





















# VA/CMS Medicare Vital Status File

## Received from

- **Centers for Medicare & Medicaid Services (CMS) annually**

## Information sources

- **SSA**
- **Medicare claims**
- **Other (e.g., family)**

## Coverage

- **Veterans enrolled in Medicare ( $\geq 65$  years old or disabled)**

## Update Schedule

- **Annual (deaths through April 2015)**

## Location

- **Available from VIREC**

**\*Available in the VSF\***

# SSA Death Master File

## Received from

- **Social Security Administration**

## Information sources

- **Family members**
- **Funeral directors**
- **Post offices**
- **Financial institutions**
- **Other federal agencies**
- **State vital records agencies**

## Coverage

- **Individuals with SSN (first issued 1936)**
- **Includes deaths occurring outside United States**
- **More complete for over 65 population and for beneficiaries**

## Update Schedule

- **Weekly (and VA receives annual overlay)**

## Location

• AITC

**\*Available in the VSF\***

# Medical SAS Inpatient File

## Received from

- **Austin Information Technology Center**

## Information source

- **VistA PTF File (#45), Date of Disposition (DISDAY) and Type of Disposition (DISTYPE) fields**

## Coverage

- **Inpatient deaths in VA facilities**
- **Inpatient deaths in non-VA hospitals**

## Updates

- **Weekly**

## Location

- **AITC (MedSAS)**
- **CDW**

**\*Available in the VSF\***

# Corporate Data Warehouse (CDW)

## Received from

- **Corporate Data Warehouse**

## Information Source

- **VISTA**

## Coverage

- **Deaths verified by official source including VHA facilities, death certificate, and National Cemetery Administration**

## Update Schedule

- **Daily**

## Location

- **[CDW Patient 2.0 ]**

# CDW

## SPatient.SPatient Table

### Columns:

- DateofDeath
  - Date of death in SQL date format if complete and valid date in DateofDeathText
- DateOfDeathText
- Deceased (created by CDW)
  - Flag set to 'Y' if there is information in the DateOfDeathText column and 'N' if DateOfDeathText column is empty.

# CDW Limitations

- Current policy: Information to be entered from “official sources” only
  - VHA facility (if patient died in the VHA facility or while under VA auspices)
  - Death certificate
  - National Cemetery Administration
  - VHA Directive 1906
- CDW Date of Death Analysis and Vital Status File Comparison

# CDW Limitations

“CDW Date of Death Analysis and Vital Status File Comparison”

Report Highlights

[http://vaww.vhadataportal.med.va.gov/Portals/0/DataQualityProgram/Reports/CDW\\_Date\\_of\\_Death\\_Analysis\\_and\\_VSF.pdf](http://vaww.vhadataportal.med.va.gov/Portals/0/DataQualityProgram/Reports/CDW_Date_of_Death_Analysis_and_VSF.pdf)

## Results

- Dates of death are not recorded in the CDW for an estimated 30% of deaths.
- There is high agreement (91-99%) between dates of death recorded in the CDW and dates of death recorded in external sources that feed the VHA Vital Status File.

## Recommendations

- Dates of death in the CDW should be augmented with deaths from other sources such as the VHA Vital Status File for more complete death ascertainment.
- Both the DateofDeath and Deceased columns should be used to identify deceased patients.
- We recommend adding the VistA Source of Notification field (Field .353) in the Patient File (File 2), which contains the source of the death notification, to the CDW.

# Session Topics

- Data sources for Veteran vital status ascertainment
- **VHA Vital Status Files**
  - **Structure and contents**
  - **Challenges in using the VHA VSF**
- Date of death project
- Data sources for Veteran & Non-Veteran mortality
- Other resources for mortality data
- Examples of using mortality data for research

## Poll Question #3

### **Have you ever used the VHA VSF?**

- a. Yes, both the Master File and Mini File
- b. Yes, only the Mini File
- c. Yes, only the Master File
- d. No

# VHA VSF Background

- Single sources are incomplete
- Using the National Death Index as the gold standard:

