



## Database & Methods Cyberseminar Series

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# Assessing Outpatient Utilization with VA Data

**February 6, 2017**

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## 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

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

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# 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

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## 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

- Introduction
- Where to start with VA outpatient data sources
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# 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

Outpatient Service	Stop Code #	Count
Laboratory	108	11,913,003
Primary Care	323	10,322,281
Tele Primary Care	338	5,823,381
Mental Health Clinic Individual	502	4,925,466
Telephone Triage	103	2,185,344
Audiology	203	1,876,337
Optometry	408	1,727,172
Telephone/Ancillary	147	1,695,192
Physical Therapy	205	1,595,220
Clinical Pharmacy	160	1,581,623
Dental	180	1,504,839
Emergency Dept.	130	1,417,030
Podiatry	411	1,256,514
Ophthalmology	407	1,118,318
X-Ray	105	1,047,992

## Outpatient Services You Might Not Expect Yet May Need to Consider in Inclusion/Exclusion Criteria

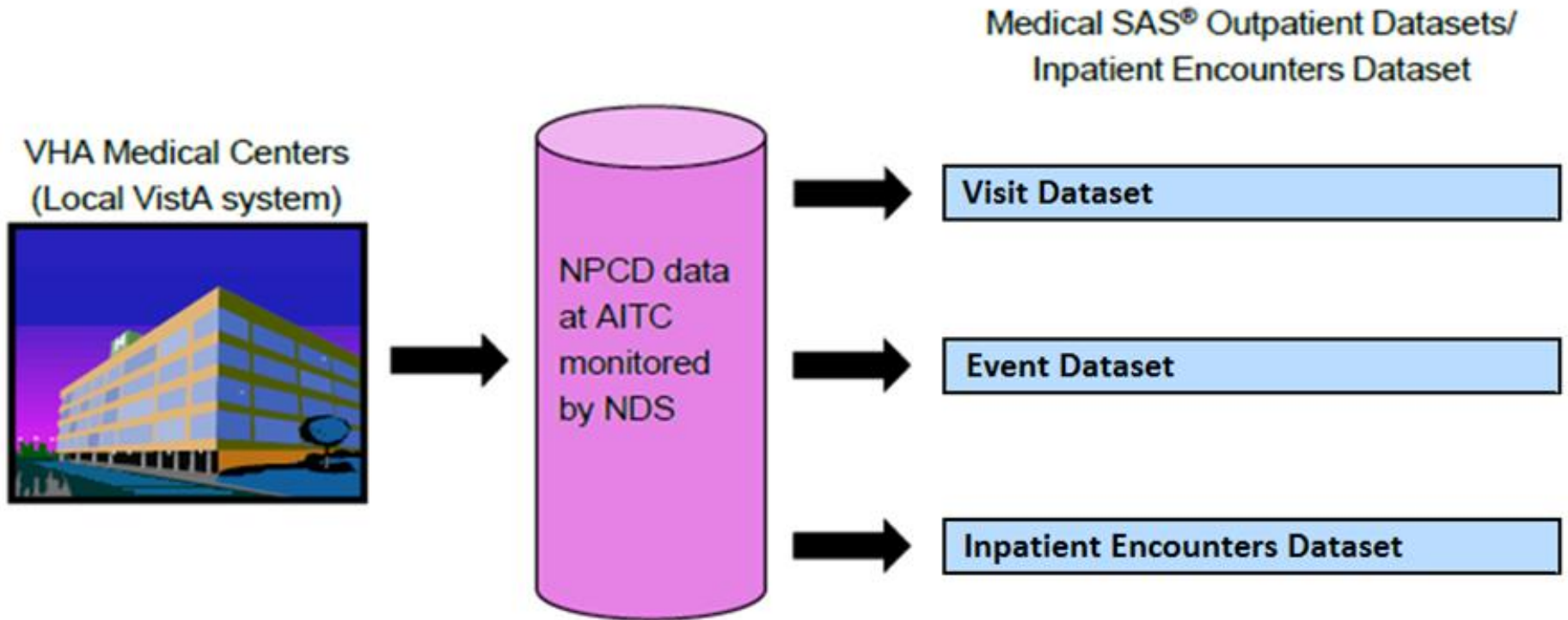
- Employee/Occupational Health
- Care via Telephone
- Rehab & Treatment Programs
  - Residential Rehabilitation Treatment Program (RRTP)
  - Psychosocial Rehabilitation
  - Substance Abuse or Mental Health Day Treatment
- Non-medical care
  - Chaplain
  - Assistance for special populations
    - HUD/VASH (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:

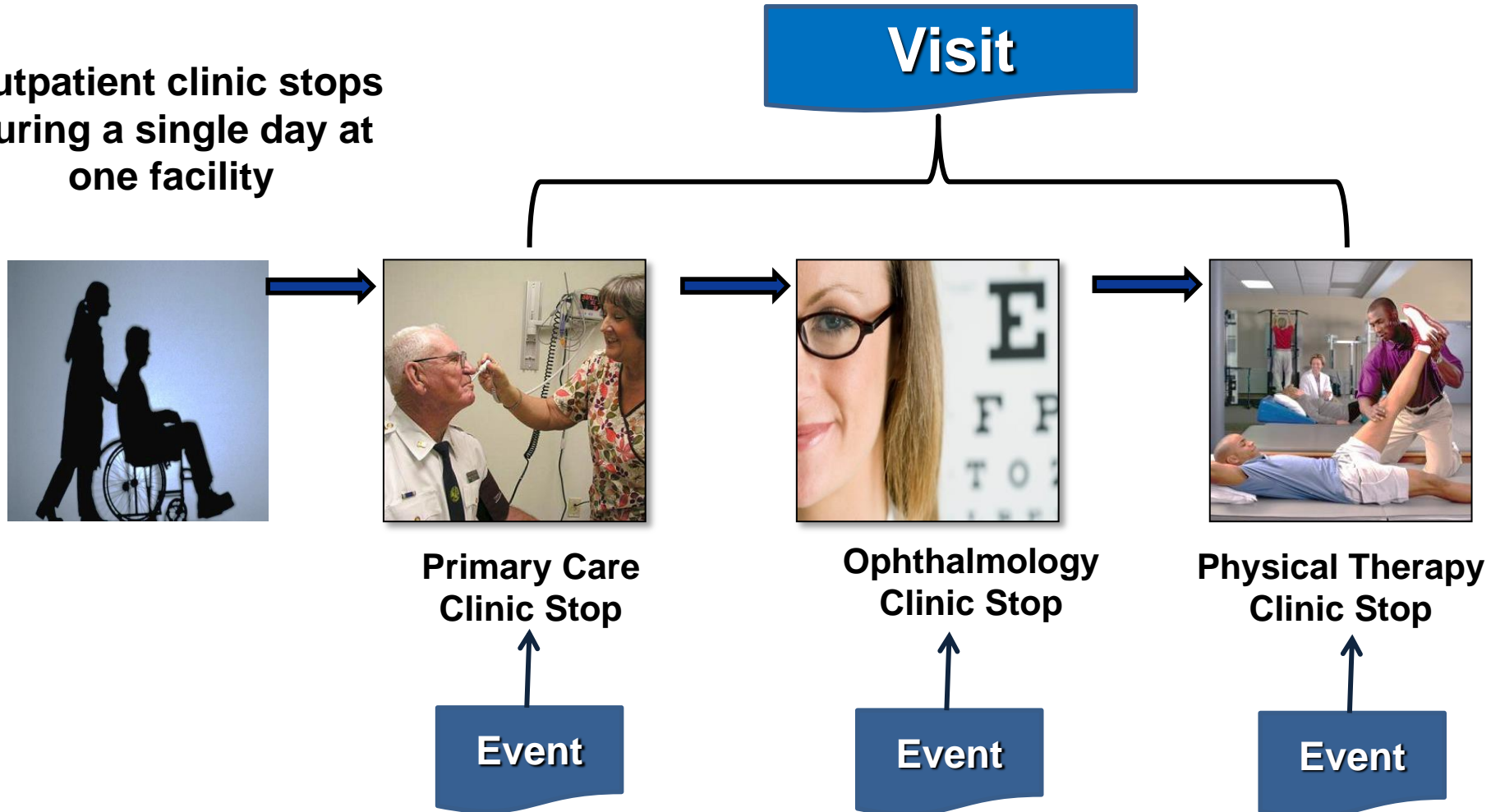
Austin Information Technology Center (AITC)  
National Data Systems (NDS)  
National Patient Care Database (NPCD)

# MedSAS Outpatient Datasets Summary

File	Information Provided
Visit	Reports services provided to a patient in a 24-hour period at a single facility
Event	Provides information about individual outpatient encounters
Inpatient Encounters	Provides information about professional services received during inpatient stay

# MedSAS Visit vs. Event File

**Outpatient clinic stops  
during a single day at  
one facility**



# 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

- Best, W. R., Khuri, S. F., Phelan, M., Hur, K., Henderson, W. G., Demakis, J. G., & Daley, J. (2002). Identifying patient preoperative risk factors and postoperative adverse events in administrative databases: Results from the Department of Veterans Affairs National Surgical Quality Improvement Program. *Journal of the American College of Surgeons*, 194(3), 257-266.
- Carlson, K. F., Nugent, S. M., & Grill, J. (2010). Accuracy of external cause-of-injury coding in VA polytrauma patient discharge records. *Journal of Rehabilitation Research and Development*, 47(8), 689.
- Smith, B. M., Evans, C. T., Ullrich, P., Burns, S., Guihan, M., Miskevics, S., & ... Weaver, F. M. (2010). Using VA data for research in persons with spinal cord injuries and disorders: Lessons from SCI QUERI. *Journal of Rehabilitation Research & Development*, 47(8), 679-688.
- Sohn, M. W., Zhang, H., Arnold, N., Stroupe, K., Taylor, B. C., Wilt, T. J., & Hynes, D. M. (2006). Transition to the new race/ethnicity data collection standards in the Department of Veterans Affairs. *Population Health Metrics*, 4(1), 7.
- Swarztrauber, K. , Anau, J. & Peters, D. (2005). Identifying and distinguishing cases of parkinsonism and Parkinson's disease using ICD-9 CM codes and pharmacy data. *Movement Disorders*, 20(8), 964-970.



