

**2011
VIReC
Database and Methods
Cyber Seminar Series**



2011 VIREC Database and Methods Cyber Seminar Series

Measuring Veterans Health Services Use in VA and Medicare (Part 1)

December 5, 2011

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Session Objectives

- **Overview of the Medicare Claims datasets**
- **Locating information on Inpatient and Outpatient services**
- **Measurement strategies for evaluating Medicare healthcare use**
- **Examples of VA studies that have used the Medicare Claims datasets to evaluate healthcare use**
- **Where to go for more help**

Audience Poll

(Heidi convert to poll function)

- **Have you ever used any of the Medicare claims datasets**
 - Yes
 - No
- **How would you rate your overall knowledge of the Medicare claims datasets?**
 - 1 (No knowledge)
 - 2
 - 3
 - 4
 - 5 (Expert-level knowledge)

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Why are Medicare Claims important?

- **Many Veterans who use VA health care also obtain care outside VA**
- **Researchers need full picture of health care use to draw accurate conclusions**
- **Almost half of Veterans enrolled in VHA are also enrolled in Medicare**

Overview of Medicare Claims

- **Healthcare providers and health equipment suppliers submit claims to the Centers for Medicare and Medicaid Services (CMS) for reimbursement for services and products**
- **Claims are collected by CMS and entered into datasets for analysis based on:**
 - Type of billing form used to gather the original information
 - Type of provider

Sources of Medicare Claims Data

Billing Form	CMS 1450/ UB-04	CMS 1500
Provider type	Institutional	Non-institutional
Examples of Providers	Hospitals Skilled Nursing Facilities Home Health Agencies Hospice	Physicians Suppliers

Medicare Claims Files

■ Institutional Files

- Outpatient
- Home Health Agency (HHA)
- Hospice
- Inpatient
- Skilled Nursing Facility (SNF)

■ Non-institutional Files

- Carrier (Physician/Supplier)
- Durable Medical Equipment (DME)

■ Institutional Stay Level File

- Medicare Provider Analysis and Review (MedPAR)

Our focus today

■ Institutional Files

- Outpatient
- Home Health Agency (HHA)
- Hospice
- Inpatient
- Skilled Nursing Facility (SNF)

■ Non-institutional Files

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■ Institutional Stay Level File

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Examples: Claims to Care Relationship

- **A single claim may include**

- One service, product or procedure such as
 - A physician office visit
- More than one service, product or procedure such as
 - An inpatient hospital stay

- **Multiple claims may be submitted for**

- A long inpatient stay
- A procedure that involved multiple physicians

Benefits of Medicare Claims Data

- Medicare data can be linked with VA data using Real or Scrambled Social Security Numbers (SSNs)
- Data directly related to billing is likely to be accurate
 - Claim “from” and “thru” dates
 - Charge and payment amounts
 - Diagnosis codes
 - Procedure codes
 - Provider numbers



Limitations of Medicare Claims Data

■ No/Limited data on:

- Data not needed for billing
 - Demographics (Marital Status, Education, Income)
 - Clinical Data (Lab Results, Vital Signs, Symptoms)
- Services that are not itemized
 - Prospective Payment System (PPS)
 - Managed Care (HMOs)



Data Access

- **Eligibility:** Medicare and other CMS data are available to VA researchers with VA Research & Development (R&D) Committee and Institutional Review Board (IRB) approved projects.
- **Data Steward: VIREC's VA/CMS Data for Research project**
 - All use of CMS data for VA research must be approved by VIREC.
- **Data Availability:**
<http://www.virec.research.va.gov/DataSourcesName/VA-CMS/VACMSavail-doc.htm>
- **Request Process:**
<http://www.virec.research.va.gov/DataSourcesName/VA-CMS/VACMSrequest-process.htm>



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Identifying Outpatient Services

- **Outpatient services may be provided:**

Setting	Billing form	File
Within institutions	CMS1450/ UB-04	Outpatient File
Within non-institutional settings	CMS 1500	Carrier File

- **Use both Outpatient and Carrier files for outpatient procedures and services**

Outpatient File

- **Includes services provided by institutional facilities, such as:**
 - Hospitals (~80%)
 - Dialysis facilities
 - Rural health clinics
- **Types of services:**
 - Laboratory
 - Radiology
 - Physical therapy
 - Dialysis
 - Emergency room

Carrier File

- **Primarily includes physician services**
- **Also includes ambulance services**
- **Types of services:**
 - Office visits
 - Laboratory
 - Minor procedures
 - Emergency room
 - Hospital & nursing home visits

Identifying Inpatient Services

- **Inpatient services are billed by the facility (and often physicians too)**

Service	Billing form	File
Facility <ul style="list-style-type: none">•Room charges•Staff (employed by facility)	CMS 1450/ UB-04	Inpatient or MedPAR File
Physician visits (not employed by the hospital)	CMS 1500	Carrier File

- **Use both Inpatient/MedPAR and Carrier files for all inpatient services**

Inpatient File

- Includes hospital facility charges
- During long hospital stays, one claim may not be the same as one stay