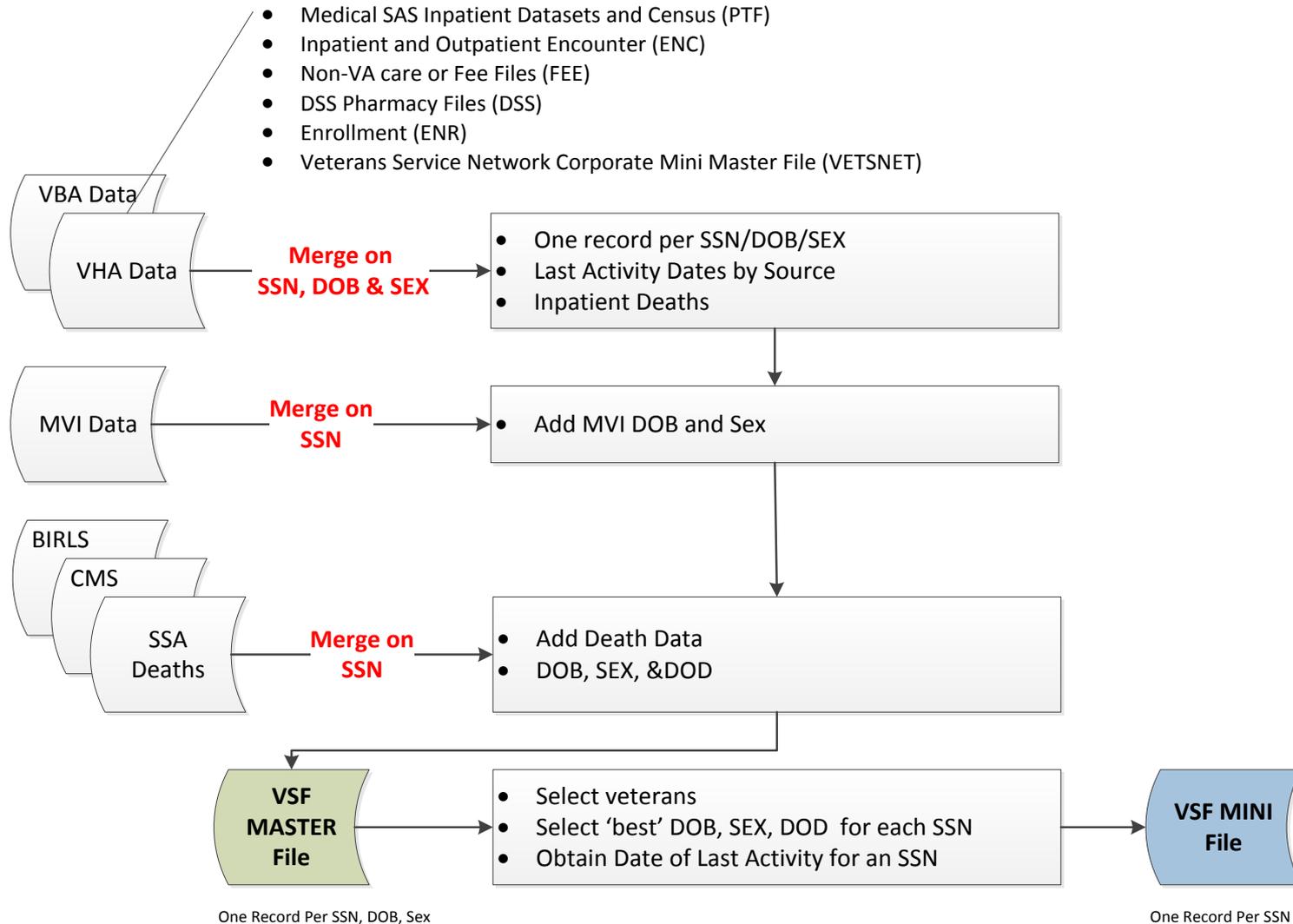
<b>DOD Source</b>	<b>Sensitivity</b>
BIRLS	64-80%
VA/CMS Medicare	83%
SSA	89-95%
PTF	5-12%

- Combined Sources provide 97.5%-98.3% sensitivity
- VIREC VA-NDI Mortality Data Merge Project

# VHA VSF Creation

- Owner
  - Built by National Data Systems (NDS)
  - First available in October 2006
- Data access information
  - See VHA Data Portal website  
<http://vaww.vhadataportal.med.va.gov/Home.aspx> (Intranet only)
- Updated quarterly
- Veterans known to VA
  - VHA activity FY 1992 or later
  - VBA compensation and pension
- Two files + conversion file
  - Master, Mini, scrambled/real SSN

# Construction of VHA VSF



## More detail on VHA VSF Construction

**Ascertaining Veterans' Vital Status: VA Data Sources for Mortality Ascertainment and Cause of Death** by Noreen Arnold, MS and Claire Hoffmire, PhD.

