Database & Methods Cyberseminar Series

Informational seminars to help VA researchers understand how to use VA and non-VA data in research and quality improvement

Topics

• Application of VA and non-VA data to research and quality improvement questions
• Limitations of secondary data use
• Resources to support VA data use
### FY ‘17 Database & Methods Schedule

First Monday of the month*  |  1:00pm-2:00pm ET

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/3/16</td>
<td>Overview of VA Data &amp; Research Uses</td>
</tr>
<tr>
<td>11/7/2016</td>
<td>Requesting Access to VA Data</td>
</tr>
<tr>
<td>12/5/2016</td>
<td>Healthcare Utilization with MedSAS &amp; CDW</td>
</tr>
<tr>
<td>1/9/2017</td>
<td>VA Medicare Data (VA/CMS)</td>
</tr>
<tr>
<td>2/6/2017</td>
<td>Assessing Outpatient Utilization with VA Data</td>
</tr>
<tr>
<td>3/6/2017</td>
<td>Mortality Ascertainment &amp; Cause of Death</td>
</tr>
<tr>
<td>4/3/2017</td>
<td>Assessing Race &amp; Ethnicity</td>
</tr>
<tr>
<td>6/5/2017</td>
<td>Pharmacy Data</td>
</tr>
<tr>
<td>7/10/2017*</td>
<td>CAPRI/VistAWeb for EHR Access</td>
</tr>
<tr>
<td>8/7/2017</td>
<td>Comorbidity Measures Using VA and CMS Data</td>
</tr>
<tr>
<td>8/21/2017</td>
<td>Advanced Topics in Comorbidity Measures</td>
</tr>
<tr>
<td>9/11/2017*</td>
<td>CDW microbiology, lab, &amp; pharmacy domains</td>
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</tbody>
</table>

*Schedule shifts by one week in event of VA holiday.

Visit our Education page for more information & registration links.
[www.virec.research.va.gov](http://www.virec.research.va.gov)

2/3/2017
Assessing Outpatient Utilization with VA Data

February 6, 2017
Denise M. Hynes, MPH, PhD, RN
Director & Research Career Scientist
VIReC & CINCCH, Department of Veterans Affairs, Hines, IL
Professor, College of Medicine & School of Public Health, University of Illinois, Chicago, IL
Poll #1: Your role as a data user

What is your role in the VA?

• Research investigator/PI
• Data manager, analyst, or programmer
• Project coordinator
• Other – please describe via the Q&A function
Today’s Topics

• Introduction

• Where to start with VA outpatient data sources

• Brief Overview of Medical SAS & CDW & Medicare outpatient datasets

• Examples of research focused on outpatient care

• Resources on VA outpatient datasets
Today’s Topics

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• Examples of research focused on outpatient care

• Resources on VA outpatient datasets
Learning Objectives

By the end of this cyberseminar, attendees will:

- Understand concepts about outpatient care measurement and data choices
- Understand basic content and organization of key VA outpatient data
- Appreciate the value of non-VA data sources to characterize outpatient use
- Know where to find resources about VA outpatient data
Today’s Topics

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- Resources on VA outpatient datasets
Ascertaining Outpatient Care Depends on Your Focus

Frequency
  • How many encounters with primary care provider (PCP) per year?

Temporal relationship to inpatient care
  • Time to follow-up surgical appointment?

Type of setting/provider
  • PCP encounter? Lab?
  • Chemotherapy? Group counseling?

Purpose of encounter
  • Diagnoses treated (ICD9/10)
  • Procedures performed (CPT)
Data Sources for Assessing Outpatient Care

Best data sources depend on your focus:

National Sources

• Corporate Data Warehouse (CDW)
• National Patient Care Dataset (NPCD)/MEDSAS Outpatient Data
• VA/CMS Outpatient Datasets

Other sources

• Veterans Health Information Systems and Technology Architecture (VistA)/Computerized Patient Record System (CPRS)
• Non-VA Community Care/Fee-basis
• Managerial Cost Accounting (MCA) National Data Extracts
• Surgery Data
• Pharmacy Data
Today’s Topics

• Introduction

• Where to start with VA outpatient data sources

• Brief Overview of Medical SAS & CDW outpatient data

• Examples of research focused on outpatient care

• Resources on VA outpatient datasets
Poll #2: Your experience with MedSAS Datasets

*How would you rate your overall knowledge of the VA Medical SAS (MedSAS) datasets?*

1. Never Used MedSAS Datasets
2. 
3. 
4. 
5. Frequently used MedSAS
What are the MedSAS Outpatient datasets?

• Outpatient encounter information
• Care delivered at all VA facilities and some non-VA facilities paid for by VA
• Contain data for a small percentage of non-Veterans who received care in a VA facility
Examples of Outpatient Services You will Find in MEDSAS

