

Appendix A

Online Supplemental (OS) Text

Method**Procedure**

Zero suicide. Zero Suicide is a health care approach based on the 2012 National Strategy for Suicide Prevention¹, which proposes that suicide deaths are preventable via system-wide commitment to patient safety and staff support. Zero Suicide focuses on reducing suicide death by improving the quality of suicide care via the adoption of seven essential elements: lead, train, identify, engage, treat, transition, and improve (see <http://zerosuicide.sprc.org/>).

Distribution. In the seven participating states, CEOs passed along information to affiliated agencies (i.e., over 200 organizations), with at least one employee in each agency participating, except for one agency in Pennsylvania. Specifically, state mental health and addiction service authorities, or the health plan responsible for the state's provider network, initially distributed the survey to their contracted network of community behavioral healthcare agencies. In Texas, Kentucky, New York, and Utah, community agencies were core providers for the state's Department of Behavioral Health and Developmental Disabilities (DBHDD). In Pennsylvania, the community agencies belonged to three counties which had health plan management contracts with Magellan Health Services. Exceptions were Indiana and Tennessee, where community providers were part of a single service provider agency (not a state authority/mental health plan, albeit the largest community mental healthcare provider in the United States). Utah's Department of Behavioral Health and Developmental Disabilities (DBHDD) additionally distributed the survey to state-licensed professionals in private practice and the commercial sector.

Participants

Training length ranged from several hours to several days. QPR only training ranged from 1-2 hours to one day (online or in-person). ASIST only training was two or five days in length and in-person only. Other only training included any other suicide training, such as mental health first aid, safety planning, suicide assessment and management, other gatekeeper (e.g., safeTALK), prevention (e.g., Lifelines), or postvention (e.g., Connect) trainings, or relevant online trainings.

Participants reported working with: adults (64.4%), children and adolescents (42.0%), seniors (27.8%), and in administration only (11.6%). Per participant self-report, most (65.9%) had not worked with a suicide decedent, 14.8% had worked with one suicide decedent, 12.5% had worked with more than one suicide decedent, 6.6% did not know, and .2% were missing on this variable.

Training and client death by suicide. Notably, those with other only training were significantly more likely to have worked with a suicide decedent (37.0%) than those with QPR (31.6%) and ASIST only training (28.7%).

Profession and client death by suicide. Nurses (34.5%) and counselors/therapists (32.2%) were significantly more likely to have worked with a suicide decedent than social workers/case managers (26.2%), administrators (26.1%), and paraprofessionals (22.5%). Support staff (15.5%) were significantly less likely to have worked with a suicide decedent than all other professions. It is worth noting that these prevalence rates are in line with previous reports of having worked with a client who died by suicide from psychiatrists and psychiatry residents (50-51%)²⁻³, psychologists/counselors (22-30%)³⁻⁵, and social workers and counselors (33%)⁶.

Profession and training. Social workers/case managers (40.0%) were significantly more likely to have received training than nurses (34.8%) or administrators (31.9%). Physician/prescribers (34.9%) did not differ from social workers/case managers, nurses, or administrators. Paraprofessionals (27.6%) were significantly less likely to have training than other professions, except administrators. Support staff were significantly less likely to have any training (18.3%) than all professions.

Data Analytic Strategy

Analysis of covariance (ANCOVA) was used in main analyses to determine the relation between variables of interest (i.e., state, training type, and professional group) and suicide knowledge and confidence. When examining the relation between state and suicide knowledge or confidence, professional group, training type, and previous client death by suicide were entered as covariates. When examining the relation between training type (limited to ASIST only, QPR only, other only, and no training) and suicide knowledge/confidence, state, professional group, and previous client death by suicide were entered as covariates. Finally, when examining the relation between professional group and suicide knowledge or confidence, state, training type, and previous client death by suicide were entered as covariates. Post-hoc Bonferroni-corrected tests were used for all pairwise comparisons. Overall survey results examining the general association between knowledge and confidence (bivariate correlation), and client death by suicide and knowledge or confidence (independent t-tests) are also presented.

