

# 2011 VIReC Database and Methods Cyber Seminar Series



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# Assessing VA Health Care Use: Outpatient

October 3, 2011

Presented by:

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  - Kevin Stroupe, PhD
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# Session Objectives

- **How has outpatient healthcare utilization been measured in VA studies?**
- **Overview of Medical SAS Outpatient databases**
- **Finding information in the Outpatient Medical SAS databases**
- **Examples of VA studies that have used the Outpatient Medical SAS databases**
- **Where to go for more help**



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# How has outpatient healthcare utilization been measured in VA studies?: Categories of outpatient provider care

- Homaifar, Harwood, Wagner, Brenner. Description of outpatient utilization and costs in group of veterans with traumatic brain injury. *J of Rehab R&D*. 2009; 46 (8): 1003-1010.

- Outpatient utilization in four categories of provider care used as an outcome

**JRRD** Department of Veterans Affairs  
Rehabilitation Research & Development Service  
Journal of Rehabilitation Research & Development

Volume 46 Number 8, 2009  
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## Description of outpatient utilization and costs in group of veterans with traumatic brain injury

Beeta Y. Homaifar, PhD;<sup>1-2\*</sup> Jeri E. Harwood, PhD;<sup>3-4</sup> Todd H. Wagner, PhD;<sup>5-6</sup> Lisa A. Brenner, PhD<sup>1-2,7-8</sup>

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**Abstract** In an attempt to increase understanding regarding the nonacute healthcare needs of veterans with traumatic brain injury (TBI), we examined the outpatient utilization and cost patterns of 72 patients with TBI who were at least 4 years postinjury. We selected participants from a clinical database of veterans receiving care at a western Department of Veterans Affairs (VA) medical center. We extracted data from national utilization databases maintained by the VA and examined data from primary care and internal medicine, psychiatry and substance use, rehabilitation, and other services (e.g., ancillary, therapeutic, prosthetic, dental, nursing home, and home care). We analyzed data for fiscal years 2007 to 2007. In addition to descriptive statistics, we modeled visits per year as a function of time since injury. The data show that this sample of patients with TBI consistently used a wide array of outpatient services over time with considerable variation in cost. Further study regarding economic aspects of care for patients with TBI is warranted.

**Key words** injury, costs, Department of Veterans Affairs, healthcare, nonacute care, outpatient services, rehabilitation, traumatic brain injury, utilization, veterans.

Abbreviations: ACS = Glasgow Coma Scale; ERFC = Health Economics Resource Center; LOC = loss of consciousness; PTA = posttraumatic amnesia; TBI = traumatic brain injury; VA = Department of Veterans Affairs; VAMC = VA medical center.

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DOI:10.1082/JRRD.2008.12.0100



# How has outpatient healthcare utilization been measured in VA studies?: Use of Depression and PTSD Diagnosis

- Chan, Cheadle, Reiber, et al. Health care utilization and its costs for depressed veterans with and without comorbid PTSD symptoms. *Psychiatric Services*. 2009; 60 (12): 1612-1617.
- Outpatient utilization in two categories of provider care used as an outcome

## Health Care Utilization and Its Costs for Depressed Veterans With and Without Comorbid PTSD Symptoms

Domin Chan, Ph.D., M.H.S.  
Allen D. Cheadle, Ph.D.  
Gayle Reiber, Ph.D., M.P.H.  
Jürgen Unttzer, M.D., M.P.H.  
Edmund F. Chaney, Ph.D.

**Objectives:** This study examined health care utilization and costs of care among Veterans Affairs (VA) patients with depression and with or without symptoms of comorbid posttraumatic stress disorder (PTSD). **Methods:** Cross-sectional comparisons of health care utilization and costs were conducted with VA administrative data for a sample of veterans from a randomized trial of collaborative care depression treatment in ten VA primary care clinics across five states. Patients with depression or dysthymia were included in the study, and those who were acutely suicidal or had probable bipolar disorder were excluded. The sample of 606 patients was mainly male, white, and aged 50 or older. Health care utilization, costs, and medication data from VA administrative databases were analyzed over 12 months. **Results:** Patients with depression and PTSD (screen score  $\geq 3$ ) were more emotionally distressed, had more frequent mental health specialty visits (6.81 versus 1.68,  $p < .001$ ), more total outpatient visits (25.16 versus 19.24,  $p < .001$ ), and correspondingly higher outpatient mental health care costs over the previous 12 months compared with depressed patients without PTSD. Antidepressants were prescribed to a higher proportion of depressed patients with PTSD (61% versus 40%). **Conclusions:** Patients with PTSD and depression had greater utilization of specialty mental health treatments and antidepressant medications and higher mental health care costs in the previous 12 months than depressed patients without PTSD. As military personnel return from Iraq, both VA and non-VA health care providers need to plan for an increase in outpatient mental health services and costs, particularly among depressed veterans who also have PTSD. (*Psychiatric Services* 60:1612-1617, 2009)

Symptoms of depression often co-occur with symptoms of posttraumatic stress disorder (PTSD). Among veterans with PTSD, rates of comorbid major depression range from 29% to 68% (1-4). Among veterans with clinical depression, rates of comorbid PTSD are 36%-51% (5,6). Among depressed female veterans, rates of comorbid PTSD may be as high as 77% (7).

Persons with both depression and PTSD have high levels of symptomatic distress. They have more severe depressive symptoms, a more complicated and persistent history of mental illness (8,9), and higher rates of suicidal behavior than depressed patients without PTSD (10). Patients with both conditions experience greater role impairment and recover more slowly than those with PTSD alone (11). Depression and PTSD are independently associated with higher health care use and costs (12,13).

PTSD among veterans is a growing problem, and its care has significant consequences for staffing levels and budgets within the U.S. Department of Veterans Affairs (VA) mental health system. Depression has been consistently associated with higher health care costs and utilization in both veteran and general populations (12,14,15). Most studies have also shown that PTSD patients have higher medical and surgical inpatient and outpatient utilization for physical and mental health problems than non-PTSD patients (7,16-19). Depression and

*Dr. Chan, Dr. Unttzer, and Dr. Chaney are affiliated with the Department of Psychiatry and Behavioral Sciences and Dr. Cheadle and Dr. Reiber are with the Department of Health Services, all at the University of Washington, Seattle. Dr. Reiber and Dr. Chaney are also with the Health Services Research and Development Center of Excellence, Veterans Affairs Puget Sound Health Care System, Seattle. Send correspondence to Dr. Chan, Department of Psychiatry and Behavioral Sciences, University of Washington, Box 356250, Seattle, WA 98195-7500 (e-mail: dchan@u.washington.edu). This study was presented at the American Public Health Association annual meeting, November 6, 2007, Washington, D.C.*

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PSYCHIATRIC SERVICES • ps.psychiatryonline.org • December 2009 Vol. 60 No. 12



# How has outpatient healthcare utilization been measured in VA studies?: Veteran and non-Veteran Status

## BRIEF REPORT

### Gender Disparities in Veterans Health Administration Care Importance of Accounting for Veteran Status

Susan M. Frayne, MD, MPH,<sup>1,2,3</sup> Elizabeth M. Yano, PhD,<sup>4</sup> Vu Q. Nguyen, BS,<sup>5</sup> Wei Yu, PhD,<sup>6,7,8,9</sup> Lakshmi Ananth, MS,<sup>10</sup> Victor Y. Chiu, BA,<sup>11</sup> and Claran S. Phibbs, PhD<sup>12,13,14,15</sup>

**Background:** In an effort to assess and reduce gender-oriented quality gaps, the Veterans Health Administration (VHA) has promoted gender-based research. Historically, such appraisals have often relied on secondary databases, with little attention to methodological implications of the fact that VHA provides care to some nonveteran patients.

