GSA Webinar Series

Veterans Aging Cohort Study (VACS)

SUPPORTED BY THE GSA INNOVATION FUND: THE GENERATIVITY EFFECT

HIV and Aging: Data Access, Availability, and Research Funding Opportunities

- GSA Webinar Series
  1. The Multicenter AIDS Cohort Study (MACS)/Women’s Interagency HIV Study (WIHS) Combined Cohort Study (MWCCS)
  2. Veterans Aging Cohort Study (VACS)
  3. NIH Centers for AIDS Research (CFAR) Network of Integrated Clinical Systems (CNICS)
  4. University of California, San Diego (UCSD) and Collaborating Sites Data Sources
  5. NIH National Institute on Aging (NIA) Funding Opportunities and Data Sources

Register at www.geron.org/webinars
Clarifying Questions?

- We will not be using the “raise hand” feature today
- Please use the “questions” feature accessible on the right side of your screen
- Speakers will not see questions until the end of the presentation
- If we do not get to all of the questions today, we will email responses after the webinar
Who is a United States veteran?

• Anyone who served in the US armed forces
  – Army, Navy, Air Force, Marines, Coast Guard
  – Not necessarily in combat

• 21 million living US Veterans
  – 82% white, 12% black

https://www.va.gov/vetdata/veteran_population.asp
Profile of Veterans 2017

US Dept. of Veterans Affairs (VA)

• Provides benefits and support after service
  – Financial
  – Home loan guarantee
  – Insurance
  – Education
  – Vocational rehabilitation
  – Employment
  – Health care
Health care

- Eligible
  - ≥24 months service
  - Honorable discharge

- Medical care
  - Inpatient and outpatient

- Mental health
  - PTSD
  - Substance abuse
  - Other: depression, schizophrenia

Veterans Health Administration (VHA)

- 9 million veterans currently enrolled
  - Up from 7 million in 2002

- Healthcare facilities across US
  - 800 VA community-based outpatient clinics
  - 150 VA hospitals/medical centers
  - 125 VA nursing homes

- Cost to veteran
  - None, if ≥50% service-connected disability
  - Otherwise depends on income threshold

http://www.va.gov/vetdata
Electronic Health Record (EHR)

- Nationwide since 1997
- Diagnoses by ICD-9/10 codes
- Vital signs: blood pressure, height, weight, pain
- Procedures by CPT and ICD codes
- Laboratory test results
- Prescription drug name, dose, fill date
- Smoking (FY 1999)
- Alcohol (FY 2007)
- Depression score
- Notes and reports using text processing

Additional data

- VA oncology registry
  - Stage, histology, cancer specific

- Centers for Medicare and Medicaid Services (CMS)
  - Age 65+ or disabled
  - Low income
Death

• Vital status
  – Death date
  – Last utilization date (VA and CMS)
  – Incorporates VA, CMS and Social Security data
  – Available even if no longer in VA care

• NDI = National Death Index
  – Death certificate cause of death
  – Underlying
  – Any mention

2017 Survey of VHA enrollees

• Smoking
  – 61% ever
  – 16% current

• VA patients vs general civilian population
  – less health insurance coverage
  – less well-off financially
  – less healthy

2017 Survey of VHA enrollees

- 1/3 use VA for all health care

- 80% at least 1 prescription medication
  - 44% all from VA
  - 20% mixed
  - 36% none from VA

Existing cohorts

- Veterans Aging Cohort Study (VACS)
- Veteran Birth Cohort 1945-1965 (VBC)
- Million Veteran Program (MVP)
- Women Veterans Cohort Study (WVCS)
- Prostate Cancer
- Musculoskeletal Diagnoses Cohort (MSD)
Musculoskeletal Diagnoses Cohort MSD

- ICD-9 diagnoses for joint, back, and neck disorders
  2 or more outpatient visits within 18 months or
  1 or more inpatient visit
- Between 2000 and 2011
- First MSD diagnosis date = index date
- N = 5 MM or nearly half of all in VA care
- Illustrates range of birth years

Birth year

- More women (12%), black, Hispanic
- WWII
- Korea
- Vietnam
- Iraq
- Afghanistan
Veterans Aging Cohort Study (VACS)

HIV+ at all VA sites FY1997-2017

match 1:2 age, race/ethnicity, site

HIV uninfected comparators

- Largest single provider of HIV care in US
- Demographically similar comparators
- EHR cohort
  - Better than administrative data
  - Medical record data

http://vacohort.org
VACS EHR Cohort

All HIV+ in VA
N = 56,000

1:2 individual match

Matched HIV-
N = 112,000

(VFY17. 1 dot = 100 people)

VACS-survey enrollees
4561 HIV+, 4352 HIV-

All HIV+ in VA
N = 56,000

1:2 individual match

Matched HIV-
N = 112,000

VACS EHR Cohort

(VFY17. 1 dot = 100 people)
How we identify HIV+

• By ICD code
  – 1 inpatient or 2 outpatient using the earlier date
• Not by HIV test
• Not by CD4 or viral load
• Not by CCR or ICR confirmation
  – Original cohort development and validation only
• May not be newly diagnosed
  – Newly diagnosed in VA