Results

Suicide Knowledge

Professional group – no training. As would be expected given covariation, patterns of results were similar when comparing professions among those with no training only ($F=89.44$,

df=6 and 8797, $p < .001$, $\eta^2 = .06$), with nurses outperforming administrators ($p < .001$) and suicide knowledge estimated marginal means decreasing slightly for each profession (.3-.5).

Suicide Skills Confidence

Professional group – no training. Among those with no training ($F = 265.15$, df=6 and 8797, $p < .001$, $\eta^2 = .15$), the pattern of results remained similar, with only slight differences (i.e., physician/prescribers did not differ from social workers/case managers) and decrease in scores (2.2-3.1).

Discussion

Lack of Training

Counselors/therapists were more likely to have received training compared to all other professions, yet nearly half of all counselors/therapists still reported no training. Notably, this is in line with previous research indicating that approximately half of psychological trainees receive training on suicide⁷⁻⁸. Social workers/case managers were the second most likely to have received training (40.0%) in the current sample, which seems to be an improvement from 25% indicated in a previous national survey of social workers⁹. Interestingly, although previous research has indicated that 91-94% of psychiatric residency programs reported some form of suicide risk training for their trainees¹⁰⁻¹¹, only about a third of the physicians/prescribers in our sample reported any training (potentially due to inclusion of non-psychiatric physicians/prescribers).

Regional Differences

Kentucky established a suicide prevention coordinator position in 2004, and then passed legislation in 2010 to improve suicide awareness and prevention in schools¹². In New York, millions of dollars have been appropriated since 2006 for the suicide prevention efforts of the

Office of Mental Health¹³. States with the lowest scores on suicide knowledge and confidence in the present study (i.e., Indiana and Texas) had relatively nascent statewide suicide initiatives. For example, Indiana passed legislation in 2011 addressing teacher training for child suicide prevention to be implemented in 2013¹⁴. Similarly, Texas passed legislation in 2011 to address suicide prevention in schools¹⁵, after having failed to pass proposed legislation in 2003 and 2009.

It is interesting to note that Pennsylvania had the least training but the highest performance. Pennsylvania agencies belonged to three counties with the same health plan management contract. Future research may consider assessing whether organization culture and policies also impact knowledge and confidence regardless of suicide training.

References

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Appendix B

Online Supplemental (OS) Table

OS Table 4
Previous client death by suicide by training type.

	ASIST Only		QPR Only		Other Only		No Training		Any Training	
	N	%	n	%	n	%	n	%	n	%
No clients died by suicide	445	71.3	719	68.4	2051	63.0	6816	77.4	3215	65.2
≥1 clients died by suicide	179	28.7	332	31.6	1205	37.0	1994	22.6	1716	34.8
Total	624	100	1051	100	3256	100	8810	100	4931	100

Note: Of the overall sample (N=16,693), 11.8% were missing and 5.7% received more than one training type; thus, only n=13,770 were considered valid cases for training type. Of those, n=29 (.2%) were missing information on previous client death by suicide. Thus, 13,741 cases were included in analyses examining training x previous client suicide death and this table.