**Objective:** To determine whether conclusions about gender differences in inpatient and cost of VHA care change after accounting for veteran status.

**Design:** Cross-sectional.

**Subjects:** All users of VHA in 2002 (N = 4,429,414).

**Measures:** Veteran status, outpatient inpatient utilization and cost, from centralized 2002 administrative files.

**Results:** Nonveterans accounted for 50.7% of women (the majority employees) but only 3.0% of men. Among all users, inpatient and inpatient utilization and cost were far lower in women than in men, but in the veteran subgroup this difference decreased substantially, or in the case of use and cost of outpatient care, reversed. Utilization and cost were very low among women employees; women spouses of fully disabled veterans had utilization and costs similar to those of women veterans.

**Conclusions:** By gender, nonveterans represent a higher proportion of women than of men in VHA, and some large nonveteran groups have low utilization and costs; therefore, conclusions about gender disparities change substantially when veteran status is taken into account. Researchers seeking to characterize gender disparities in VHA care should address this methodological issue, to minimize risk of underestimating health care needs of women veterans and other women eligible for primary care services.

**Key Words:** veterans, women's health, utilization, cost of illness, health services research

(*Med Care* 2008;46:549-553)

Women's health care delivery in the Veterans Health Administration (VHA) has received increased scrutiny in recent years. As an extreme minority group within a system historically oriented toward the care of men, women are at risk for receiving lower quality care; indeed, quality gaps have been identified in the past.<sup>1-3</sup> With propagation of new women's health clinical programs designed to address these gaps,<sup>4</sup> a parallel literature base assessing quality of care provided to women is emerging.<sup>5</sup> However, an infrequently discussed methodological issue may limit interpretation of some of this new work. Specifically, accounting for veteran status might change conclusions about gender disparities in VHA.

Why might this be so? VHA's National Patient Care Database (NPCD) contains administrative and clinical records for all enrollees. Enrollees include veterans, but also some nonveteran groups. For example, family members of veterans may receive comprehensive care in VHA if they are enrolled in Civilian Health and Medical Program of the Department of Veterans Affairs (CHAMPVA) (for family of veterans who died or were disabled from military service) or Tricare (for military families). Limited services are available to spouses of veterans treated as "collaterals" (for care related to the veteran's health, such as family counseling). VHA enrolls employees in its system so as to record receipt of employee health services like influenza vaccines, tuberculosis testing, or first aid for on-the-job injuries. Some nonveterans are also eligible to receive care through "blanket agreements"; for example, Medicaid might pay for VHA to provide a specialized procedure not available in the community. Department of Defense likewise enters into sharing agreements with VHA for some active duty military. If nonveterans use VHA services

- Frayne, Yano, Nguyen, et al. Gender disparities in Veterans Health Administration care: importance of accounting for veteran status. *Med Care*. 2008;46:549-553.
- Outpatient primary care utilization as predicted by Veteran status, gender, and eligibility

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# How has outpatient healthcare utilization been measured in VA studies?: Colorectal cancer screening identified

■ Walter, Lindquist, Nugent, et al. Impact of age and comorbidity on colorectal cancer screening among older veterans. *Ann Intern Med.* 2009;150:465-473.

■ OP utilization used in cohort selection and also as a predictor variable

Annals of Internal Medicine

ARTICLE

## Impact of Age and Comorbidity on Colorectal Cancer Screening Among Older Veterans

Louise C. Walter, MD, Maria Lindquist, MS, Sean Nugent, BA, Tammy Schait, MS, Sei J. Lee, MD, MAS, Michele A. Casadei, BS, and Melissa R. Parke, PhD

**Background:** The Veterans Health Administration, the American Cancer Society, and the American Geriatrics Society recommend colorectal cancer screening for older adults unless they are unlikely to live 5 years or have significant comorbidity that would preclude treatment.

**Objective:** To determine whether colorectal cancer screening is targeted to healthy older patients and is avoided in older patients with severe comorbidity who have life expectancies of 5 years or less.

**Design:** Cohort study.

**Setting:** Veterans Affairs (VA) medical centers in Minneapolis, Minnesota; Durham, North Carolina; Portland, Oregon; and West Los Angeles, California, with linked national VA and Medicare administrative claims.

**Patients:** 27 066 patients 70 years or older who had an outpatient visit at 1 of 4 VA medical centers in 2001 or 2002 and were due for screening.

**Measurements:** The main outcome was receipt of fecal occult blood testing (FOBT), colonoscopy, sigmoidoscopy, or barium enema in 2001 or 2002, on the basis of national VA and Medicare claims. Charlson-Deyo comorbidity scores at the start of 2001 were used to stratify patients into 3 groups ranging from no comorbidity (score of 0) to severe comorbidity (score = 4), and 5-year mortality was determined for each group.

**Results:** 48% of patients were screened from 2001 through 2002. Only 47% of patients with no comorbidity were screened despite having life expectancies greater than 5 years (5-year mortality, 19%). Although the incidence of screening decreased with age and worsening comorbidity, it was still 41% for patients with severe comorbidity who had life expectancies less than 5 years (5-year mortality, 55%). The number of VA outpatient visits predicted screening independent of comorbidity, such that patients with severe comorbidity and 4 or more visits had screening rates similar to or higher than those of healthier patients with fewer visits.

**Limitations:** Some tests may have been performed for nonscreening reasons. The generalizability of findings to persons who do not use the VA system is unclear.

**Conclusion:** Advancing age was inversely associated with colorectal cancer screening, whereas comorbidity was a weaker predictor. More attention to comorbidity is needed to better target screening to older patients with substantial life expectancies and avoid screening older patients with limited life expectancies.

**Primary Funding Source:** VA Health Services Research and Development.

*Ann Intern Med.* 2009;150:465-473.  
For author disclosures, see end of text.

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Colorectal cancer screening guidelines recommend screening older adults who have substantial life expectancies according to age and comorbid conditions (1). For example, the U.S. Preventive Services Task Force recommends routine screening until age 75 years, whereas the Veterans Health Administration, the American Cancer Society, and the American Geriatrics Society (2-5) recommend colorectal cancer screening for older adults unless they are unlikely to live 5 years or have significant comorbid conditions that would preclude treatment. Targeting screening to healthy persons who are likely to live at least 5 years is recommended because randomized trials of fecal occult blood testing (FOBT) suggest that a difference in colorectal cancer mortality between screened and un-screened persons does not become noticeable until at least 5 years after screening (6-8). Therefore, persons with a life expectancy of 5 years or less are not likely to benefit from screening but remain at risk for hazards that may occur immediately, such as complications from procedures and the treatment of clinically unimportant disease (9, 10). However, it remains unclear whether screening is being targeted to healthy older persons with substantial life expectancies and avoided in older persons with significant

comorbidity, for whom the risks of screening outweigh the benefits.