Top 15 Clinic Stops in MedSAS Visit FY16 File

<table>
<thead>
<tr>
<th>Outpatient Service</th>
<th>Stop Code #</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory</td>
<td>108</td>
<td>11,913,003</td>
</tr>
<tr>
<td>Primary Care</td>
<td>323</td>
<td>10,322,281</td>
</tr>
<tr>
<td>Tele Primary Care</td>
<td>338</td>
<td>5,823,381</td>
</tr>
<tr>
<td>Mental Health Clinic Individual</td>
<td>502</td>
<td>4,925,466</td>
</tr>
<tr>
<td>Telephone Triage</td>
<td>103</td>
<td>2,185,344</td>
</tr>
<tr>
<td>Audiology</td>
<td>203</td>
<td>1,876,337</td>
</tr>
<tr>
<td>Optometry</td>
<td>408</td>
<td>1,727,172</td>
</tr>
<tr>
<td>Telephone/Ancillary</td>
<td>147</td>
<td>1,695,192</td>
</tr>
<tr>
<td>Physical Therapy</td>
<td>205</td>
<td>1,595,220</td>
</tr>
<tr>
<td>Clinical Pharmacy</td>
<td>160</td>
<td>1,581,623</td>
</tr>
<tr>
<td>Dental</td>
<td>180</td>
<td>1,504,839</td>
</tr>
<tr>
<td>Emergency Dept.</td>
<td>130</td>
<td>1,417,030</td>
</tr>
<tr>
<td>Podiatry</td>
<td>411</td>
<td>1,256,514</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>407</td>
<td>1,118,318</td>
</tr>
<tr>
<td>X-Ray</td>
<td>105</td>
<td>1,047,992</td>
</tr>
</tbody>
</table>
Outpatient Services You Might Not Expect Yet May Need to Consider in Inclusion/Exclusion Criteria

- Employee/Occupational Health
- Care via Telephone
- Rehab & Treatment Programs
  - Residential Rehabilitation Treatment Program (RRTP)
  - Psychosocial Rehabilitation
  - Substance Abuse or Mental Health Day Treatment
- Non-medical care
  - Chaplain
  - Assistance for special populations
    - HUD/VASH (housing assistance for homeless)
    - Veterans Justice Outreach
    - Incarcerated Vets Reentry
- Vocational Assistance & Compensated Work Therapy (CWT)
MedSAS Technical Details

• Data steward: National Data Systems (NDS)

• Hosted on mainframe computer at the Austin Information Technology Center (AITC)

• Fiscal year files; also available on a quarterly basis
  • Researchers advised to use annual, closed-out datasets

• Common element: patient identifier *(scrambled SSN)*
VA Data Flow to the MEDSAS Outpatient Datasets

Acronyms:

Austin Information Technology Center (AITC)
National Data Systems (NDS)
National Patient Care Database (NPCD)
## MedSAS Outpatient Datasets Summary

<table>
<thead>
<tr>
<th>File</th>
<th>Information Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visit</td>
<td>Reports services provided to a patient in a 24-hour period at a single facility</td>
</tr>
<tr>
<td>Event</td>
<td>Provides information about individual outpatient encounters</td>
</tr>
<tr>
<td>Inpatient Encounters</td>
<td>Provides information about professional services received during inpatient stay</td>
</tr>
</tbody>
</table>
MedSAS Visit vs. Event File

Outpatient clinic stops during a single day at one facility

Visit

Primary Care Clinic Stop

Event

Ophthalmology Clinic Stop

Event

Physical Therapy Clinic Stop

Event

2/3/2017
Assessing Diagnoses

Outpatient Event (SE) & Inpatient Encounters (IE) files:
  • Up to 10 diagnoses per record
  • ICD-10-CM system of codes (as of first qtr. 2016)

DXLSF:
  • Primary Diagnosis for Encounter

DXF2-DXF10:
  • Secondary Diagnoses
Assessing Procedures

Outpatient Event (SE) & Inpatient Encounters (IE) files:
- Up to 20 procedures per record
- CPT-4 system of codes

CPT1-CPT20*:
- Services and procedures performed by a provider
- Repetition allowed

* (Number of procedure code variables changed from 15 to 20 in FY2005)
Assessing Provider Type

Outpatient Event (SE) & Inpatient Encounters (IE) files:
- Up to 10 provider types per record
- CMS Provider Classification System

