



Database & Methods Cyberseminar Series

Measuring Veterans' Medicare Health Services Use

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VA Information Resource Center



Database & Methods Cyberseminar Series

Informational seminars to help VA researchers access and use VA databases.

Topics

- VA data sources & data access systems
- Application of 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	Measuring & Assessing Utilization
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

Visit our Education page for more information & registration links.

www.virec.research.va.gov



Database & Methods Cyberseminar Series

Session #4: Measuring Veterans' Medicare Health Services Use

Why is it important to know about Medicare when studying Veterans?

- Researchers need knowledge of health care use to draw accurate conclusions
- Many Veterans who use VA health care also obtain care outside VA
- Almost all Veterans 65+ are enrolled in (and many use) both VA and Medicare

Poll #1: Your experience with Medicare Data

Have you ever used Medicare data for a VA project?

- Yes
- No



Poll #2: Your knowledge of Medicare Data

How would you rate your overall knowledge of Medicare data?

- 1 (No knowledge)
- 2
- 3
- 4
- 5 (Expert-level knowledge)

The purpose of this cyberseminar is to

*demonstrate how researchers can obtain
information on Veterans' healthcare use
received through Medicare*

Session roadmap

- Medicare 101
- Types of Medicare Data
 - Enrollment
 - Claims
 - Annual Summary
 - Utilization in Managed Care
- Using Medicare Data in Research
- Research Examples
- Data Access and Assistance

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Eligibility

- Who is eligible for Medicare?
 - Almost everyone over age 65
 - Some disabled individuals
 - Patients with End Stage Renal Disease
- Eligibility not dependent
 - Income
 - Other health insurance
 - VHA coverage

Medicare Parts A & B

- Part A: Hospital Insurance
 - Usually no premium
- Part B: Medical Insurance
 - Monthly premium required
 - 8% of veterans enrolled in Part A aren't enrolled in Part B

Ways to receive Part A & B coverage

- Fee for Service (FFS)
 - aka Original Medicare
 - Administered by Centers for Medicare and Medicaid Services (CMS)
- Managed Care Plans
 - aka Medicare Advantage, Part C, HMOs
 - Many different types of plans
 - Administered by insurance companies under contracts with CMS
- In 2014, 25% of veterans in Medicare were enrolled in a managed care plan

Part D

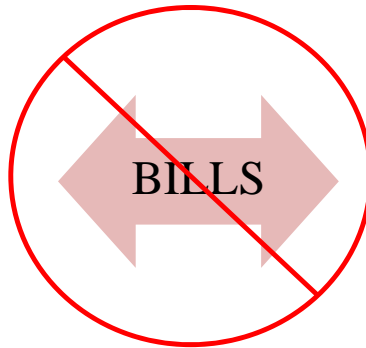
- Part D: Prescription Drug Plans
 - New in 2006
 - Administered by insurance companies under contracts with CMS
 - Premiums often required
- Enrollment in 2014
 - 46% of Veterans
 - 70% of non-Veterans

Who pays?

VA Medical Center



VA pays



Community Hospital



Medicare pays

The VA does NOT bill Medicare for services provided at a VA facility.

Except in special situations, community providers can NOT bill the VA for services provided

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Enrollment Data

- Data related to administration of Medicare program
- Data elements likely to be accurate and complete:
 - Social Security Number
 - Date of birth, date of death, address
 - Dates of enrollment/disenrollment: Parts A, B, D
 - Managed care dates and contract number
 - Ineligibility due to incarceration
 - Medicaid payment of premiums (State buy-in)
 - Other insurance - primary to Medicare

Limitations of Medicare Enrollment Data

No/Limited data on:

- Some demographics (Marital Status, Income)
- Other insurance – secondary to Medicare (Medigap plans, other supplemental insurance)
- Details about managed care plans benefits

Managed Care

- Medicare claims (utilization data) contain no/limited data on care provided to managed care enrollees
- Most research project exclude managed care enrollees
- HEDIS data – summary utilization

Enrollment & Demographic File

- One record per person, per calendar year
- Monthly indicators for
 - Parts A, B, D
 - Managed care
 - Medicaid premium payment (state buy-in)
- Actual name varies by year
 - Denominator (1997-2008)
 - Beneficiary Summary (2009-10)
 - Master Beneficiary Summary File: Base (2011-14)

