 96.4%.

Table 4.8 shows that the in-person group improved in their total percentage of correct responses for 9 out of 10 questions. One question on the needs of suicide loss survivors resulted in a 5% drop in the number of participants obtaining the correct answer, post-training. The positive percentage change in correct responses for the in-person pre-test compared with the post-test ranges from 7.6% to 52.3%. The question item that in-person participants demonstrated the greatest gain in knowledge on, based on percentage change from pre-test to post-test, was the question on the components of a safety plan. The percentage difference between correct answers for this item on the pre-test and post-test was 52.3% (13.1% pre-test, 65.4% post-test). The question with the second most substantial gain in percentage correct was in response to the question on the daily number of deaths by suicide among U.S. Veterans. Comparing the percentage of correct answers on the pre-test and post-test, the difference was 38.7%. The question with the third highest increase in correct responses after the intervention regarded the appropriate next step that nurses should take after suicide risk assessment. After the intervention, there was a 30.8% difference between the percentage of correct responses to this question on the pre-test, compared with the post-test.

Test performance on individual items for the online group improved for all 10 questions, when comparing the percentages of pre-test and post-test questions answered correctly. Unlike the in-person training group, there was an increase in the percentage of correct responses for the question on the needs of suicide loss survivors. The online group exhibited a positive 6% change in correct responses when comparing pre-test to post-test performance. The percentage changes

in correct responses comparing pre-test and post-test questions was similar to the in-person range, at 6.0% to 50.6% for the online group. Overall, the online group had slightly lower changes in scores on individual test items. The question with the greatest percentage difference between pre-test and post-test was the item on daily number of deaths by suicide among U.S. Veterans, which was 50.6%. The second greatest difference in percentage was in response to the question on the components of a safety plan, where 9.7% answered correctly on the pre-test and 52.6% answered correctly on the post-test (42.9% difference). The question with the third greatest difference in pre-test and post-test for the online group was the same as the in-person group, the item about the appropriate next step nurses should take after suicide risk assessment (37% difference between online pre- and post-test scores).

In comparing the in-person and the online test performance on individual items, the greatest gains in performance occurred for the same three test items, albeit in different order. These test items were the following: components of a safety plan, number of deaths by suicide among U.S. Veterans, and the next step after suicide risk assessment.

On the components of a safety plan item, the in-person group started out with a higher percentage answering correctly (13.1% in-person pre-test vs. 9.7% online pre-test), and demonstrated higher gains in percentage answering correctly post-test, compared with the online group (52.3% and 42.9% difference, respectively). A greater percentage of the in-person group answered this question correctly (65.4%), compared with the online group (52.6%). For the item on number of deaths by suicide among U.S. Veterans, the participants in the online group demonstrated greater gains in answering correctly after the training. There was a 50.6% difference between pre- and post-test scores online, compared with a 38.7% difference between pre- and post-test scores in-person. The total percentage of participants in the online group who

answered this item correctly on the post-test was 70.5%, compared with the in-person group post-test performance of 55.4% answering correctly. The question on the next step after suicide risk assessment had the third highest gain in percentage of correct responses for both in-person and online participants. The online participants had a slightly greater difference in scores after training than the in-person group (37% versus 30.8% difference, respectively). However, the total percentage of in-person participants answering the question correctly was 92%, compared with 85.1% online.

**Summary.** Similarities across the two training formats suggest that the content and emphasis of the in-person and online sessions are comparable. The frequency table indicates that the educational intervention yielded increases in knowledge, as measured by a test addressing topics of assessment, treatment, and management of suicide risk, for both the in-person and online training.

Table 4.8  
*Frequency Table for Responses on Knowledge Test*

Test item	Percent of correct responses											
	<i>n</i> (%)	In- person pre- test	<i>n</i> (%)	In- person post- test	<i>n</i> (%)	Online pre- test	<i>n</i> (%)	Online post- test	<i>n</i> (%)	Overall pre- test	<i>n</i> (%)	Overall post- test
Components of a safety plan	458 (98.5)	13.1%	457 (98.3)	65.4%	1636 (99.6)	9.7%	1638 (99.8)	52.6%	2094 (99.4)	10.4%	2095 (99.4)	55.4%
Time between deciding to end life and making an actual attempt	463 (99.6)	67.2%	465 (100)	90.1%	1639 (99.8)	62.6%	1635 (99.6)	84.5%	2102 (99.8)	63.6%	2100 (99.7)	85.8%
Role of RNs in suicide prevention	444 (95.5)	57.0%	451 (97.0)	76.9%	1637 (99.7)	41.6%	1639 (99.8)	73.1%	2081 (98.8)	44.9%	2090 (99.2)	73.9%
True statement about suicide risk treatment	448 (96.3)	89.1%	461 (99.1)	96.7%	1637 (99.7)	84.2%	1634 (99.5)	93.2%	2085 (99.0)	85.3%	2095 (99.4)	94.0%

Needs of suicide loss survivors	456 (98.1)	91.7%	458 (98.5)	86.7%	1635 (99.6)	88.5%	1640 (99.9)	94.5%	2091 (99.2)	89.2%	2098 (99.6)	92.8%
CDC terminology for suicidal behavior	451 (97.0)	64.5%	461 (99.1)	93.5%	1639 (99.8)	63.8%	1640 (99.9)	89.2%	2090 (99.2)	64.0%	2101 (99.7)	90.1%
Daily number of deaths by suicide among U.S. Veterans	460 (98.9)	16.7%	464 (99.8)	55.4%	1637 (99.7)	19.9%	1638 (99.8)	70.5%	2097 (99.5)	19.2%	2102 (99.8)	67.1%
Questions for assessing suicide intent	457 (98.3)	75.9%	460 (98.9)	85.4%	1638 (99.8)	83.6%	1635 (99.6)	90%	2095 (99.4)	81.9%	2095 (99.4)	89.0%
Next step after suicide risk assessment	451 (97.0)	61.2%	460 (98.9)	92.0%	1639 (99.8)	48.1%	1640 (99.9)	85.1%	2090 (99.2)	51.0%	2100 (99.7)	86.6%
Suicide risk warning factors acronym	455 (97.8)	78.0%	464 (99.8)	96.8%	1635 (99.6)	83.9%	1639 (99.8)	96.3%	2090 (99.2)	82.6%	2103 (99.8)	96.4%



**Sub-aim 1.2: Is there a difference in test performance across education level, specialty area, or health care role?**

*Test performance across education, specialty, and role.* To determine if there was a difference in test performance across demographic variables, a series of subgroup comparisons were performed on the pre-test, post-test, and score change means. Demographic information on highest level of education, health care specialty area, and health care role were collected from the online participants only. The subgroup analyses are restricted as they only represent one training format.

*Test performance by highest level of education (online participants only): pre-test.* The highest level of education for the majority of participants in the online training group was a Bachelor's degree (n=595; 36.3%) (Table 4.9). The participants with the highest pre-test mean scores were those with a Nursing Diploma ( $6.13 \pm 1.46$ ). Individuals with this level of education also had the smallest group in the sample (n=52, 3.2%). The group of participants with the second highest performance on the baseline suicide prevention knowledge test, were those with Master's degrees ( $5.9 \pm 1.49$ ). Individuals who did not provide a response regarding their education level had the lowest mean pre-test scores ( $5.53 \pm 1.42$ ).

*Test performance by highest level of education (online participants only): post-test.* The education group with the highest post-test scores after online training, were those who did not provide a response regarding their highest education level ( $8.47 \pm 1.17$ ). This group was fairly small, (n=95; 5.8%). The second highest performing group was the group who selected "Other" as their highest level of education ( $8.31 \pm 1.35$ ). The ambiguity of the education level of these first two groups provides limited information on the relationship between education level and test performance after the training. The third highest performing group were those with

Bachelor's degrees ( $8.30 \pm 1.42$ ), which represent the largest group in the sample ( $n=595$ ; 36.3%).

***Test performance by highest level of education (online participants only): change in score.*** The relationship between mean change in scores and education is similar to the findings for mean post-test scores. The greatest mean change in score ( $2.94 \pm 1.61$ ) was observed among participants who did not respond to the highest education level question (Table 4.9). The second highest mean change scores occurred in online participants with "Other" education ( $2.58 \pm 1.79$ ). The education group with the third greatest mean change scores were those who completed Bachelor's degrees ( $2.46 \pm 1.83$ ).

There was diversity in educational level in the sample. A significant restriction in interpreting the relationship between education level and test performance was large numbers of participants in groups where it was difficult to discern educational background (e.g., Other and No response). Bachelor's-prepared participants represented the largest group in the sample, and among the known education categories, they were the highest performing on the post-test, and had the highest mean change in score after the training.

Table 4.9

*Test Performance by Highest Level of Education (Online Participants Only)*

<b>Education Level</b>	<b><i>n</i></b>	<b>Pre-test Mean <math>\pm</math> SD</b>	<b>Post-test Mean <math>\pm</math> SD</b>	<b>Score change Mean <math>\pm</math> SD</b>	<b><i>t</i></b>	<b><i>p</i>- value</b>	<b>95% CI</b>
No response	95	$5.53 \pm 1.42$	$8.47 \pm 1.17$	$2.94 \pm 1.61$	17.80	0.00*	2.61, 3.28

Associate Degree in Nursing	234	5.88 ± 1.55	8.20 ± 1.30	2.32 ± 1.85	19.15	0.00*	2.08, 2.56
Nursing Diploma	52	6.13 ± 1.46	8.13 ± 1.46	2.00 ± 1.84	7.86	0.00*	1.49, 2.51
Bachelor's	595	5.8 ± 1.52	8.30 ± 1.42	2.46 ± 1.83	32.69	0.00*	2.31, 2.60
Master's	348	5.9 ± 1.49	8.25 ± 1.42	2.28 ± 1.86	22.85	0.00*	2.09, 2.47
Doctorate	71	5.8 ± 1.64	8.24 ± 1.63	2.37 ± 2.00	9.96	0.00*	1.89, 2.83

**Test performance by specialty area (online participants only): pre-test.** The specialty area with the highest pre-test score among online participants was neurology ( $7.13 \pm 1.73$ ); this group was very small, with  $n=8$  members. The group with the lowest pre-test score was the endocrinology specialty ( $4.00 \pm 1.00$ ); this group was also very small, with  $n=3$  participants. The largest specialty area represented in the sample was Acute Care, and their baseline mean test performance was average ( $5.80 \pm 1.40$ ). Another specialty of interest is those identifying Psych/Mental Health as their primary area, as background in suicide prevention training is most likely from this specialty. Participants from the Psych/Mental Health specialty performed average on the baseline pre-test ( $5.79 \pm 1.71$ ) and did not convey advantage from their background on suicide prevention knowledge.

**Test performance by specialty area (online participants only): post-test.** The specialty area with the highest mean post-test scores from online training was College Health ( $8.8 \pm 1.64$ ); this sample was very small, with  $n=5$  in this group (Table 4.10). The specialty area with the

lowest mean post-test scores was the pain group ( $7.50 \pm 0.71$ ); which had  $n=2$  participants in it. In order to pass the online training, a minimum of a score of 8/10 was required on the post-test in order to obtain a certificate of completion. Participants were allowed to take the post-test as many times as needed in order to achieve a passing score of 80%. Performance on the first attempt was the only score included in this study. The specialty areas with a mean post-test score below 80% on the first attempt were Forensics, School Health (K-12), Women's Health, and Primary Care. Participants from the Psych/Mental Health specialty, a field relevant to the suicide prevention content, had an average on the post-test ( $8.33 \pm 1.26$ ) that met the minimum passing requirement of 80%. The largest specialty area, Acute Care had an average post-test mean ( $8.29 \pm 1.42$ ) meeting the passing requirement as well.

***Test performance by specialty area (online participants only): change in score.*** The endocrinology specialty had the greatest mean change in score ( $4.00 \pm 1.00$ ) after the online training (Table 4.10). This group also had the lowest pre-test score, with the most opportunity for improvement compared with the other specialties. The specialty with the lowest mean change in score ( $1.00 \pm 1.6$ ) was neurology, which had the highest pre-test score compared with all other specialties. As a result, their potential for improvement as measured by mean change in scores, was lower. The Acute Care group had a fairly high mean change in score ( $2.49 \pm 1.89$ ), demonstrating significant difference in change from pre-test to post-test ( $p < 0.001$ ). The Psych/Mental Health group also had a fairly high mean change score ( $2.54 \pm 1.79$ ), with a significant difference from pre- to post-test ( $p < 0.001$ ).

Table 4.10  
*Test Performance by Specialty Area (Online Participants Only)*

<b>Specialty Area</b>	<b><i>n</i></b>	<b>Pre-test Mean <math>\pm</math> SD</b>	<b>Post-test Mean <math>\pm</math> SD</b>	<b>Score change Mean <math>\pm</math> SD</b>	<b>SE</b>	<b>Paired samples <i>t</i></b>	<b><i>p</i> value</b>
Acute Care	143	5.80 $\pm$ 1.40	8.29 $\pm$ 1.42	2.49 $\pm$ 1.89	0.158	15.806	0.000*
Adolescent Health	5	6.80 $\pm$ 1.30	8.20 $\pm$ 0.84	1.40 $\pm$ 1.14	0.510	2.746	0.052
Ambulatory Care	99	5.99 $\pm$ 1.65	8.24 $\pm$ 1.34	2.25 $\pm$ 1.83	0.184	12.238	0.000*
Cardiovascular	20	6.05 $\pm$ 1.73	8.45 $\pm$ 1.28	2.40 $\pm$ 1.85	0.413	5.812	0.000*
Case Management	17	6.4 $\pm$ 1.33	8.41 $\pm$ 1.18	1.94 $\pm$ 1.95	0.473	4.101	0.001*
College Health	5	6.4 $\pm$ 0.55	8.8 $\pm$ 1.64	2.40 $\pm$ 1.67	0.748	3.207	0.033*
Critical Care/Trauma	70	6.0 $\pm$ 1.61	8.11 $\pm$ 1.50	2.11 $\pm$ 1.85	0.221	9.543	0.000*
Education	33	5.61 $\pm$ 1.48	8.36 $\pm$ 1.27	2.76 $\pm$ 1.75	0.305	9.049	0.000*
Endocrinology	3	4.00 $\pm$ 1.00	8.00 $\pm$ 1.00	4.00 $\pm$ 1.00	0.577	6.928	0.020*
Family Practice	78	5.60 $\pm$ 1.34	8.35 $\pm$ 1.36	2.74 $\pm$ 1.65	0.187	14.642	0.000*
Forensics	3	5.33 $\pm$ 1.53	7.67 $\pm$ 2.08	2.33 $\pm$ 0.58	0.333	7.000	0.020*
Geriatrics	29	6.07 $\pm$ 1.22	8.41 $\pm$ 1.45	2.34 $\pm$ 1.59	0.295	7.955	0.000*
HIV/AIDS	4	5.00 $\pm$ 1.82	8.75 $\pm$ 0.96	3.75 $\pm$ 0.96	0.479	7.833	0.004*

Home Care	29	5.93 ± 1.46	8.10 ± 1.45	2.17 ± 1.98	0.368	5.899	0.000*
Hospice	26	5.46 ± 1.07	8.27 ± 1.46	2.81 ± 1.63	0.319	8.809	0.000*
I.V. Therapy <sup>^</sup>	1	-	-	-	-	-	-
Infectious Disease	3	6.00 ± 2.00	8.00 ± 0.00	2.00 ± 2.00	1.155	1.732	0.225
Labor and Delivery	18	5.72 ± 1.60	8.22 ± 1.17	2.50 ± 2.43	0.573	4.362	0.000*
Long Term Care	11	6.27 ± 2.00	8.64 ± 1.03	2.36 ± 1.57	0.472	5.004	0.001*
Medical-Surgical	58	5.88 ± 1.68	8.30 ± 1.71	2.41 ± 2.12	0.278	8.673	0.000*
Multiple Specialties	157	5.83 ± 1.51	8.36 ± 1.45	2.54 ± 1.91	0.153	16.602	0.000*
Mother/Baby	13	5.69 ± 1.89	8.15 ± 1.77	2.46 ± 1.71	0.475	5.180	0.000*
Neonatal	14	5.64 ± 1.08	8.50 ± 1.22	2.86 ± 1.75	0.467	6.116	0.000*
Neurology	8	7.13 ± 1.73	8.13 ± 2.03	1.00 ± 1.6	0.567	1.764	0.121
Oncology	25	6.12 ± 1.76	8.72 ± 1.34	2.60 ± 2.35	0.469	5.543	0.000*
Other	432	5.79 ± 1.49	8.28 ± 1.40	2.49 ± 1.78	0.086	29.085	0.000*
Pain	2	5.00 ± 0.00	7.50 ± 0.71	2.50 ± 0.71	0.500	5.000	0.126
Palliative Care <sup>^</sup>	1	-	-	-	-	-	-