Previous studies of associations among age, comorbidity, and receipt of cancer screening have found that age is a stronger determinant of screening than comorbidity. For example, whereas advancing age is consistently associated with lower screening rates, worsening comorbidity has had little effect on the use of screening mammography, Pap-smear or prostate-specific antigen screening (11-13). Previous studies of the relationship between colorectal cancer screening and comorbidity have been limited by small sample size, short follow-up times, and focus on FOBT rather than all types of colorectal cancer screening

See also:

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**Web-Only**  
Conversion of graphics into slides

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7 April 2009 | *Annals of Internal Medicine* | Volume 150 | Number 7 | 465



## How has outpatient healthcare utilization been measured in VA studies?:

- **Homaifar & colleagues**
  - Counts of Encounters
  - Primary Care, Psych/SUD, Rehab, Other
- **Chan & colleagues**
  - Diagnoses
  - Depression/PTSD, Depression w/o PTSD
- **Frayne & colleagues**
  - Veteran status (Veteran and Non-veteran)
- **Walter & colleagues**
  - Procedures (Colorectal screening)

# Session Objectives

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# Audience Poll

- **What is your PRIMARY interest in attending today's session?**
  - VA Research;
  - VA Other;
  - Non-VA Research
  - Non-VA Other
- **How would you rate your overall knowledge of the VA Outpatient data?**
  - 1 (Never Used);
  - 2;
  - 3;
  - 4;
  - 5 (Used Frequently, Very familiar)



# Two Groups of Medical SAS Datasets

## ■ Inpatient Care SAS Datasets

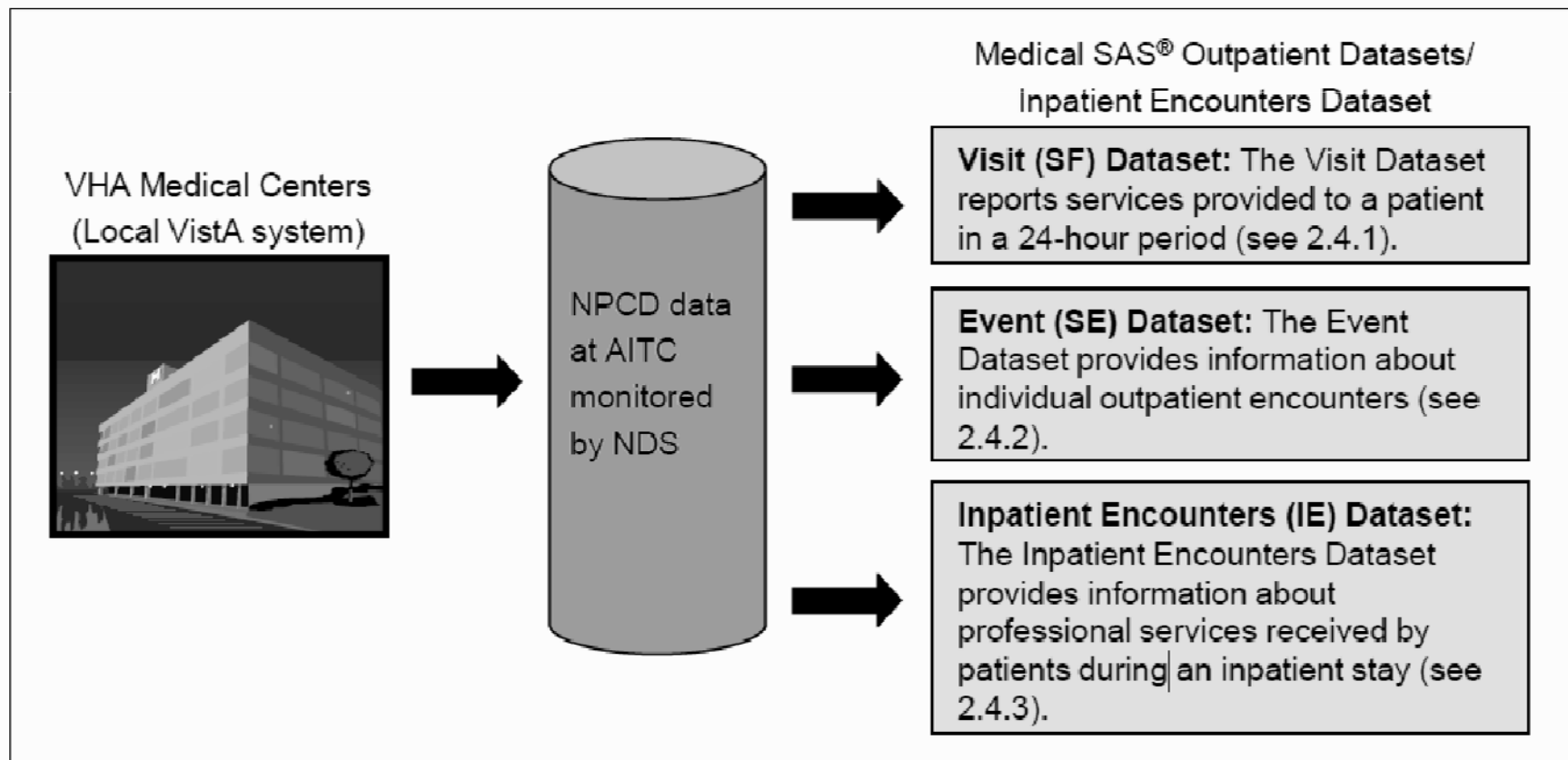
## ■ Outpatient Care SAS Datasets

- Frequently referred to as
  - OPC (Outpatient Clinic File) or
  - NPCD (National Patient Care Database)
  - PCE (Patient Care Encounter)
  - MedicalSAS Outpatient Datasets
- Records generated for each encounter for ambulatory care and ancillary services recorded in VISTA



# VA Outpatient Data Flow to the Medical SAS Datasets

Figure 1. Data progression from VHA Medical Centers to the AITC and to the Medical SAS<sup>®</sup> Outpatient Datasets



# VA Medical SAS Outpatient Datasets

- Datasets at AITC are named:

**MDPPRD.MDP.SAS.XXyy**

**XX** = the two letter reference code below; **yy** = two digit FY

File	Reference	Dates
<b>Visit</b>	<b>SF</b>	<b>1980 - present</b>
<b>Event</b>	<b>SE</b>	<b>1998 – present</b>
<b>Inpatient Encounters</b>	<b>IE</b>	<b>2005 - present</b>
<b>Diagnosis</b>	<b>SG</b>	<b>1997 – 2001</b>
<b>Procedure</b>	<b>SC</b>	<b>1990 - 2001</b>



# Clinic Stops

- Clinics are identified using Clinic Stop Codes also called DSS Identifiers.