EDB Extracts

- Extracts of Medicare's Enrollment Database (EDB)
- Cumulative files; updated annually
 - Vital Status
 - Entitlement/Enrollment History
 - Group Health Organization
 - Incarceration History
 - Primary Payer

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How the data get from “Bedside to Bench”

A Medicare FFS beneficiary obtains healthcare outside the VA

The provider submits claims (i.e. bills) to the Centers for Medicare and Medicaid Services (CMS) for reimbursement

Claims are processed. CMS stores info in databases and creates analytic datasets for researchers

Bills & Providers

- Two types of bills are used to submit claims
- Type of bill used is determined by type of provider

Types of Providers	Examples	Bill	Medicare Coverage
Institutional	Hospitals Skilled Nursing Facilities Home Health Agencies Hospices	CMS 1450/ UB-04	Part A or Part B
Non-institutional	Physicians, Clinical Labs, Ambulance, Suppliers	CMS 1500	Part B

Medicare Claims Files

- Institutional Files
 - Inpatient
 - Skilled Nursing Facility (SNF)
 - Hospice
 - Home Health Agency (HHA)
 - Outpatient
- Institutional Stay Level File
 - Medicare Provider Analysis and Review (MedPAR)
- Non-institutional Files
 - Carrier (Physician/Supplier)
 - Durable Medical Equipment (DME)
- Part D Files

Inpatient File

- Includes services provided by short and long-term hospitals
 - 90% short-term (acute) hospitals
 - Rehab, psych, other long-term hospitals
- Includes facility charges and payments
- A stay may involve one or multiple claims

Example: Single stay with multiple claims

Stay	Claims	
Admit: July 10 Discharge: August 8	Claim 1	From July 10 Thru July 31
	Claim 2	From August 1 Thru August 8

Skilled Nursing Facility (SNF) File

- Includes services provided by a skilled nursing facility
 - Skilled nursing and rehabilitation care
 - Does not include custodial care
- Includes facility charges and payments
- A stay often involves multiple claims

MedPAR File

- Created from Inpatient and SNF claims
- Claims are “rolled up” to the stay level
 - Eliminates need for researchers to do this manually
- Variables
 - Many stay-level summary variables
 - Doesn't have all variables from IP/SNF files
 - Only diagnosis and procedures codes from last IP/SNF claim

Hospice & Home Health Agency Files

- Hospice
 - Includes services provided by hospice agencies for end-of-life care
 - Care at home (80-90%) or as inpatient
- Home Health Agency
 - Includes services provided by home health agencies:
 - Skilled nursing
 - Physical/occupational/speech therapy
 - Home health aide

Outpatient File

- Includes services provided by institutional facilities (mostly hospitals)
 - Laboratory
 - Radiology
 - Physical therapy
 - Dialysis
 - Emergency room
- Includes facility charges and payments

Carrier File

- Previously known as Physician/Supplier File
- Includes:
 - Physician services
 - Outpatient setting: Office visits, procedures
 - Inpatient settings: Consultations, services in hospitals & nursing facilities
 - Emergency room
 - Ambulance providers
 - Clinical laboratories

Durable Medical Equipment File

Includes:

- Wheelchairs and hospital beds
- Prosthetics and orthotics
- Oxygen equipment and supplies
- Diabetic testing supplies
- Drugs (limited coverage) provided in outpatient setting

Part D “Claims”

- Part D is administered by insurance companies
- Claims for drugs paid by insurance companies, not CMS
- Insurance companies submit data to CMS on all prescription fills

Part D Data for Research Use

- Prescription Drug Event (PDE), can be linked to characteristics of the:
 - Drug
 - Pharmacy
 - Prescriber
 - Plan
- Slim File is subset of PDE data, includes
 - Drug Characteristics

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What are the Annual Summary Files?