Patient Education	3	6.33 ± 2.08	8.67 ± 0.58	2.33 ± 1.53	0.882	2.646	0.118
Pediatrics	36	6.22 ± 1.40	8.31 ± 1.17	2.08 ± 1.83	0.304	6.844	0.000*
Pharmacology ^	1	-	-	-	-	-	-
Primary Care	27	5.44 ± 1.40	7.93 ± 1.59	2.48 ± 2.33	0.448	5.542	0.000*
Psych/Mental Health	142	5.79 ± 1.71	8.33 ± 1.26	2.54 ± 1.79	0.150	16.934	0.000*
Public Health	27	6.19 ± 1.49	8.19 ± 1.21	2.00 ± 1.80	0.346	5.782	0.000*
Rehabilitation	7	6.71 ± 1.98	8.71 ± 1.38	2.00 ± 1.41	0.535	3.742	0.010*
Reproductive Health^^	9	-	-	-	-	-	-
Rheumatology	3	4.67 ± 1.53	8.00 ± 2.00	3.33 ± 1.53	0.882	3.780	0.063
School Health (K-12)	56	5.89 ± 1.29	7.88 ± 1.39	1.98 ± 1.62	0.217	9.136	0.000*
Staff Development	2	6.00 ± 1.41	8.50 ± 2.12	2.50 ± 0.71	0.500	5.000	0.126
Women's Health	24	5.88 ± 1.54	7.88 ± 1.51	2.00 ± 2.19	0.446	4.480	0.000*
Wound Management	3	6.00 ± 2.00	8.67 ± 1.15	2.67 ± 3.06	1.764	1.512	0.270

^ Specialty has  $n=1$  participants specializing in this area, paired-t tests not possible

^^ All cases specializing in reproductive health had additional specializations, and are included in Multiple Specialties

***Test performance by health care role (online participants only): pre-test.*** The health care role with the highest mean pre-test score in the online training was Physical Therapist ( $8.33 \pm 1.53$ ); this was a very small group of  $n=3$  (Table 4.11). The role with the lowest mean pre-test score was Physician Assistant ( $4.50 \pm 0.71$ ), another very small group of participants ( $n=2$ ). The nursing profession pre-test score means from highest to lowest are as follows: Certified Nurse Midwife ( $6.13 \pm 1.13$ ), Licensed Practical Nurse ( $6.10 \pm 1.64$ ), Registered Nurse ( $5.85 \pm 1.49$ ), Nurse Practitioner ( $5.81 \pm 1.53$ ), and Clinical Nurse Specialist ( $5.40 \pm 1.65$ ).

***Test performance by health care role (online participants only): post-test.*** The health care role with the highest post-test score mean was Physician Assistant ( $10.00 \pm 0.00$ ) and the role with the lowest mean was Certified Nurse Midwife ( $7.88 \pm 0.99$ ) (Table 4.11). The finding that Certified Nurse Midwife had the lowest post-test score was notable, given that among all nursing-related professions, this group had the highest mean pre-test scores. The nursing profession post-test score means from highest to lowest are as follows: Clinical Nurse Specialist ( $9.10 \pm 0.88$ ), Nurse Practitioner ( $8.33 \pm 1.41$ ), Registered Nurse ( $8.24 \pm 1.41$ ), Licensed Practical Nurse ( $8.21 \pm 1.22$ ), and Certified Nurse Midwife ( $7.88 \pm 0.99$ ).

***Test performance by health care role (online participants only): change in score.*** The health care role with the greatest mean change in score from the online training was Physician Assistant ( $5.50 \pm 0.71$ ), which had the highest post-test score (Table 4.11). The small Physical Therapist group had the smallest mean change in score ( $1.00 \pm 1.00$ ), and this was also the group that had the highest pre-test score, leaving less room for gains in score. In the nursing profession, the highest to lowest changes in mean score are as follows: Clinical Nurse Specialist ( $3.70 \pm 2.11$ ), Nurse Practitioner ( $2.52 \pm 1.94$ ), Registered Nurse ( $2.39 \pm 1.75$ ), Licensed Practical Nurse ( $2.12 \pm 1.81$ ), and Certified Nurse Midwife ( $1.75 \pm 0.89$ ).



Table 4.11  
*Test Performance by Health Care Role (Online Participants Only)*

<b>Health Care Role</b>	<b><i>n</i></b>	<b>Pre-test Mean ± SD</b>	<b>Post-test Mean ± SD</b>	<b>Score change Mean ± SD</b>	<b><i>t</i></b>	<b><i>p</i> value</b>	<b>95% CI</b>
No response	364	5.73 ± 1.46	8.30 ± 1.32	2.57 ± 1.82	26.84	0.000*	2.38, 2.75
Admin/ Management	62	6.05 ± 1.40	8.24 ± 1.65	2.19 ± 2.09	8.25	0.000*	1.66, 2.73
Case Manager	34	6.00 ± 1.46	8.32 ± 1.30	2.32 ± 2.06	6.59	0.000*	1.61, 3.04
Certified Nurse Midwife	8	6.13 ± 1.13	7.88 ± 0.99	1.75 ± 0.89	5.58	0.001*	1.01, 2.49
Clinical Nurse Specialist	10	5.40 ± 1.65	9.10 ± 0.88	3.70 ± 2.11	5.54	0.000*	2.19, 5.21
Counselor	3	5.67 ± 1.53	8.00 ± 1.00	2.33 ± 2.08	1.94	0.192	-2.84, 7.50
Educator	37	6.14 ± 1.69	7.97 ± 1.64	1.84 ± 1.88	5.95	0.000*	1.21, 2.46
Licensed Practical Nurse	42	6.10 ± 1.64	8.21 ± 1.22	2.12 ± 1.81	7.59	0.000*	1.55, 2.68
Naturopathic Physician	8	5.63 ± 1.51	8.13 ± 1.81	2.50 ± 1.07	6.61	0.000*	1.61, 3.39
Registered Nurse	759	5.85 ± 1.49	8.24 ± 1.41	2.39 ± 1.75	37.51	0.000*	2.26, 2.51
Nurse Practitioner	186	5.81 ± 1.53	8.33 ± 1.41	2.52 ± 1.94	17.70	0.000*	2.24, 2.80

Other	53	5.72 ± 1.80	8.45 ± 1.22	2.74 ± 2.07	9.63	0.000*	2.17, 3.31
Physical Therapist	3	8.33 ± 1.53	9.33 ± 0.58	1.00 ± 1.00	1.73	0.225	-1.48, 3.48
Physician	4	5.75 ± 2.06	9.00 ± 0.82	3.25 ± 2.63	2.47	0.090	-0.93, 7.43
Physician Assistant	2	4.50 ± 0.71	10.00 ± 0.00	5.50 ± 0.71	11.00	0.058	-0.85, 11.85
Retired	5	7.00 ± 1.87	8.60 ± 2.07	1.60 ± 0.89	4.00	0.016*	0.49, 2.71
Multiple Positions	55	6.05 ± 1.67	8.34 ± 1.47	2.29 ± 2.02	8.39	0.000*	1.74, 2.84
Social Worker*	1	-	-	-	-	-	-
Medical Assistant*	1	-	-	-	-	-	-
Psychologist*	1	-	-	-	-	-	-

\*Role has n=1 response, insufficient sample size for paired samples t-test

**Summary.** In the descriptive statistics and analyses above, there does appear to be a difference in test performance across education level, specialty area, or health care role. In the online training, participants with Bachelor's degrees were the education group with the highest post-test score mean and mean change in score. The specialties of College Health and Endocrinology had the highest mean post-test score and mean change in score, respectively. The Clinical Nurse Specialist group is the nursing profession that had the highest performance on the post-test and experienced the greatest mean change in score from the training.

## Aim 2. To Compare In-Person and Online Versions of the Training.

**Sub-aim 2.1. Research question 2-1: Is there a difference in the knowledge gained when comparing the in-person versus the online version of the educational intervention?**

*Performance on knowledge test: Mean scores.* To compare online and in-person training formats, independent t-tests were performed to compare mean differences between the pre-training scores, post-training scores, and total change in score for the two formats.

An independent samples t-test comparing total scores on the pre-test found that the mean difference in scores between the in-person and online formats were not significantly different (Table 4.12). The mean pre-test score for the in-person format was  $5.99 \pm 1.6$ , which was only slightly higher than the mean for the online format of  $5.85 \pm 1.5$ . There was no significant evidence ( $p=0.074$ ) that the in-person participants differed in mean pre-test score from the online participants. The pre-test performance across the two formats were not statistically different from one another, indicating that the participants that self-selected into each group, were comparable in their baseline knowledge of assessment, treatment, and management of suicide risk.

Table 4.12  
*Mean Total Scores on Knowledge Test: Pre-Training*

<b>Pre-test Performance</b>						
<b>Training format</b>	<b><i>n</i></b>	<b>Mean <math>\pm</math> SD</b>	<b><i>F</i></b>	<b><i>F</i> <i>p-value</i></b>	<b><i>t</i></b>	<b><i>p-value</i></b>
In-person	465	$5.99 \pm 1.6$				
Online	1640	$5.85 \pm 1.5$				
Combined	2104	$5.88 \pm 1.5$				
<b>Equal variances assumed</b>			0.46	0.498	1.79	0.074

An independent samples t-test comparing the mean post-test scores found that mean total scores were not significantly different among participants in the in-person versus online training (Table 4.13). The mean post-test score for in-person format was  $8.30 \pm 1.3$  and for the online format,  $8.27 \pm 1.4$ . The mean post-test scores provide no significant evidence ( $p=0.677$ ) that the in-person participants differed from the online participants. The similarity in outcomes as measured by post-test score indicates that the two training formats were comparable.

Table 4.13  
*Mean Total Scores on Knowledge Test: Post-Training*

<b>Post-Test Performance</b>						
<b>Training format</b>	<b><i>n</i></b>	<b>Mean <math>\pm</math> SD</b>	<b><i>F</i></b>	<b><i>F</i> <i>p-value</i></b>	<b><i>t</i></b>	<b><i>p-value</i></b>
In-person	465	$8.30 \pm 1.3$				
Online	1640	$8.27 \pm 1.4$				
Combined	2104	$8.28 \pm 1.4$				
<b>Equal variances assumed</b>			1.51	0.220	0.42	0.677

In order to further explore the comparability of the formats, an independent samples t-test was performed, comparing the mean change in scores from pre-test to post-test for the two formats (Table 4.14). The mean change in score for the in-person format was  $2.31 \pm 1.68$  and  $2.43 \pm 1.84$  for the online format. It is notable that there was wider variation around the mean for the total change in score of the online participants ( $SD=1.84$ ) compared with the in-person participants ( $SD=1.68$ ). There was no significant evidence ( $p=0.184$ ) that the in-person participants differ in mean change in test score from the online participants. This finding further

supports that the two formats were comparable, as the degree of improvement was similar across the two groups.

Table 4.14

*Mean Change in Scores on Knowledge Test—Independent Samples Test*

<b>Total Change in Score</b>							
<b>Training format</b>	<b><i>n</i></b>	<b>Mean <math>\pm</math> SD</b>	<b>F</b>	<b><i>F</i> <i>p value</i></b>	<b><i>t</i></b>	<b><i>p value</i></b>	<b>95% CI</b>
In-person	465	2.31 $\pm$ 1.68					
Online	1639	2.43 $\pm$ 1.84					
Combined	2104	2.40 $\pm$ 1.80					
<b>Equal variances not assumed</b>			7.189	0.007*	-1.33	0.184	-0.30, 0.06

The following box plot provides a graphical representation of pre-test scores for the online and in-person training formats, and of the post-test scores for the two formats (Figure 4.1). In the pre-test condition, performance was highly similar across the two formats. As previously mentioned, in the post-test condition, there was wider variation around the mean in the online training, as compared with the in-person training. This finding is contrary to the properties of sampling distributions, where larger sample sizes tend to yield smaller standard deviations, and smaller samples tend to yield larger standard deviations.

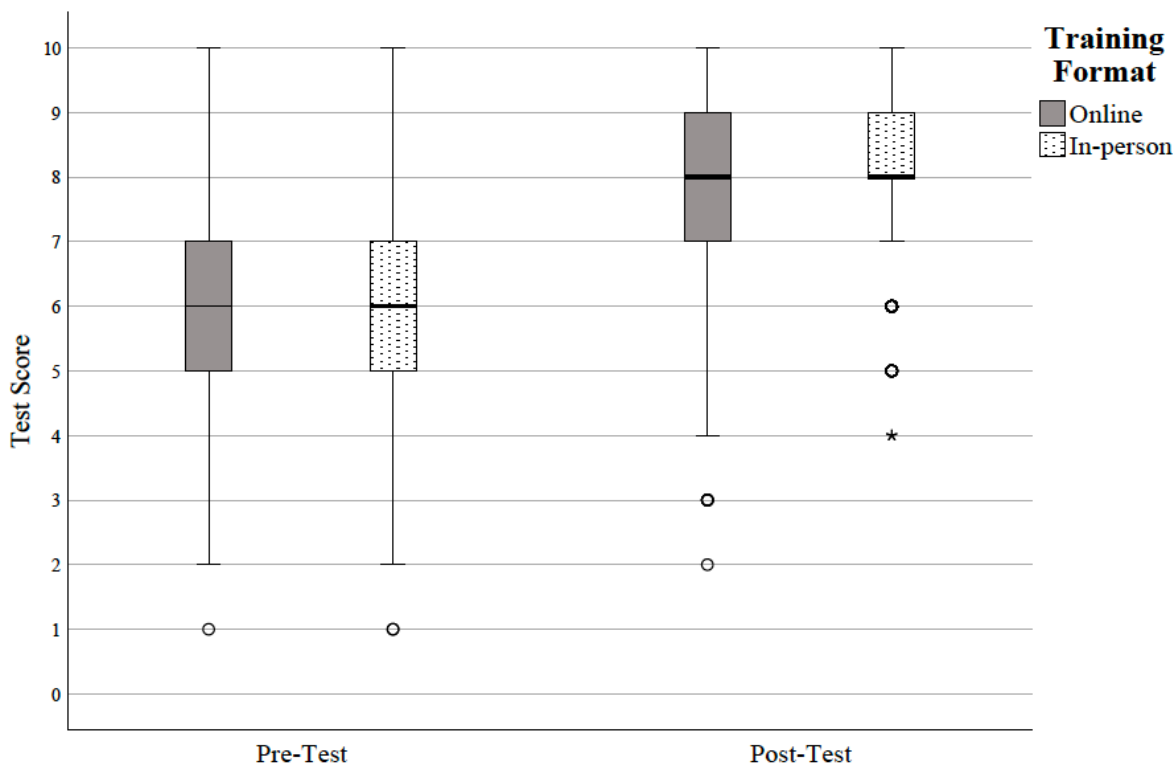


Figure 4.1. Boxplot of pre- and post-test performance

In order to further test the comparability of the in-person and online formats, a fixed effects regression model was used to determine whether format affects post-test score. Using a mixed model to further explore the findings from the previous t-test accounted for the potential effect of unobservable factors' influence post-test scores. A fixed effects regression with interaction for format (online vs. in-person) and time (pre-test vs. post-test) test-score as dependent variable was run using the following model:

$$y_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_1 \cdot \beta_2 X_{i1} X_{i2}$$

where  $\beta_1 X_{i1}$  = Time (Pre-test = 0, Post-test = 1), and  $\beta_2 X_{i2}$  = Format (Online = 0, In-person = 1).