PROV1-PROV10:
- Provider types and areas of specialization
- Providers not extracted in any particular order
  PROV1 not necessarily the primary provider
Peer-Reviewed Publications Using MedSAS Data


Poll #3: Your experience with CDW Datasets

*How would you rate your overall knowledge of the CDW?*

1. Never Used CDW
2. 
3. 
4. 
5. Frequently used CDW
CDW Origin & Content

- > 130 VistA Systems
- Nightly updates
- Region 1 Data Warehouse
- Region 2 Data Warehouse
- Region 3 Data Warehouse
- Region 4 Data Warehouse
- CDW (60+ domains)
  - Patient Staff
  - Surgery (Pre, Intra, and Post)
  - Inpatient Outpatient
  - Inpatient Rx (BCMA)
  - Outpatient Rx (Pharmacy outpatient)
  - Lab Chem
  - Lab Micro

2/3/2017
Details of outpatient encounters, outpatient visits and inpatient encounters

- Appointment location
- Diagnosis
- Procedure
- Problems reported by patients
- Exams and tests performed
CDW Outpatient Data

- Data housed on Microsoft SQL server and can be queried using SQL language

- Data organized by domains

- Includes care delivered at all VA facilities and some non-VA facilities paid for by VA

- Contains very small percentage of non-Veterans who received care in a VA facility
Ascertaining Outpatient Use with CDW

VHA Corporate Data Warehouse (CDW) Outpatient 2.1 Domain Discrete Value Frequencies

About This Workbook
This workbook provides frequencies for fields with discrete values in the Outpatient 2.1 domain fact tables in the Corporate Data Warehouse (CDW). The information is presented by available fiscal years based on the Partition Key Date field in each table. The available fiscal years vary by table.

Select the fact table name from the list below to access a spreadsheet where you can view frequencies for discrete fields from the table. Table descriptions and field definitions are available from the MetaData Report on CDW’s SharePoint site, https://vaww.dwh.cdw.portal.va.gov/metadata/default.aspx.

<table>
<thead>
<tr>
<th>Schema</th>
<th>Table</th>
<th>Partition Key Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outpat</td>
<td>ProblemList</td>
<td>EnteredDate</td>
</tr>
<tr>
<td>Outpat</td>
<td>VDiagnosis</td>
<td>VisitDateTime</td>
</tr>
<tr>
<td>Outpat</td>
<td>VExam</td>
<td>VisitDateTime</td>
</tr>
<tr>
<td>Outpat</td>
<td>Visit</td>
<td>VisitDateTime</td>
</tr>
<tr>
<td>Outpat</td>
<td>VPatientEd</td>
<td>VisitDateTime</td>
</tr>
<tr>
<td>Outpat</td>
<td>VProcedure</td>
<td>VisitDateTime</td>
</tr>
<tr>
<td>Outpat</td>
<td>VProcedureCPTModifier</td>
<td>VisitDateTime</td>
</tr>
<tr>
<td>Outpat</td>
<td>VProcedureDiagnosis</td>
<td>VisitDateTime</td>
</tr>
<tr>
<td>Outpat</td>
<td>VProvider</td>
<td>VProviderDateTime</td>
</tr>
<tr>
<td>Outpat</td>
<td>VSkinTest</td>
<td>VisitDateTime</td>
</tr>
<tr>
<td>Outpat</td>
<td>VSkinTestDiagnosis</td>
<td>VisitDateTime</td>
</tr>
</tbody>
</table>

Terms Used in this Workbook

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain</td>
<td>In CDW, the term domain refers to a grouping of tables that all contain information on the same topical area.</td>
</tr>
<tr>
<td>Schema</td>
<td>This refers to the organization of data; it is usually depicted as a blueprint of the manner in which the database is constructed. In CDW, the prefix of a table name is also referred to as schema.</td>
</tr>
<tr>
<td>Fact Table</td>
<td>Tables that hold substantive data about the topic of interest and include sensitive information</td>
</tr>
<tr>
<td>Partition Key Date</td>
<td>The partition key date is a field which is used to subdivide the underlying table into manageable portions for queries. In this workbook, we use partition key data to create the fiscal year.</td>
</tr>
</tbody>
</table>
Assessing Diagnoses Using CDW

Need to Join SQL tables within the Outpatient Domain to produce the output:

1. Create a temporary table (#outpat) from the outpat.visit table
2. Joins in diagnoses, icd10 codes and code descriptions—use WHERE clause to limit variables of interest
3. Use good SQL coding practices to narrow queries!
Limits to primary DX only