<table>
<thead>
<tr>
<th></th>
<th>ICD-9</th>
<th>ICD-10</th>
</tr>
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<tbody>
<tr>
<td>Asymptomatic HIV infection status</td>
<td>V08.</td>
<td>Z21.</td>
</tr>
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Number of HIV+ identified per year

371 of 173,000 in the cohort as HIV+ and uninfected (0.2%)
Follow-up

Entered cohort by 9/30/2015

<table>
<thead>
<tr>
<th></th>
<th>HIV+</th>
<th>Uninfected</th>
</tr>
</thead>
<tbody>
<tr>
<td>VA visit FY 2017</td>
<td>49%</td>
<td>60%</td>
</tr>
<tr>
<td>Died by April 2017</td>
<td>42%</td>
<td>24%</td>
</tr>
<tr>
<td>&quot;Lost&quot;</td>
<td>10%</td>
<td>16%</td>
</tr>
</tbody>
</table>

VACS Survey

In-depth data since 2002

- 1:1 frequency matched uninfected controls
- Text notes (searchable)
- Medical record review
  - Adjudicated outcomes (MI, Cancer, Liver)
- Survey data plus all other VACS data
VACS Survey

<table>
<thead>
<tr>
<th>Baseline 2002</th>
<th>Baseline 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002 only</td>
<td>4824 (55)</td>
</tr>
<tr>
<td>Both</td>
<td>2686 (31)</td>
</tr>
<tr>
<td>2012 only</td>
<td>1196 (14)</td>
</tr>
</tbody>
</table>

Follow-up Surveys

- 2003 (1)
- 2004 (2)
- 2005 (3)
- 2008 (4)
- 2009 (5)
- 2011 (6)
- 2015 (8)

VACS Survey Biomarker Cohort

- Banked blood and DNA specimens
- IL-6, d-dimer, sCD14
- Genotype data alcohol, opioids, smoking
- Proteomics
VACS Survey

• All patients do baseline survey at enrollment
• Eligible to do follow-up 12 months later
  – In early years, some went ahead of schedule
• No FU2003 for Baltimore, DC, Pittsburgh
• 62 have more than 1 study id
  – Uninfected → HIV+
  – Enrolled more than 1 site

Survey questions

• Behaviors
  – Alcohol, tobacco, and drug use
  – Risky sex
• Standard measures
  – Depression
  – SF12
  – Functional status and pain
• Other
  – Homelessness, incarceration
  – Education, marital status
Veteran Birth Cohort

- In VA care, born 1945-1965
- Any outpatient visit by 9/30/2017
- Death date >10/1/1999
- 4.5 million
- ~150,000 HCV positive

Birth Cohort alive 1/1/2014

- Graph showing the number of individuals without HCV (green) and with HCV (red) by birth year (1945-49, 1950-54, 1955-59, 1960-65)
Million Veteran Program (MVP)

- To promote genomic and health discoveries
  → Personalized medicine
- ~7 million eligible veterans
  - In VA care
  - Valid mailing address
  - Able to provide informed consent
- 690,000 participants as of August 2018
- Restricted access

MVP sites

= Actively Recruiting
= Closed to Recruitment
Womens Veteran Cohort Study (WVCS)

- Men and Women in VA care, who served in:
  - Operation Enduring Freedom (OEF)
    - Afghanistan 2001-2014
  - Operation Iraqi Freedom (OIF)
    - Iraq 2003-2011
  - Operation New Dawn (OND)
    - Iraq 2010-2011
- PIs: Cindy Brandt, Sally Haskell

WVCS

- With primary care visit by FY2017:
  - 850,000 men, 120,000 women (12%)
  - Survey sample ~700 women, 700 men

- Race Distribution:
  - White, 65
  - Black, 16
  - Hispanic, 11
  - Other, 7
  - Unknown, 4
Can I use these data?

• Yes!
• How?
  – Collaborate with us
    • We do analysis
  – You do analysis
    • Deidentified data
    • Access to data
• $ depends on complexity of data and how well it fits with our funded work

What’s the process?

• Talk to us
• We assess feasibility
• Proposal circulated to workgroup
  – Subject matter expertise
  – Potential collaborators
• Review with workgroup on a call
  – Address concerns
  – Get more information
• Data cut
Thank You

GSA: Advancing Innovation in Aging

- The nation’s oldest and largest interdisciplinary organization devoted to research, education, and practice in the field of aging
- 5,500+ interdisciplinary members around the world touching all facets of aging

Mission

- Promote multi- and interdisciplinary research in aging
- Translate and disseminate research findings
- Promote/advocate for education/awareness on aging across disciplines
- Foster application of research into policy development

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Continue the conversation—Join GSA’s HIV, AIDS, and Older Adults Interest Group
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Webinar Evaluation

• In an effort for continual improvement, we would like to hear your thoughts. Please provide feedback by clicking the survey link at the end of the webinar.

• Thank you again and we hope you enjoyed the program!