Below are the estimates of the fixed effects model (Table 4.15):

Table 4.15  
*Estimates of Fixed Effects*

Source	<i>B</i>	<i>SE B</i>	95%CI	<i>t</i>	<i>p</i>
Intercept	5.85	0.04	5.78, 5.92	161.87	0.000*
Time	2.42	0.05	2.32, 2.52	47.45	0.000*
Format	0.14	0.08	-0.01, 0.30	1.90	0.060
Time x Format	-0.11	0.11	-0.33, 0.10	-1.22	0.222

In this model, format did not have a significant effect ( $p=0.060$ ) on the post-test score outcome. The regression test also indicates that the interaction between training and format does not have a significant effect ( $p=0.222$ ) on the outcome of post-test score. The only significant effect on test score was due to the variable of time ( $p<0.05$ ), when comparing pre-test and post-test conditions.

**Summary.** Based on the descriptive statistics of test performance on individual test items and the independent t-tests comparing mean pre-test scores, it is evident that participants in the in-person and online training groups were comparable in their baseline knowledge of suicide risk assessment, treatment, and management. The analyses comparing the mean post-test scores and mean change in scores for the two formats indicates that the training format produced comparable outcomes as indicated by post-test scores. These findings were further supported by the use of a fixed effects model to account for unobserved influences on the post-test scores, which indicated that training format did not have a significant impact on outcomes. From these results, we can accept the null hypothesis that there was no significant difference between the in-person and online training formats. The knowledge gained by participants, based on post-test scores, produced similar outcomes across both formats.

**Performance on knowledge test: Analysis of domains.** To identify content areas that yielded higher or lower scores on post-test outcomes, the questions were grouped into four main domains, based on the main content area of the question, as listed in the table below (Table 4.16):

Table 4.16  
*Domains of Knowledge Test Questions*

Domain	Questions
<b>1. Role of nurses in prevention</b>	<ul style="list-style-type: none"> <li>• The role of a Registered Nurse (RN) in suicide prevention includes which of the following?</li> <li>• Which of the following statements is true? (Correct answer is: screening patients for suicide risk is an appropriate nursing activity)</li> </ul>
<b>2. Talking about suicide</b>	<ul style="list-style-type: none"> <li>• When assessing suicide intent, which of the following questions is not appropriate to ask?</li> <li>• According to the Centers for Disease Control and Prevention, which of the following terms is an acceptable way to describe suicidal behavior?</li> </ul>
<b>3. Indicators of suicide risk</b>	<ul style="list-style-type: none"> <li>• In the United States, 10 Veterans die by suicide each day.</li> <li>• IS PATH WARM is an acronym used to remember important suicide risk warning factors. What does the “H” stand for?</li> </ul>



**4. Interventions for patient and family**

- For approximately 25% of individuals, the time elapsed between making a decision to end one's life and actually making a suicide attempt is 5 minutes or less.
- Which of the following is involved in a safety plan?
- What suicide loss survivors usually need most is:
- You assess that your patient has thoughts of suicide, no plan to attempt suicide, and has made one prior moderate lethality suicide attempt. The most appropriate next step is:

Questions included in Domain 1 evaluate knowledge regarding scope of practice for RNs in suicide prevention. Questions in Domain 2 are related to how to talk about suicide, by using neutral vocabulary and assessment questions that reduce stigma. Domain 3 questions cover indicators of suicide risk, such as Veteran status, the presence of warning signs, and impulsivity. The fourth domain addresses interventions for patient and family such as safety planning and postvention care.

After grouping the questions together into domains, descriptive statistics were obtained regarding performance on each domain, and separated according to training format (Table 4.17). Compared with the in-person group, online participants had a slightly greater mean change score for Domains 1, 3, and 4. This suggests that knowledge improved to a greater degree on content areas such as: role of nurses in prevention, indicators of risk for suicide, and interventions for patient and family. Participants in the in-person group had a greater mean change score for

Domain 2, talking about suicide. During the in-person training, learners had the opportunity to role play suicide risk assessments and practiced using recommended language and assessment questions.

Table 4.17  
*Descriptive Statistics for Mean Change Scores of Domains*

<b>Domain</b>	<b>Training Format</b>	<b>N</b>	<b>Mean Change Score <math>\pm</math> SD</b>	<b>SE</b>
<b>1. Role of nurses in prevention</b>	In-person	460	0.148 $\pm$ 0.34	0.016
	Online	1639	0.202 $\pm$ 0.38	0.009
<b>2. Talking about suicide</b>	In-person	460	0.194 $\pm$ 0.35	0.016
	Online	1638	0.159 $\pm$ 0.34	0.008
<b>3. Indicators of suicide risk</b>	In-person	464	0.273 $\pm$ 0.29	0.014
	Online	1639	0.283 $\pm$ 0.30	0.007
<b>4. Interventions for patient and family</b>	In-person	464	0.262 $\pm$ 0.28	0.013
	Online	1639	0.287 $\pm$ 0.30	0.008

Independent sample t-tests were performed to compare mean change scores for each of the domains (Table 4.18). For Domain 1, there was a difference in mean change scores between the in-person and online formats, and equal variances were not assumed in the results, given the F-statistic p-value of  $<0.001$ . The data suggest a significant difference ( $p=0.003$ ) in performance between in-person and online formats on the topic of the role of nurses in suicide prevention. On Domain 2, the F-statistic p-value was  $<0.05$ , and equal variances were not assumed. For this domain, there was no significant difference ( $p=0.059$ ) on mean change scores for the in-person and online groups. This finding suggests that although the mean change score was slightly higher

for the in-person group, the difference in change score for two training formats was not statistically significant. Analysis of Domain 3 did not identify a significant difference ( $p=0.544$ ) in mean change scores between the in-person and online formats. Equal variances were assumed for this domain, as the F-statistic p-value was not significant. Although the mean change score was slightly higher for the online group, this difference was not statistically significant. Similar to the previous domain, this indicates that performance on the topic area of indicators of risk for suicide did not significantly across the two formats. Domain 4 did not include the assumption equal variances, due to the F-statistic p-value of 0.012. There was no significant difference ( $p=0.085$ ) in mean change score when comparing the in-person and online training formats on the topic of interventions for patient and family. The online learners had a slightly higher mean change score on this domain compared with the in-person group; however, the difference was not statistically significant.

Table 4.18  
*Mean Change Scores for Domains*

<b>Domain</b>	<b>F</b>	<b><i>F</i> <i>p-value</i></b>	<b><i>T</i></b>	<b><i>p-value</i></b>	<b>95% CI</b>
<b>1. Role of nurses in prevention<sup>^</sup></b>	22.68	0.00	-2.975	0.003*	-0.090, -0.019
<b>2. Talking about suicide<sup>^</sup></b>	4.179	0.041	1.888	0.059	-0.001, 0.071
<b>3. Indicators of suicide risk</b>	0.071	0.790	-0.606	0.544	-0.040, 0.021
<b>4. Interventions for patient and family<sup>^</sup></b>	6.321	0.012	-1.727	0.085	-0.055, 0.004

<sup>^</sup>Equal variances not assumed

Overall, the findings from analysis of domains further suggest that the training and performance in both formats were comparable in three of the four main content areas. However,

Domain 1, the role of nurses in prevention, demonstrated a significant difference in mean change scores with the online group achieving higher mean change scores in this topic area.

**Summary.** The results from a series of independent samples t-tests comparing mean differences in post-training scores, total change in score, and mean change scores on domains for the in-person and online trainings indicate that the two formats are comparable. Performance on the knowledge post-tests and change in test scores were used as indicators for knowledge gained, and in both formats, the outcomes were similar. Based on these findings, there is no significant difference in knowledge gained among participants who took the in-person or the online suicide prevention training.

**Sub-aim 2.2. Research question 2.2: Is there a difference in training satisfaction when comparing the in-person versus the online version of the educational intervention?**

*Training satisfaction from evaluation survey.* To determine if there was a difference in training satisfaction between participants in the in-person or the online training, descriptive statistics from participant responses on the evaluation survey items were obtained. The surveys asked participants to rate instructor teaching effectiveness, how well the course met the stated learning outcomes, and overall satisfaction with the training. Completion of the evaluation survey after the suicide prevention training was a requirement for both in-person and online sessions, in order to obtain a certificate of completion. As a result, response rate was high, and the evaluation survey was completed by a total of 2,088 participants (n= 636 in-person; n=1,452 online).

*Evaluation data from in-person training: instructor effectiveness.* On the items rating instructors' teaching effectiveness on five main areas of content, more than half of the participants rated teaching effectiveness of each area as "Excellent." The next highest ratings for

teaching effectiveness was “Very good” with a range of 24.1% to 26.5% of participants applying this rating to the five content areas. Only a few participants rated the teaching effectiveness of the content areas as “Poor,” which was 0.5% (n=3) to 0.6% (n=4) of respondents.

***Evaluation data from in-person training: learning objectives met.*** Nearly three-quarters of participants responded that the course met the four main learning outcomes “Very Well” with a range from 70.6% to 75% of respondents selecting this rating for each of the learning outcome items. A few participants responded that the course learning outcomes were “Not met,” with a response ranging from 0.9% (n=6) to 1.6% (n=10) selecting this rating for the course learning outcome items.

***Evaluation data from in-person training: overall rating.*** There was one question that asked participants to provide a rating for their overall assessment of the in-person course. Half of respondents (50.8%) selected an overall rating of “Excellent” for the in-person training. Nearly one-third (29.9%) rated the training as “Very good” overall. A small number of attendees rated the overall training as “Poor” (n=4; 0.6%).

**Summary.** From the in-person survey evaluation, the majority of participants selected the highest possible rating for teaching effectiveness of the five content areas: content, assessment, and vocabulary; assessment including practice; management; treatment; and other dimensions of importance (Table 4.19). A significant percentage of respondents also indicated that the course met the four main learning objectives very well. Overall, the course was rated as excellent by half of the attendees, and very good by nearly one-third. Based on these findings, the majority of in-person learners found the training to be effective and expressed overall satisfaction with the training.

Table 4.19  
*Evaluation Data from In-Person Training*

<b>Evaluation Item</b>	<b><i>n</i> (%)</b>				
	<b>Poor</b>	<b>Fair</b>	<b>Good</b>	<b>Very Good</b>	<b>Excellent</b>
Context, Assessment and Vocabulary	4 (0.6%)	9 (1.4%)	63 (9.9%)	160 (25.2%)	400 (62.9%)
Assessment Including Practice	4 (0.6%)	15 (2.4%)	58 (9.1%)	166 (26.1%)	393 (61.8%)
Management - Overview of Medications, Safety Plans including Practice, Tools and Resources	4 (0.6%)	14 (2.2%)	69 (10.8%)	153 (24.1%)	396 (62.3)
Treatment (include lethal means and virtual hope box)	3 (0.5%)	15 (2.4%)	74 (11.6%)	162 (25.5%)	382 (60.1%)
Other Dimensions of Importance	3 (0.5%)	19 (3.0%)	76 (12.0%)	168 (26.5%)	367 (58.0%)
<b>How well course met learning outcomes</b>					
Describe risk and protective factors influencing suicide risk	6 (0.9%)	153 (24.1%)	477 (75.0%)		
Discuss facilitators and barriers to implementing suicide prevention measures	6 (0.9%)	181 (28.5%)	449 (70.6%)		

Demonstrate suicide risk assessment, treatment and management skills	10 (1.6%)	169 (26.6%)	457 (71.9%)		
Apply suicide risk assessment, treatment and management strategies to case scenarios	10 (1.6%)	169 (26.6%)	457 (71.9%)		
<b>Overall</b>	<b>Poor</b>	<b>Fair</b>	<b>Good</b>	<b>Very Good</b>	<b>Excellent</b>
What is your overall assessment of today's conference sessions	4 (0.6%)	19 (3.0%)	100 (15.7%)	190 (29.9%)	323 (50.8%)

***Evaluation data from online training.*** Compared with the in-person training evaluation survey, there were more questions included in the online evaluation. In addition to questions about teaching effectiveness, meeting learning course outcomes, and overall rating, additional evaluation items included: relevance of content, appropriateness of content level, technology accessibility, and number of hours required to complete the training (Table 4.20). Questions on technology and number of hours to complete training were not relevant to in-person participants. These questions provided additional information about the accessibility of the training format and the contact hours question assessed whether or not the training appropriately met the mandated training requirement law to complete a minimum of six-hours of suicide prevention training.

***Evaluation data from online training: relevance.*** Over half of the participants (59.7%) rated the training as “Very relevant” to their practice (Table 4.20). A little more than one-third

evaluated the training content as “Somewhat relevant” to their practice. A small percentage, 4.2% of respondents (n=61), provided feedback that the suicide prevention training was “Not relevant” to their practice.

***Evaluation data from online training: level of content.*** The overwhelming majority of participants rated the training content as being at an appropriate level, with 96% of respondents selecting “About right” in response to this survey question (Table 4.20). A few (n=41; 2.8%) felt that the training was “Too basic” and a smaller percentage (n=17; 1.2%) felt that the content was “Too advanced.”

***Evaluation data from online training: instructor effectiveness.*** Over half of the online participants rated instructor teaching effectiveness of the five content areas as “Excellent” (Table 4.20). The range of participants selecting this highest rating for the content areas is from 52.7% to 57.2%, depending on the training section. Comparatively, participants in the in-person training rated instructor effectiveness as about 5-6% higher than the online training, for each of the content areas, with a range of 58% to 62.9% in-person participants rating the training content areas as “Excellent.” A smaller proportion rated the teaching effectiveness of the online content areas as “Poor” compared with the in-person training. In the online training, only 0.1% rated the online teaching effectiveness as “Poor.”

***Evaluation data from online training: learning objectives met.*** Over three quarters of online participants reported that the training met the learning outcomes “Very well” on three out of four objectives (Table 4.20). On the learning outcome of discussing facilitators and barriers to implementing suicide prevention measures, 73.5% rated the content as meeting this outcome “Very well.” Compared with the in-person training evaluation, fewer online participants (0.1% to 0.2%) rated the learning outcomes as “Not met.”



***Evaluation data from online training: technology accessibility.*** The difficulty level of technology accessibility for the online content was most frequently rated as “Easy” among participants (41.4%) (Table 4.20). The second most frequent rating for accessibility was “Very easy,” which 29.4% participants reported. Only 0.5% of participants rated the technology accessibility as “Very difficult.”

***Evaluation data from online training: contact hours.*** Over half of the participants (57.4%) reported that the online training took them “About 6 hours” to complete (Table 4.20). About 21% of participants reported that the training took either less than 6 hours to complete or more than 6 hours to complete. This data indicates that the amount of content and time required to complete it, met the mandatory training requirement length for over three-quarters of participants.

***Evaluation data from online training: overall rating.*** Half of the online participants (51.2%) rated the training as “Excellent” overall (Table 4.20). This rating was only marginally higher than the percentage of in-person participants rating the training as “Excellent” (50.8%). The percentage of online participants (0.4%) expressing dissatisfaction with the overall training and rated the training as “Poor” was also slightly lower compared with the in-person training (0.6%).

**Summary.** Ratings of instructor training effectiveness in the in-person format as “Excellent” was about 5-6% higher than the online training, for each of the content areas. For both learning formats, around three-quarters of participants endorsed that the course met the five learning objectives “Very well.” The overall assessment by participants from the in-person training was “Excellent” for 50.8% of respondents, and for online training, “Excellent” for 51.2% of respondents. From this data, the majority of participants in both conditions rated the

teaching effectiveness highly, reported that the course did very well in meeting learning objectives, and that the overall course was excellent.