## Poll #3: Your experience with CDW Datasets

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

1 Never Used CDW

2

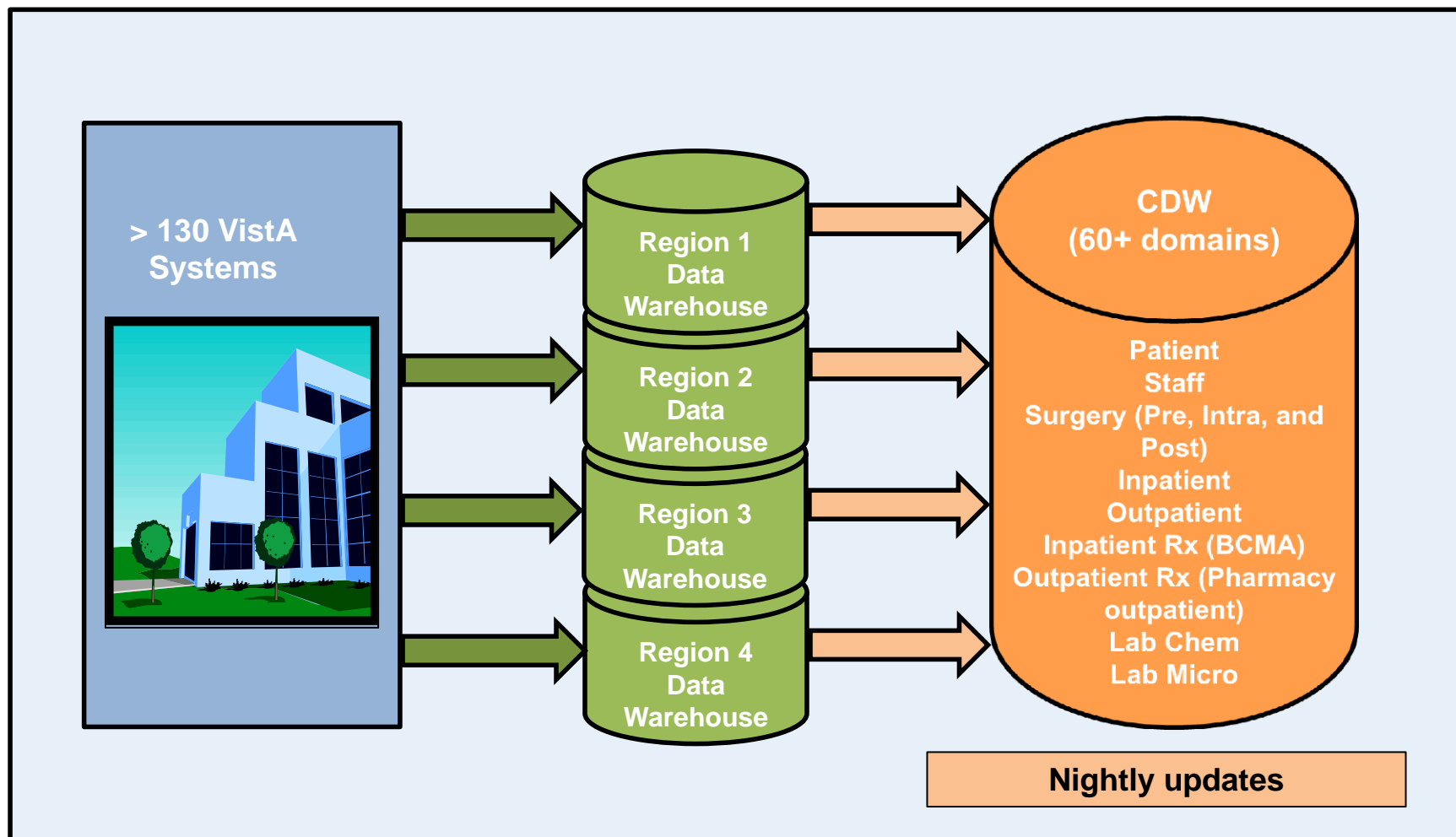
3

4

5 Frequently used CDW



# CDW Origin & Content



## 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>.

Schema	Table	Partition Key Date
Outpat	<a href="#">ProblemList</a>	EnteredDate
Outpat	<a href="#">VDiagnosis</a>	VisitDateTime
Outpat	<a href="#">VExam</a>	VisitDateTime
Outpat	<a href="#">Visit</a>	VisitDateTime
Outpat	<a href="#">VPatientEd</a>	VisitDateTime
Outpat	<a href="#">VProcedure</a>	VisitDateTime
Outpat	<a href="#">VProcedureCPTModifier</a>	VisitDateTime
Outpat	<a href="#">VProcedureDiagnosis</a>	VisitDateTime
Outpat	<a href="#">VProvider</a>	VProviderDateTime
Outpat	<a href="#">VSkinTest</a>	VisitDateTime
Outpat	<a href="#">VSkinTestDiagnosis</a>	VisitDateTime

### Terms Used in this Workbook

Domain	In CDW, the term domain refers to a grouping of tables that all contain information on the same topical area.
Schema	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.
Fact Table	Tables that hold substantive data about the topic of interest and include sensitive information
Partition Key Date	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 date to create the fiscal year.

