

The VISN 2
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Identifying and Obtaining Existing Resources for Evaluating Suicide Among Veterans: A Cautionary Tale

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Background

- Suicide among Veterans has received a great deal of attention
- Studies of rates and characteristics of suicide among Veterans have reported inconsistent findings
- Questions about how we identify Veterans and how to interpret results from different studies remain





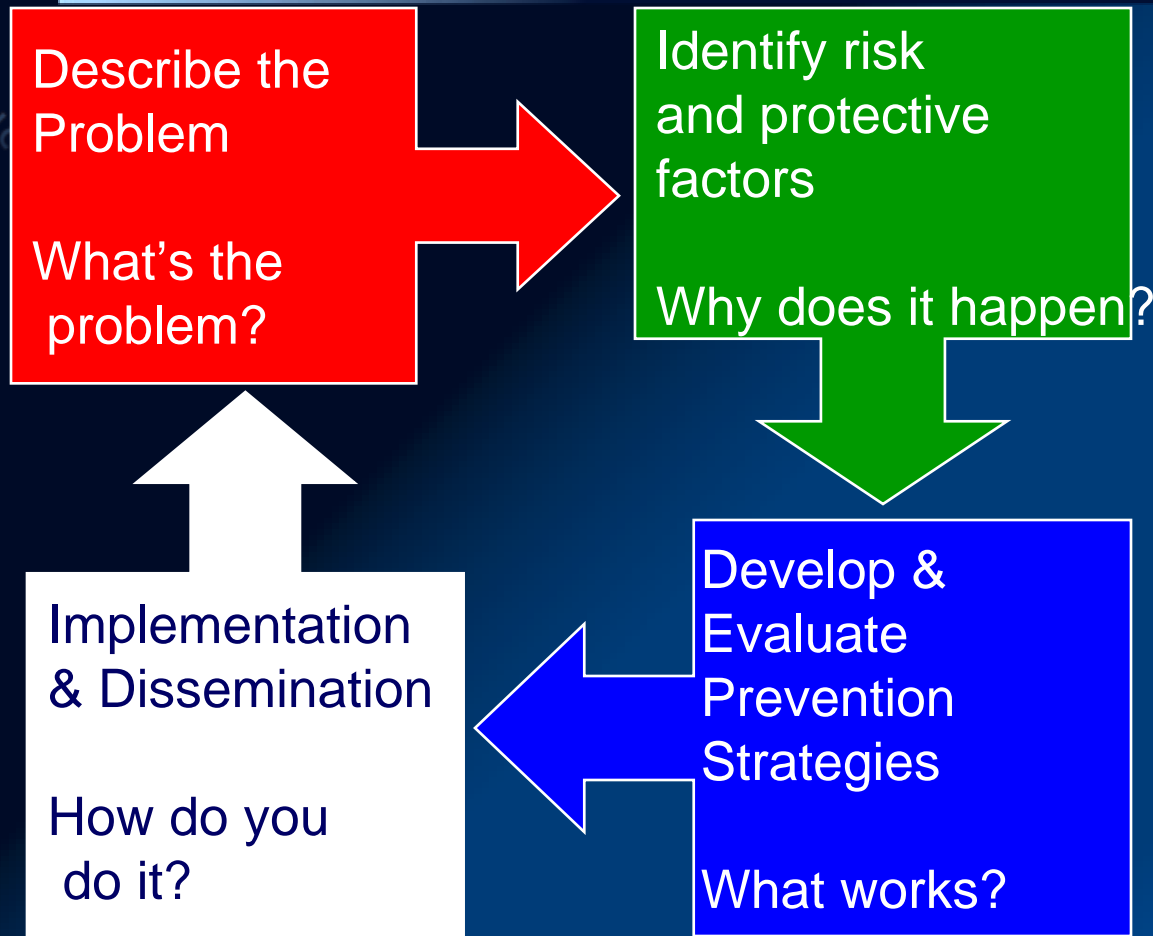
Outline

- Importance of case ascertainment
- Review of commonly used methods
- Example of some of the consequences of misspecification
- Discussion of way forward





Quick Review: The Public Health Approach





Taking the First Step

- Task: You need to understand characteristics of suicide among Veterans
- Where do you go?
- Answer?
- **The National Veterans Mortality Surveillance System**
- Ultimately, there is no reporting requirement for Veterans in the community