Table 4.20  
*Evaluation Data from Online Training*

<b>Evaluation Item</b>	<b><i>n</i> (%)</b>				
<b>Relevance</b>	<b>Not relevant</b>	<b>Somewhat relevant</b>	<b>Very relevant</b>		
How relevant was content to your practice	61 (4.2%)	524 (36.1%)	867 (59.7%)		
<b>Appropriate Level</b>	<b>Too advanced</b>	<b>Too basic</b>	<b>About right</b>		
How appropriate was the level of content	17 (1.2%)	41 (2.8%)	1394 (96.0%)		
<b>Rate Instructor Teaching Effectiveness</b>	<b>Poor</b>	<b>Fair</b>	<b>Good</b>	<b>Very Good</b>	<b>Excellent</b>
Introduction	1 (0.1%)	16 (1.1%)	194 (13.4%)	476 (32.8%)	765 (52.7%)
Assessment: Risk Factors, Protective Factors, Screening/Special Considerations for Veterans and Active Duty Military	1 (0.1%)	14 (1.0%)	175 (12.1%)	431 (29.7%)	831 (57.2%)

Management: Safety Planning, Making a Safety Plan, Resources, Role Play	2 (0.1%)	14 (1.0%)	177 (12.2%)	436 (30.0%)	823 (56.7%)
Treatment: Hospitalizations, Medication, Virtual Hope Box, Other Resources	1 (0.1%)	19 (1.3%)	205 (14.1%)	451 (31.1%)	776 (53.4%)
Other Dimensions of Importance: Role of Nurses, Self-Injury, Cultural Considerations, Postvention	2 (0.1%)	20 (1.4%)	185 (12.7%)	460 (31.7%)	784 (54.0%)
<b>How Well Course Met Learning Outcomes</b>	<b>Not met</b>	<b>Adequate</b>	<b>Very well</b>		
Describe risk and protective factors influencing suicide risk	3 (0.2%)	333 (22.9%)	1117 (76.9%)		
Discuss facilitators and barriers to implementing suicide prevention measures	2 (0.1%)	383 (26.4%)	1068 (73.5%)		
Demonstrate suicide risk assessment, treatment and management skills	2 (0.1%)	345 (23.7%)	1106 (76.1%)		

Apply suicide risk assessment, treatment and management strategies to case scenarios	1 (0.1%)	347 (23.9%)	1105 (76.0%)		
<b>Technology Accessibility</b>					
	<b>Very difficult</b>	<b>Difficult</b>	<b>Neutral</b>	<b>Easy</b>	<b>Very easy</b>
Rate level of difficulty accessing and using online course content	7 (0.5%)	51 (3.5%)	366 (25.2%)	601 (41.4%)	427 (29.4%)
<b>Contact Hours</b>					
	<b>&lt; 6 hours</b>	<b>&gt; 6 hours</b>	<b>About 6 hours</b>		
How long did it take to complete the course	306 (21.1%)	312 (21.5%)	833 (57.4%)		
<b>Overall</b>					
	<b>Poor</b>	<b>Fair</b>	<b>Good</b>	<b>Very Good</b>	<b>Excellent</b>
What is your overall assessment of course	6 (0.4%)	14 (1.0%)	117 (12.2%)	512 (35.2%)	744 (51.2%)

### **Aim 3. To Explore Themes of Nurse’s Reflections and Application of the Content Post-Training.**

In addition to survey data, effectiveness of the training was evaluated using open-ended responses from the evaluation survey and the “ah-ha!” reflection prompt. These responses were reviewed, coded, and analyzed to identify emergent themes that best represent aspects of the training that participants planned to apply to practice, as well as their reflections on the educational content.

#### **Sub-aim 3.1. To identify themes of applicability of training to future practice.**

Content analysis was used to identify themes in the evaluation survey responses to understand how participants intended to apply the content into practice. In the evaluation survey, participants were asked to give one example of content presented during the training that they will apply in practice. Many of the participants indicated multiple aspects of the training they planned to apply to their practice. These responses emphasized key lessons that resonated well, highlight content that was new to the audience, and indicated which aspects of knowledge participants felt were most pertinent to include in their practice. The rich content of these responses complemented the performance on the knowledge post-test to convey not only retention of material, but also which aspects of the material participants prioritized for their own practice.

Participants completed the evaluation survey online, regardless of which training format they participated in. The response on the evaluation survey included 2,088 total participants, 1,452 online and 636 in-person. The overall tone of the responses was positive, with the majority identifying aspects of the training that they planned to apply to practice. A few participants reported that due to their work setting or current employment status (e.g., retired), they did not

anticipate applying the training into practice. From the majority of participants that did identify how they planned to apply training to practice, four major themes emerged. These themes are 1) recognizing scope of responsibility in suicide prevention; 2) adjusting practice and attitudes to prevent suicide; 3) communicating effectively with individuals at-risk for suicide; and 4) accessibility of resources for suicide risk assessment, treatment, and management. These themes are further explored below.

**Major Theme 1: Recognizing scope of responsibility in suicide prevention.**

Participation in the training was not restricted to an audience of nurses. Rather, there was diversity in the health care professions attending and limitations in availability of demographic data. These two considerations made it challenging to discern relationships between participants' responses regarding their roles in suicide prevention and their actual health care profession. Therefore, drawing conclusions about training application and the specific role of nurses in suicide prevention was challenging to evaluate from this data. As a result, the theme of scope of responsibility, which was evident in the responses, was generalized to encompass health care providers.

*Role of the health care provider.* In response to the applicability of training to future practice, participants described that they recognized their role as health care providers in connecting patients to resources. This theme connects well to Major Theme 4, where several participants expressed appreciation for resources and tools offered during the training. This first theme highlights intention to use their new knowledge of resources to connect patients who would best benefit from the resources as part of their scope of practice. Resources such as safety plans, crisis lines, and referrals to mental health providers were some of the interventions and tools from the training that participants planned to use.

From the training, the participants acknowledged that suicide prevention is not limited to health care providers; rather, it is “everyone’s responsibility.” Some of the participants described that they planned to use the skills learned outside of the health care setting, in the community, as well. This suggests awareness among participants that effectively addressing the public health issue of suicide requires engagement of individuals beyond nursing and health care.

In addition to recognizing the need to serve as a conduit between patients in need and appropriate resources, participants demonstrated awareness of realistic limitations as health care providers. Some participants described that the training helped them recognize that when working with patients at risk for suicide, the expectation was not for them to “solve all the patient’s problems.” This reflection suggests reconceptualization of the expectations and role of the nurse in suicide prevention.

**Major Theme 2: Adjusting practice and attitudes to prevent suicide.** Two secondary codes identified for this theme include change in practice and change in attitudes. Participants described that they planned to change their practice in order to reflect the attitudes and content of the training.

*Change in practice.* Specific aspects of participants’ practice that they anticipated changing included personal reactions to individuals who endorse suicidal ideation. An example of this was conveyed by a participant who reported that they planned to work on “controlling reactions” towards individuals at-risk for suicide. Participants expressed awareness of how their own fear may prevent them from helping suicidal patients. Rather than avoiding the topic to mitigate personal discomfort, participants described that the training helped them to become more comfortable directly asking about suicidal thoughts and behaviors.

Another example of a change of practice described was not apologizing to patients for asking them about suicide. Participants further expressed the understanding that they should not be fearful to ask about suicide, especially since they now have concrete tools and resources to offer.

The responses include descriptions of concrete changes providers intended to implement in their current practice. One description included plans to discontinue the use of suicide contracts for patients at risk-for suicide to sign as an agreement not to attempt suicide. This is an example of how participants were able to reconsider whether previous interventions have been effective, and based on the available evidence, to adjust their practice accordingly. To date, there has been more data supporting the efficacy of safety plans in favor of safety contracts. Several participants identified the use of safety plans as a key learning point from the training, which reflects this intention to discontinue using safety contracts.

***Change in attitudes.*** Multiple dimensions of growth were highlighted in the responses. One participant described “being more mindful” about the topic of suicide and suicidal patients. Some participants identified areas of positive change in their approach to suicide prevention, such as increased awareness, confidence, and understanding. Another participant described that the new information they were exposed to was enriching.

Participants identified ways that their attitudes and beliefs were positively influenced as a result of the training. Some participants noted that the training changed their perspectives and the way they “view suicide.” Others reported that the training evoked consideration of their personal biases around suicide. Activities such as learning about how language commonly used to talk about suicide is embedded with negative connotation heightened their awareness of bias and its harmful impact on patients. One participant planned to adopt the approach of “meeting them



where they are at” when working with suicidal patients. Another participant reported that “suicide is preventable,” indicating belief in the potential of health care providers to appropriately identify and intervene with at-risk individuals.

Action-oriented changes in attitude, suggesting heightened motivation, emerged from the responses as well. After the training, participants described a “desire to be more involved” in efforts to prevent suicide. Despite the mandatory nature of suicide prevention training in the state, some of the participants expressed motivation to take an active role in suicide prevention. Several participants reported that they felt “more willing to ask about suicide,” indicating intentions to actively translate the knowledge gained into clinical encounters as appropriate.

**Major Theme 3: Communicating effectively with individuals at-risk for suicide.** The two secondary codes that contributed to the emergence of the theme of effective communication were the following: talking about suicide and an interpersonal approach to working with patients.

*Talking about suicide.* One of the most common responses to the evaluation survey question on applying content in practice was health care providers’ intention to change their approach in talking to patients about suicide. Some participants described that learning techniques for “opening up the conversation” were key points they intended to apply in practice. The training helped develop “skills for asking about suicide.” Many described plans of “directly asking about suicide” in the clinical setting, rather than asking questions which peripherally address the topic. For many, past approaches of indirectly asking about suicide or refraining from asking at all, were related to not knowing how to respond to individuals endorsing suicidal ideation. As previously discussed, health care providers experienced fear regarding potential answers, to the point that some felt unable to control their responses of distress prior to the training. Some described fear as being related to misconceptions that asking patients would make

them feel worse or that asking would introduce the idea of suicide and increase the likelihood of suicidal thoughts or behaviors.

An impetus behind post-training plans to directly ask patients about suicide was described by some participants who reported that they now know “how to respond” when a patient discloses suicidal ideation and/or plans. One participant described plans to adopt the approach of “offering help” to patients. Respondents felt that they had a better understanding of “how to talk about suicide,” “what to say,” and “what not to say” in conversations with patients. In addition to taking on a more direct approach in asking about suicide, as previously mentioned in Major Theme 3, health care providers were also more willing to ask about suicide, after being equipped with communication strategies, resources, and tools.

The use of language was a high frequency response that emerged from analysis of the data. Several participants described plans to use neutral language and vocabulary recommended by the CDC to destigmatize the topic of suicide when talking to patients and about suicide in general. Plans to adopt neutral terminology to describe suicide is an integral part of changing the culture of suicide prevention and continues to present a significant challenge in daily practice and reporting of suicide. The impact of the training on language for a significant proportion of respondents highlights the role of health care providers in shifting away from stigmatization and shame, in order to improve care for at-risk patients.

***Interpersonal approach to working with at-risk individuals.*** Participants offered several examples of interpersonal techniques garnered from the training to develop rapport with patients when talking about the challenging topic of suicide. As previously described, stigma creates significant barriers for patients in disclosure on suicide. The educational content covered strategies for reducing stigma through the use of language and adopting attitudes of acceptance

and inclusion among health care providers, to reduce these barriers. Some participant responses described plans of adopting a non-judgmental stance, remaining open-minded, and being authentic in their practice, to encourage patients to open up about suicidal thoughts and behaviors.

Other respondents discussed the importance of creating a caring and safe environment that normalized the patient's feelings and thoughts. These are also efforts that can be made to reduce stigma by providing conditions that encourage patients to talk about their thoughts and experiences. Concealment of suicidal ideation creates significant challenges that prevent health care providers from recognizing and intervening with patients at risk for suicide. Patients can be encouraged to disclose factors that may indicate risk, through the development of a setting where they feel cared for, and where their experiences are recognized as part of the human condition. Towards this goal of creating a safe environment, offering validation of patients' feelings and experiences was another technique described. To develop rapport in the relationship with patients, some noted that "giving time" was an important contribution on behalf of the provider that they planned to employ in their practice. Working one-on-one with the patient was a strategy described by a respondent to establish a setting and working dynamic to best help an individual in crisis.

**Major Theme 4: Accessibility of resources for suicide risk assessment, treatment, and management.** The most prominent theme identified by respondents in terms of training aspects they planned to apply to practice consisted of the clinical tools and resources for assessment, treatment, and management of suicide risk.

*Assessment in suicide prevention.* Many identified "assessment" as the component of training that resonated well enough to potentially influence their practice. Content covering the

suicide risk assessment and screening questionnaires were considered memorable aspects of training. One participant anticipated taking on a universal prevention approach, planning to “screen all patients.” Other participants appreciated learning about the cultural considerations in assessment of suicide risk. Recognition of suicide risk and protective factors was a topic that learners planned to practice in the clinical setting. Participants described that they would ask about military service in the future to assist with accurate assessment of suicide risk level. Another specific assessment parameter mentioned was “asking about means” to also further evaluate severity of suicide risk. In addition to using structured tools for screening and assessment, other participants described plans to watch for “red flags,” “observe signs,” and use “signs as an invitation” for opening up a conversation about suicide.

***Clinical tools.*** Several participants very briefly responded that they were most likely to use the “resources” offered in the training in clinical practice. Others provided detailed examples of clinical tools they planned to use, with the safety plan as the most frequently identified tool. “Safety plan” or some description of the safety plan, was the most common response across all evaluation survey participants for the application question. For many of the learners, the concept of a safety plan was described as relatively new. As described in the literature review, previous training in suicide prevention focused on no-harm or safety contracts, signed by patients as an agreement not to engage in suicidal behavior. Participants expressed satisfaction with having a template to complete a safety plan step-by-step as a tangible intervention with a patient identified as at-risk. Several described the intention to use the plan in their current practice.

Another resource that many participants found valuable was emergency phone numbers, such as the crisis line. Some emphasized the adoption of this tool not only for their clinical practice, but also for their everyday life. Participants discussed how they now have the crisis line

numbers saved on their personal cell phones for easy access. Another learning highlight was knowledge about the Veteran crisis line and how to access it. A few participants reported that they did not know that there was a line specifically for Veterans, and were appreciative to have this resource, to assist a population with an elevated risk for suicide.

Many participants anticipated the use of resources incorporating technology in their practice. Tools such as the Virtual Hope Box application, the Facebook tool, and stress and meditation applications were among the online tools considered useful. Other useful tools included caring letters, hope packages, affirmation index cards, the SAFE-T suicide assessment five-step card, and the warning signs acronym IS PATH WARM. Having knowledge of a variety of tools that can be applied based on the demographic of the population being served was an important lesson that appeared to resonate with many in the training.

**Summary.** Several aspects of the training were considered applicable to practice for the participants. Learners recognized the responsibility they possessed after developing their knowledge and gaining access to suicide prevention resources and tools. Adjusting personal attitudes and approaches to practice were significant lessons for many of the participants. Some realized that effective communication with at-risk individuals depends on non-stigmatizing attitudes and a safe environment to disclose suicidal thoughts, plans, and behaviors. Finally, most participants described plans to use the various resources presented in the training content, to assist with assessment, management and treatment of suicide risk.

**Sub-aim 2. To identify themes of “ah-ha!” responses and practice examples reported by participants.**

One week after completion of the suicide prevention training, participants received an invitation to submit an “ah-ha!” moment or a practice example of a situation where they applied

the material learned. The purpose of this prompt was to better understand how the educational content applies to practice. For this study, the qualitative data from these reflections and practice examples were used to assist in evaluating the effectiveness of training. A limitation was that this data could not be connected to the pre-test, post-test responses, or the evaluation surveys.

Despite these restrictions, the responses provided greater depth beyond intentions of application, towards understanding how learners actually applied the knowledge into practice. Responses also offered researchers and educators insight into the material participants perceived as important aspects of learning, after having the opportunity to reflect on the material.