# 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!

# 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 ;
```

Limits to primary  
DX only

ICD10Code	ICD10Description	CNTOfDiagnosis
Z13.9	ENCOUNTER FOR SCREENING, UNSPECIFIED	4,511
Z51.81	ENCOUNTER FOR THERAPEUTIC DRUG LEVEL MONITORING	3,420
Z71.89	OTHER SPECIFIED COUNSELING	3,166
F43.12	POST-TRAUMATIC STRESS DISORDER, CHRONIC	2,988
H54.8	LEGAL BLINDNESS, AS DEFINED IN USA	2,917
I10.	ESSENTIAL (PRIMARY) HYPERTENSION	2,435
Z71.9	COUNSELING, UNSPECIFIED	2,309
Z51.89	ENCOUNTER FOR OTHER SPECIFIED AFTERCARE	1,847
E11.9	TYPE 2 DIABETES MELLITUS WITHOUT COMPLICATIONS	1,755
N18.6	END STAGE RENAL DISEASE	1,444

Factbook

<http://vaww.virec.research.va.gov/CDW/Factbook/FB-CDW-Outpatient-Domain.pdf> page140



# Assessing Provider Type Using CDW

ProviderType	Classification	AreaOfSpecialization	VACode	X12Code	SpecialtyCode
Agencies	X			X	
Allopathic & Osteopathic Physicians	X	X	X	X	X
Allopathic and Osteopathic Physicians	X	X	X	X	X
Ambulatory Health Care Facilities	X	X	X	X	
Behavioral Health & Social Service Providers	X	X	X	X	X
Behavioral Health and Social Service	X	X	X	X	
Behavioral Health and Social Service Providers	X	X	X	X	X
Chiropractic Providers	X	X	X	X	X
Dental Providers	X	X	X	X	X
Dental Service			X		
Department of Veterans Affairs (VA) Pharmacy				X	
Dietary and Nutritional Service	X	X	X	X	
Dietary and Nutritional Service Providers	X	X	X	X	X
Emergency Medical Service	X		X	X	
Service Providers	X		X	X	

Factbook



# Peer-Reviewed Publications Using CDW Data

- Fihn, S. D., Francis, J., Clancy, C., Nielson, C., Nelson, K., Rumsfeld, J., ... & Graham, G. L. (2014). Insights from advanced analytics at the Veterans Health Administration. *Health Affairs*, 33(7), 1203-1211.
- Goetz, M. B., Hoang, T., Kan, V. L., Rimland, D., & Rodriguez-Barradas, M. (2014). Development and validation of an algorithm to identify patients newly diagnosed with HIV infection from electronic health records. *AIDS Research and Human Retroviruses*, 30(7), 626-633.
- Perrin, R. A., & Bollinger, M. J. (2010). VHA Corporate Data Warehouse height and weight data: opportunities and challenges for health services research. *Journal of Rehabilitation Research and Development*, 47(8), 739.
- Price, L. E., Shea, K., & Gephart, S. (2015). The Veterans Affairs's Corporate Data Warehouse: Uses and Implications for Nursing Research and Practice. *Nursing Administration Quarterly*, 39(4), 311-318.
- Wang, L., Porter, B., Maynard, C., Evans, G., Bryson, C., Sun, H., ... & Nielson, C. (2013). Predicting risk of hospitalization or death among patients receiving primary care in the Veterans Health Administration. *Medical Care*, 51(4), 368-373.

# Today's Topics

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## 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

**Research Example 1:** Malhorta, A., Vaughan-Sarrazin, M., & Rosenthal, G. E. (2015). Elderly veterans with dual eligibility for VA and Medicare services: Where do they obtain a colonoscopy?. *The American Journal of Managed Care*, 21(4), e264.

## CLINICAL

### Elderly Veterans With Dual Eligibility for VA and Medicare Services: Where Do They Obtain a Colonoscopy?

Ashish Malhorta, MD, MS; Mary Vaughan-Sarrazin, PhD; and Gary E. Rosenthal, MD

**T**he Veterans Health Administration (VA) is the largest integrated healthcare system in the United States. In addition to having VA healthcare eligibility, a significant proportion of veterans are also eligible for healthcare benefits through private insurers, Medicare, Medicaid, or other government programs.<sup>1</sup> While such dual eligibility may disrupt continuity of care, it also provides veterans with increased choices, flexibility, and access to care.<sup>2,3</sup> The greater access may be particularly germane for certain types of specialty care, which may only be available in larger VA medical centers, and not through most VA community-based clinics.

The failure to account for out-of-system healthcare utilization by veterans poses challenges to effective care coordination. Out-of-system utilization may also lead to inaccurate assessments of the overall quality of care received by veterans, and to inaccurate estimates of the cost and efficiency of the VA and Medicare in general. Therefore, it is important to understand the overall utilization of services by veterans and their patterns of use of VA and non-VA services.

Although prior studies have assessed factors impacting the use of VA and non-VA inpatient and outpatient services by veterans,<sup>4-6</sup> little research has examined how veterans use these 2 types of care to obtain outpatient procedures such as colonoscopy.<sup>7</sup> Thus, the current study examines how older veterans who are dually eligible for VA and Medicare benefits use VA and non-VA providers to obtain an outpatient colonoscopy. In addition to determining where veterans obtain a colonoscopy, the study sought to identify factors related to the use of VA and non-VA care, and to determine the degree to which the use of colonoscopy by VA and non-VA providers varies according to important clinical factors such as age.

#### METHODS

##### Data Sources

Study data were derived from 4 administrative data sources. The VA Outpatient Care File (OPC) contains ad-