Some Reports: VA

Author(s)	Population	Type
McCarthy, et al (2009)	VHA Administrative Records	Link with National Death Index
Nye, et al (2009)	VHA Patient	Tx for PTSD
Valenstein, et al (2009)	VHA Patient	Tx for Depression
Pfeiffer (2009)	VHA Administrative Records	Link with National Death Index
Jakupcak, et al (2009)	VHA Patient	Mental Health Care
Ilggen, et al (2009)	VHA Administrative Records	Link with National Death Index
Mills, et al (2009)	VHA Administrative Records	RCA Reports of Inpatient Suicides





More Reports: VA

Author(s)	Population	Type
Desai, et al (2008)	VHA Administrative Records	Sample of Psychiatric Patients Discharged from VA Medical Centers
Gibbons, et al (2007)	VHA Administrative Records	Record Review
Brenda (2005)	VHA Patient	Inpatient SUD Program
Valente (2004)	VHA Patient	Record Review
Barglow (2004)	VHA Patient	Record Review





Additional Reports

Author(s)	Population	Type
Miller, et al (2009)	Participants in the Cancer Prevention Study II	Survey Linkage with NDI
Pietrzak, et al (2009)	OEF/OIF Veterans	Survey
Kang & Bullman (2009)	OEF/OIF Veterans	DMDC & Linkage with NDI
Maynard & Boyko (2008)	Washington Veterans	Death Certificates
Kaplan, et al (2009)	Veterans in up to 16 States	National Violent Death Reporting System
Kaplan, et al (2009)	Veterans in up to 16 States	National Violent Death Reporting System
Kaplan, et al (2007)	Participants in the National Health Interview Survey (NHIS)	Survey Linkage with NDI





U.S. Standard Death Certificate (2003)



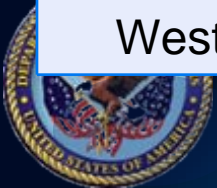
LOCAL FILE NO.		U.S. STANDARD CERTIFICATE OF DEATH				STATE FILE NO.	
1. DECEDENT'S LEGAL NAME (Include AKA's if any) (First, Middle, Last)				2. SEX	3. SOCIAL SECURITY NUMBER		
4a. AGE-Last Birthday (Years)	4b. UNDER 1 YEAR Months Days	4c. UNDER 1 DAY Hours Minutes	5. DATE OF BIRTH (Mo/Day/Yr)		6. BIRTHPLACE (City and State or Foreign Country)		
7a. RESIDENCE-STATE		7b. COUNTY		7c. CITY OR TOWN			
7d. STREET AND NUMBER			7e. APT. NO.	7f. ZIP CODE	7g. INSIDE CITY LIMITS? <input type="checkbox"/> Yes <input type="checkbox"/> No		
8. EVER IN US ARMED FORCES? <input type="checkbox"/> Yes <input type="checkbox"/> No		9. MARITAL STATUS AT TIME OF DEATH <input type="checkbox"/> Married <input type="checkbox"/> Married, but separated <input type="checkbox"/> Widowed <input type="checkbox"/> Divorced <input type="checkbox"/> Never Married <input type="checkbox"/> Unknown			10. SURVIVING SPOUSE'S NAME (If wife, give name prior to first marriage)		
11. FATHER'S NAME (First, Middle, Last)				12. MOTHER'S NAME PRIOR TO FIRST MARRIAGE (First, Middle, Last)			
13a. INFORMANT'S NAME		13b. RELATIONSHIP TO DECEDENT		13c. MAILING ADDRESS (Street and Number, City, State, Zip Code)			
14. PLACE OF DEATH (Check only one - see instructions)							





Veteran Status and State-Level Vital Statistics

Identify Veterans – Public Release	Identify Veterans – Limited Release	No Veteran Identifier
Alabama, Alaska , Arkansas, California , Connecticut, Florida, Georgia , Hawaii, Idaho, Illinois*, Indiana, Iowa, Maine, Maryland , Massachusetts , Michigan , Montana, Nebraska, Nevada, New Hampshire, New Jersey , New York, North Carolina , North Dakota, Ohio, Oklahoma , Oregon , Pennsylvania, South Carolina , South Dakota, Tennessee, Texas, Utah , Vermont, Washington, West Virginia, Wisconsin , Wyoming	Colorado , Kansas, Louisiana, New Mexico , Mississippi, Rhode Island , Virginia	Arizona, Delaware, Kentucky, Minnesota, Missouri,