# Clinic Stops

## ■ Clinic stops identified using two clinic stop codes

- Primary Clinic Stop Code (CL)
  - Used to identify the production units or the revenue centers for outpatient care
- Secondary Clinic Stop Code (CLC)
  - Further specifies the team, service, or funding

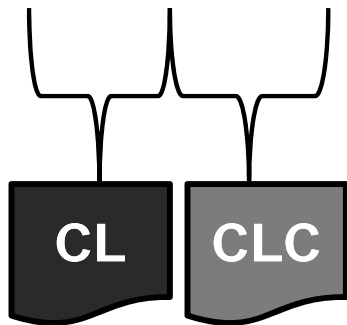
Examples:      **116714**      **Respiratory Therapy Education**  
                    **116329**      **Respiratory Therapy Procedures**

CL      CLC

# Clinic Stops

## ■ Another clinic stop code example

- **323117** Primary Care/MED, Nursing (2<sup>nd</sup> Only)
- **323185** Primary Care/MED, Phys Extnd NP (Nrs Prcnr) 2nd
- **323187** Primary Care/MED, Phys Extnd CNS (CIn RN Spc) 2<sup>nd</sup>
- **323710** Primary Care/MED, Flu/Pneumococcal Vaccination



# Outpatient Visit File (SF)

- **Each Record =**  
One day's encounter(s) for a patient at a station
- **One record per visit**
- **Up to 15 primary clinic stops per visit**  
(CL1-CL15)
- **No diagnosis or procedure information**

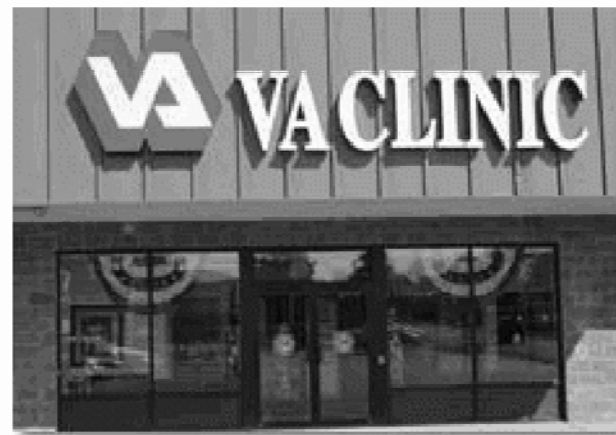
# Outpatient Visit File (SF)

- **Top 5 Primary Clinic Stop values from first 3 million records in FY2009 Visit file:**

Primary Clinic Stop Code	Values	%
108	Laboratory	18
323	Primary Care/Med	17
502	Mental Health-IND	4
103	Telephone Triage	4
147	Telephone/Ancillary	3

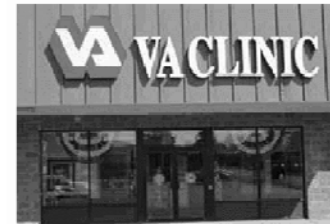
# Outpatient Event (SE) File

- One record per clinic stop
- No limit on number of encounter records per day
- Combines diagnostic and procedural info in one dataset



# Outpatient Event (SE) File

- **ICD-9 Codes: Up to 10 diagnoses per record**
- **CPT-4 Codes:**
  - Until FY2003: 15 procedures, no repeats allowed
  - Since FY2004: 20 procedures, repetition allowed
- **Since FY2003, Encounter ID**
  - Links Event dataset with HERC Outpatient Average Cost Dataset



# Outpatient Event (SE) File

- One Secondary Clinic Stop per record (CLC)
  - Top 5 in first 3 million records in FY2009
- Event file:

Secondary Clinic Stop Code	Values	%
(None)		70
117	Nursing (2 <sup>nd</sup> only)	7
125	Social Work SVC	3
185	Phys Extnd NP (NRS PRCNR) 2 <sup>nd</sup>	3
160	Clinical Pharmacy	2

# Visit vs. Event File

Visit

Patient's Outpatient  
Clinic Stops during  
One Day



Primary Care  
Clinic Stop

Ophthalmology  
Clinic Stop

Physical Therapy  
Clinic Stop

Event

Event

Event



# Data Element Examples: Visit vs. Event File

## Visit Variables

- (Up to 15) Primary Clinic Stop Codes
- Religious preference
- Military period of service

## Shared Variables

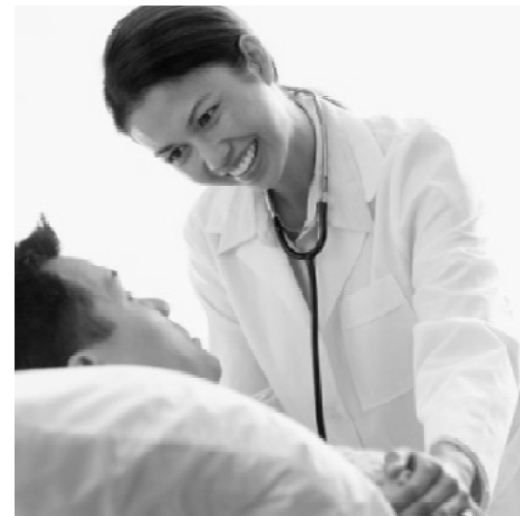
- SCRSSN
- Date of encounter
- VA Facility ID
- Patient demographics
- Purpose of Visit
- Means Test Indicator
- Patient eligibility code

## Event Variables

- Primary & Secondary Clinic Stop Code
- Provider ID & Type
- Procedure codes (CPT-4)
- Primary & Secondary Diagnostic codes (ICD-9- CM)
- VA Appointment Type
- Type of Setting
- Homeless code

# Inpatient Encounters File

- Patients in this file had an encounter in one of the VHA outpatient clinics while they had an inpatient status.
- Patients with Inpatient Status, e.g.,
  - hospital
  - nursing home
  - domiciliary



# Inpatient Encounters File (IE)

- The Inpatient Encounters file excludes services that are included in the Outpatient Events files.
- Data are available beginning in FY2005.



# Inpatient Encounters File: Select Data Elements

- **SCRSSN**
- **Date of encounter**
- **VA Facility ID**
- **Date and Time of inpatient stay admission**
- **Patient Demographics**
- **Means Test Indicator**
- **Patient eligibility code**
- **Primary & Secondary Clinic Stop Code**
- **Provider Type & ID**
- **Procedure codes (CPT-4)**
- **Primary & Secondary ICD-9-CM Diagnostic codes**



# Inpatient Encounters File (IE)

- One Primary and one Secondary Clinic Stop
- Top 5 Primary Clinic Stops in first 3 million records in FY2009 Inpatient Encounters file:

Primary Clinic Stop Code	Values	%
105	X-Ray	13
166	Chaplain-IND	9
202	Rec Therapy Services	8
205	Physical Therapy	8
116	Respiratory Therapy	6

# VA Outpatient Diagnosis (SG) and Procedure (SC) Files

- **Outpatient Diagnosis Dataset (SG)**
  - Contains outpatient ICD-9-CM diagnosis information
- **Outpatient Procedure Dataset (SC)**
  - Contains CPT-4 outpatient procedure information
- **The VA Outpatient Diagnosis (SG) and Procedure (SC) Datasets were discontinued in FY2001.**
  - The information contained in these datasets was folded into the Event (SE) dataset and later included in the Inpatient Encounters (IE) dataset

# Session Objectives

- **How has outpatient healthcare utilization been measured in VA studies?**
- **Overview of Medical SAS Outpatient databases**
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- **Where to go for more help**



# Assessing Outpatient Healthcare Use: Finding info in Outpatient Medical SAS Datasets

## ■ Where do I find Emergency Department care?

– Data relevant to Emergency Department care are located in the Outpatient files.

- Before 2007: Clinic Stop Code:
  - 101102
- Since 2007: Primary Clinic Stop Codes
  - 130xxx [Emergency]
  - 131xxx [Urgent Care]





# Assessing Outpatient Healthcare Use: Finding info in Outpatient Medical SAS Datasets

- **If an inpatient was admitted through the ER, how do you identify that it is an ER admission?**
  - VHA has no flag for patients admitted to inpatient stay from ER.
  - Researchers need to compare outpatient ER encounter visit dates to inpatient admission date to determine if inpatient stays followed ER visit.