Seminar date: 5/4/2015

[http://www.hsrd.research.va.gov/for\\_researchers/cyber\\_seminars/archives/video\\_archive.cfm?SessionID=982](http://www.hsrd.research.va.gov/for_researchers/cyber_seminars/archives/video_archive.cfm?SessionID=982)

**Ascertaining Veterans' Vital Status and Dates of Death: The VHA Vital Status File and Other Data Sources for Mortality Ascertainment in VA** by Elizabeth Tarlov, PhD.

Seminar date: 7/14/2014

[http://www.hsrd.research.va.gov/for\\_researchers/cyber\\_seminars/archives/video\\_archive.cfm?SessionID=857](http://www.hsrd.research.va.gov/for_researchers/cyber_seminars/archives/video_archive.cfm?SessionID=857)

# Vital Status Files (April 5, 2016)

## Master

- Veterans and Non-Veterans
- One record per SSN/DOB/Sex combination
- 125 variables
- 27,390,242 records
- 18,829,560 SSNs
- 7,596,188 SSNs have more than one record (40% of SSNs)

## Mini

- Veterans
- One record per SSN
- Combined data from multiple Master records
- 16 variables
- 16,740,637 records (SSNs)

# Vital Status Mini Contents (July 6, 2016)

## (n=16,740,637)

Variable	Label
ACT_LAST_DT	LAST HEALTHCARE OR BENEFIT ACTIVITY DATE
ACT_LAST_DT_IND	LAST HEALTHCARE OR BENEFIT ACTIVITY DATE INDICATOR
ACT_LAST_DT_SRC	LAST HEALTHCARE OR BENEFIT ACTIVITY DATE SOURCE
DOB	BEST DATE OF BIRTH
DOB_IND	BEST DATE OF BIRTH INDICATOR
DOB_SRC	DATA SOURCE BEST DATE OF BIRTH
DOD	BEST DATE OF DEATH
DOD_IND	BEST DATE OF DEATH INDICATOR
DOD_SRC	DATA SOURCE BEST DATE OF DEATH
LIVING_IND	PRESUMED LIVING INDICATOR
SCRSSN	SCRAMBLED SOCIAL SECURITY NUMBER
SEX	BEST GENDER
USE_AFTER_DTH_FLG	UTL_LAST_DT IS GT DOD +31 DAYS (0=NO 1=YES)
UTL_LAST_DT	LAST HEALTHCARE UTILIZATION DATE
UTL_LAST_DT_IND	LAST HEALTHCARE UTILIZATION DATE INDICATOR
UTL_LAST_DT_SRC	LAST HEALTHCARE UTILIZATION DATE SOURCE

# Best DOB and DOD on VSF Mini

## • Best Birth Date Data Source

BIRLS DEATH FILE	1,692
MEDICARE DATA	516,366
DECISION SUPPORT SYSTEM	14,496
OUTPT/INPAT ENCOUNTER	464,682
ENROLLMENT SYSTEM	148,082
FEE BASIS	8,346
MVI	15,054,134
PATIENT TREATMENT FILE	159,944
SOCIAL SECURITY DEATH FILE	30,474
VBA	241,289
Total	16,639,505

## • Best Death Date Data Source

No Death Date	10,518,393
BIRLS DEATH FILE	146,115
MEDICARE DATA	3,803,854
FEE BASIS	94,303
PATIENT TREATMENT FILE	758,767
SOCIAL SECURITY DEATH FILE	1,318,073
Total	16,639,505

**VHA VSF Mini on April 5, 2016**

# Potential Challenges when using VHA VSF

- Demographics do not match
- Multiple dates of death
- Activity after date of death
- Erroneously recorded dates of death in sources

Note: VHA VSF should not be used for business operations regarding individual veterans

# Possible Strategies for Matching Cohorts

- Use the Mini File for the initial search for deaths
  - Match on SSN
- Use the Master File to investigate unusual cases, for example:
  - Cohort DOB/Sex do not match Mini DOB/Sex
  - May be records on the Master File with matching demographics
- Activity after death
  - Check DOB/Sex for DOD sources on Master File
  - Are all DOD on Master File the same?

