Linking the Department of Defense Suicide Event Report and CDC National Violent Death Reporting System: Overview and Initial Findings

Nancy A. Skopp, Ph.D., Mark A. Reger, Ph.D., and Gregory A. Gahm, Ph.D.
Collaborators

J. Logan, Ph.D., Centers for Disease Control
Debra Karch, Ph.D., Centers for Disease Control
Agenda

- DoD Suicide Event Report (DoDSER)
- Linking the DoDSER with the CDC National Violent Death Reporting System (NVDRS)
- Initial Research Findings
Importance of Suicide Research Surveillance in the Military

- Track suicide rates and identify patterns across time
- Examine risk factors unique to SMs
- Inform suicide prevention strategies and monitor their effectiveness

- Identify potential solutions/interventions
- Evaluate the effectiveness of interventions, programs & policies
- Add to the body of research and theory on military suicide
History, Functionality, Current Status, and Future Directions
Department of Defense Suicide Event Report (DoDSER)

Acknowledgments

- Dr. Gregory Gahm
- Dr. Mark Reger
- COL Robert Ireland, M.D.
- CDR Janet Hawkins, MSW
- CDR Aaron Werbel, Ph.D.
- Lt Col Steven Pflanz, Ph.D.
- LCDR Bonnie Chavez, Ph.D.
- CDR Anthony Doran, Psy.D.
- Mr. Walter Morales
- MAJ Lisa Hull
- Lt Col Catherine Bobenrieth, M.D.
- Lt Col Michael Kindt, Ph.D.
- Lynne Oetjen-Gerdes
- CAPT Joyce Lapa, M.D., MPH
- Debi Harris
The Department of Defense Suicide Event Report (DoDSER)

- Suicide surveillance system designed by T2 in collaboration with the Services
- Automates standardized data collection on suicide events worldwide across all Services
- Required for all Active component and activated Reserve and Guard suicides
- Provides data for a comprehensive annual DoD suicide report to support examination of risk factors
History:

- Services collected suicide data through separate processes (ASER, SESS, DONSIR)
- All Services worked with the Suicide Prevention and Risk Reduction Committee (SPARRC) to develop a standardized system – DoDSER launched 1JAN08

Data Collection Methods:

- DoDSERs submitted via web form for all suicides (Regular, Active Guard Reserve and Activated Reserve and Guard), as determined by the AFMES
- DoDSERs submitted by behavioral health providers, health care providers, or command appointed representatives
Benefits of a Web-based Surveillance System

- Data are:
  - Submitted via secure website
  - Centralized and standardized
  - Automatically archived
  - Potential to link with other systems

- Form field validation – quality control

- Radio Buttons/checkboxes

- Training component – to assure quality of data
DoDSER Item Content

Objective & Subjective, Detailed, Standardized Information:

Comprehensive Event Data
- Location
- Method
- Setting

Extensive Risk Factor Data
- Dispositional/Personal
- Historical/Developmental
- Contextual
- Clinical/Symptom Factors

e.g., demographics, communication of intent, substance using during suicide, deployment history, combat exposure

e.g., abuse history, prior suicide attempt, relationship hx financial, legal, administrative hx

e.g., firearm in home, living situation, children in the home, duty environment

e.g., diagnoses, medical & BH visits, psychotropic meds, heath care utilization
Non-Fatal Suicide Events

All Services also collect suicide attempt data
Army also collects:
  - Self-harm without intent to die
  - Suicidal ideation
## DoDSER Data Sources

<table>
<thead>
<tr>
<th>Suicides</th>
<th>Non-Fatal Suicide Behaviors (Some Services)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DoDSER responses are derived from review of all relevant records</td>
<td></td>
</tr>
</tbody>
</table>

Interview of co-workers/supervisors, responsible investigative agency officer, other involved professionals, or family members when appropriate (some Services)
The Current DoD Suicide Event Report

Current DoDSER software includes secure (CAC) login website with

- Accounts that differ by role (Basic users, program managers, DoD managers)
- Core set of DoD items & functionality for unique items by Services
- Coding guidance
- Save/Edit functionality
- Delete and restore DoDSERs
Screen Shot of DoDSER Software
DoDSER: User Defined Reports facilitate analysis of submitted DoDSER data