Assessing Outpatient Diagnoses in CDW

SELECT TOP 10 c.ICD10Code , d.ICD10Description, count (*) as CNTOfDiagnosis
FROM #Outpat as a
INNER JOIN CDWork.Outpat.VDiagnosis as b ON a.VisitSID = b.VisitSID
INNER JOIN CDWork.Dim.ICD10 as c ON b.ICD10SID = c.ICD10SID
INNER JOIN CDWork.Dim.ICD10DescriptionVersion as d ON c.ICD10SID = d.ICD10SID
WHERE b.PrimarySecondary like 'P'
GROUP BY c.ICD10Code , d.ICD10Description
ORDER BY CNTOfDiagnosis DESC ;

<table>
<thead>
<tr>
<th>ICD10Code</th>
<th>ICD10Description</th>
<th>CNTOfDiagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z13.9</td>
<td>ENCOUNT FOR SCREENING, UNSPECIFIED</td>
<td>4,511</td>
</tr>
<tr>
<td>Z51.81</td>
<td>ENCOUNT FOR THERAPEUTIC DRUG LEVEL MONITORING</td>
<td>3,420</td>
</tr>
<tr>
<td>Z71.89</td>
<td>OTHER SPECIFIED COUNSELING</td>
<td>3,166</td>
</tr>
<tr>
<td>F43.12</td>
<td>POST-TRAUMATIC STRESS DISORDER, CHRONIC</td>
<td>2,988</td>
</tr>
<tr>
<td>H54.8</td>
<td>LEGAL BLINDNESS, AS DEFINED IN USA</td>
<td>2,917</td>
</tr>
<tr>
<td>I10.</td>
<td>ESSENTIAL (PRIMARY) HYERTENSION</td>
<td>2,435</td>
</tr>
<tr>
<td>Z71.9</td>
<td>COUNSELING, UNSPECIFIED</td>
<td>2,309</td>
</tr>
<tr>
<td>Z51.89</td>
<td>ENCOUNT FOR OTHER SPECIFIED AFTERCARE</td>
<td>1,847</td>
</tr>
<tr>
<td>E11.9</td>
<td>TYPE 2 DIABETES MELLITUS WITHOUT COMPLICATIONS</td>
<td>1,755</td>
</tr>
<tr>
<td>N18.6</td>
<td>END STAGE RENAL DISEASE</td>
<td>1,444</td>
</tr>
</tbody>
</table>
# Assessing Provider Type Using CDW

<table>
<thead>
<tr>
<th>Provider Type</th>
<th>Classification</th>
<th>AreaOfSpecialization</th>
<th>VACode</th>
<th>X12Code</th>
<th>SpecialtyCode</th>
</tr>
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<tbody>
<tr>
<td>Agencies</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Allopathic &amp; Osteopathic Physicians</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Allopathic and Osteopathic Physicians</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ambulatory Health Care Facilities</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioral Health &amp; Social Service Providers</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Behavioral Health and Social Service</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioral Health and Social Service Providers</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Chiropractic Providers</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Dental Providers</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Dental Service</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Department of Veterans Affairs (VA) Pharmacy</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Dietary and Nutritional Service</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dietary and Nutritional Service Providers</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Emergency Medical Service</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Emergency Medical Service Providers</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Peer-Reviewed Publications Using CDW Data


Today’s Topics

• Introduction

• Where to start with VA outpatient data sources

• Brief Overview of Medical SAS & CDW & Medicare outpatient datasets

• Examples of research focused on outpatient care

• Resources on VA outpatient datasets
Examples of VA Research Using Outpatient Data

**Research Example 1:** Elderly veterans with dual eligibility for VA and Medicare services: Where do they obtain a colonoscopy?

**Research Example 2:** Ambulatory medical follow-up in the year after surgery and subsequent survival in a national cohort of Veterans Health Administration surgical patients

**Research Example 3:** Prevalence of clinically recognized alcohol and other substance use disorders among VA outpatients with unhealthy alcohol use identified by routine alcohol screening

Objectives:

• To determine whether colonoscopies received by older, dually-enrolled Veterans in FY 2009 were provided by VHA or by Medicare
• To identify factors related to use of VA vs. non-VA colonoscopies
• To determine clinical factors that predict if a colonoscopy was provided by a VA or non-VA provider

Design: Retrospective cohort study

Constructs:
Receipt of colonoscopy, as performed or reimbursed by VA, or as reimbursed by Medicare

Data Sources: MedSAS and Other Sources

MedSAS

• Administrative records for encounters at all VA clinics (data elements described in next slide)

Other Sources

VA Fee-based program

• Data on encounters provided outside the VA health system paid for by the VA

Medicare Beneficiary Summary File

• Medicare enrollment

Carrier Standard Analytic File (Part B)

• Claims for services outside the VA, reimbursed by Medicare

Data sources merged using scrambled SSN

2/3/2017
Cohort Identification

Eligible population drawn from 1.5 million VA patients in 15 Veterans Integrated Service Networks (VISNs)

Inclusion:

- 65 or older
- Had ≥ 2 visits to a VA primary care provider during FY 2009

Exclusion:

- Not enrolled in Medicare Parts A and B at the beginning of year
- Enrolled in Medicare HMO
Study Variables

**CPT codes** for colonoscopy (performed or reimbursed by the VA, or reimbursed by Medicare in FY 2010)

- Colonoscopies not performed for diagnosis were identified using a previously published algorithm (El-Serag et al., 2006).

