QUERI

# Evidence Brief: Suicide Prevention in Veterans

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# PREFACE

The VA Evidence-based Synthesis Program (ESP) was established in 2007 to provide timely and accurate syntheses of targeted healthcare topics of particular importance to clinicians, managers, and policymakers as they work to improve the health and healthcare of Veterans. QUERI provides funding for four ESP Centers, and each Center has an active University affiliation. Center Directors are recognized leaders in the field of evidence synthesis with close ties to the AHRQ Evidence-based Practice Centers. The ESP is governed by a Steering Committee comprised of participants from VHA Policy, Program, and Operations Offices, VISN leadership, field-based investigators, and others as designated appropriate by QUERI/HSR&D.

The ESP Centers generate evidence syntheses on important clinical practice topics. These reports help:

- Develop clinical policies informed by evidence;
- Implement effective services to improve patient outcomes and to support VA clinical practice guidelines and performance measures; and
- Set the direction for future research to address gaps in clinical knowledge.

The ESP disseminates these reports throughout VA and in the published literature; some evidence syntheses have informed the clinical guidelines of large professional organizations.

The ESP Coordinating Center (ESP CC), located in Portland, Oregon, was created in 2009 to expand the capacity of QUERI/HSR&D and is charged with oversight of national ESP program operations, program development and evaluation, and dissemination efforts. The ESP CC establishes standard operating procedures for the production of evidence synthesis reports; facilitates a national topic nomination, prioritization, and selection process; manages the research portfolio of each Center; facilitates editorial review processes; ensures methodological consistency and quality of products; produces “rapid response evidence briefs” at the request of VHA senior leadership; collaborates with HSR&D Center for Information Dissemination and Education Resources (CIDER) to develop a national dissemination strategy for all ESP products; and interfaces with stakeholders to effectively engage the program.

Comments on this evidence report are welcome and can be sent to Nicole Floyd, ESP CC Program Manager, at Nicole.Floyd@va.gov.

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# EXECUTIVE SUMMARY

Despite the US Department of Veterans Affairs' (VA) increased efforts over the past decade in implementing comprehensive Suicide Prevention Program initiatives, according to the new VA National Suicide Data Report 2005-2015, an average of 20 Veterans continue to die each day by suicide. An important barrier to the success of VA's suicide prevention initiatives may be the lack of adequate evidence in Veterans supporting recommendations of any specific risk assessment method or prevention intervention.

## Summary of Key Findings

Among 3,569 new citations identified since our 2015 review (Nelson 2015), we added 8 new studies to the 9 existing studies from the 2015 review in military and Veteran populations. These studies examined numerous different approaches including risk assessment using predictive modeling and various population-level and individual-level interventions (Executive Summary Table 1). For risk prediction, the most promising findings are from the Army Study to Assess Risk and Resilience in Service members (Army STARRS), which identified a few large risk prediction models as fairly to highly accurate in predicting suicide risk in active duty Soldiers (AUC 0.72 to 0.97). However, the applicability of these risk prediction models in service members transitioning to civilian life and/or Veteran populations is not yet known. For suicide prevention interventions, ongoing psychotherapy-focused interventions for individuals in acute suicidal crisis continue to be the most widely studied, with outpatient cognitive behavioral therapy (CBT) still being the most well-established treatment.

## Veterans Transitioning from Uniformed Service to Civilian Life

Service members who are separating from active duty into civilian life are at a particularly high risk of suicide. As we found no completed or ongoing studies that specifically focused on this subpopulation, our review confirmed the need for new research in Veterans during their transition from uniformed service to civilian life. Recommendations for future research include: (1) establishment of a clear definition of what specific post-military separation timeframe constitutes the transition period of interest, (2) prioritization of studies with well-defined inclusion criteria that are relevant to the specific post-military separation timeframe of interest, and (3) evaluation of variability in suicide prevention approaches based on differences in key patient characteristics such as the presence of mental health or substance use disorders and life stressors.

### *Background*

The ESP Coordinating Center (ESP CC) is responding to a request from Health Services Research and Development (HSR&D) for an evidence brief update of the 2015 ESP review on suicide prevention, with a special focus on research in Veterans, particularly Veterans transitioning from military to civilian life. Findings from this evidence brief will help support achievement of the goals of HSR&D's Suicide Prevention Roadmap by informing development and funding of new research in suicide prevention and related activities.