Stay	Claim	
Admit: December 15 Discharge: January 15	Claim 1	From: Dec 15 Thru: Dec 31
	Claim 2	From: January 1 Thru: January 15

- Combine claims into stays to avoid over-counting stays

MedPAR File

- Claims are “rolled up” to the stay level
- Contains stays in both inpatient hospitals and skilled nursing facilities (SNF)

MedPAR vs Inpatient Files for Studying Inpatient Stays

- **The MedPAR file is advantageous when studying:**
 - Number of stays
 - Days per stay
 - Cost per stay
 - Total costs
- **Disadvantages:**
 - Sub-category totals for charges not included
 - Includes only the diagnosis & procedure codes found on the last claim of the stay

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Measuring Medicare Healthcare Use

- **Metrics used to study healthcare use include:**
 - Claims
 - Costs
 - Stays
 - Procedures
 - Dates



Claims

- **Using claims to measure healthcare use:**
 - The fact that a claim has been submitted
 - The number of claims that have been submitted
- **Benefits of measuring use with claims**
 - Easy to categorize claims by types of care



Cost

■ Using cost to measure healthcare use:

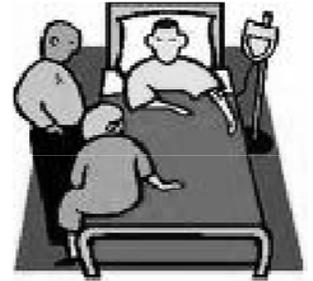
- Charges submitted to Medicare
- Payments made by
 - Medicare
 - By beneficiaries (deductibles & co-payments)
 - By primary payers (other insurance)



Stays

- **Stay data used to measure healthcare use:**

- The fact that there is a hospital stay
- Length of the stay
- Number of stays
- Time between stays



- **Which dataset should I use to look at stays?**

- MedPAR
- Inpatient (claims must be combined)

Procedures

- **ICD-9 Procedure/Surgery codes**

- Inpatient file
- Outpatient file
- Skilled Nursing Facility File



- **HCPCCS - Healthcare Common Procedure Coding System**

- CPT procedure codes + CMS developed codes
- Identifies: procedures, supplies, products and services
- Most useful in Carrier and Outpatient files

Procedures

- **Procedure data elements used to measure healthcare use:**
 - The fact that a procedure was done, e.g., as an indicator of a disease or disorder
 - The number of occurrences of a procedure, e.g., as an indicator of prevalence or level of care provided

Dates

- **Data elements containing dates used to measure healthcare use - examples:**
 - Dates of service
 - Admission and Discharge dates
 - Claim or billing dates
- **How are dates used to measure healthcare use? Examples:**
 - Time between diagnosis and treatment
 - Frequency with which care is provided



Dates

- **Benefits of using dates**

- Easy to calculate

- **Disadvantages of Using Dates**

- Different meanings in VA vs. Medicare
 - VA – often multiple “events” in one day
 - Medicare – often different days for each “event”
- Claim “from” and “thru” dates are not always the same as admission and discharge dates or dates of service

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Measuring Medicare Healthcare Use: Examples from Three Research Studies

- **Measuring outpatient utilization using claims**
 - Liu C-F et al. Use of outpatient care in Veterans Health Administration and Medicare among Veterans receiving primary care in community-based and hospital outpatient clinics. *Health Services Research*. 2010;45(5 Pt 1):1268-86
- **Measuring outpatient utilization using cost**
 - Hynes D, et al. Veterans' access to and use of Medicare and VA health care. *Medical Care*. 2007;45(3):214-23
- **Measuring healthcare utilization using procedures**
 - Halanych JH et al. Racial/ethnic differences in diabetes care for older Veterans: Accounting for dual health system use changes conclusions. *Medical Care*. 2006;44(5):439-45

Measuring outpatient utilization using claims

Liu C-F et al, *Health Services Research*, 2010

■ Goal

- To examine differences in use of VA and Medicare outpatient services by VA primary care patients from VA community-based vs. VA hospital-based primary care clinics

■ Cohort

- From VA community clinics and affiliated VA hospitals included in a previous study, 15,520 primary care users in 2000 who were also enrolled in Medicare Fee for Service

Measuring outpatient utilization using claims

Liu C-F et al, *Health Services Research*, 2010

■ Methods

- Data sources: Medicare claims data, VA administrative data, and US census data
- Comparison between VA and Medicare: Algorithm based on provider specialty and CPT codes present in both systems
- Dependent variable: Number of outpatient visits assigned to primary care, specialty care, and mental health over 4 consecutive years
- Independent variable: Primary care received from VA community vs. hospital-based clinic

Measuring outpatient utilization using claims

Liu C-F et al, *Health Services Research*, 2010

■ Selected Results

- Use of Medicare-reimbursed care (% of entire cohort): primary care >30%; specialty care >60%; mental health care 3-4%
- Community-based VA primary care patients demonstrated decreased VA use and increased Medicare use compared to hospital-based VA primary care patients