Content analysis was used to identify emergent themes from the responses. A total of 50 participants provided responses, and among them, 29 completed the online training, and 21 attended one of the in-person sessions. Similar to the application question from the evaluation survey, the overall tone of the responses was positive. Given that only a small percent of the total sample that completed the training provided responses, the results are subject to voluntary response bias. Four major themes surfaced in the data, as follows: 1) re-thinking practice and approach to suicide prevention; 2) actively translating knowledge into practice; 3) personal growth and development as a health care provider; and 4) spreading new knowledge in the clinical setting and community. A discussion of these themes follows below.

**Major Theme 1: Re-thinking practice and approach to suicide prevention.** The subheadings of this theme address insights nurses shared regarding their practice as it relates to suicide prevention. Evidence of evolving attitudes towards mandatory training, clarity in understanding suicide-related concepts, and techniques to employ with at-risk individuals were among the ways nurses' practice was influenced.

*Impact on nurses.* There were several positive influences of the training on nurses, as offered in their descriptions. Participants described heightened awareness about prevalence and indicators of suicidal thoughts and behaviors, shortly after the training. After learning about the prevalence of suicide, one participant noted awareness that anyone could potentially be struggling with suicidal ideation. Some described that education about the signs that someone was at risk for suicide became increasingly apparent when thinking retrospectively about individuals they knew who had died by suicide in the past. Others described that they now practice watching for signs of suicide risk in their everyday life and feel prepared to offer appropriate resources. Awareness was not limited to recognizing signs in patients; it also extended to community members and co-workers.

A few participants who identified as nurses discussed their concern, reluctance, and hesitation surrounding the concept of mandatory suicide prevention training. Ultimately, the content and requirements outlined by the Washington State law were imposed upon nurses and several health care providers. One nurse described that after the training, they felt more committed to suicide prevention efforts, despite the mandatory nature of its enforcement. They felt the training increased their “buy in” after learning about the importance of screening and offering resources to at-risk patients. Another nurse described how their initial concerns were ameliorated after completion of training, and they felt training was a “good cause” that “was well worth the time and effort.”

Many of the responses conveyed the perception that the material was “helpful” and informative to practice. One participant described how training helped reduce pressure and expectations for nurses “to be perfect” in their suicide prevention efforts. It allowed them to re-prioritize the importance of engaging patients in conversations about suicide to “open up the

dialogue.” Some also described that they now felt they could be helpful to patients at risk for suicide and expressed that they weren’t sure of what to do before. An example of this was offered by a nurse who explained that patients typically wait on their (non-psychiatric) inpatient unit until a psychiatric bed becomes available. Prior to the training, they felt uncertain about how to talk with suicidal patients, and as though patients’ time was being wasted while waiting, and now feel they can offer appropriate care.

Training offered new concepts that clarified the ambiguity of suicide-related constructs and increased a sense of urgency surrounding suicide risk. Distinguishing between self-harm and suicidal thoughts in the training offered significant clarity for one participant. After learning the difference, the nurse developed understanding that clear and direct assessment questions were important for accurate screening. One participant described how they developed an understanding of the impulsive nature of suicide attempts and related this to the importance of assessing for access to means in patients. Shortly after completion of the training, these participants offered evidence of the integration of new pieces of knowledge into practice through assessment questions that reflect an understanding of terminology and urgency.

Development of self-efficacy in assessing for suicide risk and offering referrals to appropriate treatment was an outcome of training described in several responses. It was common for participants to note that they did not directly ask about suicide in the past, as they did not feel comfortable doing so. For many, having practice sessions during the in-person training offered an opportunity to rehearse and develop confidence in screening and assessing patients in real life. A couple of nurses described directly asking patients about suicide. Upon patients’ endorsement of suicidal thoughts, the nurses felt comfortable guiding patients through a safety plan and connecting them with the proper resources.



***Taking ownership.*** Participants expressed belief in the value of the training and acknowledged the importance of their roles as nurses in preventing suicide. Responses described relevant settings and applications for the content. After completion of the training, one participant reflected that they felt the course would have been helpful during their time spent working in the emergency department. Another described that they found the “whole conference was informative,” and that suicide “was an important issue to discuss out loud.” One participant reflected that “it was an eye-opening class.”

Some demonstrated adoption of the spirit of the training by expressing caring concern. They offered examples of how they used the concept of in their daily life and practice. One participant described how a friend expressed suicidal ideation and in response, the training led them to practice using empathy, listening, and the safety plan. One nurse described recognizing behaviors in a co-worker that were concerning and potentially indicative of suicide risk. This prompted them to express care and directly ask about thoughts of suicide to support this individual. Another described awareness and belief in the potential to make a difference in the life of another person by reaching out to someone who is struggling. For one participant, a main lesson from the training was “letting someone know you care about them.” These responses indicate how participants took ownership in their roles as health care providers inside and outside of the practice and work setting, as well as understanding of essential concepts to convey to individuals dealing with suicidal thoughts.

***Memorable aspects.*** Nurses identified several clinical pearls from the training as valuable for the assessment, treatment, and management of individuals at risk for suicide. One example was given by a nurse who recognized risk factors in a patient who was feeling desperate about their situation, with significant stressors and recent losses. From the course content, the nurse

described how they knew the most appropriate next step was to develop a safety plan with the patient. Another clinical pearl that resonated for one participant was the high statistical likelihood of a suicide attempt when an individual has access to a weapon. This information cemented the importance of asking at-risk individuals about access to mean. Tools such as the IS PATH WARM acronym for warning signs of suicide were also a memorable reminder for some participants.

Directly asking patients about suicidal ideation and plans for suicide was a facet of the educational content that several participants endorsed as memorable in their responses. More specifically, gaining comfort with directly asking a question previously considered uncomfortable for many was a key learning point. Participants expressed recognition that personal discomfort in asking critical questions about suicide was less of a priority than the importance of understanding when a patient is at risk for suicide, due to the potential for intervention when this is known.

The impact of stories shared by speakers and in videos resonated with some learners, and the lessons learned from these experiences were cited as influential in participants' practice. One described feeling "very moved" when learning about the perspective of a suicide attempt survivor, and the feelings of immediate regret immediately after the attempt. As a result, this participant considered focus on access to means as an important intervention to reduce the potential of an impulsive, regrettable attempt. Another participant expressed appreciation that one of the speakers disclosed their personal story about how a family member's suicidal thoughts impacted them. Ultimately the speakers' commitment to suicide prevention was influential in preventing their family member's death. The participant was able to reflect on this and recognized how responsibility to others could help prevent suicide.

***Remaining concerns.*** The majority of respondents described positive regard for mandatory suicide prevention training, even when they had initial reservations. For some, concerns regarding lack of time and uncertainty in the ability to delegate these skills remained. One point discussed was that, currently, many nurses are “overburdened” with multiple tasks and expectations. Adding on new strategies to implement into practice require time. A solution offered for this concern was creating opportunities for students, who have more time and less responsibility, to practice the strategies when nurses are unable to. One limitation acknowledged by the participant who expressed this suggestion was that it is unclear how much suicide prevention education can be delegated to a non-licensed nursing student. Learning how to balance competing demands in order to make time for suicide prevention strategies is an anticipated challenge for providers. There is potential for unaddressed risk, if assessment, treatment, and management is foregone in favor of other priorities.

**Major Theme 2: Actively translating knowledge into practice.** This theme exemplifies how participants integrated suicide prevention knowledge into their clinical practice. Nurses described applying information and skills from the training into everyday life as well. One of the major forms in which translation of knowledge was manifested through changes in language and terminology.

***Application of training.*** Some participants were able to use the training to reflect on life experiences and clinical situations involving suicide. For one participant, a situation described in one of the training scenarios echoed a real-life experience of a suicide loss that they had endured. This highlights the relevance of the content and the applicability to realistic situations in order to prepare providers for the situations that they encounter. Many learners described everyday experiences relevant to the training; whether it was encountering a friend, a neighbor, co-worker,

or acquaintance who was conveying indicators of risk or expressing warning signs. It was common for participants to express that they felt they now knew what to do and acted on this knowledge.

A common way nurses practiced applying skills from training was through identification of risk in clients encountered. One participant described assessing an upset, tearful patient who was having financial difficulties and other significant stressors. Learning about the risk factors for suicide prompted this participant to directly ask about suicide, which they noted they would not have done before. Another participant shared a similar example where they received a call from a patient in distress seeking help for suicidal ideation, anxiety, and other mental health comorbidities. As a result of the training, this participant was able to identify risk, use the safety planning tool, provide resources, and make referrals to outpatient providers. The ability to assess and respond appropriately was a major aspect of learning detailed in the “ah-ha!” responses.

***Influence on practice.*** There were several examples that nurses shared of knowledge from training being actively translated into practice and ultimately influencing it. Overlapping across coding and themes was common in the analysis, and many of these examples have been previously discussed. Ways that nurses indicated training influenced their practice included intentional expression of caring concern, changing discourse for de-stigmatization, directly asking about suicidal ideation, increased vigilance in identification of risk, and re-thinking their roles in suicide prevention. As a result of training, some participants planned to use their employment roles to help spread knowledge from the training at their organization for integration and sustainability of the content.

***Talking about suicide.*** To assist with changing the culture of suicide prevention, many planned to change how they talk about suicide by adopting the CDC’s recommended

nomenclature. One participant described how terminology was a key learning point, and that they made an active effort to eliminate the term “committed suicide” from their practice. Rather, they are using the recommended phrase, “died by suicide,” instead. The lessons expressed in “ah-ha!” responses regarding the use of language surrounding suicide were very similar to those described in the application question on the evaluation surveys. Creating an open environment to facilitate conversations about suicide was identified as a first step. Participants developed an awareness of “how to word questions differently,” terms and phrases “not to say,” and the importance of “being direct” when assessing for thoughts and plans for suicide. One participant reflected on noticing that they talk to their patients differently, in what seems to be a more helpful way.

**Major Theme 3: Personal growth and development as a health care provider.**

Participants’ examples demonstrated awareness of their growth in knowledge, attitudes, and perspectives as health care providers, after completion of the training.

*Increasing knowledge.* Participants offered concrete examples of information that helped to develop and expand upon prior nursing knowledge. Learning about basic “background info” and “statistics,” as well as rich examples from a video describing the experiences of a suicide attempt survivor offered a range of depth for developing knowledge among providers. In order to sustain knowledge growth, some described how tools such as the IS PATH WARM acronym and screening tools have been useful in the clinical setting as reminders for practice change. In addition to improving knowledge, nurses described increased willingness to act upon what was learned in the training.

*Nurse attitudes.* As previously described, there was a shift in attitudes towards suicide prevention among the nurses after the training. When first faced with the mandatory training

requirement, some expressed hesitation regarding the requirement. Some participant responses contrasted these reluctant feelings with their belief in the value of training after completion, as well as increased commitment towards the cause of identifying and intervening with patients at risk. Increased understanding of the scope of the problem, introduction to skills of how to address the clinical problem of suicide risk, and potential interventions to implement, positively influenced the participants' attitudes.

***Growth of provider.*** One area of growth identified by participants was in the ability to offer education to others about what they learned. Some health care providers described how the training helped them explain the impulsive nature of suicide in a more effective way to educate individuals and families on the topic. Growth in the form of retention and application of new knowledge shared with others in the community and clinical setting contributed to professional ownership over nurses' role in suicide prevention. A sense of responsibility in disseminating the knowledge to others seemed to be enhanced.

Participants described previous reluctance to ask difficult questions about suicide due to concerns about how to respond to an individual actively endorsing suicidal ideation. After the training, nurses expressed greater confidence and willingness to assess through direct questions. Some offered examples of directly asking patients about suicide. After receiving responses from the individual denying suicidal ideation, providers expressed feeling relieved that they were able to ask the question in the first place. This suggests growth in the mindset surrounding willingness to engage others in discussions on suicide.

Challenging previous biases and perspectives was another aspect of development that training encouraged the participants to engage in. One nurse described how the education offered a new way of thinking about and dealing with the topic of suicide, because they are from a

background where it is generally avoided. The participant explained how the training challenged their previous beliefs and practices where they “just don’t talk about these kinds of things.” This reflection demonstrated growth through development of flexibility in thinking about how to approach the topic of suicide in order to better serve patients.

**Major Theme 4: Spreading new knowledge in the clinical setting and community.**

Dissemination of knowledge from the training inside and outside of the clinical setting was an essential theme in the analysis. Associated responses offered examples of how nurses spread the educational content to those around them and practiced the skills, and subsequent impact on others as a result.

*Nurses as a vehicle for spreading knowledge.* In concordance with original intent of the mandatory training law to disseminate of suicide prevention standards of suicide risk assessment, treatment, and management into care that nurses deliver, participants provided examples of how they spread the knowledge learned in their work place, clinical interactions, and in their surrounding community. One respondent described how the topic of suicide prevention is being incorporated into the clinical onboarding process for new hires, to standardize knowledge among nurses entering their organization. Information on the use of caring contacts through the use of handwritten letters sent to patients after discharge inspired one nurse to implement this practice in their work setting. Another provided an example of how they practice reinforcing their knowledge by teaching patients and their families about key aspects of suicide, such as the impulsive nature and identification of warning signs. Finally, multiple instances were described where participants recognized risk factors and warning signs in their friends, co-workers, and neighbors in the community, and took subsequent action based on their learning.

***Impact of training on others.*** The impact of training on long-term indicators such as suicide rates will require additional data and time to fully evaluate mandatory training. In the short-term, participants shared immediate impacts of using assessment and communication skills in their interactions. Several described positive outcomes as a result of directly asking an individual if they were having thoughts of suicide or a plan. One respondent shared that they were able to convey to an individual that they cared about their well-being by asking about suicide. Another responded described how implementation of strategies to stabilize a patient in crisis and keep them safe helped prevent a patient from dangerously acting upon their distress. As a result, they were able to keep the patient safe while in the hospital until discharge was appropriate. This example is one among several positive impacts on patients that were noted in responses.

**Summary.** Overall, the themes from “ah-ha!” responses indicated positive outcomes of the training on nurses’ practice, attitudes, individual development, and ability to impact others. Hesitation regarding the relevance and necessity of the training were expressed by some; and post-training, these attitudes shifted towards acceptance and support of suicide prevention efforts. Nurses drew comparisons between what they would have done in a situation with a suicidal patient in the past, and what they were motivated to do after training. Some were able to describe positive outcomes of employing the strategies and skills with patients, as well as future plans to support sustainability of suicide prevention knowledge through integration into their organizations. These themes offer short-term feedback on nurses’ experiences applying knowledge to practice and pave the way for monitoring long-term impact.



## Chapter 5. Discussion

The current study was designed to examine the effectiveness of mandatory suicide prevention training on nurses' knowledge, assess training satisfaction, and explore reflections and application of training. To this author's knowledge, this is the first study to explore the effectiveness of a suicide prevention training program designed to fulfill a state-mandated requirement for licensure for nurses and other health care providers. In this section, findings from the study are reviewed and compared with results from prior research studies. Implications of the findings for clinical practice, teaching, and administration are discussed. Limitations and strengths to consider in interpretation of the current study are addressed. Finally, recommendations for future research are proposed.

### Findings

In this study, participants' knowledge of suicide assessment, treatment, and management increased after completion of a six-hour suicide prevention training course used to fulfill mandatory licensure requirements. The in-person and online formats were comparable in post-test outcome and learner satisfaction. Participants expressed increased awareness, comfort, and motivation to act upon the knowledge as a result of the training.