# Assessing Outpatient Healthcare Use: Finding info in Outpatient Medical SAS Datasets

## ■ How do I determine Outpatient Diagnoses?

- Up to 10 diagnosis (ICD-9) codes per record
  - DXLSF = Primary Diagnosis for encounter
  - DXF2 – DXF10 = Secondary diagnoses
- Located in:
  - **Outpatient Event (SE) Dataset**
    - Data available from 1997 to present
      - » only 15% of records in FY99 contained a DXF2
  - **Inpatient Encounters (IE) Dataset**
    - Data available from 2005 to present

# Assessing Outpatient Healthcare Use: Finding info in Outpatient Medical SAS Datasets

## Outpatient Diagnoses (cont)

- Top 5 DXLSF in first 3 million records in FY 2009 Event file

DXLSF	Values	%
30981	Post traumatic stress disorder	5
4019	Essential Hypertension Unspecified	4
V6540	Other counseling NOS	4
25000	Diabetes Mellitus	4
V6549	Other specified counseling	3

# Assessing Outpatient Healthcare Use: Finding info in Outpatient Medical SAS Datasets

## ■ How do I identify Outpatient Procedures?

– Outpatient services and procedures performed by a provider recorded with CPT-4 codes.

- Variable Names: CPT1 – CPT20

– Located in

- **Outpatient Event (SE) Dataset**
- **Inpatient Encounters (IE) Dataset**

\* Inpatient procedures in the Medical SAS Inpatient Datasets are recorded with ICD-9 procedure codes.



# Assessing Outpatient Healthcare Use: Finding info in Outpatient Medical SAS Datasets

## Outpatient Procedures (cont)

- **Top 5 CPT1 of first 3 million records in FY 2009 Event file**

CPT1	Values	%
99213	Moderate severity OP visit for established pt	7
98966	Telephone assessment by non-physician	7
99211	Minimal severity OP visit for established pt	5
85025	CBC	4
99214	High severity OP visit for established pt	4

Note: no VA format library for CPT codes

# Assessing Outpatient Healthcare Use: Finding info in Outpatient Medical SAS Datasets

- **How are provider types identified in the outpatient datasets?**
  - Physician Specialty recorded using CMS Provider Classification System.
    - Variable Name: PROV1–PROV10
  
  - Located in
    - **Outpatient Event (SE) Dataset**
    - **Inpatient Encounter (IE) Dataset**



# Assessing Outpatient Healthcare Use: Finding info in Outpatient Medical SAS Datasets

## Provider Types (cont)

- **Top 5 Provider Types 1<sup>st</sup> 3m records in FY 2009**  
Event file :

Provider Types	Values	%
181000	Internal Medicine	15
070900	Registered Nurse	8
115500	Resident	4
010100	Clinical Social Worker	3
180700	Family Practice	3

- **Please see VIREC's MedSAS Outpatient Research User Guide:**
  - <http://www.virec.research.va.gov/DataSourcesName/Medical-SAS-Datasets/MedSAS-Outpt-RUG/MedSAS-RUG-Outpt09er.pdf>



# Session Objectives

- **How has outpatient healthcare utilization been measured in VA studies?**
- **Overview of Medical SAS Outpatient databases**
- **Finding information in the Outpatient Medical SAS databases**
- **Examples of VA studies that have used the Outpatient Medical SAS databases**
- **Where to go for more help**





# Research Example I:

Frayne, Yano, Nguyen, et al. *Med Care*. 2008;46:549-553.

## BRIEF REPORT

### Gender Disparities in Veterans Health Administration Care Importance of Accounting for Veteran Status

Susan M. Frayne, MD, MPH,\*†‡§ Elizabeth M. Yano, PhD,\*¶ Vu Q. Nguyen, BS,\* Wei Yu, PhD,\*†‡§§  
Lakshmi Ananth, MS,\*\*†† Victor Y. Chiu, BA,\* and Ciaran S. Phibbs, PhD,\*†‡†††

**Background:** In an effort to assess and reduce gender-related quality gaps, the Veterans Health Administration (VHA) has promoted gender-based research. Historically, such appraisals have often relied on secondary databases, with little attention to methodological implications of the fact that VHA provides care to some nonveteran patients.

**Objective:** To determine whether conclusions about gender differences in utilization and cost of VHA care change after accounting for veteran status.

**Design:** Cross-sectional.

**Subjects:** All users of VHA in 2002 (N = 4,429,414).

**Measures:** Veteran status, outpatient/inpatient utilization and cost, from centralized 2002 administrative files.

**Results:** Nonveterans accounted for 50.7% of women (the majority employees) but only 2.0% of men. Among all users, outpatient and inpatient utilization and cost were far lower in women than in men, but in the veterans subgroup these differences decreased substantially or, in the case of use and cost of outpatient care, reversed. Utilization and cost were very low among women employees; women spouses of fully disabled veterans had utilization and costs similar to those of women veterans.

**Conclusions:** By gender, nonveterans represent a higher proportion of women than of men in VHA, and some large nonveteran groups have low utilization and costs; therefore, conclusions about gender disparities change substantially when veteran status is taken into account. Researchers seeking to characterize gender disparities in VHA care should address this methodological issue, to minimize risk of underestimating health care needs of women veterans and other women eligible for primary care services.

**Key Words:** veterans, women's health, utilization, cost of illness, health services research

(*Med Care* 2008;46: 549-553)

Women's health care delivery in the Veterans Health Administration (VHA) has received increased scrutiny in recent years. As an extreme numeric minority group within a system historically oriented toward the care of men, women are at risk for receiving lower quality care; indeed, quality gaps have been identified in the past.<sup>1-3</sup> With propagation of new women's health clinical programs designed to address these gaps,<sup>4</sup> a parallel literature base assessing quality of care provided to women is emerging.<sup>5</sup> However, an infrequently discussed methodological issue may limit interpretation of some of this new work. Specifically, accounting for veteran status might change conclusions about gender disparities in VHA.

Why might this be so? VHA's National Patient Care Database (NPCD) contains administrative and clinical records for all enrollees. Enrollees include veterans, but also some nonveteran groups. For example, family members of veterans may receive comprehensive care in VHA if they are enrolled in Civilian Health and Medical Program of the Department of Veterans Affairs (CHAMPVA) (for family of veterans who died or were disabled from military services) or Tricare (for military families). Limited services are available to spouses of veterans treated as "collaterals" (for care related to the veteran's health, such as family counseling). VHA enrolls employees in its system so as to record receipt of employee health services like influenza vaccines, tuberculosis testing, or first aid for on-the-job injuries. Some nonveterans are also eligible to receive care through "sharing agreements"; for example, Medicaid might pay for VHA to provide a specialized procedure not available in the community. Department of Defense likewise enters into sharing agreements with VHA for some active duty military. If nonveterans use VHA services

■ This study determined whether gender differences in utilization and cost of VHA care change after accounting for veteran vs non-veteran status.

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## Research Example I :

Frayne, Yano, Nguyen, et al. Med Care. 2008;46:549-553.