NVDRS State



Question of Validity

“Ever in U.S. Armed Forces?”	“Was Decedent Ever in U.S. Armed Forces?”	“Served in U.S. Armed Forces?”	“Was Deceased Ever in U.S. Armed Forces?”
Arkansas, South Carolina, Wyoming, New Hampshire, Vermont	Iowa, Wisconsin*, Montana, North Dakota*, Alabama, Maine, West Virginia, Florida,	Connecticut	Mississippi, Illinois





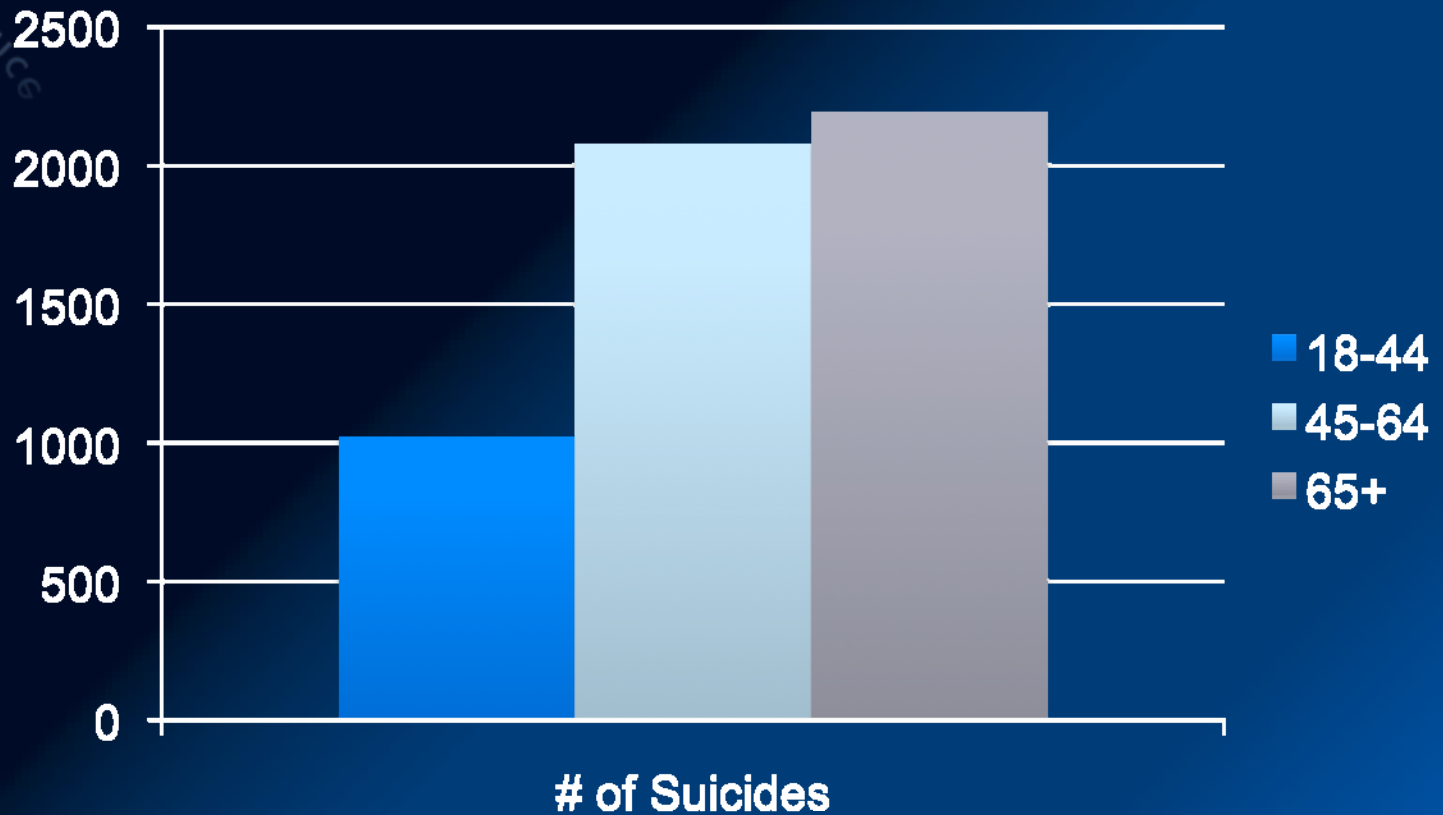
Death Certificate Data

- Data on all deaths from suicide (ICD 10 Codes X60-X84 & Y87) and Veteran identifiers were obtained from 34 states (68%) for the 2006 calendar year
- 87% of states with public release and 68% of all U.S. states
- A total of 24,520 suicides were reported during 2006 – 74% of all suicides (33,300) reported in the U.S. during that same year
- 5,427 (22%) were identified as Veterans





Number of Veteran Suicides Reported, 2006





Other Sources

- Record reviews of inpatient populations
- Surveys of verified populations
- Administrative files
- Existing/external data sources (ex. National Health Interview Survey, National Survey of Drug Use and Health, Behavioral Risk Factor Surveillance Survey)





Asking about Veteran Status

- **NHIS** – Honorably discharged from the U.S. armed forces?
- **NSDUH** – “Are you currently on active duty in the armed forces, in a reserves component, or separated or retired from either reserves or active duty?”
- **BRFSS** – “Have you ever served on active duty in the United States Armed Forces, either in the regular military or in a National Guard or military reserve unit? Active duty does not include training for the Reserves or National Guard, but DOES include activation, for example, for the Persian Gulf War.”