Type of primary care VA clinic where patient received care

- VA Medical Center (VAMC), or
- Community-based outpatient center (CBOC)

**Research Example 1: Malhorta, Vaughan-Sarrazin, & Rosenthal (2015)**

Table 1. Receipt of Colonoscopy Through the VA or Medicare by Dually Eligible Veterans According to Demographic and Clinical Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>No Colonoscopy (n=961,207)</th>
<th>Colonoscopy (VA or Medicare) (n=99,316)</th>
<th>Colonoscopy Through VA (n=33,600)</th>
<th>Colonoscopy Through Medicare (n=65,716)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age in yrs (±SD)</td>
<td>77.1 (7.1)</td>
<td>75.0 (6.2)</td>
<td>72.8 (5.7)</td>
<td>76.1 (6.1)</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65-69</td>
<td>174,574 (18.1)</td>
<td>22,620 (22.8)</td>
<td>11,788 (35.0)</td>
<td>10,832 (16.5)</td>
</tr>
<tr>
<td>70-74</td>
<td>190,855 (19.8)</td>
<td>25,247 (25.4)</td>
<td>9,664 (28.7)</td>
<td>15,583 (23.7)</td>
</tr>
<tr>
<td>75-79</td>
<td>229,832 (23.9)</td>
<td>27,046 (27.2)</td>
<td>7,695 (22.9)</td>
<td>19,361 (29.5)</td>
</tr>
<tr>
<td>80-84</td>
<td>198,351 (20.5)</td>
<td>16,576 (16.7)</td>
<td>3,234 (9.6)</td>
<td>13,342 (20.3)</td>
</tr>
<tr>
<td>≥85</td>
<td>167,595 (17.4)</td>
<td>7,817 (7.9)</td>
<td>1,219 (3.6)</td>
<td>6598 (10.0)</td>
</tr>
<tr>
<td>Male (%)</td>
<td>941,180 (97.9)</td>
<td>97,669 (98.3)</td>
<td>33,020 (98.2)</td>
<td>64,649 (98.4)</td>
</tr>
<tr>
<td>Number of screening</td>
<td>NA</td>
<td>73,164 (73.4%)</td>
<td>26,997 (80.3%)</td>
<td>46,167 (70.2%)</td>
</tr>
<tr>
<td>colonoscopies (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Assessing full complement of outpatient care may require multiple data sources

**Objective:** To evaluate the association between medical follow-up during the first year following surgery and survival during the second post-surgical year.

**Design:** Retrospective cohort study

**Constructs:**
- Perioperative assessment
- Postoperative outcome
Data Source: Corporate Data Warehouse

Cohort:

- Patients who had at least one surgery between 2006-2011
- Additionally were discharged 10 days after surgery
- And survived 365 days after surgery

Variables used in regression analysis:

- Type of surgery
- American Society of Anesthesiologists (ASA) Physical Status score
- ICD-9-CM
- Body Mass Index
- Date of death occurring 2 years after surgery
## Outpatient Services Assessed Using MEDSAS