Measuring outpatient utilization using cost

Hynes et al, *Medical Care*, 2007

■ Goals

- To measure VA and Medicare reliance among dually eligible Veterans

■ Cohort

- 2.6 million Veterans in VHA cohort enrolled in Medicare Fee-for-Service in 1999

Measuring outpatient utilization using cost

Hynes et al, *Medical Care*, 2007

■ Methods – Measuring Outpatient Cost

- Claims files: Outpatient, Carrier, Home Health
- Calculated percent reliance on VA health care as a percentage of total VA and Medicare costs
- Outpatient categories were defined based on proportion of costs attributable to VA and Medicare:
 - Medicare-only users (100% Medicare)
 - Mostly Medicare users (75-99% Medicare)
 - Equally dual users (26-76% Medicare)
 - Mostly VA users (1-25% Medicare)
 - VA-only users (0% Medicare)

Measuring outpatient utilization using cost

Hynes et al, *Medical Care*, 2007

Adjusted Odds Ratios of Using VA or Medicare Outpatient Services

	VA Only, Mostly VA, Equally Dual, and Mostly Medicare vs. Medicare Only	VA Only, Mostly VA, and Equally Dual, vs. Mostly Medicare and Medicare Only	VA Only and Mostly VA vs. Equally Dual, Mostly Medicare, and Medicare Only	VA Only vs. Mostly VA, Equally Dual, Mostly Medicare, and Medicare Only
Age				
66-74	Ref	Ref	Ref	Ref
75-84	0.71	0.70	0.67	0.64
85+	0.40	0.49	0.50	0.50
Race				
Nonblack	Ref	Ref	Ref	Ref
Black	1.85	2.09	2.22	2.32
Distance to Nearest VA Hospital				
0-4.9 miles	Ref	Ref	Ref	Ref
5-9.9 miles	0.73	0.73	0.73	0.73
10-19.9 miles	0.62	0.59	0.57	0.59
20-39.9 miles	0.61	0.54	0.48	0.47
40+ miles	0.54	0.44	0.34	0.30

Measuring Procedures

Halanych et al, *Medical Care*, 2006

■ Goal

- Compare racial/ethnic disparities in quality of care for VHA patients with diabetes

■ Cohort

- National sample of non-institutionalized VHA patients, 65 years and over, with diabetes
- Diabetes determined from VHA prescription and ICD-9 codes and from Medicare ICD-9 diagnostic codes for FY 1997-1998

Measuring Procedures

Halanych et al, Medical Care, 2006

■ Methods

- Race/ethnicity obtained from both VHA and Medicare data
- Claims files – Inpatient, Outpatient, Carrier
- Care measurements
 - VHA data-- Laboratory result files and CPT codes used
 - Medicare data – CPT/HCPCS codes used (outpatient, carrier)
 - ICD-9 procedure codes (inpatient)
- Three quality of care measures used
 - Annual hemoglobin A1c (HbA1c) test
 - Annual Low Density Lipoprotein (LDL) test
 - Annual Dilated eye examination

Measuring Procedures

Halanych et al, Medical Care, 2006

■ Results

- VHA only data - Rates of receiving three procedures were equal to or higher for Blacks and Hispanics than for White patients (except LDL testing in Black patients)
- VHA + Medicare data – Results were reversed. Rates of receiving procedures were lower in Blacks and Hispanics compared to Whites
- More care captured in Medicare for Whites as compared to Blacks and Hispanics

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VIREC Help

■ VIREC Webpage

- Information on VA data sources and how to access data
- <http://www.virec.research.va.gov>

■ VIREC Help Desk

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

■ HSRData Listserv

- Join at the VIREC Web site
- Discussion among >400 data stewards, managers, and users
- Past messages in archive (on intranet)



VIReC's VA/CMS Web Page

- Complete list and description of files available
- Links to Medicare Files Data dictionaries
- SAS Proc Contents
- Frequencies for Medicare variables
- <http://www.virec.research.va.gov/DataSourcesName/VA-CMS/VACMSavail-doc.htm>

Research Data Assistance Center (ResDAC)

- **CMS contractor based at the University of Minnesota**
- **Provides free assistance to**
 - Researchers
 - Government agencies
 - Not-for-profit organizations
- **Workshops on using Medicare and Medicaid data**
- **www.resdac.org**

CMS and Medicare Websites

- **CMS Home Page**
 - www.cms.gov
- **CMS Research, Statistics, and Data Systems**
 - www.cms.gov/home/rsds.asp
- **For Medicare beneficiaries**
 - www.medicare.gov



Questions?



Requesting VA/CMS data from VIREC

The following documents are required:

- VA/CMS Data for Research Request Forms
 - Project Information and Authorization
 - Data Security Compliance Checklist
 - Data Description
 - Agreement to Provide Secure Data Storage at Termination of Approved Research
 - Rules of Behavior (ROB) Agreement
- Initial Research and Development (R & D) Committee approval letter
- Initial Institutional Review Board (IRB) approval letter
- Most recent continuing review approval letter



Upcoming Seminars

■ February 6, 2012

- Measuring Veterans Health Services Use in VA and Medicare (Part 2)
- Denise M. Hynes, PhD, MPH, RN