<table>
<thead>
<tr>
<th>Patient Sex</th>
<th>Event Type</th>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>Self harm (without intent to die)</td>
<td>21</td>
<td>5.41%</td>
</tr>
<tr>
<td></td>
<td>Suicidal ideation only (without an attempt/self harm)</td>
<td>41</td>
<td>10.57%</td>
</tr>
<tr>
<td></td>
<td>Suicide attempt (evidence of intent to die)</td>
<td>26</td>
<td>6.7%</td>
</tr>
<tr>
<td>Male</td>
<td>Self harm (without intent to die)</td>
<td>52</td>
<td>13.4%</td>
</tr>
<tr>
<td></td>
<td>Suicidal ideation only (without an attempt/self harm)</td>
<td>142</td>
<td>36.6%</td>
</tr>
<tr>
<td></td>
<td>Suicide</td>
<td>30</td>
<td>7.73%</td>
</tr>
<tr>
<td></td>
<td>Suicide attempt (evidence of intent to die)</td>
<td>76</td>
<td>19.59%</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>388</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
User Defined Queries

User Defined Reports are designed to facilitate analysis of submitted DoSER data. Report data is limited to that data to which you have access.

Select Service Type(s): [Only available to DoD Managers]

- Army
- Air Force
- Marine Corps
- Navy

☐ Check here to include Service as a Break Down option.

Select Event Type:
Data analyzed will be limited to the selected Event Type(s). At least one must be selected. (Multiple selections may be made by dragging the mouse or by holding down the Ctrl key as you select.)

- Suicide
- Attempt
- Self Harm
- Ideation

Select Date Range:
Data analyzed will be limited to the date range selected. Dates may be entered using the format mm/dd/yyyy, dd mmm yyyy, or by using the calendar pop-up provided. If no dates are entered, analysis will include data beginning with the first day of the current calendar year to the present date.

Event Date From: 01 Oct 2009  Event Date To: 06 Jul 2010

Break Down Results By:
Choose one to three fields to query by. For example, you can display a breakdown of the numbers in the database by marital status and educational level by selecting those two criteria. At least one field must be selected.

- Break Down by: Event Type
- Break Down by: Patient Sex
- Break Down by: -- Select (optional) --

Limit Results To:
Optional. You may choose one or more fields by which to limit your data. For Example, you can query ONLY cases where the individual's Gender is Female, and the primary method is Firearm/Gun, Military Issue. If no choice is made, results will be a query of all records in the database for which you have access.

- Limit to: -- Select (optional) --
- Limit to: -- Select (optional) --
- Limit to: -- Select (optional) --
- Limit to: Age Group: Under 25  26 - 29  30 - 39  40+
DoDSER: User Defined Reports

<table>
<thead>
<tr>
<th>Patient Sex</th>
<th>Count</th>
<th>Self-harm (without intent to die)</th>
<th>Suicidal ideation only (without an attempt/self-harm)</th>
<th>Suicide attempt (evidence of intent to die)</th>
<th>Suicide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td></td>
<td>5.41%</td>
<td>10.57%</td>
<td>6.7%</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>13.4%</td>
<td>36.6%</td>
<td>7.73%</td>
<td>19.59%</td>
</tr>
</tbody>
</table>
Future Directions

- Refined DoDSER coding guidance/manual
- Annual SPARRC update of item content
- Program evaluation of software refinements
- Project examining non-fatal DoDSER cases subsequently identified in the VA system
- DoDSER-CDC NVDRS collaborative research
Linking Data on Suicide Decedents who Served in the Armed Forces

CDC Collaborators:
J. Logan, Ph.D.
Debra Karch, Ph.D.
Faye Floyd
Objective: To link CDC-NVDRS and DoDSER data to comprehensively characterize suicide risk factors

- Effort to maximize the use of existing systems
- Will examine the value of combining DoDSER and NVDRS
Two large-scale surveillance systems that comprehensively characterize decedents

- Enables better characterization of decedents and risk factors
- When capturing circumstance information, multiple sources for similar variables is better than one
- Can inform and improve focus of prevention strategies
Data Captured by Department of Defense Suicide Event Report (DoDSER) vs. National Violent Death Reporting System (NVDRS)