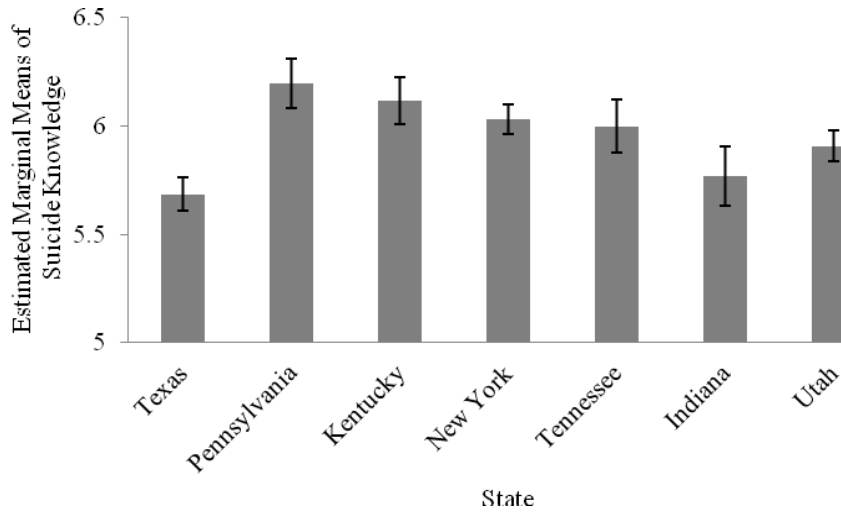
OS Table 5
Suicide knowledge subscale frequencies for total score distribution and individual item accuracy.

Total Score	%	Item	% Correct
0	.3	1	56.5
1	.6	2	43.7
2	2.1	3	12.5
3	5.4	4	89.4
4	12.6	5	87.4
5	22.3	6	74.7
6	26.5	7	83.5
7	20.4	8	81.7
8	8.3	9	34.9
9	1.3	--	--

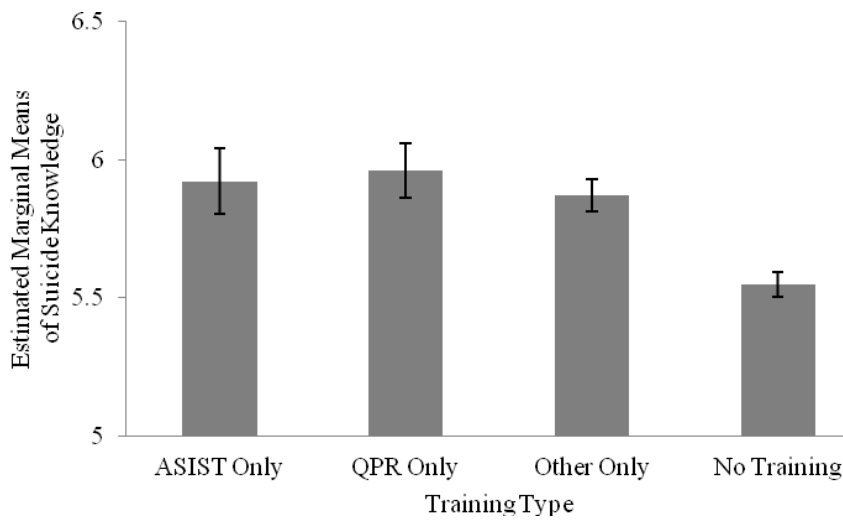
Note: Frequencies are based on the overall sample N=16,693. Possible total scores on the suicide knowledge subscale range from 0 to 9, with higher scores indicating greater knowledge about suicide facts.