## Possible Strategies for Matching Cohorts (cont.)

- Consider additional supplementary data sources
  - Use the NDI or State Vital Statistics Offices for cases lost to follow up, i.e.,
    - No death date
    - No VHA or VBA activity after end of follow up
- CDW for individuals without activity after 1991 or very recent deaths

# Session Topics

- Data sources for Veteran vital status ascertainment
- VHA Vital Status Files
- **Date of death project**
- Data sources for Veteran and Non-Veteran mortality
- Other resources for mortality data
- Examples of using mortality data for research

# Date of Death Project

- The Date of Death Project includes leadership and participation from VHA, VBA, and NCA
- Purpose: improve VA ascertainment and documentation of death of individuals known to the VA
- Develop processes and procedures to improve accuracy and completeness of date of death
- Master Veteran Index (MVI) will be authoritative service for date of death (First Phase)
- Dates of death will be synchronized across Administrations (Second Phase)
- Electronic Verification of Vital Events (EVVE) is now available on a limited basis

## Date of Death Project (cont.)

EVVE – Electronic Verification of Vital Events

- NAPHSIS
  - National Association for Public Health Statistics and Information Systems
- Online query system of state vital statistics data bases
  - Death Certificates
  - Birth Certificates

# Date of Death Project (cont.)

## First Phase

- Final phases of implementation in 2<sup>nd</sup> and 3<sup>rd</sup> QTR of FY 2017
  - MVI promotes 'validated' dates of death to the MVI Primary View
  - Death dates promoted to Primary View are pushed to consuming systems (VHA, VBA, etc.)
  - Rules for promoting a date of death
    - Date passes rules it is considered 'Validated'
  - New sources for Primary View dates of death
    - NCA (current source)
    - SSA Death Master File (Weekly and Full)
    - Department of Defense
    - VBA Corporate Database
    - VHA Medical Centers and Enrollment

# Session Topics

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# National Death Index

- Gold standard for death ascertainment
- Available from the National Center for Health Statistics
  - Source of data : State Vital Statistics Offices
  - Records from 1979 through 2013 (~12 month lag)
- Contains cause of death from death certificates
- Information about fees & access
  - <http://www.cdc.gov/nchs/ndi.htm>
- Suicide Data Repository from the VHA Office of Public Health

# National Death Index for Veterans

CDC's National Death Index Plus which contains approximately 2.5 million records (1979-2011)

- Date and cause of death (ICD-10 codes)
- Veteran decedents only, all causes of death
- Current mortality archive:
  - Service members who separated from active duty service (including deactivation NG & Reserve) between 1979-2011.
  - All users of VHA services, FY2000-2011
  - Please see <http://vaww.virec.research.va.gov/Cause-of-Death/Overview.htm>



# National Death Index for Veterans

- Is available through Suicide Data Repository (SDR) which is administered jointly between VA Office of Mental Health and DOD.
- All applications for access to NDI data available from SDR are reviewed by a joint VA-DoD Board of Governance, which meets quarterly (January, April, July, October) to review requests.

# National Death Index for Veterans

- Contact [VHACANSDRDataRequests@va.gov](mailto:VHACANSDRDataRequests@va.gov) for more information about accessing NDI data from the SDR.
- Data through 2014 will be available in early 2017.

# SSA Epidemiological Search

- Provides date of death
- Validates SSN
- Provides 'presumed living' status
  - Based on SSA administrative data including:
    - Payroll deductions, railroad retirement or disability payments, death claims filed by beneficiaries
    - Advantage: Reduces loss to follow up
- Deaths occurring outside the US
- Fees & Access
  - <http://www.ssa.gov/policy/about/epidemiology.html>

# State Death Certificates

- States' policies regarding the release of death certificates vary considerably, as deceased individuals are not human subjects.
- An informal review of state vital statistics offices websites revealed that 24 mentioned a process for obtaining death records.

## State Death Certificates (Advantages and Disadvantages)

- Veteran status is reported on the death certificate.
- The whole death record, including contributing causes and not just underlying cause, is available.
- With identifiers can be linked to VA data.
- Limited in scope-not all states allow release of records for research.
- Death record is the official record but concerns about accuracy of information remain.

# Defense Manpower Data Center (DMDC)

- Contains files that report casualties in past and ongoing conflicts.
- These publicly available files contain the actual names, rank, pay grade, unit, and place of death.
- This reporting is part of the Defense Casualty Analysis System (DCAS).

## Defense Manpower Data Center (DMDC) (cont.)

- For more information:  
<https://www.dmdc.osd.mil/dcas/pages/casualties.xhtml>.
- These files have been used for research purposes, e.g. The association of state per capita income and military service deaths in the Vietnam and Iraq wars. *Population Health Metrics* 2009; 9:2.