A main aim of the study was to examine the effectiveness of a suicide prevention training program for increasing participants' knowledge related to assessment, treatment, and management of individuals at risk for suicide. The findings support an increase in knowledge about suicide assessment, treatment, and management. There was an overall increase in performance on individual test items for both in-person and online training formats, findings which support the effectiveness of the training in increasing knowledge post-training. There was one exception to improvement—a small decrease in performance in the in-person group

regarding the needs of suicide loss survivors. This suggests that future in-person training related to this topic requires clarification and emphasis of key points on postvention. The analysis of test performance across variables such as education level, specialty area, or health care role of participants in the online group found statistically significant differences within subgroups. For example, individuals with bachelor's degrees as their highest level of education were the group with greatest improvement in test score, compared with groups with other education levels. This finding suggests that there was not a direct positive relationship between test performance and level of education, since participants with higher educational attainment (e.g., master's or doctorate) did not outperform other groups. A caveat to this finding is that the subsample of individuals with bachelor's degrees was larger than any other group. In the analysis of performance according to specialties, college health and endocrinology had the greatest improvements in test score. The number of participants in each of these specialties was extremely small. For individuals with a college health specialty, there is possibility that they may have received prior training on suicide prevention given the prevalence of suicidal ideation and behaviors in young adults. However, there is no available method to confirm this possibility. The clinical nurse specialist group was the nursing profession that demonstrated the largest improvement on post-test performance. This group also had a very small subsample. Due to the wide variability and unequal distribution of participants across education levels, specialty areas, and health care roles, cautious interpretation of these findings is required.

The second aim of the study was to compare the in-person and online versions of the training. The findings indicate that the formats are comparable based on similar post-test outcomes. Participants in both groups scored similarly on the pre-test, suggesting that self-selection into one training format over another was not evidently associated with bias in baseline

knowledge. Post-test scores indicated that participants who took the in-person or the online suicide prevention training demonstrated similar understanding of the content based on the knowledge test. Wider variability in post-test scores was noted in the online group, as compared with the in-person group. One potential reason for this variability is that the online learners were given the opportunity to take the post-test multiple times, until a score of 80% was achieved. In-person learners were only given one opportunity to complete the post-test and receiving a certificate of completion was not predicated on test-performance. For online learners, the 80% passing requirement was necessary in order to move on to the evaluation survey and obtain a certificate of completion. Only the first post-test attempt was included in this analysis of the online learners. Online learners were aware they could make multiple test-taking attempts. This may have contributed to lower post-test scores for some participants in the large online sample, leading to greater variability. The sub-aim comparing participants' training satisfaction of the in-person and online formats found that both groups rated their respective formats highly in terms of teaching effectiveness. Participants selected this training program on their own volition from several choices approved by the Washington State Department of Health. Additionally, they self-selected to complete the training in format that they preferred. These factors likely contributed to their overall ratings of satisfaction with the training.

The final aim of the study was to explore the reflections and application of the training to practice. The overall tone, reflections, and practice examples were positive, and participants demonstrated positive attitudes, growth and motivation to contribute to suicide prevention efforts through their practice. One significant theme that emerged from the qualitative responses was regarding previous discomfort surrounding how to broach the topic of suicide in the clinical setting. This discomfort seemed to be due to fear of saying the wrong thing, of making things

worse for the patient, and of not being able to control personal reactions. Participants expressed previous beliefs of needing to create solutions to resolve suicidal thoughts and behaviors for patients. These responses revealed previous misconceptions of the role of health care providers, contributing to previous reluctance among participants to ask patients about suicide in the past. As a result of the training, several respondents described alleviation of this fear, increased confidence, and feelings of motivation to act on the knowledge gained. Associated with the discomfort experienced were feelings of stigma, as evidenced by reflections on previous tendencies to apologize to patients for asking about suicide. The training helped some to realize the need to stop apologizing and to be confident in directly asking about suicide, in order to help patients. These participants' insights demonstrate that addressing stigma experienced by health care providers about the topic of suicide serves as a first step in reducing stigma experienced by patients.

### **Comparison with Previous Findings**

Effectiveness of brief suicide prevention training programs delivered to health care providers have demonstrated improvements in knowledge, attitudes, and willingness to care for suicidal patients. Health care providers' attitudes towards individuals with suicidal ideation influence the ability to accurately assess suicide risk (Kishi et al., 2014). When health care providers harbor negative attitudes toward suicidal patients, care delivery is impaired (Botega et al., 2007). It is thought that negative attitudes are related to deficits in knowledge about how to provide care for suicidal patients (Botega et al., 2007). One study in Japan implemented a training workshop in comparable length (7 hours) to the present study and found that suicide prevention training resulted in positive increases in health care providers' understanding and willingness to care for suicidal individuals (Kishi et al., 2014). Scores on survey measures

identified positive improvements in attitudes towards suicidal individuals, inner emotional reactions, and perceived need for training (Kishi et al., 2014). These findings are consistent with the qualitative results from the present study where participants described positive improvements in attitudes and motivation to adjust their practice to contribute to suicide prevention efforts.

After completion of the training and demonstrating gains in knowledge on the post-test, participants in the current study emphasized intentions and examples of directly asking patients about suicidal thoughts and plans. Previously, participants were reluctant to ask, intervene, or provide care for suicidal patients, due to lack of knowledge of what to say, how to control their reactions, and what to do after a patient endorses suicidal thoughts. Managing suicide risk in the clinical setting suffers when communication is ineffective (Botega et al., 2007). Learning how to communicate effectively was a significant finding in the qualitative results and helped increase participants' self-efficacy in suicide risk assessment. In the responses, a barrier to suicide risk assessment was not knowing how to respond to a patient. The training provided communication strategies, several resources, and tools that learners felt they could use in clinical practice, thereby increasing their confidence and willingness to engage with suicidal patients.

Qualitative findings from a mixed methods study in Hong Kong found that after implementation of a suicide prevention training program, participants demonstrated increased awareness of suicide and became more comfortable interacting with patients (Chan, Chien, & Tso, 2009). These findings are also consistent with the current study, as the "ah-ha!" responses described awareness of the prevalence of suicidal thoughts and behaviors among patients and even community members. Participants also similarly described increased comfort after completion of the training, especially in relationship to asking about suicide. According to the theory of planned behavior, factors such as knowledge and attitudes that influence beliefs and

intentions may lead to changes in behaviors (Ajzen, 1985; Smith, Silva, Covington, & Joiner Jr, 2014). The increases identified on the knowledge assessment, and positive changes in attitudes expressed in the qualitative responses, may contribute to future engagement in suicide risk assessments and interventions.

Information about the impact of training on knowledge, attitudes, and practice is limited to immediate outcomes, given that data was only collected up to one week after the training. Prior studies offering brief suicide prevention training to health care providers have indicated potential to sustain positive outcomes for up to 6 months. Improvement in attitudes has been found to last for up to one-month after brief training (Kishi et al., 2014). Another study involving a 6-hour suicide prevention training in Brazil found retention of knowledge on suicide risk factors and maintenance of positive attitude improvements for up to 6 months after suicide prevention training (Botega et al., 2007). Little is known about longitudinal outcomes of this particular training, which would be valuable information to collect, given the minimum requirement for registered nurses is a one-time, six-hour suicide prevention training course.

In the present study, health care providers in the psychiatric/mental health specialty did not demonstrate advantage in pre-test or post-test performance on the knowledge test. These findings are consistent with previous research that training of mental health professionals in assessment and management of suicide risk is limited (Schmitz Jr et al., 2012). The rates at which health care providers working in mental health are likely to encounter a suicidal individual are high. Estimates of 87% of social workers and 97% of psychologists in training encounter individuals with suicidal thoughts or behaviors regularly (Schmitz Jr et al., 2012). The likelihood that psychiatric/mental health nurses encounter suicidal individuals on a regular basis is anticipated to be quite high as well. The authors contend that competent practice for suicide risk

assessment, treatment, and management requires not only didactic training, but opportunities for practice, and supervision (Schmitz Jr et al., 2012). In the present study, participants were given the opportunity to role-play scenarios to practice the skills from didactic lectures. However, opportunities for supervision of skills in practice are a recommended component missing from the training. Integration of suicide prevention training into nursing education curriculum would provide opportunities for supervision of skill implementation in clinical practicums. Developing requirements for pre-licensure health sciences programs to include suicide prevention education into curriculum would be one strategy for addressing obtaining supervision in development of suicide risk assessment, management, and treatment skills.

The in-person and online training formats of the current study were found to be comparable in outcomes based on knowledge test performance and evaluation survey ratings of training effectiveness and satisfaction. Offering suicide prevention training in formats that are easily accessible is crucial for accomplishing the goal of fulfilling mandatory training requirements for the large population of nurses and other health care providers in Washington. Previous research has found that delivering suicide prevention and mental health care training programs in online formats has been effective for improving care of populations at risk for suicide (de Beurs et al., 2015). One randomized-controlled trial delivered suicide prevention training to health care providers in an in-person or online format. It was found that the two training formats were comparable in delivery of content, and the formats were considered equivalent. Findings were based on similar results in learning outcomes of competence, beliefs, motivation, confidence, and self-efficacy in managing suicidal patients (Magruder et al., 2015). The study by Magruder et al. (2015) supports the feasibility of delivering suicide prevention training in an online format, with outcomes comparable to those of an in-person delivery format.

These results are consistent with the findings of the current study. Another study offering web-based gatekeeper suicide prevention training established the feasibility of online training (Lancaster et al., 2014). Compared with in-person training, the web-based version was found to be similarly effective on a variety of measures. Initially, participants demonstrated significant gains in knowledge, self-efficacy, and behavioral intentions to use suicide prevention skills after completion of the web-based training (Lancaster et al., 2014). Six-months post-training, there were notable declines in the in-person and web-based groups on each of the outcomes that previously demonstrated improvements (Lancaster et al., 2014). Measures to monitor long-term outcomes of training in the current study are not in place and would contribute to an understanding of the effectiveness of mandatory suicide prevention requirements. Understanding the time-interval by which learners are likely to experience a significant decline in suicide prevention knowledge, skills, and behaviors, would provide insight into recommended frequency for training refreshers. Mandatory suicide prevention training refreshers are required every six years for health care providers in mental health, such as psychologists and mental health counselors (WSDOH, 2018). Evaluating longitudinal outcomes could offer evidence to influence recommendations for frequency of training, as many health care professionals, including nurses, currently have a one-time requirement.

### **Nursing Implications**

The findings of the study demonstrate the impact of suicide prevention training, motivated by completion of a mandatory requirement, on clinical practice. In addition to improving knowledge, respondents described increased self-efficacy for integrating knowledge and skills into practice. These outcomes benefit clinical practice and are anticipated to benefit patient outcomes. There was evidence that learners translated their knowledge into practice.



After the brief training, whether in-person or online, participants' increased knowledge and motivation led to positive descriptions of their experiences using suicide risk assessments and making referrals as part of their clinical practice. These findings suggest that suicide prevention training can have short-term impacts on suicide risk assessment, management, and treatment in the clinical setting.

The results of the study—that knowledge, awareness, comfort, and motivation to provide care for suicidal individuals were improved as a result of the training—are relevant to nursing educators. Inclusion of training requirements in nursing pre-licensure programs may influence nurses' abilities earlier in their nursing careers to provide care for populations at-risk for suicide. From the knowledge assessment, it was evident that the majority of nurses, despite the specialty area, demonstrated significant gains in knowledge as a result of the training. Psychiatric/mental health nurses did not demonstrate advantage in knowledge compared with other specialties. This suggests limitations in suicide prevention curriculum for nurses specializing in this area, despite the high likelihood that they may encounter a suicidal individual on a regular basis while working in mental health. Based on these findings, nursing education programs and specialty fields such as psych/mental health may benefit from evaluating current curriculum on suicide prevention.

In order to develop infrastructure for support of suicide prevention efforts, the findings of the current study are relevant to health care organizations and their leaders. Organizational support for knowledge gained is necessary to facilitate the integration of content and skills into clinical practice. Providing resources and support for initiatives and quality improvement projects—to adopt suicide prevention screening tools, safety plans, and discharge follow-up into care pathways for patients at-risk for suicide—are some examples of how organizations can

support the mandatory training completed by health care providers and promote quality care to prevent suicide.

### **Limitations**

There was limited access to demographic data of the participants. Information on variables such as age, gender, race/ethnicity, income, experience in health care, health care role, or frequency of contact with individuals with suicidal thoughts or behaviors was not collected. These demographic data could have been used to identify how these variables may have influenced the results. The availability of demographic data was not consistent across both formats. In the in-person format, it was not possible to distinguish registered nurses from other health care providers, making it difficult to apply the findings solely to nurses. Level of health care experience was available for the in-person participants. However, this variable could not be connected to scores on the post-test. Additionally, the paucity of demographic data and inability to link knowledge test results, training satisfaction, and qualitative data responses, prevented the ability to triangulate the qualitative data.

Changes in attitudes and application of training were based on qualitative responses. Structured and validated tools used to evaluate attitudes and skill level in suicide risk assessment, management, and treatment would have provided more information on these variables for a larger sample of participants. Conclusions from qualitative data are restricted due to the sample size.

There was limited accessibility to longitudinal data to assess knowledge retention. The time points immediately before and after the training were the primary measures used to evaluate knowledge as a result of the training. The findings cannot be generalized to describe long-term retention of knowledge, awareness, and motivation. The impact of mandatory suicide prevention

training on distal outcomes such as reduction in suicide prevention rates is unclear, due to lack of access to longitudinal data on parameters such as knowledge retention and translation of knowledge into practice. Given the infancy of the mandated training law, it will require time to evaluate any potential changes in suicide rates.

Depth in understanding of the complexity of suicide prevention was limited by the 6-hour scope of the training. In a reflection on the training, a participant described how suicide prevention is a shared responsibility among everyone. One of the potential limitations of considering suicide prevention to be the task of everyone in society is the potential consequence of diffusion of responsibility. Considering suicide prevention to be a responsibility for all may decrease accountability due to assumptions that a health care colleague or someone else will identify and intervene with an at-risk individual. Clarifying the scope of various roles inside and outside of health care in suicide prevention may allow a deeper understanding of the context within which nurses and other health care providers are expected to contribute to suicide prevention efforts.

Timing may have influenced the outcomes of the current study. The mandatory training requirement for nurses in Washington State became effective as of January 1, 2016. Nurses included in the current study completed their training in an early phase of the mandatory requirement (September 2016 to October 2017 in-person, and November 2016 to February 2018 online), indicating that some may have been more motivated learners. The in-person learners completed the training during an interval earlier than the online group. Increased motivation in the in-person group may have influenced post-test performance, contributing to explanation of greater variability in post-test scores in the online group. Health care providers who delay

completion of the training requirement may be less motivated to learn about the topic or engage in suicide prevention training efforts.

Understanding of the impact of mandatory suicide prevention training in this study is restricted to this single suicide prevention training program, which is one of over 40 programs approved by the Washington State Department of Health. Access to data on outcomes from other approved training programs was not available for comparison. Additionally, there is considerable variation across different programs, limiting generalizability of the results of this particular training. A main strength of the study was the large number of subjects enrolled in the training program, providing support for the results on the knowledge test outcomes, training satisfaction, and content identified as relevant to participants, which they planned to apply in practice.

### **Future Research**

Recommendations for future research include utilization of validated survey measures to evaluate attitudes toward mandatory training at baseline and post-training. In the current study, data on attitudes was offered in the qualitative responses, and was restricted to the small sample of participants who volunteered to respond. Using a standardized survey tool that has been integrated into other suicide prevention training research studies on health care providers would improve the ability to compare results across studies. Having a larger sample of participants report attitudes would also provide greater power in analysis of the findings.

The impact of mandatory suicide prevention training for health care workers should be monitored longitudinally. Future studies may benefit from assessing suicide prevention knowledge, attitudes, and behaviors longitudinally—ideally at six months, then yearly for six years thereafter. This information would help researchers, health care organizations, and legislators evaluate the frequency with which booster trainings, to refresh knowledge, should be

completed. In addition, collecting data to evaluate how often the nurses are using the skills in practice would also provide additional information on proximal outcomes of the training, towards the overarching goal of reducing suicide rates.