#### ABSTRACT

**Objectives:** To examine the receipt of colonoscopy through the Veterans Health Administration (VA) or through Medicare by older veterans who are dually enrolled.

**Study Design:** Retrospective cohort study.

**Methods:** The VA Outpatient Care Files and Medicare Enrollment Files were used to identify 1,060,523 patients 65 years and older in 15 of the 22 Veterans Integrated Service Networks nationally, who had 2 or more VA primary care visits in 2009 and who were simultaneously enrolled in Medicare. VA and Medicare files were used to identify the receipt of an outpatient colonoscopy. Patients were categorized as receiving care in community-based outpatient clinics (CBOCs) ( $n = 601,337$ ; 57%) or VA medical centers ( $n = 459,186$ ; 43%) based on where most patient-centered encounters occurred. Analyses used multinomial logistic regression to identify patient characteristics related to the odds of receiving a colonoscopy at the VA or through Medicare.

**Results:** Patients had a mean age of 76.9 (SD = 7.0) years; 98% were male, 89% were white, and 21% resided in a rural location. Overall, 100,060 (9.4%) patients underwent outpatient colonoscopy either through the VA ( $n = 33,600$ ; 35.5%) or Medicare providers ( $n = 66,716$ ; 65.5%). The adjusted odds of receiving a colonoscopy from Medicare providers were higher ( $P < .001$ ) for patients who were male, white, receiving primary care at CBOCs, and for residents of an urban location. The receipt of colonoscopy through the VA decreased dramatically by age; for example, the odds of colonoscopy by the VA in patients aged  $\geq 85$  years and 80 to 84 years, relative to patients aged 65 to 69 years, were 0.26 and 0.13, respectively. In contrast, the receipt of colonoscopy through Medicare did not decline as markedly with age.

**Conclusions:** In a national analysis of the receipt of an outpatient colonoscopy by older veterans, more veterans received their colonoscopies through CMS than through the VA. The use of colonoscopy within the VA was found to be more concordant with age-related practice guidelines.

*Am J Manag Care.* 2015;21(4):e264-e270

### 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**

## Cohort Identification

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

Inclusion:

- 65 or older
- **Had  $\geq 2$  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)

El-Serag HB, Petersen L, Hampel H, Richardson P, Cooper G. (2006) The use of screening colonoscopy for patients cared for by the Department of Veterans Affairs. *Arch Intern Med.*,166(20):2202-2208.

## 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

Characteristics	No Colonoscopy (n=961,207)	Colonoscopy (VA or Medicare) (n=99,316)	Colonoscopy Through VA (n=33,600)	Colonoscopy Through Medicare (n=65,716)
Mean age in yrs ( $\pm$ SD)	77.1 (7.1)	75.0 (6.2)	72.8 (5.7)	76.1 (6.1)
Age (years)				
65-69	174,574 (18.1)	22,620 (22.8)	11,788 (35.0)	10,832 (16.5)
70-74	190,855 (19.8)	25,247 (25.4)	9,664 (28.7)	15,583 (23.7)
75-79	229,832 (23.9)	27,046 (27.2)	7,695 (22.9)	19,361 (29.5)
80-84	198,351 (20.5)	16,576 (16.7)	3,234 (9.6)	13,342 (20.3)
$\geq 85$	167,595 (17.4)	7,817 (7.9)	1,219 (3.6)	6,598 (10.0)
Male (%)	941,180 (97.9)	97,669 (98.3)	33,020 (98.2)	64,649 (98.4)
Number of screening colonoscopies (%)	NA	73,164 (73.4%)	26,997 (80.3%)	46,167 (70.2%)

**Assessing full complement of outpatient care may require multiple data sources**



**Research Example 2:** Schonberger, R. B., Dai, F., Brandt, C., & Burg, M. M. (2015). Ambulatory medical follow-up in the year after surgery and subsequent survival in a national cohort of Veterans Health Administration surgical patients. *Journal of Cardiothoracic and Vascular Anesthesia*, 30 (3), 671-679.



Journal of Cardiothoracic and Vascular  
Anesthesia

Volume 30, Issue 3, June 2016, Pages 671–679



7963||

Original Article

## Ambulatory Medical Follow-Up in the Year After Surgery and Subsequent Survival in a National Cohort of Veterans Health Administration Surgical Patients

Robert B. Schonberger, MD, MHS<sup>a,\*</sup>, Feng Dai, PhD<sup>a,†,‡</sup>, Cynthia Brandt, MD, MPH<sup>a,‡</sup>, Matthew M. Burg, PhD<sup>a,§,||</sup>

Retrospective cohort study.

### Setting

US Veterans Hospitals.

### Participants

The study included adults who received surgical care in any Veterans Health Administration facility from 2006 to 2011 who were discharged within 10 days of surgery and who survived for at least 1 year postoperatively.

### Interventions

None.

### Measurements and Main Results

The association between the receipt of nonsurgical ambulatory medical care during the first postoperative year and the hazard of death during postsurgical year 2 was measured. Among 236,200 veterans, 93.2% received a nonsurgical medical follow-up visit in postsurgical year 1; of those, 5.1% died during postsurgical year 2. This

**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

**Research Example 2: Schonberger, Dai, Brandt, & Burg (2015)**

## Outpatient Services Assessed Using MEDSAS

Outpatient Service	Stop Code
<b>Cardiology</b>	<b>303</b>
<b>Diabetes</b>	<b>306</b>
<b>Endocrinology</b>	<b>305</b>
<b>Geriatric primary care</b>	<b>350</b>
<b>Hypertension</b>	<b>309</b>
<b>Primary care</b>	<b>323</b>
<b>Pulmonology</b>	<b>312</b>
<b>Women's clinic</b>	<b>322</b>

## Research Example 2: Schonberger, Dai, Brandt, & Burg (2015)

Table 1. Patient Characteristics Stratified by Visit Status