- **This study conducted a cross sectional analysis of all VHA users in 2002.**
- **There were 4,429,414 VHA users**
  - 4,122,381 veterans
    - 178,849 women
    - 3,943,532 men
  - 307,033 nonveterans
    - 183,722 women (50.7% of female VHA users)
    - 123,311 men (3.0% of male VHA users)
- **Because some nonveteran groups have low utilization and costs, conclusions about gender disparities change substantially when veteran status is taken into account.**

## Research Example I :

Frayne, Yano, Nguyen, et al. Med Care. 2008;46:549-553.

### Methods:

### Data Sources - Utilization

- **Data on inpatient and outpatient utilization were from the Medical SAS Datasets**
  - Outpatient primary care was determined from VA clinic stop codes
  
- **Healthcare costs were determined from HERC Patient-Level Dataset**
  
- **VA healthcare eligibility was determined from eligibility code in outpatient data**
  - Non-veteran eligibility categories included: CHAMPVA, TriCare, Employee, Collateral, Sharing



# Research Example I:

Frayne, Yano, Nguyen, et al. Med Care. 2008;46:549-553.

## Results

**TABLE 1.** Age, Health Status and Primary Care Use in Fiscal Year 2002 for Women Versus Men, Among All Veterans Health Administration (VHA) Users and Among Veterans Only

	All VHA Users		Veterans	
	Women	Men	Women	Men
N	362,571	4,066,843	178,849	3,943,532
Age, yr, mean (SD)	49.0 (15.9)	63.0 (14.3)	50.1 (17.0)	63.6 (13.9)
Any medical condition*, %	47.2	77.2	73.7	79.1
Any mental health condition*, %	22.1	29.2	38.0	29.9
No. of VHA primary care visits in FY02, %				
None	50.4	17.7	16.2	15.7
1-2	25.6	46.5	42.1	47.5
3+	24.0	35.8	41.8	36.8

\*Identified in Fiscal Year 2002 (FY02) data.



# Research Example I:

Frayne, Yano, Nguyen, et al. *Med Care*. 2008;46:549-553.

## Results

**TABLE 2.** Health Status, Utilization, and Cost of Care in Fiscal Year 2002 for Non-Veteran Women Veterans Health Administration Users, by Eligibility Type

	CHAMPVA	TriCare	Employee	Collateral	Sharing	Others
N	15,156	10,452	106,006	19,769	25,210	7129
Age, years, mean (SD)	52.7 (9.1)	47.0 (14.2)	45.7 (12.8)	63.1 (13.5)	42.7 (15.9)	50.9 (19.1)
Health status						
Any medical condition, %	83.5	61.3	12.6	5.0	17.8	22.3
Any mental health condition, %	42.6	14.8	1.1	6.0	4.9	6.7
Utilization						
Outpatient visits, no., mean (SD)	15.62 (15.33)	7.70 (10.43)	3.37 (3.77)	2.28 (4.69)	4.14 (8.01)	3.47 (6.41)
Length of stay, days, mean (SD)	0.54 (4.91)	0.15 (1.57)	0.00 (0.15)	0.00 (0.13)	0.15 (2.24)	0.09 (2.40)
Cost						
Total outpatient, \$, mean (SD)	2357 (2874)	890 (1692)	183 (320)	210 (552)	530 (1,787)	517 (1101)
Total inpatient, \$, mean (SD)	785 (5528)	256 (3045)	4 (191)	7 (271)	230 (2,990)	119 (2564)

# Research Example II:

Walter, Lindquist, Nugent, et al. *Ann Int Med*. 2009;150:465-73

Annals of Internal Medicine

ARTICLE

## Impact of Age and Comorbidity on Colorectal Cancer Screening Among Older Veterans

Louise C. Walter, MD; Kara Lindquist, MS; Sean Nugent, BA; Tammy Schell, MS; Si J. Lee, MD, MAS; Michele A. Casati, BS; and Melissa R. Parin, PhD

**Background:** The Veterans Health Administration, the American Cancer Society, and the American Geriatrics Society recommend substantial cancer screening for older adults unless they are unlikely to live 5 years or have significant comorbidity that would preclude treatment.

**Objective:** To determine whether colorectal cancer screening is targeted to healthy older patients and is avoided in older patients with severe comorbidity who have life expectancies of 5 years or less.

**Design:** Cohort study.

**Setting:** Veterans Affairs (VA) medical centers in Minneapolis, Minnesota; Durham, North Carolina; Portland, Oregon; and West Los Angeles, California, with linked national VA and Medicare administrative claims.

**Patients:** 27 060 patients 70 years or older who had an outpatient visit at 1 of 4 VA medical centers in 2001 or 2002 and were due for screening.

**Measurements:** The main outcome was receipt of fecal occult blood testing (FOBT), colonoscopy, sigmoidoscopy, or barium enema in 2001 or 2002, on the basis of national VA and Medicare claims. Charlson-Deyn comorbidity scores at the start of 2001 were used to stratify patients into 3 groups: ranging from no comorbidity (score of 0) to severe comorbidity (score  $\geq 4$ ), and 5-year mortality was determined for each group.

**Results:** 46% of patients were screened from 2001 through 2002. Only 47% of patients with no comorbidity were screened despite having life expectancies greater than 5 years (5-year mortality, 15%). Although the incidence of screening decreased with age and worsening comorbidity, it was still 41% for patients with severe comorbidity who had life expectancies less than 5 years (5-year mortality, 20%). The number of VA outpatient visits predicted screening independent of comorbidity, such that patients with severe comorbidity and 4 or more visits had screening rates similar to or higher than those of healthier patients with fewer visits.

**Limitations:** Some tests may have been performed for non-screening reasons. The generalizability of findings to persons who do not use the VA system is uncertain.

**Conclusion:** Advancing age was inversely associated with colorectal cancer screening, whereas comorbidity was a weaker predictor. More attention to comorbidity is needed to better target screening to older patients with substantial life expectancies and avoid screening older patients with limited life expectancies.

**Primary Funding Source:** VA Health Services Research and Development.

*Ann Intern Med*. 2009;150:465-473.  
For author affiliations, see end of text.

www.annals.org

Colorectal cancer screening guidelines recommend screening older adults who have substantial life expectancies according to age and comorbid conditions (1). For example, the U.S. Preventive Services Task Force recommends routine screening until age 75 years, whereas the Veterans Health Administration, the American Cancer Society, and the American Geriatrics Society (2-5) recommend colorectal cancer screening for older adults unless they are unlikely to live 5 years or have significant comorbid conditions that would preclude treatment. Targeting screening to healthy persons who are likely to live at least 5 years is recommended because randomized trials of fecal occult blood testing (FOBT) suggest that a difference in colorectal cancer mortality between screened and unscreened persons does not become noticeable until at least 5 years after screening (6-8).<sup>1</sup> Therefore, persons with a life expectancy of 5 years or less are not likely to benefit from screening but remain at risk for harms that may occur immediately, such as complications from procedures and the treatment of clinically unimportant disease (9, 10). However, it remains unclear whether screening is being targeted to healthy older persons with substantial life expectancies and avoided in older persons with significant

comorbidity, for whom the risks of screening outweigh the benefits.