DoDSER
- Military history information
- Comprehensive Event, Risk Factor, and Narrative Data

Better characterization of decedents and risk factors that can inform prevention strategies

NVDRS
- Provides multiple narratives from Medical Examiner Report
- Captures details from multiple agencies
Project Objective:
To link DoDSER data to NVDRS via probabilistic matching

Pilot examined linkage between de-identified data (2005-07) from DoDSER

Probabilistic Record Linkage (PRL):

1) Set of pairs of records are labeled as matching or differing pairs
2) Statistics calculated from agreement of fields on matching and differing records to determine the weights on each field
2005-2007 Data Linkage

Goal:
Assess frequency of known risk factors & military related stressors

Method:
Probabilistic matching of records identified in DoDSER
  - Matching Variables:
    - State of event
    - Date of suicide
    - Age
    - Gender
    - Race/ethnicity

Results:
- 2005-07 DoDSER suicide cases (n=285); 59 eligible
- 56/59 (95%) of DoDSER cases matched w/ high confidence
TABLE 1 (cont.)—Demographic and Other Background Characteristics of Active Duty U.S. Army Suicide Decedents and Characteristics of the Suicide Events, 2005-2007 (N=56)

<table>
<thead>
<tr>
<th>Variable</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Duty status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active duty</td>
<td>45</td>
<td>80.40%</td>
</tr>
<tr>
<td>Active Guard/Reserve</td>
<td>3</td>
<td>5.40%</td>
</tr>
<tr>
<td>Active duty for training duty</td>
<td>4</td>
<td>7.10%</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>7.10%</td>
</tr>
<tr>
<td><strong>Pay grade</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E1-E2</td>
<td>6</td>
<td>10.70%</td>
</tr>
<tr>
<td>E3</td>
<td>8</td>
<td>14.30%</td>
</tr>
<tr>
<td>E4</td>
<td>16</td>
<td>28.60%</td>
</tr>
<tr>
<td>E5</td>
<td>8</td>
<td>14.30%</td>
</tr>
<tr>
<td>E6</td>
<td>6</td>
<td>10.70%</td>
</tr>
<tr>
<td>E7</td>
<td>4</td>
<td>7.10%</td>
</tr>
<tr>
<td>E8-E9</td>
<td>3</td>
<td>5.40%</td>
</tr>
<tr>
<td>W1-5</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>O1-10</td>
<td>4</td>
<td>7.10%</td>
</tr>
</tbody>
</table>
TABLE 1 (cont.)—Demographic and Other Background Characteristics of Active Duty U.S. Army Suicide Decedents and Characteristics of the Suicide Events, 2005-2007 (N=56)

<table>
<thead>
<tr>
<th>Variable</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location of death</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal residence</td>
<td>34</td>
<td>60.70%</td>
</tr>
<tr>
<td>Residence of family or friend</td>
<td>6</td>
<td>10.70%</td>
</tr>
<tr>
<td>Automobile (away from residence)</td>
<td>5</td>
<td>8.90%</td>
</tr>
<tr>
<td>Other</td>
<td>11</td>
<td>19.60%</td>
</tr>
<tr>
<td><strong>Weapon/mechanism used</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firearm</td>
<td>31</td>
<td>55.40%</td>
</tr>
<tr>
<td>Poisoning</td>
<td>7</td>
<td>12.50%</td>
</tr>
<tr>
<td>Hanging, strangulation</td>
<td>15</td>
<td>26.80%</td>
</tr>
<tr>
<td>Other or unknown</td>
<td>3</td>
<td>5.40%</td>
</tr>
<tr>
<td><strong>Other event characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left evidence suggesting the event was planned</td>
<td>20</td>
<td>35.70%</td>
</tr>
<tr>
<td>Left a suicide note</td>
<td>12</td>
<td>21.40%</td>
</tr>
</tbody>
</table>
TABLE 2—Health Related Characteristics of Active Duty U.S. Army Suicide Decedents Preceding Death, 2005-2007 (N=56)