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

**Research Example 3:** Williams, E. C., Rubinsky, A. D., Lapham, G. T., Chavez, L. J., Rittmueller, S. E., Hawkins, E. J., ... & Bradley, K. A. (2013). Prevalence of clinically recognized alcohol and other substance use disorders among VA outpatients with unhealthy alcohol use identified by routine alcohol screening. *Drug and Alcohol Dependence*, 135, 95-103.

Contents lists available at ScienceDirect

**Drug and Alcohol Dependence**

journal homepage: [www.elsevier.com/locate/drugalcdep](http://www.elsevier.com/locate/drugalcdep)

Prevalence of clinically recognized alcohol and other substance use disorders among VA outpatients with unhealthy alcohol use identified by routine alcohol screening<sup>a,\*</sup>

Emily C. Williams<sup>a,d,\*</sup>, Anna D. Rubinsky<sup>a,b,d</sup>, Gwen T. Lapham<sup>a,f</sup>, Laura J. Chavez<sup>a,d</sup>, Stacey E. Rittmueller<sup>a</sup>, Eric J. Hawkins<sup>a,b,e</sup>, Joel R. Grossbard<sup>a,b</sup>, Daniel R. Kivlahan<sup>a,b,e</sup>, Katharine A. Bradley<sup>a,b,c,d,f</sup>

<sup>a</sup> Denver, Seattle Center of Innovation for Veteran-Centered and Value-Driven Care, Health Services Research & Development, Veterans Affairs (VA) Puget Sound Health Care System, Seattle, WA, United States  
<sup>b</sup> Center of Excellence for Substance Abuse Treatment and Education, Veterans Affairs (VA) Puget Sound Health Care System, Seattle, WA, United States  
<sup>c</sup> Department of Medicine, University of Washington, Seattle, WA, United States  
<sup>d</sup> Department of Health Services, University of Washington, Seattle, WA, United States  
<sup>e</sup> Department of Psychiatry and Behavioral Sciences, University of Washington, Seattle, WA, United States  
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**Keywords:**  
 Alcohol use disorders  
 Alcohol screening  
 Substance use disorders

**ABSTRACT**

**Objective:** The purpose of routine alcohol screening is to identify patients who may benefit from brief intervention, but patients who also have alcohol and other substance use disorders (AUD/SUD) likely require more intensive interventions. This study sought to determine the prevalence of clinically documented AUD/SUD among VA outpatients with unhealthy alcohol use identified by routine screening.

**Methods:** VA patients 18–90 years who screened positive for unhealthy alcohol use (AUDIT-C ≥ 3 women; ≥ 4 men) and were randomly selected for quality improvement standardized medical record review (6/06–6/10) were included. Gender-stratified prevalences of clinically documented AUD/SUD (diagnosis of AUD, SUD, or alcohol-specific medical conditions, or VA specialty addictions treatment on the date of or 365 days prior to screening) were estimated and compared across AUDIT-C risk groups, and then repeated across groups further stratified by age.

**Results:** Among 63,397 eligible patients with unhealthy alcohol use, 25% (n = 2109) women and 28% (n = 15,199) men had documented AUD/SUD (p < 0.001). The prevalence of AUD/SUD increased with increasing AUDIT-C risk, ranging from 13% (95% CI 13–14%) to 82% (79–85%) for women and 12% (11–12%) to 69% (68–71%) for men in the lowest and highest AUDIT-C risk groups, respectively. Patterns were similar across age groups.

**Conclusions:** One-quarter of all patients with unhealthy alcohol use, and a majority of those with the highest alcohol screening scores, had clinically recognized AUD/SUD. Healthcare systems implementing evidence-based alcohol-related care should be prepared to offer more intensive interventions and/or effective pharmacotherapies for these patients.

Published by Elsevier Ireland Ltd.

**1. Introduction**

Unhealthy alcohol use ranges from drinking above recommended limits to meeting diagnostic criteria for alcohol use disorders (Saitz, 2005b). Multiple trials have demonstrated the efficacy of brief interventions for reducing drinking among primary care patients with unhealthy alcohol use (Kaner et al., 2007). While patients with unhealthy alcohol use were identified for trials of brief interventions via population-based alcohol screening, most trials subsequently excluded patients with alcohol or other substance use disorders (Guth et al., 2008). Therefore, although alcohol screening and brief intervention are recommended by the U.S. Preventive Services Task Force (Jonas et al., 2012) and together

<sup>\*</sup> This study was supported by the Veteran's Affairs (VA) Substance Use Disorders Quality Enhancement Research Initiative (SUD QERI) and the Denver-Seattle Center of Innovation for Veteran-Centered and Value-Driven Care. Views expressed in this article are those of the authors and do not necessarily represent the views of the Department of Veterans Affairs or the University of Washington. A preliminary version of this work was presented at the 2010 Annual Meeting of Academy Health.

<sup>\*</sup> Corresponding author at: VA Puget Sound Health Care System, 1100 Olive Way, Suite 1400, Seattle, WA 98101, United States. Tel.: +1 206 277 6133; fax: +1 206 764 2935.  
 E-mail address: [emily.williams3@va.gov](mailto:emily.williams3@va.gov) (E.C. Williams).

**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 ( $\geq 3$  points for women;  $\geq 4$  points for men)

## Research Example 3: Williams et al. (2013)

# 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.

	Female (n = 8484)		Male (n = 54,913)	