Previous studies of associations among age, comorbidity, and receipt of cancer screening have found that age is a stronger determinant of screening than comorbidity. For example, whereas advancing age is consistently associated with lower screening rates, worsening comorbidity has had little effect on the use of screening mammography, Papanicolaou smears, or prostate-specific antigen screening (11-13). Previous studies of the relationship between colorectal cancer screening and comorbidity have been limited by small sample size, short follow-up times, and focus on FOBT rather than all types of colorectal cancer screening

## ■ This HSR&D IIR studied how clinic utilization (and other predictor variables) affect overall colorectal screening use

See also:

**Print**  
Harris' Index ..... 466  
Summary for Patients ..... 1-42  
**Web-Only**  
Conversion of graphics into slides

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## Research Example II:

Walter, Lindquist, Nugent, et al. Ann Int Med. 2009;150:465-73

- **This study identified a cohort of the patients of four VA medical centers who were screen-eligible on 1/1/2001**
  - Age 70 or older
  - At least 1 outpatient visit at one of the 4 VA Medical Centers from 1/1/2001 to 12/31/2002
  - At least 1 VA healthcare system outpatient visit or 1 Medicare outpatient visit in CY2000 (to measure comorbidity)
  
- **27,068 screen-eligible patients identified**
  - 10,091 age 70-74
  - 10,234 age 75-79
  - 6,743 age  $\geq$  80



## Research Example II:

Walter, Lindquist, Nugent, et al. Ann Int Med. 2009;150:465-73

- **Data sources included OP MedicalSAS data, IP MedicalSAS data, Fee Basis Files, Medicare claims, Vital Status File**
- **Outcome measures**
  - Colorectal screening within 2 years
  - 5-year mortality





## Research Example II:

Walter, Lindquist, Nugent, et al. Ann Int Med. 2009;150:465-73

### Methods: Data Sources - Utilization

#### ■ Predictor variables included number of outpatient visits during the 2-year screening interval

- Gastroenterology clinic
- General surgery clinic
- General medicine
  - Primary care
  - Cardiology
  - Endocrinology
  - Diabetes
  - Hypertension
  - Pulmonary
  - Women's Clinic



## Research Example II:

Walter, Lindquist, Nugent, et al. *Ann Int Med.* 2009;150:465-73  
**Results**

### From Table 2: Two-Year Cumulative Colorectal Cancer Screening Incidence Among Persons 70 Years or Older, by Patient Characteristic

*Table 2—Continued*

Characteristic	Unadjusted Cumulative Incidence (95% CI), %*	Adjusted Cumulative Incidence (95% CI), %†
<b>Number of VA outpatient visits (primary care, GE, or surgery), 2001–2002§</b>		
0	23.7 (22.6–25.0)	23.1 (22.9–23.2)
1	45.5 (44.5–46.6)	44.1 (44.0–44.2)
3	52.5 (51.4–53.6)	52.3 (52.2–52.4)
≥4	55.1 (53.8–56.5)	57.5 (57.3–57.6)
<b>Type of VA outpatient visit, 2001–2002</b>		
Seen in primary care, GE, or surgery clinic	50.1 (50.0–50.3)	50.2 (50.2–50.3)
Never attended primary care, GE, or surgery clinic	23.7 (22.6–25.0)	23.1 (22.9–23.2)

# Session Objectives

- **How has outpatient healthcare utilization been measured in VA studies?**
- **Overview of Medical SAS Outpatient databases**
- **Finding information in the Outpatient Medical SAS databases**
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- **Where to go for more help**



# VIReC Help

## ■ VIReC Webpage

<http://www.virec.research.va.gov>

- Information on VA data sources and how to access data
- Documentation on some VA datasets, i.e., Medical SAS datasets:
  - <http://www.virec.research.va.gov/DataSourcesName/Medical-SAS-Datasets/SASdocumentation.htm>
  - <http://vaww.virec.research.va.gov/DataSourcesName/Medical-SAS-Datasets/MedSAS-Output-RUG/Refs/Refs-Output09.pdf>
  - Includes lists of variables and their dataset locations
    - Descriptions of each of the variables
    - Values for selected variables



# VIReC Help (cont'd)

## ■ HSRData Listserv

- Join at the VIReC Web site  
(requires valid “va.gov” email address)
- Discussion among research data users, data stewards, managers
- Past messages in archive

## ■ VIReC Help Desk

- VIReC staff will answer your question and/or direct you to available resources on topics
- [VIReC@va.gov](mailto:VIReC@va.gov)
- (708) 202-2413



# Data Access Information

## ■ Using Data at the Austin Information Technology Center

- <http://www.virec.research.va.gov/index.htm>
- <http://www.virec.research.va.gov/Support/Training-NewUsersToolkit/UsingDataAAC.htm>



# Selected Recent References on Measurement of VA Outpatient Use

- Chan, D., Cheadle, A. D., Reiber, G., Unutzer, J., Chaney, E. F. (2009). Health care utilization and its costs for depressed veterans with and without comorbid PTSD symptoms. *Psychiatric Services*, 60 (12), 1612-1617.
- Singh, J. A., Sloan, J. (2009). Higher comorbidity, poor functional status and higher health care utilization in veterans with prevalent total knee arthroplasty or total hip arthroplasty. *Clin Rheum*. 28, 1025-1033.
- Singh, J. A. (2009). Discordance between self-report of physician diagnosis and administrative diagnosis of arthritis and its predictors. *J of Rheum*. 36(9), 2000-2008.
- Homaifar, B. Y., Harwood, J. E., Wagner, T. H., Brenner, L.A. (2009) Description of outpatient utilization and costs in group of veterans with traumatic brain injury. *J of Rehab R&D*. 46(8), 1003-1010.
- Frayne, S. M., Yano, E. M., Nguyen, V. Q., Yu, W., Ananth, L., Chiu, V. Y., Phibbs, C.S. (2008). Gender disparities in Veterans Health Administration care: importance of accounting for veteran status. *Med Care*. 46, 549-553.
- Walter, L. C., Lindquist, K., Nugent, S., Schult, T., Lee, S. J., Casadei, M. A., Partin, M. R. (2009). Impact of age and comorbidity on colorectal cancer screening among older veterans. *Ann Intern Med*, 150, 465-473.
- Ragel, B. T., Taggard, D. A., Klimo, P., Jr., Liu, J. M., Robison, S., & Sholes, A. H. (2009). Increasing the neurosurgical caseload at a military hospital: initial experience with a joint military-Veterans Affairs (VA) sharing agreement. *Mil Med*, 174, 103-105.
- Kramer, B. J., Jouldjian, S., Washington, D. L., Harker, J. O., Saliba, D., & Yano, E. M. (2009). Health care for American Indian and Alaska Native women. *Womens Health Issues*, 19, 135-143.
- Safford, M. M., Brimacombe, M., Zhang, Q., Rajan, M., Xie, M., Thompson, W. et al. (2009). Patient complexity in quality comparisons for glycemic control: An observational study. *Implement.Sci*, 4, 2.
- Hope, O. A., Zeber, J. E., Kressin, N. R., Bokhour, B. G., Vancott, A. C., Cramer, J. A. et al. (2008). New-onset geriatric epilepsy care: Race, setting of diagnosis, and choice of antiepileptic drug. *Epilepsia*.