# Session Topics

- Data sources for Veteran vital status ascertainment
- VHA Vital Status Files
- Date of death project
- Data sources for Veteran and Non-Veteran mortality
- **Other resources for mortality data**
- Examples of using mortality data for research

# CDC National Center for Health Statistics

- The Centers for Disease Control (CDC) also has a number of death search tools as well as limited individual death files.
- Examples include CDC Wonder underlying cause of death search tool
  - <http://wonder.cdc.gov>
  - Individual level multiple cause of death files are also available
  - [http://www.cdc.gov/nchs/data\\_access/VitalStatsOnline.htm#Mortality\\_Multiple](http://www.cdc.gov/nchs/data_access/VitalStatsOnline.htm#Mortality_Multiple)

## CDC Injury Prevention & Control: Data & Statistics

- Web-based Injury Statistics Query and Reporting System (WISQARS)
  - <http://www.cdc.gov/injury/wisqars/index.html>
- These databases have limited information due to privacy concerns, but have research applications.
- Essentially these files are de-identified.

# Benefits of Additional Mortality Information

- Findings derived from information on VHA Veterans alone are unlikely to be broadly generalizable to all Veterans
  - 70% of the 22 million living U.S. Veterans in 2012 not enrolled/using VHA service
- Relative to the Vital Status File, additional data sources allow VA researchers to:
  - Study the whole/general Veteran population
  - Compare Veterans who use VHA services prior to death to those who do not
  - Compare Veteran and non-Veteran by cause of death

# Session Topics

- Data sources for Veteran vital status ascertainment
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- **Examples of using mortality data for research**

**Research Example 1:** Trivedi et al. (2015). Prevalence, comorbidity, and prognosis of mental health among US Veterans. *American Journal of Public Health*. 105:2564-2569.

## Mental Health (Vital Status File)

- Used vital status file to assess 1 year mortality after PACT implementation.
- Veterans with substance use disorders had higher risk of mortality, whereas those with PTSD had lower risk.
- Integrating primary care and mental health treatment was associated with lower risk of death for individuals with anxiety, depression, and substance use disorders

## Research Example 2: Mental Health (NDI cause of death)

- New ongoing study to examine cause of death in veterans with mental health conditions
- Examines underlying cause of death from the NDI Plus which will soon include deaths through 2014
- Compare leading cause of death according to type of mental health condition (e.g. major depression, PTSD, SUD, anxiety, and serious mental illness)

## Research Example 3: State Death Certificates

- Washington State offers death records for purchase.
- Files of decedent names and the death records themselves are available from 1968 to current with each file costing \$20 per year.
- For more information:  
<http://www.doh.wa.gov/DataandStatisticalReports/VitalStatisticsData/OrderDataFiles>.

## Research Example 3: State Death Certificates

- Dominitz, J. A., Maynard, C., & Boyko, E. J. (2001). Assessment of vital status in Department of Veterans Affairs national databases: Comparison with state death certificates. *Annals of Epidemiology*, 11(5), 286-291.
- Maynard, C., & Boyko, E. J. (2006). Differences in cause of death of Washington State Veterans who did and did not use Department of Veterans Affairs healthcare services. *Journal of Rehabilitation Research and Development*, 43(7), 825-831.
- Maynard, C., & Boyko, E. J. (2008). Datapoints: Suicide rates in the Washington State Veteran population. *Psychiatric Services*, 59(11), 1245.
- Maynard, C., Lowy, E., McDonell, M. & Fihn, S. D. (2008). Cause of death in Washington state Veterans hospitalized with acute coronary syndromes in the Veterans Health Administration. *Population Health Metrics*, 6(13).
- Maynard, C. (2010). Accidental deaths in Veterans and non-veterans in Washington State. *Internet Journal of Epidemiology*, 8(2).
- Maynard, C. (2015). Cause of death in middle-age white non-Hispanic Washington State Veterans, 2000-2103. *Internet Journal of Epidemiology*, 13(1).



# References

Arnold N., Sohn, M., Maynard, C., Hynes, D.M. VIREC Technical Report 2: VA NDI Mortality Data Merge Project. April 9, 2006. VA Information Resource Center.

Available: <http://vaww.virec.research.va.gov/Reports/TR/TR-VA-NDI-Mortality-CY06-ER.pdf>

da Graca, B., Filardo, G., & Nicewander, D. (2013). Consequences for healthcare quality and research of the exclusion of records from the Death Master File. *Circulation: Cardiovascular Quality and Outcomes*, 6(1), 124-128.