	%	(95% CI)	%	(95% CI)
<b>Alcohol use disorder</b>				
18-25	14	(9-19)	20	(18-21)
25-34	19	(17-22)	24	(23-25)
35-49	29	(27-30)	40	(39-41)
50-64	20	(19-22)	36	(35-36)
65-90	6	(4-7)	10	(10-11)
<b>Non-alcohol substance use disorder</b>				
18-25	6	(2-9)	5	(4-6)
25-34	8	(6-9)	8	(7-8)
35-49	12	(11-13)	19	(18-20)
50-64	7	(6-8)	10	(10-11)
65-90	0		1	(1-1)
<b>Alcohol-specific medical diagnosis</b>				
18-25	1	(0-2)	1	(0-1)
25-34	2	(1-3)	2	(1-2)
35-49	5	(4-6)	9	(8-9)
50-64	4	(3-5)	7	(7-7)
65-90	1	(0-2)	1	(1-2)
<b>VA specialty addictions treatment</b>				
18-25	7	(3-10)	6	(5-7)
25-34	9	(8-11)	9	(8-10)
35-49	15	(14-17)	23	(22-24)
50-64	9	(8-10)	14	(13-14)
65-90	2	(1-3)	2	(1-2)
<b>Any clinically documented alcohol or other substance use disorder<sup>a</sup></b>				
18-25	17	(12-23)	21	(19-23)
25-34	23	(20-25)	26	(25-28)
35-49	32	(30-33)	43	(42-45)
50-64	23	(22-24)	38	(38-39)
65-90	6	(4-8)	11	(11-11)

<sup>a</sup> 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

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# VIReC Research User Guides (RUGS)

**VIReC INTRANET**

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**HSRData Listserv**

**CURRENT VA DATA NEWS**  
**Data Issues Brief**

**EXPERIENCES FROM THE FIELD**  
**Researcher's Notebook**

**GATEWAY TO DATA RESOURCES**  
**VHA Data Portal**

**Quick tips on popular topics related to using VA data for research. [Learn more...](#)**

**Data Issues Brief, November 2016**

**Upcoming Cyberseminars**

**Real SSN Data Request Process**

**VA REDCap Project**

**Data Tip of the Month**

**Data News**

**PSSG Geocoded Enrollee File** is now available through a temporary access request process.

**New VA/CMS Data for Researchers**

- 2014 Medicare enrollment & claims
- 2011-2014 MBSF Other Chronic or Potentially Disabling Conditions
- 2013 Medicare Part D Slim File
- 2014 MDS, OASIS, & IRF-PAI
- 2012 MCBS Cost & Use
- 2013 MCBS Access to Care

**CDW Data Updates**

- Appointment 2.2 Domain release

**ICD-10 Transition:** VA implemented the ICD-10 code set October 1, 2015. Datasets commonly used by researchers have been affected.

**New from VIReC**

Come work with VIReC!  
VIReC is looking for an [Associate Director for Research](#) to join our team.

**New CDW Factbooks**  
Learn about tables, columns, and values in the Pharmacy Patient and Outpatient CDW Domains.

**VA Priority Groups**  
Learn about data sources containing information on VA Priority Groups.

**New & Updated Documentation**

- [Medical SAS](#) SQL data contents
- [CDW](#) discrete frequencies

**Geocoded Enrollee Files User Guide**  
Describes the origin, structure, and variables in quarterly geocoded enrollment files.

**VIReC Resources**

**Data Sources, Topics, & Tools:** Guide to VA data sources, topics, and tools.

**VA/CMS Data for Research Project:** Data custodian for CMS and USRDS data for VA research.

**Factbooks:** Describe tables, columns, and values in select CDW Domains.

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

**The Researcher's Notebook:** Practical information on using data from researchers in the field.

**Data Reports:** Technical reports, data investigations, and data quality updates.

**Summary Information:** Current and historical information about dataset

# MedSAS Research User Guide

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FAQs  
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**Summary Information:** Current and historical information about dataset variables, counts, and frequencies.

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VIREC Home  
VA/CMS Home  
About Us  
New Users of VA Data  
FAQs  
Acronyms  
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**VIREC Research User Guides Index**

**Overview**

VIREC produces 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 historical information, access methods, and select bibliographies.

**Using the Index**

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

**Research User Guides**

**General Resources**

- Data Access
- Data Sources
- Data Tools
- Data Topics
- Products & Services
- Special Projects

## Medical SAS Datasets

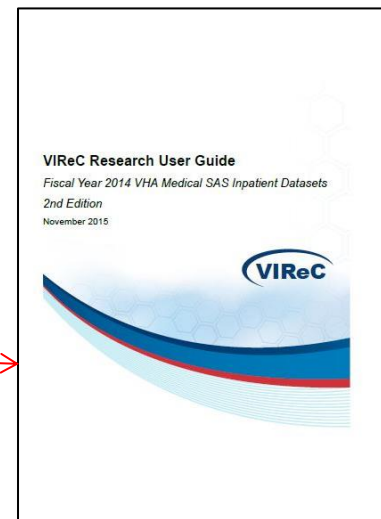
[VIREC Research User Guide: Fiscal Year 2014 VHA Medical SAS Inpatient Datasets, 2nd Edition](#)  
Published: November 2015

[Abstract](#)

[VIREC Research User Guide: Fiscal Year 2014 VHA Medical SAS Outpatient Datasets & Inpatient Encounters Dataset](#)  
Published: May 2015

[Abstract](#)

[Archive](#)



# MedSAS Data Documentation

The screenshot displays the VIREC INTRANET homepage. The header features the VIREC logo and the word 'INTRANET' in a stylized font. A search bar is located in the top right corner. The main content area is titled 'VA INFORMATION RESOURCE CENTER (VIREC)' and 'Medical SAS Datasets Documentation'. It includes an 'Overview' section with a paragraph about the documentation's purpose. Below this is a 'Data Documentation' section with a list of links: Research User Guides, Data Contents, Frequencies, Historical Variable Attributes, and Historical Stop Codes. A right-hand sidebar contains a 'Medical SAS Datasets' menu with links to Overview, Inpatient, Inpatient Encounters, Outpatient, and Documentation. Below this is an 'ICD-10 Transition' section with a link to a page about the transition. At the bottom of the sidebar is a 'General Resources' section with links to Data Access, Data Sources, Data Tools, Data Topics, Products & Services, and Special Projects. The footer contains a navigation bar with links to various VIREC resources.