# Selected Recent References on Measurement of VA Outpatient Use

- Stuck, R. M., Sohn, M. W., Budiman-Mak, E., Lee, T. A., & Weiss, K. B. (2008). Charcot arthropathy risk elevation in the obese diabetic population. *Am J Med*, 121, 1008-1014.
- Mohamed, S. & Rosenheck, R. (2008). Pharmacotherapy for older veterans diagnosed with posttraumatic stress disorder in Veterans Administration. *Am J Geriatr Psychiatry*, 16, 804-812.
- Lee, T. A., Pickard, A. S., Au, D. H., Bartle, B., & Weiss, K. B. (2008). Risk for death associated with medications for recently diagnosed chronic obstructive pulmonary disease. *Ann Intern Med*, 149, 380-390.
- Kamalesh, M., Subramanian, U., Ariana, A., Eckert, G. J., & Sawada, S. (2008). Paradoxical lower postmyocardial infarction mortality among veteran women--does a sex bias exist in the Veterans Affairs medical system? *Can J Cardiol*, 24, 691-695.
- Kreyenbuhl, J., Dixon, L. B., McCarthy, J. F., Soliman, S., Ignacio, R. V., & Valenstein, M. (2008). Does Adherence to Medications for Type 2 Diabetes Differ Between Individuals With Vs Without Schizophrenia? *Schizophr.Bull.*
- Fontana, A. & Rosenheck, R. (2008). Treatment-seeking veterans of Iraq and Afghanistan: comparison with veterans of previous wars. *J Nerv Ment Dis*, 196, 513-521.
- Pugh, M. J., Van Cott, A. C., Cramer, J. A., Knoefel, J. E., Amuan, M. E., Tabares, J. et al. (2008). Trends in antiepileptic drug prescribing for older patients with new-onset epilepsy: 2000-2004. *Neurology*, 70, 2171-2178.
- Heisler, M., Hogan, M. M., Hofer, T. P., Schmittdiel, J. A., Pladevall, M., & Kerr, E. A. (2008). When more is not better: treatment intensification among hypertensive patients with poor medication adherence. *Circulation*, 117, 2884-2892.
- Carey, K., Montez-Rath, M. E., Rosen, A. K., Christiansen, C. L., Loveland, S., & Ettner, S. L. (2008). Use of VA and Medicare services by dually eligible veterans with psychiatric problems. *Health Serv Res*, 43, 1164-1183.



# Selected Recent References on Measurement of VA Outpatient Use (CONTINUED)

- Anger, J. T., Saigal, C. S., Wang, M., & Yano, E. M. (2008). Urologic disease burden in the United States: veteran users of Department of Veterans Affairs healthcare. *Urology*, *72*, 37-41.
- Abraham, N. S., Hartman, C., Castillo, D., Richardson, P., & Smalley, W. (2008). Effectiveness of national provider prescription of PPI gastroprotection among elderly NSAID users. *Am J Gastroenterol*, *103*, 323-332.
- Walbrow, M. A., Aspinall, S. L., Bayliss, N. K., Stone, R. A., Cunningham, F., Squier, C. L. et al. (2008). Evaluation of Clostridium difficile-associated diarrhea with a drug formulary change in preferred fluoroquinolones. *J Manag Care Pharm*, *14*, 34-40.
- Liu, C. F., Chapko, M. K., Perkins, M. W., Fortney, J., & Maciejewski, M. L. (2008). The impact of contract primary care on health care expenditures and quality of care. *Med Care Res Rev*, *65*, 300-314.
- Logan, W. C., Jr., Sloane, R., Lyles, K. W., Goldstein, B., & Hoenig, H. M. (2008). Incidence of fractures in a cohort of veterans with chronic multiple sclerosis or traumatic spinal cord injury. *Arch Phys Med Rehabil*, *89*, 237-243.
- Pugh, M. J., Rosen, A. K., Montez-Rath, M., Amuan, M. E., Fincke, B. G., Burk, M. et al. (2008). Potentially inappropriate prescribing for the elderly: effects of geriatric care at the patient and health care system level. *Med Care*, *46*, 167-173.
- Abrams, T. E., Vaughan-Sarrazin, M., & Rosenthal, G. E. (2008). Variations in the associations between psychiatric comorbidity and hospital mortality according to the method of identifying psychiatric diagnoses. *J Gen Intern Med*, *23*, 317-322.
- Tseng, C. L., Kern, E. F., Miller, D. R., Tiwari, A., Maney, M., Rajan, M. et al. (2008). Survival benefit of nephrologic care in patients with diabetes mellitus and chronic kidney disease. *Arch Intern Med*, *168*, 55-62.
- Singh, J. A. & Strand, V. (2008). Gout is associated with more comorbidities, poorer health-related quality of life and higher healthcare utilisation in US veterans. *Ann Rheum Dis*, *67*, 1310-1316.

# Selected Recent References on Measurement of VA Outpatient Use (CONTINUED)

- Frayne, S. M., Yu, W., Yano, E. M., Ananth, L., Iqbal, S., Thrailkill, A. et al. (2007). Gender and use of care: planning for tomorrow's Veterans Health Administration. *J Womens Health (Larchmt.)*, 16, 1188-1199.
- Smith, B. M., Evans, C. T., Kurichi, J. E., Weaver, F. M., Patel, N., & Burns, S. P. (2007). Acute respiratory tract infection visits of veterans with spinal cord injuries and disorders: rates, trends, and risk factors. *J Spinal Cord Med*, 30, 355-361.
- Bierman, A. S., Pugh, M. J., Dhalla, I., Amuan, M., Fincke, B. G., Rosen, A. et al. (2007). Sex differences in inappropriate prescribing among elderly veterans. *Am J Geriatr Pharmacother*, 5, 147-161.
- Subramanian, U., Eckert, G., Yeung, A., & Tierney, W. M. (2007). A single health status question had important prognostic value among outpatients with chronic heart failure. *J Clin Epidemiol*, 60, 803-811.
- Miller, D. R., Gardner, J. A., Hendricks, A. M., Zhang, Q., & Fincke, B. G. (2007). Health care resource utilization and expenditures associated with the use of insulin glargine. *Clin Ther*, 29, 478-487.
- Orlando, L. A., Owen, W. F., & Matchar, D. B. (2007). Relationship between nephrologist care and progression of chronic kidney disease. *N C. Med J*, 68, 9-16.
- Wolinsky, F. D., An, H., Liu, L., Miller, T. R., & Rosenthal, G. E. (2007). Exploring the association of dual use of the VHA and Medicare with mortality: separating the contributions of inpatient and outpatient services. *BMC Health Serv Res*, 7, 70.
- Giordano, T. P., Henderson, L., Landgren, O., Chiao, E. Y., Kramer, J. R., El-Serag, H. et al. (2007). Risk of non-Hodgkin lymphoma and lymphoproliferative precursor diseases in US veterans with hepatitis C virus. *JAMA*, 297, 2010-2017.
- Maciejewski, M. L., Perkins, M., Li, Y. F., Chapko, M., Fortney, J. C., & Liu, C. F. (2007). Utilization and expenditures of veterans obtaining primary care in community clinics and VA medical centers: an observational cohort study. *BMC Health Serv Res*, 7, 56.

# Selected Recent References on Measurement of VA Outpatient Use (CONTINUED)

- Berlowitz, D. R. & Pugh, M. J. (2007). Pharmacoepidemiology in community-dwelling elderly taking antiepileptic drugs. *Int Rev Neurobiol.*, 81, 153-163.
- Hynes, D. M., Koelling, K., Stroupe, K., Arnold, N., Mallin, K., Sohn, M. W. et al. (2007). Veterans' access to and use of Medicare and Veterans Affairs health care. *Med Care*, 45, 214-223.

Questions?