### **Conclusion**

This study, evaluating the effectiveness of a suicide prevention training program for nurses that were required to complete a mandatory licensure requirement, demonstrated positive impacts on knowledge, awareness, comfort, and motivation to provide care to individuals at-risk for suicide. Restrictions in availability of data and data collection time points limits the generalizability of the findings. Future research monitoring long-term impacts of mandatory training on nurses' clinical practice is recommended.

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## APPENDIX A

### Pre-test and Post-test Questions

1. Which of the following is involved in a safety plan?
  - a. Identifying internal coping strategies
  - b. Making a no-harm contract
  - c. Identifying people to ask for help
  - d. Identifying internal coping strategies AND people to ask for help
  - e. Identifying internal coping strategies AND people to ask for help AND making a no-harm contract
2. For approximately 25% of individuals, the time elapsed between making a decision to end one's life and actually making a suicide attempt is 5 minutes or less.
  - a. True
  - b. False
3. The role of a Registered Nurse (RN) in suicide prevention includes which of the following?
  - a. Supporting family/friends in caring for a person who has thoughts of suicide
  - b. Calling a mental health professional to conduct an assessment because this is out of the RN's scope of practice
  - c. Keeping the information confidential between the RN and patient
  - d. Assuring the patient that things will get better
4. Which of the following statements is true?
  - a. It is a violation of HIPAA regulations to share confidential information with a family member of an individual who is suicidal
  - b. Psychiatric hospitalization is appropriate for most individuals who attempt suicide
  - c. Individuals who are suicidal should always be seen in the emergency department
  - d. Screening patients for suicide risk is an appropriate nursing activity
5. What suicide loss survivors usually need most is:
  - a. Privacy
  - b. Sympathy in the form of sharing about other losses
  - c. Information about suicide and coping resources
  - d. Reassurance that they will feel better as time passes
6. According to the Centers for Disease Control and Prevention, which of the following terms is an acceptable way to describe suicidal behavior?
  - a. Committed suicide
  - b. Suicide gesture
  - c. Failed suicide attempt
  - d. Suicidal self-directed violence
7. In the United States, 10 Veterans die by suicide each day.
  - a. True
  - b. False
8. When assessing suicide intent, which of the following questions is not appropriate to ask?
  - a. Have you considered using a gun or pills to end your life?
  - b. When would you do this?
  - c. What have you done toward carrying out this plan?

- d. How would you do this?
9. You assess that your patient has thoughts of suicide, no plan to attempt suicide, and has made one prior moderate lethality suicide attempt. The most appropriate next step is:
- a. Instruct the patient to track their mood for the next week and come back for another appointment
  - b. Work with the patient to complete a safety plan
  - c. Consult with a provider (MD or ARNP) about starting medications
  - d. Call a designated mental health professional for evaluation
10. IS PATH WARM is an acronym used to remember important suicide risk warning factors. What does the “H” stand for?
- a. Hurting
  - b. Hopelessness
  - c. Helplessness
  - d. Homicidal ideation

# APPENDIX B

## Online Evaluation Survey

11/17/2016

Online Education | Suicide Prevention Training | UW Continuing Nursing Education

UW Continuing Nursing Education Online Education | Suicide Prevention Training **Course objects**

Help

**Online Education | Suicide Prevention Training**

More help topics

Instructions

To add objects to your course, click on the Add button next to the object you would like to add.

After filling the required information and saving, the object will then move over from the Actions column to the Existing Activities column.

You may then edit or delete the object.

At the bottom of this page you will see a preview panel of the course objects. This represents the learner view of the course workflow.

You may set the order, requirements, and quiz types on the *Certificate requirements* screen.

This course already contains completed users. Adding new course objects will not remove their completion.

Update this Evaluation

View Your responses- view 2 All responses (2) Advanced settings Questions Preview

### Evaluation

\*1. Please verify your completion of this online course. This question is required to receive contact hour credit.

- Yes, I attest that I viewed/listened to all of the lectures and completed all the activities.
- No, I did NOT view/listen to all of the lectures and complete all the activities.

\*2. How relevant was the content to your practice?

- Not relevant
- Somewhat relevant
- Very relevant

\*3. For your learning needs, how appropriate was the level of the content?

- Too advanced
- Too basic
- About right

\*4. Please rate the speakers' teaching effectiveness for each of the modules in this training.

	Poor	Fair	Good	Very Good	Excellent
Part 1: Introduction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Part 2: Assessment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Part 3: Management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Part 4: Treatment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Part 5: Other Dimensions of Importance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. Comments about speakers or specific modules?

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\*6. How well did the course meet the stated learning outcomes? *i.e., Participants will be better able to:*

	Not Met	Adequately	Very Well
Describe risk and protective factors influencing suicide risk.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discuss facilitators and barriers to implementing suicide prevention measures.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Demonstrate suicide risk assessment, treatment and management skills.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Apply suicide risk assessment, treatment and management strategies to case scenarios.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\*7. What is your overall assessment of this course?

	Poor	Fair	Good	Very Good	Excellent
Please choose one response.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\*8. Please rate the level of difficulty in accessing and using the online course content.

	Very difficult	Difficult	Neutral	Easy	Very easy
Please choose one response.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. Please tell us about your experience with the technology used in this course (*technical support, instructions, handouts, ease of use*)

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\*10. How long did it take you to complete this course?

- Under 6 hours
- Over 6 hours
- About 6 hours

\*11. **Would you recommend this course to a colleague?**

- Yes
- No

\*12. **Give one example of content presented in this course that you will apply in practice.**

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13. **Additional comments about the course (e.g. what you liked best, how it could be improved, why you chose this particular Suicide Prevention Training...)**

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## APPENDIX C

### “Ah-ha!” Reflection Prompt

#### SAMPLE EMAIL INVITING PARTICIPANTS TO SUBMIT A PRACTICE EXAMPLE

Dear [Registrant's Name]:

It has been a week since you completed our Suicide Prevention Training. If one of the presentations gave you an "ah-ha!" moment or you have had a situation in which you applied information learned in the course, please let us know by submitting a Practice Example. It's easy and will take less than five minutes. When you describe how learning can transfer to practice, you truly make a difference to our presenters and planning committee as well as hone your reflective practice skills!

Click here to write and submit your example:

[http://uwcne.org/node/436?title=Online-Education-Suicide-Prevention-Training-\(17142-OL-00\)](http://uwcne.org/node/436?title=Online-Education-Suicide-Prevention-Training-(17142-OL-00))

In appreciation of your time, each Practice Example you submit this year will be entered into a drawing for a free one-day UWCNE conference. The winner will be selected and notified in January of next year. Please feel free to submit as many Practice Examples as you wish.

Thank you for helping us document how “CE Makes a Difference!”

Sincerely,

The UWCNE Team and Course Planning Committee



## Practice Example

### CE Makes a Difference!

*Please help us document the effectiveness of our offerings by submitting a Practice Example.*

Describe a situation in which a UW Continuing Nursing Education (UWCNE) offering...

- Helped you improve standards of care in your work setting.
- Helped you improve a specific patient's care and health outcomes.
- Gave you new tools to educate others (e.g., colleagues, students, family, friends).
- Gave you an "Ah-ha!" moment, and you were able to connect that knowledge with your professional or personal life. Helped you decide to change something in the near future.

**Activity (Conference, workshop, course, etc.):**

Online Education Suicide Prevention Training (17142-OL-00)

**Is your practice example about the entire activity or a particular presentation: \***

- Entire activity
- Individual presentation(s)

**If you selected "individual presentation" above, please list the title or topic of the presentation(s) that influenced your practice (optional):**

**Practice Example: \***

*Type your own experience in the space provided above. Be sure to de-identify patient information. If you copy and paste from Word, you may lose some formatting. Read a Sample Practice Example.*

**Patient Information: \***

- I have de-identified patient information. - What is this?
- Not applicable.

**Permission to Share: \***

- I give my permission for this example to be shared and to be included (anonymously) in digital or print media or in UW Continuing Nursing Education quality improvement initiatives.
- I do NOT give permission for this example to be shared.

**First Name: \***

**Last Name: \***

**Email address: \***

hazard@u.washington.edu

**Primary position: \***

- Admin Management
- Case Manager
- Certified Nurse Midwife
- Chemical Dependency Counselor
- Clinical Nurse Specialist

**Level of experience in nursing: \***

Less than 2 years

SUBMIT



## APPENDIX D

### Mandatory Training Requirements for Health Care Professionals in Washington



[Home](#) > [For Public Health and Healthcare Providers](#) > [Healthcare Professions and Facilities](#) > [Suicide Prevention](#)  
> [Training Requirements](#)

## Suicide Prevention Training for Health Professionals

### State of Washington Health Profession Mandatory Suicide Prevention Training

#### Tools and Links

[Suicide Prevention Training Home](#) | [Program Approval Process](#) | [Suicide Prevention Plan](#) | [Resources](#)

Legislation ([RCW 43.70.442](#)) requires that the health professions listed below take a suicide prevention course that meets their hour and content requirement before the end of the next full continuing education reporting period. Implementation dates vary by profession. After identifying the suicide prevention training requirements for a profession, find courses on the [2017 Model List](#).

For specific questions about your own suicide training requirements or whether a particular training is appropriate for your health profession, please contact the program manager or executive director of your profession's board or commission.

#### People in the following professions must complete suicide prevention training:

Profession	Hours of Training and Frequency	Core Training Components and Content
<a href="#">Social workers</a> <ul style="list-style-type: none"> <li>• Advanced social workers</li> <li>• Advanced social worker associates</li> </ul>	Six hours at least once every six years	<ul style="list-style-type: none"> <li>• Suicide assessment, treatment and management</li> <li>• Imminent harm via</li> </ul>

<ul style="list-style-type: none"> <li>• Independent clinical social workers</li> <li>• Independent clinical social worker associates</li> </ul> <p>* began January 1, 2014</p>		<p>lethal means or self-injurious behaviors</p> <ul style="list-style-type: none"> <li>• Content on veterans</li> </ul>
<p><u>Certified counselors   certified advisers</u></p> <p>* began January 1, 2014</p>	Three hours every six years	Suicide screening and referral
<p><u>Chemical dependence professionals</u></p> <p>* began January 1, 2014</p>	Three hours every six years	Suicide screening and referral
<p><u>Chiropractors</u></p> <p>* began January 1, 2016</p>	Three hours one time	Suicide screening and referral
<p><u>Dentists</u></p> <p>* beginning August 1, 2020</p>	Three hours one time	<ul style="list-style-type: none"> <li>• Suicide screening and referral</li> </ul> <p>Assessment of issues related to imminent harm via lethal means</p>
<p><u>Dental hygienists</u></p> <p>* beginning August 1, 2020</p>	Three hours one time	<ul style="list-style-type: none"> <li>• Suicide screening and referral</li> </ul>
<p><u>Licensed mental health professionals</u></p> <p>* began January 1, 2014</p>	Six hours at least once every six years	<ul style="list-style-type: none"> <li>• Suicide assessment, treatment and management</li> </ul>

		<ul style="list-style-type: none"> <li>• Imminent harm via lethal means or self-injurious behaviors</li> <li>• Content on veterans</li> </ul>
<p><u>Licensed practical nurses (LPN), registered nurses (RN) and advanced registered nurse practitioners (ARNP)</u></p> <p>- certified registered nurse anesthetists are exempt</p> <p>* began January 1, 2016</p>	Six hours one time	<ul style="list-style-type: none"> <li>• Suicide assessment, treatment and management</li> <li>• Imminent harm via lethal means or self-injurious behaviors</li> <li>• Content on veterans</li> </ul>
<p><u>Marriage and family therapists</u></p> <p>* began January 1, 2014</p>	Six hours at least once every six years	<ul style="list-style-type: none"> <li>• Suicide assessment, treatment and management</li> <li>• Imminent harm via lethal means or self-injurious behaviors</li> <li>• Content on veterans</li> </ul>
<p><u>Naturopaths</u></p> <p>* began January 1, 2016</p>	Six hours one time	<ul style="list-style-type: none"> <li>• Suicide assessment, treatment and management</li> <li>• Imminent harm via lethal means or self-injurious behaviors</li> <li>• Content on veterans</li> </ul>
<p><u>Occupational therapists and assistants</u></p> <p>* began January 1, 2014</p>	Three hours at least once every six years	Suicide screening and referral

<p><u>Osteopathic physicians and surgeons</u></p> <p>- holders of a postgraduate training license issued under <u>RCW 18.57.035</u> are exempt</p> <p>* began January 1, 2016</p>	<p>Six hours one time</p>	<ul style="list-style-type: none"> <li>• Suicide assessment, treatment and management</li> <li>• Imminent harm via lethal means or self-injurious behaviors</li> <li>• Content on veterans</li> </ul>
<p><u>Osteopathic physician assistants</u></p> <p>* began January 1, 2016</p>	<p>Six hours one time</p>	<ul style="list-style-type: none"> <li>• Suicide assessment, treatment and management</li> <li>• Imminent harm via lethal means or self-injurious behaviors</li> <li>• Content on veterans</li> </ul>
<p><u>Pharmacists</u></p> <p>* began January 1, 2017</p>	<p>Three hours one time</p>	<ul style="list-style-type: none"> <li>• Suicide screening and referral</li> <li>• Assessment of issues related to imminent harm via lethal means</li> </ul>
<p><u>Physicians</u></p> <p>-residents holding a limited license issued under <u>RCW 18.71.095</u> (3) are exempt</p> <p>* began January 1, 2016</p>	<p>Six hours one time</p>	<ul style="list-style-type: none"> <li>• Suicide assessment, treatment and management</li> <li>• Imminent harm via lethal means or self-injurious behaviors</li> <li>• Content on veterans</li> </ul>


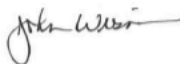
<p><u>Physician assistants</u></p> <p>* began January 1, 2016</p>	<p>Six hours one time</p>	<ul style="list-style-type: none"> <li>• Suicide assessment, treatment and management</li> <li>• Imminent harm via lethal means or self-injurious behaviors</li> <li>• Content on veterans</li> </ul>
<p><u>Physical therapists and assistants</u></p> <p>* began January 1, 2016</p>	<p>Three hours one time</p>	<p>Suicide screening and referral</p>
<p><u>Psychologists</u></p> <p>* began January 1, 2014</p>	<p>Six hours at least once every six years</p>	<ul style="list-style-type: none"> <li>• Suicide assessment, treatment and management</li> <li>• Imminent harm via lethal means or self-injurious behaviors</li> <li>• Content on veterans</li> </ul>
<p><u>Retired active licensee</u> for one of these professions:</p> <ul style="list-style-type: none"> <li>• Naturopaths</li> <li>• LPNs, RNs, or ARNPs (certified registered nurse anesthetists are exempt)</li> <li>• Osteopathic physicians and surgeons (other than a holder of a postgraduate osteopathic medicine and surgery license)</li> <li>• Osteopathic physician</li> </ul>	<p>Six hours one time</p>	<ul style="list-style-type: none"> <li>• Suicide assessment, treatment and management</li> <li>• Imminent harm via lethal means or self-injurious behaviors</li> <li>• Content on veterans</li> </ul>

<p>assistants</p> <ul style="list-style-type: none"> <li>• Physician assistants</li> <li>• Physicians (other than a resident holding a limited license)</li> </ul> <p>* began January 1, 2016</p>		
<p>Retired active license as a <u>dentist</u></p> <p>* begins August 1, 2020</p>	<p>Three hours one time</p>	<p>Assessment of issues related to imminent harm via lethal means</p>