<table>
<thead>
<tr>
<th>Outpatient Service</th>
<th>Stop Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiology</td>
<td>303</td>
</tr>
<tr>
<td>Diabetes</td>
<td>306</td>
</tr>
<tr>
<td>Endocrinology</td>
<td>305</td>
</tr>
<tr>
<td>Geriatric primary care</td>
<td>350</td>
</tr>
<tr>
<td>Hypertension</td>
<td>309</td>
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<tr>
<td>Primary care</td>
<td>323</td>
</tr>
<tr>
<td>Pulmonology</td>
<td>312</td>
</tr>
<tr>
<td>Women’s clinic</td>
<td>322</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>Follow up Visit n (%) or Mean (SD)</th>
<th>No Visit n (%) or Mean (SD)</th>
<th>Total n (%) or Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (n)</td>
<td>219,942 (93.1%)</td>
<td>16,258</td>
<td>236,200</td>
</tr>
<tr>
<td>Age (yr)</td>
<td>62.4 (11.7)</td>
<td>56.7 (16.1)</td>
<td>62.0 (12.2)</td>
</tr>
<tr>
<td>Surgical service</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiac surgery</td>
<td>116 (0.7%)</td>
<td>15,453 (7%)</td>
<td>15,569 (6.6%)</td>
</tr>
<tr>
<td>Ear, nose and throat</td>
<td>756 (4.7%)</td>
<td>9,474 (4.3%)</td>
<td>10,230 (4.3%)</td>
</tr>
<tr>
<td>General surgery</td>
<td>4,845 (29.8%)</td>
<td>50,009 (22.7%)</td>
<td>54,854 (23.3%)</td>
</tr>
<tr>
<td>Gynecology</td>
<td>806 (5%)</td>
<td>2,778 (1.3%)</td>
<td>3,584 (1.5%)</td>
</tr>
<tr>
<td>Neurosurgery/spine</td>
<td>1,137 (7%)</td>
<td>17,714 (8.1%)</td>
<td>18,851 (8%)</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>152 (0.9%)</td>
<td>1,204 (0.6%)</td>
<td>1,356 (0.6%)</td>
</tr>
<tr>
<td>Oral surgery</td>
<td>171 (1.1%)</td>
<td>1,004 (0.5%)</td>
<td>1,175 (0.5%)</td>
</tr>
<tr>
<td>Orthopedics</td>
<td>3,466 (21.3%)</td>
<td>45,914 (20.9%)</td>
<td>49,380 (20.9%)</td>
</tr>
<tr>
<td>Plastic surgery</td>
<td>293 (1.8%)</td>
<td>3,328 (1.5%)</td>
<td>3,621 (1.5%)</td>
</tr>
<tr>
<td>Podiatry</td>
<td>398 (2.5%)</td>
<td>2,914 (1.3%)</td>
<td>3,312 (1.4%)</td>
</tr>
<tr>
<td>Thoracic surgery</td>
<td>260 (1.6%)</td>
<td>3,409 (1.6%)</td>
<td>3,669 (1.6%)</td>
</tr>
<tr>
<td>Urology</td>
<td>281 (1.7%)</td>
<td>10,046 (4.6%)</td>
<td>10,327 (4.4%)</td>
</tr>
<tr>
<td>Vascular surgery</td>
<td>2,314 (14.2%)</td>
<td>29,749 (13.5%)</td>
<td>32,063 (13.6%)</td>
</tr>
<tr>
<td>Other</td>
<td>1,263 (7.8%)</td>
<td>26,946 (12.3%)</td>
<td>28,209 (11.9%)</td>
</tr>
</tbody>
</table>

**Objective:** To determine the prevalence of clinically documented alcohol and other substance use disorders among VA outpatients with previously documented unhealthy alcohol use.

**Design:** Cross-sectional retrospective cohort study.

**Population:** VA outpatients with clinical or administrative documentation of unhealthy alcohol use.

**Construct:** Alcohol and/or substance abuse disorder, as determined by scores on the Alcohol Use Disorders Identification Test Consumption (AUDIT-C).
Cohort Identification

The cohort was selected from a national sample of outpatients randomly selected for standardized record review by the External Peer Review Program (EPRP).

Inclusion criteria:

• VA outpatient visit 13-24 months prior to the date of the medical record review

• Had an outpatient visit in the month immediately preceding EPRP record review

• Screened positively for unhealthy alcohol use, as defined by scores on the AUDIT-C (≥ 3 points for women; ≥ 4 points for men)
Study Variables

**ICD-9-CM diagnosis** of any of the following on the date of or 365 days prior to alcohol screening:

- Alcohol use disorder (diagnosis for abuse or dependence)

- Alcohol-specific medical diagnosis (including Intoxication, withdrawal, alcoholic cardiomyopathy, alcoholic polyneuropathy, alcoholic gastritis, alcoholic liver disease, alcoholic dementia, alcoholic toxicity)

- Non-alcohol substance use disorder (including cannabis, hallucinogen, sedative, opioid, cocaine or amphetamine use or dependence)

**Outpatient Visit to VA specialty addiction treatment**

Positive scores for unhealthy alcohol use, as documented on the (AUDIT-C)
### Research Example 3: Williams et al. (2013)

**Table 3**

Gender-specific prevalence of clinically documented alcohol and other substance use disorders among VA outpatients who screened positive for unhealthy alcohol use between 2006 and 2008: stratified by age groups.