- Variables created by CMS, based on the FFS claims
- One record per person, per calendar year
- Two types of summary data
 1. Cost and Use
 - Medicare and Beneficiary payments
 - Number of “events”
 2. Chronic Conditions
 - Uses standard definitions for chronic conditions
 - Disease flags & diagnosis date

Examples of Cost and Use Variables

- Costs

- Medicare payments for dialysis
- Beneficiary payments for acute inpatient

- Use

- Inpatient Stays
- Skilled Nursing Facility Days
- Emergency Room Visits
- Part D Fills

Examples of Chronic Conditions Variables

- First occurrence of chronic kidney disease
- Alzheimer's disease mid-year flag
- Bipolar disorder end-of-year flag

Where to find annual summary data?

Types of variables	1999-2010	2011- forward
Cost and Use	Beneficiary Annual Summary File (BASF)	MBSF: Cost and Use
Chronic Condition (common in Medicare population)		MBSF: Chronic Conditions
Disabilities & Other Chronic Conditions (common in Medicare- Medicaid dually enrolled population)	N/A	MBSF: Other Chronic or Potentially Disabling Conditions

MBSF = Master Beneficiary Summary File

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HEDIS

- Healthcare Effectiveness Data and Information Set
- Tool used by health plans to measure quality of care
- Can be used to approximate amount and types of utilization
 - One record per person, per plan, per calendar year

Examples of HEDIS Measures

- Preventive care
- Medication management
- Comprehensive Diabetes Care
- Surgeries & major procedures
- Hospitalizations
- Antibiotic use

Limitations of HEDIS data

- No data on:
 - Dates
 - Diagnosis or procedure codes
 - Provider
- Quality of data? ¹

¹ Landon BE, et al. Analysis of Medicare Advantage HMOs Compared with Traditional Medicare Shows Lower Use of Many Services during 2003-09. *Health Affairs*. 2012; 31: 2609-17.

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Using Medicare Claims

Common techniques for using Medicare data in research:

1. Procedures
2. Diagnoses
3. Costs
4. Inpatient Stays
5. Outpatient Visits



Procedures

Two types of procedure codes in Medicare claims data

1. ICD-9 & ICD-10 procedure/surgery codes
 - MedPAR and Inpatient files

2. Healthcare Common Procedure Coding System (HCPCS)
 - CPT procedure codes + CMS developed codes
 - CMS developed codes are alpha-numeric
 - Outpatient, HHA, Carrier, DME files

Diagnoses

- Medicare claims data contain ICD-9/ICD-10 diagnosis codes
 - No diagnosis codes in Part D data
- Inpatient/MedPAR claims include Diagnostic Related Group (DRG)

Using Procedures & Diagnoses in Research

- Inclusion or exclusion criteria
- Outcome measure
- Risk adjustment
 - Comorbidity index

Costs

- Charges submitted to Medicare
- Payments made to providers by
 - Medicare
 - Beneficiaries (deductibles & co-payments)
 - Primary payers
- Claims do not include payments made by secondary payers



Inpatient/Skilled Nursing Stays

- Common measures:
 - Number of stays
 - Length of stay
 - Readmissions
 - Facility, type of facility
 - Within the stay:
 - Procedures
 - Diagnoses
 - Costs

Identifying Inpatient/SNF Stays

Inpatient/Skilled Nursing care are provided by institutional providers.

(And often non-institutional providers too)

Types of Providers	Examples	Dataset
Institutional	Hospitals/SNF	Inpatient/SNF or MedPAR files
Non-institutional	Physicians	Carrier file

What File(s) Should I use when Studying Inpatient/SNF Stays?

Choose **MedPAR** when studying:

- Number of stays
- Length of stay
- Total payments

Choose **Inpatient or SNF** when studying:

- Detailed charges
- All diagnosis & procedure codes

Add **Carrier** when studying:

- Consults
- All procedures

Inpatient Stays: VA vs. Medicare

VA Facility

- Acute care
- Rehab

1 stay



Medicare

- Acute care facility
- Rehab care facility

2 stays



Outpatient Visits

Common Measures

- Dates
- Place of service
- Provider (type, specialty, location)
- Within the visit:
 - Procedures
 - Diagnoses
 - Costs

Identifying Outpatient Services

Outpatient services may be provided by both institutional and non-institutional providers.

Types of Providers	Examples	Dataset
Institutional	Hospitals	Outpatient File
Non-institutional	Physicians	Carrier File

What File(s) Should I use when Studying Outpatient Events?