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Acronyms  
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**Medical SAS Datasets Documentation**

**Overview**

VIREC's documentation on the Medical SAS Inpatient, Inpatient Encounters, and Outpatient Datasets is intended to help new and seasoned data users with understanding the content and variables in these datasets.

**Data Documentation**

- [Research User Guides](#)
- [Data Contents](#)
- [Frequencies](#)
- [Historical Variable Attributes](#)
- [Historical Stop Codes](#)

**Medical SAS Datasets**

- [Overview](#)
- [Inpatient](#)
- [Inpatient Encounters](#)
- [Outpatient](#)
- [Documentation](#)

**ICD-10 Transition**

Visit the "Medical SAS Datasets ICD-10 Transition" page to learn more.

**General Resources**

- [Data Access](#)
- [Data Sources](#)
- [Data Tools](#)
- [Data Topics](#)
- [Products & Services](#)
- [Special Projects](#)

VIREC Home | VA/CMS Home | VHA Data Portal | VA R&D Home | VA HSR&D Service | Viewers | Sitemap | Contact Us

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



# VHA Data Portal: Data Sources

**Data Sources**

Data Sources Overview

ADUSH Enrollment File

AIRC 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

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**Department of Veterans Affairs**  
**VHA Data Portal**

[Data Sources](#)
[Data Access](#)
[Tools & Applications](#)
[Resources](#)
[Training](#)
[Policy & Admin](#)
[Support](#)

## 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 home page 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**

### Upcoming Events

#### VIREC Cyberseminars

**Dec 20:** Partnering with Health Systems Leadership to Develop a Randomized, Controlled Implementation Trial  
(Bauer, M | Weaver, K)

**Jan 9:** Measuring Veterans' Medicare Health Services Use  
(de Groot, K)

**Jan 24:** PROVE (PeRsonalizing Options through Veteran Engagement) QUERI  
(Damschroder, L | Kelley, C | Davis, J)

**Feb 6:** Measuring & Assessing Outpatient Care  
(Hynes, D)

#### VINCI Cyberseminar

**Dec. 8:** Getting Started with VA OMOP Data (DuVall, S)

#### VINCI Happy Hour

**3rd Wednesday Every Month at 3 PM ET**  
VINCI in its continuing efforts to assist VHA data users will be holding its VINCI Happy Hour open question and answer forum every 3rd Wednesday of the month from 3:00PM to 4:00PM ET to field questions from our customers on a range of topics. Click here to join the Lync meeting and call 855-787-1051 code 22265884.

### News

#### Data Management and Access Plan (DMAP)

Effective January 1, 2016, all applications for VA-ORD funding are required to include a Data Management and Access Plan (DMAP) in the proposal. Applicants are encouraged to work with the local VA research office in order to describe the DMAP in an application, and for implementation of the plan. The DMAP will be evaluated as an unscored element in the scientific peer review, and any issues will be addressed administratively.

#### VistAWeb Access for Medical Advisory Opinions

As of July 1, 2016, access to VistAWeb for Medical Advisory Opinions (MAO) reviews do not expire after 60 days. Access will also be granted nationally to all VHA 2/3/2017

# VHA Data Portal: Resources

**Data Sources**

Data Sources Overview

ADUSH Enrollment File

AITC Mainframe

BIRLS Death File

**CDW**

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 Department of Veterans Affairs  
**VHA Data Portal**

[Data Sources](#)
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[Data Sources](#) > [CDW](#)

**Quick View**  
 CDW is an evolving repository of national VHA data. It is a physical implementation of a logical data model at the enterprise level for VHA.

**CDW**  
[Overview](#)  
[Content](#)  
[Structure](#)  
[Access](#)  
[Resources](#)

## 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 "starter 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 *VINCI Workspace* page to learn more about using the VINCI Workspace to store and analyze CDW data.

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

# CDW Factbooks

**Factbook**

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

**Factbook**

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

**Factbook**

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

Department of Veterans Affairs  
**VHA Data Portal**

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Data Sources Data Access Tools & Applications Resources Training Policy & Admin Support

Data Sources > CDW

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## 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

# Contact information

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Department of Veterans Affairs, Hines, IL

VA Information Resource Center  
Hines VA Hospital

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708-202-2413



**Next session:  
March 6, 2017  
1 pm Eastern**



## Database & Methods Cyberseminar Series

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### Mortality Ascertainment & Cause of Death

**Chuck Maynard, PhD  
Acting Associate Director  
Denver-Seattle COIN**