Appendix C

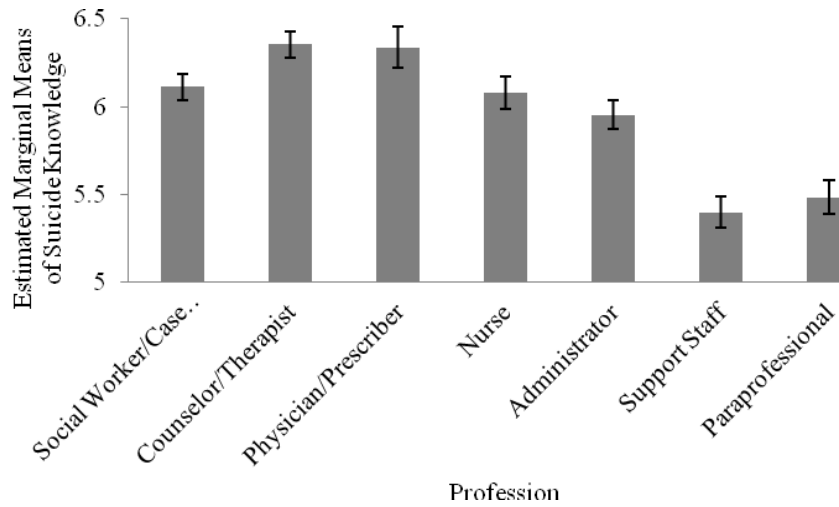
Online Supplemental (OS) Figures



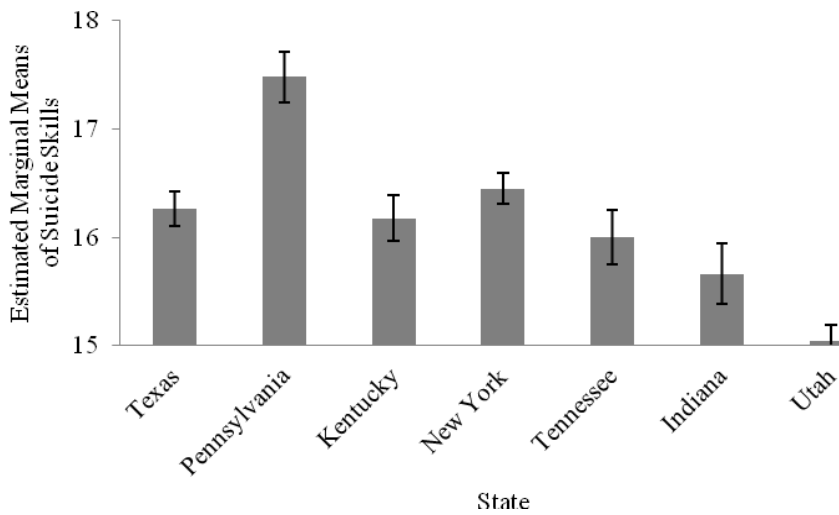
OS Figure 1. Average suicide knowledge scores across states, controlling for profession, training type, and previous client death by suicide. Error bars=95% CI.



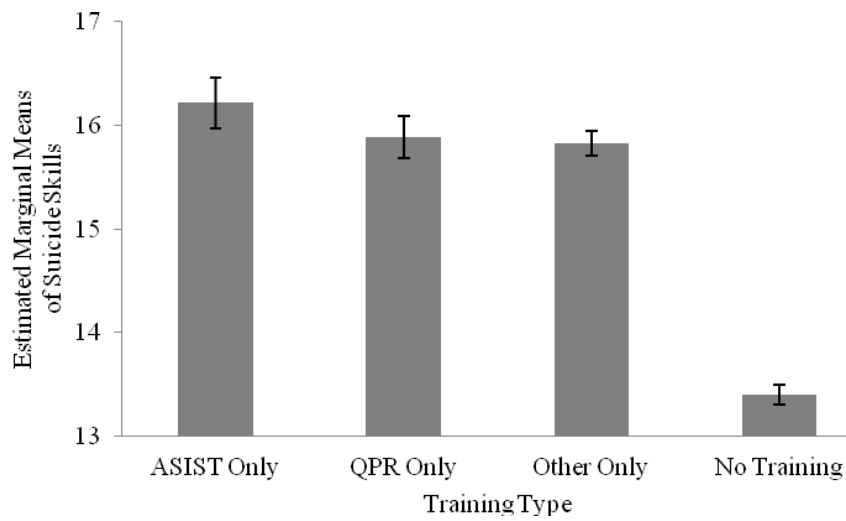
OS Figure 2. Average suicide knowledge scores across training types, controlling for profession, state, and previous client death by suicide. Error bars=95% CI.