### *Methods*

To identify studies, we searched MEDLINE®, Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials, and other sources up to June 2018. We used prespecified criteria for study selection, data abstraction, and rating internal validity and strength of the evidence. See our PROSPERO protocol for our full methods.

**Executive Summary Table 1: Summary of Evidence**

| Evidence | Summary of Findings (ê for reduction; = for no change) |
|---|---|
| *Suicide risk assessment models* | |
| 9 studies[1-9]: 5 case-series[1-3,5,9]; 2 RCs[4,7]; 1 PC[8];1 case-control[6]<br><br>Risk of Bias: 3 low[4-6]; 2 high[1,2]; 4 unclear[3,7-9]<br><br>SOE: NR | Models derived from databases or clinician-rated or patient self-report instruments.<br><br>Accuracy:<br>AUC range: 0.61[4] to 0.93[7] |
| *Healthcare services interventions directed towards populations* | |
| 4 studies: 3 before-after[10-12]; 1 PC[13]<br><br>Risk of bias: high (all studies)<br><br>SOE: Insufficient | Suicide rate:<br>ê 3 interventions: 2 multi-component interventions,[10,11] MHEOCC[12]<br>= 1 intervention: ASIST[13]<br><br>Suicide attempt:<br>ê 1 intervention: ASIST[13] |
| *Healthcare services interventions directed towards individuals* | |
| 4 RCTs[14-17]<br><br>Risk of bias: 1 low[14]; 3 unclear[15-17]<br><br>SOE: Low | Suicide attempt:<br>ê 1 intervention: CBT[17]<br>= 3 interventions: CRP,[14] DBT,[15] CAMS[16] |

Abbreviations: ASIST = applied suicide intervention skills training; MHEOCC = VA Mental Environment of Care Checklist; CRP = crisis response plan; DBT = dialectical behavioral therapy; CAMS = collaborative assessment and management of suicidality; CBT = cognitive behavior therapy; RCT = randomized controlled trial; RC = retrospective cohort; PC = prospective cohort; SOE = strength of evidence

## Overall Key Evidence Gaps and Future Research Recommendations

In addition to the gaps in evidence in Veterans transitioning from uniformed service to civilian life described above, the table below (Executive Summary Table 2) provides a summary of additional key evidence gaps and associated future research recommendations.

**Executive Summary Table 2: Key Evidence Gaps and Future Research Recommendations**

| Topics | Gaps | Recommendations for Future Research |
|---|---|---|
| *Populations* | | |
| Veterans transitioning from uniformed service to civilian life | · No completed or ongoing studies | · New studies in these populations. Please see above for more detailed recommendations |
| At-risk Veterans prior to reaching acute suicidal crisis | · Few available studies | · New studies in these populations |
| At-risk Veterans who have had no contact with the VA | · No completed or ongoing studies | · New studies on community outreach approaches, such as gatekeeper training |
| *Suicide Prevention Approaches* | | |
| Risk assessment | · Data on novel objective risk assessment approaches | · New studies of cognitive factors |

| | | |
|---|---|---|
| Population-level healthcare service interventions | · Identification of which specific components in multicomponent interventions are most effective<br>· Identification of specific subpopulations that may benefit most<br>· How outcomes differ from a concurrent rather than historical comparison group | · Studies that directly compare different combinations of components<br>· Studies that evaluate if and how effectiveness may vary based on differences in individual patient characteristics<br>· Studies that compare to a concurrent control group instead of a historical control group |
| Individual-level healthcare service interventions | · Although multiple studies exist on various psychotherapy approaches, we have limited confidence in their findings in general because each intervention was evaluated in only a single, small study with other potential weaknesses.<br>· No new studies of several other types of interventions | · Larger, more rigorous RCTs of DBT and Operation Worth Living may still be warranted to more definitely determine their suicide prevention effectiveness.<br>· New studies of (1) interventions designed to bolster protective factors such as psychological resilience, meaningful life, grit, gratitude, and social support, (2) innovative approaches that use technology to support or enhance care, (3) safety planning; (4) peer support specialists; (5) health coaching, (6) motivational interviewing |

Abbreviations: RCT = randomized controlled trial, DBT = dialectical behavioral therapy