<table>
<thead>
<tr>
<th></th>
<th>Female (n = 8484)</th>
<th>Male (n = 54,913)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alcohol use disorder</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18–25</td>
<td>14 ((9–19))</td>
<td>20 ((18–21))</td>
</tr>
<tr>
<td>25–34</td>
<td>19 ((17–22))</td>
<td>24 ((23–25))</td>
</tr>
<tr>
<td>35–49</td>
<td>29 ((27–30))</td>
<td>40 ((39–41))</td>
</tr>
<tr>
<td>50–64</td>
<td>20 ((19–22))</td>
<td>36 ((35–36))</td>
</tr>
<tr>
<td>65–90</td>
<td>6 ((4–7))</td>
<td>10 ((10–11))</td>
</tr>
<tr>
<td><strong>Non-alcohol substance use disorder</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18–25</td>
<td>6 ((2–9))</td>
<td>5 ((4–6))</td>
</tr>
<tr>
<td>25–34</td>
<td>8 ((6–9))</td>
<td>8 ((7–8))</td>
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<tr>
<td>35–49</td>
<td>12 ((11–13))</td>
<td>19 ((18–20))</td>
</tr>
<tr>
<td>50–64</td>
<td>7 ((6–8))</td>
<td>10 ((10–11))</td>
</tr>
<tr>
<td>65–90</td>
<td>0</td>
<td>1 ((1–1))</td>
</tr>
<tr>
<td><strong>Alcohol-specific medical diagnosis</strong></td>
<td></td>
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</tr>
<tr>
<td>18–25</td>
<td>1 ((0–2))</td>
<td>1 ((0–1))</td>
</tr>
<tr>
<td>25–34</td>
<td>2 ((1–3))</td>
<td>2 ((1–2))</td>
</tr>
<tr>
<td>35–49</td>
<td>5 ((4–6))</td>
<td>9 ((8–9))</td>
</tr>
<tr>
<td>50–64</td>
<td>4 ((3–5))</td>
<td>7 ((7–7))</td>
</tr>
<tr>
<td>65–90</td>
<td>1 ((0–2))</td>
<td>1 ((1–2))</td>
</tr>
<tr>
<td><strong>VA specialty addictions treatment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18–25</td>
<td>7 ((3–10))</td>
<td>6 ((5–7))</td>
</tr>
<tr>
<td>25–34</td>
<td>9 ((8–11))</td>
<td>9 ((8–10))</td>
</tr>
<tr>
<td>35–49</td>
<td>15 ((14–17))</td>
<td>23 ((22–24))</td>
</tr>
<tr>
<td>50–64</td>
<td>9 ((8–10))</td>
<td>14 ((13–14))</td>
</tr>
<tr>
<td>65–90</td>
<td>2 ((1–3))</td>
<td>2 ((1–2))</td>
</tr>
<tr>
<td><strong>Any clinically documented alcohol or other substance use disorder</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18–25</td>
<td>17 ((12–23))</td>
<td>21 ((19–23))</td>
</tr>
<tr>
<td>25–34</td>
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<td>26 ((25–28))</td>
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<td>32 ((30–33))</td>
<td>43 ((42–45))</td>
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<td>23 ((22–24))</td>
<td>38 ((38–39))</td>
</tr>
<tr>
<td>65–90</td>
<td>6 ((4–8))</td>
<td>11 ((11–11))</td>
</tr>
</tbody>
</table>

---

*a Primary study outcome: documentation of any alcohol use disorder, any alcohol-specific medical diagnosis, any non-alcohol substance use disorder, or any documented VA specialty addictions treatment.*

---

**Used diagnosis information from the visit data in MEDSAS Outpatient data**

**Used specific outpatient treatment clinic type in MEDSAS Outpatient data**
Today’s Topics

• Introduction

• Where to start with VA outpatient data sources

• Brief Overview of Medical SAS & CDW & Medicare outpatient datasets

• Examples of research focused on outpatient care

• Resources on VA outpatient datasets
Resources
VIReC Research User Guides (RUGS)

Research User Guides: Detailed information on select data sources, including variable descriptions.
MedSAS Research User Guide

VIReC Research User Guides Index

Overview

VIReC provides Research User Guides on select VA data sources to assist researchers in using VA data and information systems. These guides provide descriptions of variables, dataset names, data quality and technical information, access methods, and select bibliographies.

Using the Index

The Research User Guides provide access to current and archived Research User Guides. Guides are available by data source or dataset. Information in each Research User Guide is current and accurate for the fiscal years noted in the publication or as of the data released. While previous issues of these guides may be of use to researchers, it is important to remember that archived information may no longer be accurate.