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## APPENDIX E

### Minimum Standards for Mandatory Training Requirement

	<h2 style="margin: 0;">RULE-MAKING ORDER</h2>	<h3 style="margin: 0;">CR-103P (May 2009)</h3> <p style="margin: 0;">(Implements RCW 34.05.360)</p>						
Agency: Department of Health		<b>Permanent Rule Only</b>						
<b>Effective date of rule:</b> <b>Permanent Rules</b> <input type="checkbox"/> 31 days after filing. <input checked="" type="checkbox"/> <b>Other (specify)</b> 06/30/2016 (If less than 31 days after filing, a specific finding under RCW 34.05.380(3) is required and should be stated below)								
<b>Any other findings required by other provisions of law as precondition to adoption or effectiveness of rule?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No    If Yes, explain: RCW 43.70.442 (c) states "by June 30, 2016, the department shall adopt rules establishing minimum standards for the training programs included on the model list".								
<b>Purpose:</b> Chapter 246-12 WAC, Part 14. Adopting new sections that establish minimum standards for suicide prevention trainings for health care professionals.								
<b>Citation of existing rules affected by this order:</b> Repealed: None Amended: None Suspended: None								
<b>Statutory authority for adoption:</b> RCW 43.70.442								
<b>Other authority :</b>								
<b>PERMANENT RULE (Including Expedited Rule Making)</b> Adopted under notice filed as WSR <u>16-09-098</u> on <u>04/19/2016</u> (date). Describe any changes other than editing from proposed to adopted version: E2SHB 2793 (Chapter 90, Laws of 2016) amended RCW 43.70.442 to require pharmacists licensed under chapter 18.64 RCW to complete a one-time training in suicide screening and referral. A new subsection (4) (c) was added to WAC 246-12-630 that reads, "(c) Three-hour trainings for pharmacists must include content related to the assessment of issues related to imminent harm by lethal means."								
If a preliminary cost-benefit analysis was prepared under RCW 34.05.328, a final cost-benefit analysis is available by contacting: <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Name: Kathy Schmitt</td> <td style="width: 50%;">phone <u>360-236-2985</u></td> </tr> <tr> <td>Address: Department of Health P.O. Box 47853</td> <td>fax <u>360-236-2901</u></td> </tr> <tr> <td>Olympia, WA 98504</td> <td>e-mail <u>kathy.schmitt@doh.wa.gov</u></td> </tr> </table>			Name: Kathy Schmitt	phone <u>360-236-2985</u>	Address: Department of Health P.O. Box 47853	fax <u>360-236-2901</u>	Olympia, WA 98504	e-mail <u>kathy.schmitt@doh.wa.gov</u>
Name: Kathy Schmitt	phone <u>360-236-2985</u>							
Address: Department of Health P.O. Box 47853	fax <u>360-236-2901</u>							
Olympia, WA 98504	e-mail <u>kathy.schmitt@doh.wa.gov</u>							
<b>Date adopted:</b> 06/29/16	<b>CODE REVISER USE ONLY</b>							
<b>NAME (TYPE OR PRINT)</b> John Wiesman, DrPH, MPH	<div style="border: 2px solid black; padding: 10px; width: fit-content; margin: auto;"> <p style="margin: 0;">OFFICE OF THE CODE REVISER STATE OF WASHINGTON FILED</p> <p style="margin: 5px 0;"><b>DATE: June 29, 2016</b></p> <p style="margin: 5px 0;"><b>TIME: 9:05 AM</b></p> <p style="margin: 5px 0;"><b>WSR 16-14-048</b></p> </div>							
<b>SIGNATURE</b> 								
DrPH, MPH								
<b>TITLE</b> Secretary of Health								

(COMPLETE REVERSE SIDE)

**Note: If any category is left blank, it will be calculated as zero.  
No descriptive text.**

Count by whole WAC sections only, from the WAC number through the history note.  
A section may be counted in more than one category.

The number of sections adopted in order to comply with:

<b>Federal statute:</b>	New	<u>0</u>	Amended	<u>0</u>	Repealed	<u>0</u>
<b>Federal rules or standards:</b>	New	<u>0</u>	Amended	<u>0</u>	Repealed	<u>0</u>
<b>Recently enacted state statutes:</b>	New	<u>6</u>	Amended	<u>0</u>	Repealed	<u>0</u>

The number of sections adopted at the request of a nongovernmental entity:

	New	<u>0</u>	Amended	<u>0</u>	Repealed	<u>0</u>
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The number of sections adopted in the agency's own initiative:

	New	<u>0</u>	Amended	<u>0</u>	Repealed	<u>0</u>
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The number of sections adopted in order to clarify, streamline, or reform agency procedures:

	New	<u>0</u>	Amended	<u>0</u>	Repealed	<u>0</u>
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The number of sections adopted using:

<b>Negotiated rule making:</b>	New	<u>0</u>	Amended	<u>0</u>	Repealed	<u>0</u>
<b>Pilot rule making:</b>	New	<u>0</u>	Amended	<u>0</u>	Repealed	<u>0</u>
<b>Other alternative rule making:</b>	New	<u>6</u>	Amended	<u>0</u>	Repealed	<u>0</u>



**PART 14**  
**MINIMUM STANDARDS FOR SUICIDE PREVENTION TRAINING FOR HEALTH CARE PROFESSIONALS**

NEW SECTION

**WAC 246-12-601 Purpose.** The purpose of WAC 246-12-610 through 246-12-650 is to set minimum standards for suicide prevention trainings for health care professionals to be included on a model list of department of health-approved trainings. Both trainers and health care professions may set standards for trainings that exceed these standards. Training specific to a profession must comply with that profession's rules for continuing education.

NEW SECTION

**WAC 246-12-610 Definitions.** The definitions in this section apply throughout WAC 246-12-601 through 246-12-650 unless the context clearly requires otherwise.

- (1) "Department" means the Washington state department of health.
- (2) "Health professional" means an individual licensed or holding a retired active license in one of the health professions listed in RCW 43.70.442 as required to take training in suicide assessment, including screening and referral, suicide treatment, and suicide management.
- (3) "Model list" means the list of trainings that meet minimum standards established by the department of health pursuant to RCW 43.70.442.
- (4) "Referral" means facilitating a client or patient's linkage to other resources.
- (5) "Screening" means asking questions to identify a person at risk of suicide and to determine the need for further risk assessment or referral. Screening may be the first step of suicide risk assessment.
- (6) "Secretary" means the secretary of the department of health or the secretary's designee.
- (7) "Suicide assessment" or "suicide risk assessment" means a structured process to gather accurate information from a client or patient to determine risk of suicide.
- (8) "Suicide treatment and management" means engagement and collaboration between a health professional or team and client or patient to resolve suicide risk by addressing the factors contributing to risk, and ongoing monitoring and adjustment of treatment and safety plans.
- (9) "Training in suicide assessment, treatment, and management" means empirically supported training approved by the appropriate disciplining authority that contains the following elements: Suicide as-

essment, including screening and referral, suicide treatment, and suicide management.

NEW SECTION

**WAC 246-12-620 Training delivery.** Minimum standards for training delivery:

(1) Training must be provided using a modality and number of sessions in accordance with each health profession's rules for continuing education and suicide prevention training.

(2) Trainings must include opportunities for skill practice through group activities or self-guided exercises.

(3) Trainings must meet the standards for content identified in WAC 246-12-630 and 246-12-640.

(4) Trainers must meet the qualifications identified in WAC 246-12-640.

NEW SECTION

**WAC 246-12-630 Training content.** Minimum standards for training content:

(1) Training content must be based on current empirical research and known best practices.

(2) Training must reflect sensitivity and relevance to the cultures and backgrounds of the relevant client or patient populations.

(3) Content for six-hour trainings must include the following. These are minimum time requirements for each of these content areas. Additional time or content must be added to total at least six hours.

(a) A minimum of ninety minutes on suicide assessment. Content must include:

(i) How to structure an interview to gather information from a client or patient on suicide risk and protective factors and warning signs, including substance abuse;

(ii) How to use the information referenced in (a) (i) of this subsection to understand the risk of suicide;

(iii) Appropriate actions and referrals for various levels of risk; and

(iv) How to appropriately document suicide risk assessment.

(b) A minimum of sixty minutes on treatment and management of suicide risk. Content must include:

(i) Available evidence-based treatments for patients and clients at risk of suicide, including counseling and medical interventions such as psychiatric medication and substance abuse care;

(ii) Strategies for safety planning and monitoring use of the safety plan;

(iii) Engagement of supportive third parties in maintaining patient or client safety;

(iv) Reducing access to lethal means for clients or patients in crisis; and

(v) Continuity of care through care transitions such as discharge and referral.

- (c) A minimum of thirty minutes on veteran populations.
- (i) Content must include population-specific data, risk and protective factors, and intervention strategies.
- (ii) Training providers shall use the module developed by the department of veterans affairs or a resource with comparable content.
- (d) A minimum of thirty minutes on risk of imminent harm through self-injurious behaviors or lethal means.
- (i) Content on self-injurious behaviors must include how to recognize nonsuicidal self-injury and other self-injurious behaviors and assess the intent of self-injury through suicide risk assessment.
- (ii) Content on lethal means must include:
  - (A) Objects, substances and actions commonly used in suicide attempts and impulsivity and lethality of means;
  - (B) Communication strategies for talking with patients and their support people about lethal means; and
  - (C) How screening for and restricting access to lethal means effectively prevents suicide.
- (4) Content for three-hour trainings must include the following. These are minimum time requirements for each of these topics. Additional time or content must be added to total three hours.
  - (a) A minimum of seventy minutes on screening for suicide risk. Content must include:
    - (i) When and how to screen a client or patient for acute and chronic suicide risk and protective factors against suicide;
    - (ii) Appropriate screening tools, tailored for specific ages and populations if applicable; and
    - (iii) Strategies for screening and appropriate use of information gained through screening.
  - (b) A minimum of thirty minutes on referral. Content shall include:
    - (i) How to identify and select an appropriate resource;
    - (ii) Best practices for connecting a client or patient to a referral; and
    - (iii) Continuity of care when making referrals.
  - (c) Three-hour trainings for pharmacists must include content related to the assessment of issues related to imminent harm by lethal means.

#### NEW SECTION

**WAC 246-12-640 Training quality.** Minimum standards for training quality:

- (1) For the purpose of continuing improvement, trainees shall be offered an evaluation assessing training quality and participant learning. Completed evaluations will be returned to the trainer or publisher of the training.
- (2) Trainers and training developers must have demonstrated knowledge and experience related to suicide prevention and:
  - (a) An active license to practice as a health care professional;
  - or
  - (b) A bachelor's degree or higher in public health, social science, education or a related field from an accredited college or university; or

(c) At least three years of experience delivering training in suicide prevention.

(3) Data referenced in the training must be current within four years, and research referenced in the training must be based on current empirical research and known best practices.

NEW SECTION

**WAC 246-12-650 Training approval processes.** (1) The secretary will approve suicide prevention training programs that meet the requirements outlined in this chapter.

(2) The secretary shall determine a process to evaluate and approve trainings.

(3) Approved trainings will be published on the model list beginning January 1, 2017.

(4) If the secretary notifies a training program of the secretary's intent to deny approval and inclusion on the model list, the training program, through its authorized representative, may request an adjudicative proceeding pursuant to the appeal process in chapter 246-10 WAC. A request for an adjudicative proceeding must be in writing, state the basis for contesting the adverse action, include a copy of the adverse notice and be served on and received by the department within twenty-eight days of the date the department mailed the adverse notice. The authorized representative of the training program may submit a new application for the secretary's consideration.

(5) If the secretary notifies an approved training program of the secretary's intent to revoke approval, the training program, through its authorized representative, may request an adjudicative proceeding pursuant to the appeal process in chapter 246-10 WAC. A request for an adjudicative proceeding must be in writing, state the basis for contesting the adverse action, include a copy of the adverse notice and be served on and received by the department within twenty-eight days of the applicant's or license holder's receipt of the adverse notice. If a request for adjudicative proceeding is not received by the department within twenty-eight days of the date the department mailed the adverse notice, the secretary's decision is final. The authorized representative of the training program must provide proof that the deficiencies which resulted in withdrawal of the secretary's approval have been corrected before requesting reapproval.

## APPENDIX F

### Themes of Applicability of Training to Future Practice

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#### **Major Theme 1: Recognizing scope of responsibility in suicide prevention**

1.1 Role of the health care provider

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#### **Major Theme 2: Adjusting practice and attitudes to prevent suicide**

2.1 Change in practice

2.2 Change in attitudes

---

#### **Major Theme 3: Communicating effectively with individuals at-risk for suicide**

3.1 Talking about suicide

3.2 Interpersonal approach to working with at-risk individuals

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#### **Major Theme 4: Accessibility of resources for suicide risk assessment, treatment, and management**

4.1 Assessment in suicide prevention

4.2 Clinical tools

---

## APPENDIX G

### Themes of “ah-ha!” Responses and Practice Examples

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#### **Major Theme 1: Re-thinking practice and approach to suicide prevention**

- 1.1 Impact on nurses
- 1.2 Taking ownership
- 1.3 Memorable aspects

---

#### **Major Theme 2: Actively translating knowledge into practice**

- 2.1 Application of training
- 2.2 Influence on practice
- 2.3 Talking about suicide

---

#### **Major Theme 3: Personal growth and development as a health care provider**

- 3.1 Increasing knowledge
- 3.2 Nurse attitudes
- 3.3 Growth of provider

---

#### **Major Theme 4: Spreading new knowledge in the clinical setting and community**

- 4.1 Nurses as a vehicle for spread
  - 4.2 Impact of training on others
-

## VITA

**Jennylynn F. Palisoc**

### EDUCATION

Doctor of Nursing Practice student in Psychiatric Mental Health Nurse Practitioner track at University of Washington, September 2016–present.

Doctor of Philosophy candidate in Nursing at University of Washington, September 2013–present. Dissertation title: “Evaluating the Effectiveness of a Suicide Prevention Training Program for Nurses’ Continuing Education.”

Bachelor of Science (June 2011) in Nursing at University of Washington, Seattle, Washington.

Bachelor of Arts (June 2009) in Psychology at University of Washington, Seattle, Washington.

### ACADEMIC EMPLOYMENT

Graduate Teaching Assistant, School of Nursing, University of Washington, March 2015–June 2016. Responsibilities included: Assisting professors with the preparation and presentation of undergraduate and graduate courses, grading, and tutoring. Courses included: program evaluation and quality improvement, psychosocial nursing, health politics and policy, and U.S. health care systems.

Research Assistant, School of Nursing, University of Washington, January 2015–December 2016. Responsibilities included: Data collection to measure effectiveness of Husky Help and Hope Suicide Prevention Project.

Research Nurse, School of Nursing, University of Washington, July 2012–June 2014. Research activities included: Conducting interviews, reviewing medical charts, recruit and screen patients, obtain informed consent, train research assistants in data collection.

### PUBLICATION

Doorenbos AZ, Gordon DB, Tauben D, **Palisoc J**, Drangsholt M, Lindhorst T, Danielson J, Biery J, Specter J, Ballweg R, Vorvick L, & Loeser JD. (2013). A blueprint of pain curriculum across pre-licensure health sciences programs: One NIH pain consortium Center of Excellence in Pain Education (CoEPE) experience. *The Journal of Pain*.

## **PRESENTATIONS**

**Palisoc, J**, Yeung, J, and Yip, M. Diversity, Equity and Inclusion at the UW School of Nursing through Engaged Student Leadership. Poster presentation delivered at the University of Washington Spring Celebration, Seattle, WA, May 2016.

**Palisoc, J** and Voss, J. Does the Affordable Care Act Threaten American Liberties? Poster presentation delivered at the Western Institute of Nursing conference, Seattle, WA, April 2014.

## **ACADEMIC AWARDS**

Hester McLaws Nursing Scholarship, University of Washington School of Nursing, 2018

May Loomis Award, Washington State Nurses Association, 2018

Sigma Theta Tau International Small Grant Award, Psi-at-Large Chapter, 2018

Lois Price Spratlen Scholarship, Association of Advanced Practice Psychiatric Nurses, 2017

Reid Endowed Fellowship, University of Washington School of Nursing, 2014-2016

Top Scholar Award, University of Washington School of Nursing, 2013

## **PROFESSIONAL MEMBERSHIP**

American Psychiatric Nurses Association

International Association for Suicide Prevention

National Alliance on Mental Illness Washington State

National League for Nursing

Sigma Theta Tau International Honor Society of Nursing

Washington State Nurses Association