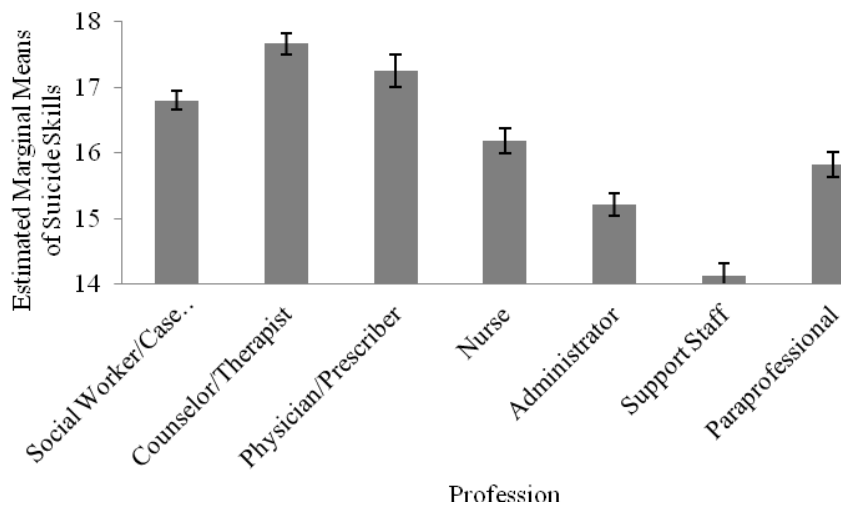
OS Figure 3. Average suicide knowledge scores across profession, controlling for training type, state, and previous client death by suicide. Error bars=95% CI.



OS Figure 4. Average suicide skills confidence scores across states, controlling for profession, training type, and previous client death by suicide. Error bars=95% CI.



OS Figure 5. Average suicide skills confidence scores across training types, controlling for profession, state, and pervious client death by suicide. Error bars=95% CI.



OS Figure 6. Average suicide skills confidence scores across profession, controlling for state and pervious client death by suicide. Error bars=95% CI.

Appendix D

Online Supplemental Measure

*Suicide Knowledge and Skills Questionnaire*Suicide Knowledge

Please rate your agreement with the following statements using this scale:

Completely disagree	Disagree	Don't know	Agree	Completely agree
1	2	3	4	5

1. Few people want to kill themselves.
[Answer: False. 1, 2 scored as “**correct = 1**,” 3-5 scored as “**incorrect = 0**”]
2. Youth ages 10-24 have a significantly greater risk of suicide than individuals ages 65 and older.
[Answer: False. 1, 2 scored as “correct,” 3-5 scored as “incorrect”]
3. The rate of suicide among those with severe mental illness is 6 times greater than the general population.
[Answer: True. 4, 5 scored as “correct,” 1-3 scored as “incorrect”]
4. If a person is serious about suicide, there is little that can be done to prevent it.
[Answer: False. 1, 2 scored as “correct,” 3-5 scored as “incorrect”]
5. If you talk to a [consumer] client about suicide, you may inadvertently give them permission to seriously consider it.
[Answer: False. 1, 2 scored as “correct,” 3-5 scored as “incorrect”]
6. Depression indicates a suicide risk.
[Answer: True. 4, 5 scored as “correct,” 1-3 scored as “incorrect”]
7. Suicide is always unpredictable.
[Answer: False. 1, 2 scored as “correct,” 3-5 scored as “incorrect”]
8. Suicidal people want to die.
[Answer: False. 1, 2 scored as “correct,” 3-5 scored as “incorrect”]
9. Individuals with Borderline Personality Disorder frequently discuss or gesture suicide but do not really intend to kill themselves; instead they intend to provoke or manipulate others.
[Answer: False. 1, 2 scored as “correct,” 3-5 scored as “incorrect”]

Suicide Skills Confidence

Please rate your agreement with the following statements using this scale:

Completely disagree	Disagree	Don't know	Agree	Completely agree
1	2	3	4	5

1. I have received the TRAINING I need to engage and assist those with suicidal desire and/or intent.
2. I have the SKILLS I need to engage those with suicidal desire and/or intent.
3. I have the SUPPORT/SUPERVISION I need to engage and assist those with suicidal desire and/or intent.
4. I am comfortable asking direct and open questions about suicide.