Doody, M. M., & Chimes, K. (2000). The Social Security Administration "presumed living" search. *American Journal of Public Health*, 90(12), 1948.

Hoffmire, C. A., Kemp, J. E., & Bossarte, R. M. (2015). Changes in suicide mortality for veterans and nonveterans by gender and history of VHA service use, 2000–2010. *Psychiatric Services*, 66(9), 959-965.

## References (cont.)

- Maynard C. (2009). Databases. In *The Encyclopedia of Death and the Human Experience*. (pp. 258-261). Thousand Oaks CA: Sage Publications.
- Savas, L. S., del Junco, D.J., Bastian, L.A., and Vernon, S. W. (2009). Mortality ascertainment of women Veterans: A comparison of sources of vital status information, 1979-2002. *Medical Care*, 47(1), 125.
- Sohn, M. W., Arnold, N., Maynard, C., & Hynes, D. M. (2006). Accuracy and completeness of mortality data in the Department of Veterans Affairs. *Population Health Metrics*, 4(1), 2.
- U.S. Department of Veterans Affairs. VHA Directive 1906 Data Quality Requirements for Healthcare Identity Management and Master Veteran Index Functions. April 29, 2013.

# Contact information

VA Information Resource Center

Hines VA Hospital

[virec@va.gov](mailto:virec@va.gov)

708-202-2413

Chuck Maynard

[cmaynard@uw.edu](mailto:cmaynard@uw.edu)



# Additional Resources

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# Resources

## **VHA Data Quality**

- <http://vaww.virec.research.va.gov/DataQuality/Overview.htm>

## **National Data Systems**

- Dorothea Garrett ([Dorothea.Garrett@va.gov](mailto:Dorothea.Garrett@va.gov))
- **VIReC Mortality Data page**  
<http://vaww.virec.research.va.gov/Mortality/Overview.htm>
- **VIReC Accuracy and Completeness of Death Dates page -**  
<http://vaww.virec.research.va.gov/Mortality/Accuracy-of-Death-Dates.htm>.

## Resources (cont.)

### **VHA Data Portal**

- <http://vaww.vhadataportal.med.va.gov/Home.aspx> (Intranet only)
  - Integrates information from multiple sources into a single location to promote a comprehensive knowledge base

### **HSRData Listserv**

- Join at the VIREC Web site
- Discussion among data stewards, managers, and users
- Past messages in archive (on VA intranet)

## Quick links for VA data resources

*Quick Guide: Resources for Using VA Data*

<http://vaww.virec.research.va.gov/Toolkit/QG-Resources-for-Using-VA-Data.pdf> (VA Intranet)

VIReC: <http://vaww.virec.research.va.gov/Index.htm> (VA Intranet)

VIReC Cyberseminars: <http://www.virec.research.va.gov/Resources/Cyberseminars.asp>

VHA Data Portal: <http://vaww.vhadatportal.med.va.gov/Home.aspx> (VA Intranet)

VINCI: <http://vaww.vinci.med.va.gov/vincicentral/> (VA Intranet)

Health Economics Resource Center (HERC): <http://vaww.herc.research.va.gov> (VA Intranet)

CDW: <https://vaww.cdw.va.gov/Pages/CDWHome.aspx> (VA Intranet)

Archived cyberseminar: What can the HSR&D Resource Centers do for you?

[http://www.hsrd.research.va.gov/for\\_researchers/cyber\\_seminars/archives/video\\_archive.cfm?SessionID=101](http://www.hsrd.research.va.gov/for_researchers/cyber_seminars/archives/video_archive.cfm?SessionID=101)

# VIReC Options for Specific Questions

## HSRData Listserv

- Community knowledge sharing
- ~1,200 VA data users
- Researchers, operations, data stewards, managers
- Subscribe by visiting <http://vaww.virec.research.va.gov/Support/HSRData-L.htm> (VA Intranet)



## HelpDesk

- Individualized support



[virec@va.gov](mailto:virec@va.gov)

(708) 202-2413

**Next session:  
April 3, 1 pm Eastern**



**Database & Methods Cyberseminar Series**

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## **Assessing Race & Ethnicity**

Maria K. Mor, PhD

Co-Director of the Biostatistics, Informatics, and  
Computing Core VA Center for Health Equity  
Research and Promotion (CHERP)

Pittsburgh, PA