- **Census**: “Has this person ever served on active duty in the U.S. Armed Forces, military Reserves, or National Guard? *Active duty does not include training for the Reserves or National Guard, but DOES include activation, for example, for the Persian Gulf War.*”





Questions about Survey Data

Preczewski & Stephens, CoE

- Given criticism and concern that self-report of Veteran status may not match official estimates, we sought:
 - To determine the degree to which self-report of Veteran status may differ from official estimates
 - If possible, determine a predictable difference in an effort to refine reporting and data analysis





Data Sources

- VetPop 2007, the VA's official population projection and estimate
 - 2000 US Census
 - American Communities Survey
 - Data collected annually since 2000
 - BRFSS
 - Administered by US States and Territories with standard questions
 - All administrations ask for Veteran Status
 - Only two states asked for more details about Veteran status and medical service utilization in 2008
 - Collected annually, but Veteran status only asked in 2000 and then annually after 2003.
- Administered by phone





US Overall Results 2000

- No significant difference between the 2000 US census (26,403,703) and the 2000 data obtained from VetPop (26,218,733)
- Statistically significant difference between 2000 US Census and 2000 ACS (25,060,077)
 - Difference = -5.1%
- Statistically significant difference between 2000 US Census and 2000 estimated calculated using BRFSS (30,477,328)
 - Difference = +15.4%
- Note: Sampling times differed by as much as 8 months. Veteran population was in annual decline during this entire study window.