<table>
<thead>
<tr>
<th>Variable</th>
<th>No.</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health Related Factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suicidal ideation-disclosed intent of self harm</td>
<td>20</td>
<td>35.70%</td>
</tr>
<tr>
<td>Current depressed mood</td>
<td>18</td>
<td>32.10%</td>
</tr>
<tr>
<td><strong>Substance use at time of incident</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol use</td>
<td>16</td>
<td>28.60%</td>
</tr>
<tr>
<td>Drug use (% is calculated among those tested)</td>
<td>8</td>
<td>30.80%</td>
</tr>
</tbody>
</table>
TABLE 2—Health Related Characteristics of Active Duty U.S. Army Suicide Decedents Preceding Death, 2005-2007 (N=56)

<table>
<thead>
<tr>
<th>Variable</th>
<th>No.</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Mental Health Problem</td>
<td>13</td>
<td>23.20%</td>
</tr>
<tr>
<td>Diagnoses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression/dysthymia</td>
<td>9</td>
<td>69.20%</td>
</tr>
<tr>
<td>Post-traumatic stress disorder</td>
<td>3</td>
<td>23.10%</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>23.10%</td>
</tr>
<tr>
<td>Unknown</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Alcohol or other substance abuse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>problems</td>
<td>7</td>
<td>12.50%</td>
</tr>
<tr>
<td>Current physical health problem</td>
<td>4</td>
<td>7.10%</td>
</tr>
</tbody>
</table>

*% is calculated among those who had a current mental health problem
### TABLE 3 – Stressful Life-Event Circumstances of Active Duty U.S. Army Suicide Decedents Preceding Death, 2005-2007 (N=56)

<table>
<thead>
<tr>
<th>Stressful Life-Event Factors</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recent intimate partner problems</td>
<td>25</td>
<td>44.6%</td>
</tr>
<tr>
<td>Any military-related stressful circumstances</td>
<td>23</td>
<td>41.1%</td>
</tr>
<tr>
<td><strong>Military specific circumstances (% is calculated among those who had any military-related stress)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current job-related problems</td>
<td>14</td>
<td>60.9%</td>
</tr>
<tr>
<td>Experienced combat in last deployment</td>
<td>9</td>
<td>39.1%</td>
</tr>
<tr>
<td>Subject to administrative separation</td>
<td>5</td>
<td>21.7%</td>
</tr>
<tr>
<td>Subject to AWOL proceedings</td>
<td>4</td>
<td>17.4%</td>
</tr>
<tr>
<td>Subject to medical evaluation board</td>
<td>3</td>
<td>13.0%</td>
</tr>
<tr>
<td>Subject to courts martial proceedings</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td><strong>Recent crisis (within 2 weeks of death)</strong></td>
<td>18</td>
<td>32.1%</td>
</tr>
<tr>
<td>Subject to other civil criminal or Article 15 proceedings</td>
<td>8</td>
<td>14.3%</td>
</tr>
<tr>
<td>Recent civil legal issues</td>
<td>8</td>
<td>14.3%</td>
</tr>
<tr>
<td>Recently perpetrated interpersonal violence</td>
<td>5</td>
<td>8.9%</td>
</tr>
<tr>
<td>Recent financial problems</td>
<td>4</td>
<td>7.1%</td>
</tr>
</tbody>
</table>
Planned Research

- Compare characteristics of suicides among active duty US Army to US civilian suicides
- Compare characteristics of suicide decedents to suicide attempters
- Assess valued added in combining circumstance data collected from NVDRS and DoDSER systems
Future Directions

- Linkage of 2008-10 DoDSER data to NVDRS
- Automation of the linkage process
- Development of a research panel between CDC and T2 to track and expand research aimed toward military suicide
Thank-you!

Questions?
NVDRS Data Sources

• Coroner or medical examiner reports
• Toxicology reports
• Law enforcement records
• Death certificates to provide details
  – Demographics
  – Method
  – Stressful life events
1. Alaska
2. California (5 counties)
3. Colorado
4. Georgia
5. Kentucky
6. Maryland
7. Massachusetts
8. New Jersey
9. New Mexico
10. North Carolina
11. Oklahoma
12. Oregon
13. Rhode Island
14. South Carolina
15. Utah
16. Virginia
17. Wisconsin