Research User Guides

VIReC Research User Guide: Fiscal Year 2014 VHA Medical SAS Inpatient Datasets
Published: November 2015
- Abstract
- VIREC Research User Guide: Fiscal Year 2014 VHA Medical SAS Inpatient Datasets & Inpatient Encounters Dataset
Published: May 2015
- Abstract
- Archive
MedSAS Data Documentation

VHA Data Portal: Data Sources

Data Sources

- Data Sources Overview
- ADUSH Enrollment File
- AITC Mainframe
- BIRLS Death File
- CDW
- HERC Cost Data
- Homeless Registry
- MCA (formerly DSS) NDEs
- MCA (formerly DSS) Web Reports
- Medical SAS Inpatient & Outpatient Data Sets
- NPCD
- OEF/OIF/OND Roster
- PACT Implementation Index (Pi2)
- PSSG Geocoded Enrollee Files
- PTF
- VA/CMS Data
- VETSNET
- Vital Status File
- VSSC Web Reports

Welcome to the VHA Data Portal

The VHA Data Portal promotes a knowledge-sharing culture that supports the needs of VHA data users. The Portal integrates information from multiple sources into a single location to promote a comprehensive knowledge base and to facilitate a positive end-user experience.

The one-stop-shop for data users' needs.

Our homepage design has recently changed to help get you the information you need. Each one of the badges below links to access information and other relevant resources for a particular data use need, or use the new top navigation menu to locate resources by category. Tell us what you think.

New Data User
Research
Operations & Quality Improvement
Access Policy & Administrative Tools
Quick Links Library
VHA Data Portal: Resources

Data Sources Overview
ADUSH Enrollment File
AITH Mainframe
BIRLS Death File
CDW
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VSSC Web Reports

Corporate Data Warehouse (CDW)

Overview
VHA’s Corporate Data Warehouse (CDW) is a national repository comprising data from several VHA clinical and administrative systems. The objective of CDW is to facilitate reporting and data analysis at the enterprise level by incorporating data from multiple data sets throughout the VHA into one standard database structure. CDW provides data and tools to support...

Resources

- The CDW SharePoint site contains information on newly released and missing data, an up-to-date list of data domains, structural documentation, and more.
- VIREC provides the following resource on CDW:
  - CDW Factbooks provide descriptions of tables, columns, and values in select CDW Domains and include domain-specific SQL “clerical language” for those new to CDW, relational databases, and SQL.
  - Issues of The Researcher’s Notebook provide information about using CDW data.
  - Getting Started with CDW Data Cyberseminars provide an introductory foundation aimed at making CDW and relational data less intimidating.
  - VIREC Resource Guide: VA Corporate Data Warehouse (CDW) provides a general overview of the CDW including CDW structure, content, and utility.
  - Summary Documentation on CDW datasets includes data contents, frequencies and counts, and domain layouts.
  - Visit the VNCI Workspace page to learn more about using the VNCI Workspace to store and analyze CDW data.

Each domain comprises logically or conceptually related sets of data tables. Domains generally indicate the ‘visits’ application from which most of the data elements originate (e.g., Vital Signs or Mental Health Assessment).
CDW Factbooks

VIREC Factbook
Corporate Data Warehouse (CDW)
Outpatient 2.1 Domain
September 2016

VIREC Factbook
Corporate Data Warehouse (CDW)
Pharmacy Patient 1.0 Domain
October 2016

VIREC Factbook
Corporate Data Warehouse (CDW)
CPRS Orders 1.0 Domain
January 2017

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Each domain comprises logically or conceptually related sets of data tables. Domains generally indicate the task application from which most of the data elements originate (e.g., Vital Signs or Mental Health Assessment).
Quick Guide: Resources for Using VA Data

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

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


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? 
VIReC Options for Specific Questions

<table>
<thead>
<tr>
<th>HSRData Listserv</th>
<th>HelpDesk</th>
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</thead>
<tbody>
<tr>
<td>• Community knowledge sharing</td>
<td>• Individualized support</td>
</tr>
<tr>
<td>• ~1,200 VA data users</td>
<td><a href="mailto:virec@va.gov">virec@va.gov</a></td>
</tr>
<tr>
<td>• Researchers, operations, data stewards, managers</td>
<td>(708) 202-2413</td>
</tr>
</tbody>
</table>
Contact information

Denise Hynes
Director & Research Career Scientist
VA Information Resource Center (VIReC)
Department of Veterans Affairs, Hines, IL

VA Information Resource Center
Hines VA Hospital
virec@va.gov
708-202-2413
Next session:
March 6, 2017
1 pm Eastern

Database & Methods Cyberseminar Series

Mortality Ascertainment & Cause of Death

Chuck Maynard, PhD
Acting Associate Director
Denver-Seattle COIN