US Overall Results 2007

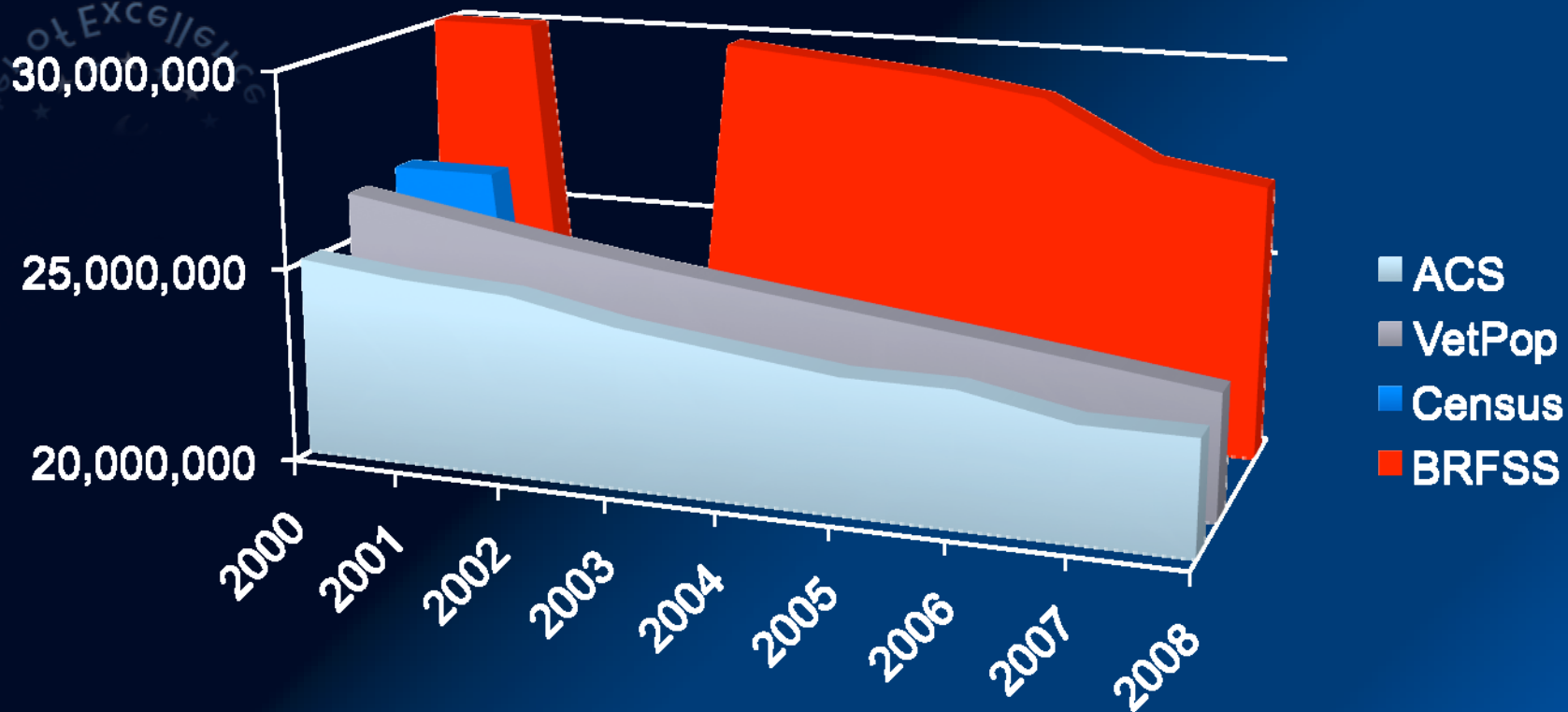
- Significant difference* between the 2007 VetPop (23,578,713) and the 2007 ACS (22,892,086)
 - Difference = -2.9% (could be administration lag)
- Significant difference* between 2007 VetPop and 2007 BRFSS (27,461,874)
 - Difference = +16.5%
- Significant difference* between 2007 ACS and 2007 BRFSS
 - Difference = +20.0%



*($\alpha = .01$), all Independent Samples t-tests



Graphic Representation of Differences in Estimates of U.S. Veteran Population





Systematic Bias



- We found a systematic bias between the ACS, BRFSS, and VetPop estimates.
- With an α set to .01, each survey significantly predicted itself from year to year with downward population trends derived from all three.
- Using this model, we see a consistent bias:
 - The BRFSS is 18.7% higher than the VetPop (95% CI \pm 2.3%)
 - The BRFSS is 23.1% higher than the ACS (95% CI \pm 5.7%)





Semantics?

- Does the small phrase difference shown account for the difference between BRFSS and ACS? This needs to be tested separately but seems unlikely
- However, we propose the difference between a phone interview (BRFSS) and a government form (Census and ACS) could account for some if not all of the difference, given the validity of other questions on the BRFSS





Summary

- Use caution when interpreting reports of suicide among Veterans
- Lingering questions about population composition and differences in risk characteristics
- Methodological choice may, in part, be responsible for observed differences
- Questions about generalizability, reliability, and validity





Conclusions

- Additional research needed to clarify questions surrounding case ascertainment
- Vital statistics data may be an important source of information
- Standardization across data sources (surveys) needed to ensure comparability
- Future research needed





Questions?



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