- In most cases, use both Outpatient and Carrier
- Some events will have claims in both files
 - Emergency room
- Add HHA when studying services that could be provided at home
 - Physical/occupational/speech therapy

Outpatient Visits: VA vs. Medicare

VA (same day)

- Primary care
- Specialist
- Therapy

**1 visit, 3 events
1 day of care**



Medicare

- Primary care
- Specialist
- Therapy

**3 visits/claims
1, 2, or 3 days of care**



Are annual summary files right for me?

Pros

- Easy to work with, small files
- Beneficial if you have limited resources

Cons

- Summarized by calendar year, not fiscal year
- Doesn't itemize all types of events/conditions
- Uses CMS's definitions

Annual summary files: Examples

- Cost and Use
 - How many people in my cohort used Medicare?
 - How many people were hospitalized?
 - Total Medicare payments for dialysis?
- Chronic Conditions
 - Who in my cohort has been diagnosed with lung cancer?
 - How can we exclude all patients who were diagnosed with diabetes prior to 2010?

What can't be measured using Medicare claims data?

- No data on:
 - Clinical data (Lab Results, Vital Signs, Symptoms)
 - Services not billed
- Limited/incomplete data on:
 - Services of managed care enrollees
 - Details on services billed through prospective payment system

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Example 1

Thorpe J, et al. Dual Health Care System Use and High-Risk Prescribing in Patients with Dementia. *Ann Intern Med*. 2016 Dec 6. Epub.

Overview (Thorpe, 2016)

Objective

To investigate the association between dual health care use (VA and Medicare) and prescribing of potentially unsafe medication (PUM)

Cohort

- VA users with Alzheimer's disease or dementia
- Enrolled in Medicare A & B, FFS continuously 2007-2010
- Age 68+ on 1/1/10
- In 2010, at least
 - 1 VA outpatient encounter
 - 1 Rx through VA or Medicare Part D
- Excluded patients in hospital or nursing home 31+ days
- N=75,829

Methods (Thorpe, 2016)

Data Sources

- VA Medical SAS files & PBM
- Medicare enrollment, summary data, MedPAR, Outpatient, Carrier, Part D

Used VA and Medicare data to

- Exclude Medicare Advantage patients
- Identify patients with dementia (MBSF Chronic Conditions file)
- Identify co-morbid conditions
- Identify medications that may be potentially unsafe
- Define 2 groups based on Rx use (VA only or VA + Part D)

Selected Results (Thorpe, 2016)

Unadjusted results	VA & Part D Rx use	Only VA Rx use	Difference
Exposure to any PUM	59.0%	39.1%	19.8%
Mean exposure days	159.0	114.3	44.8

VA-Part D Use vs. VA-Only Use	Unadjusted	Adjusted
Difference (% Exposure)	19.8%	19.1%*
Difference (Mean Days)	44.8	44.1*
Odds Ratio	2.2	2.2*

* p<0.05

Example 2

Axon N, et al. Dual health care system use is associated with higher rates of hospitalization and hospital readmission among veterans with heart failure. *Am Heart J*. 2016 Apr; 174: 157-163.

Overview (Axon, 2016)

Goal

To determine rates of emergency department (ED) visits, hospitalizations, and hospital readmissions among heart failure (HF) patients

Cohort

- Veterans who received primary care at a VA Medical Center in South Carolina 2007-2011
- ED visit or hospitalization for HF in VA or non-VA facility
- N=13,977

Methods (Axon, 2016)

Data Sources

- VA Corporate Data Warehouse
- Medicare inpatient, outpatient, carrier files

Used VA and Medicare data to identify

- Heart failure diagnosis
- ED visits and hospitalizations in VA, Medicare, or both

Selected Results (Axon, 2016)

Adjusted rate ratios	Only VA users N=2,242	Only non-VA users N=8,825	Dual users N=2910
All diagnoses			
ED visits	Reference	0.62*	1.18*
Hospitalizations		0.98	1.93*
30-day readmission (all)		0.87*	1.82*
HF as primary diagnosis			
ED visits	Reference	0.60*	1.15*
Hospitalizations		0.61*	1.40*
30-day readmission (all)		0.51*	1.46*
30-day readmission (HF)		0.51*	1.46*

* p<0.05

Additional Research Examples

- Fractures (identified using diagnosis codes)
 - Colon-Emeric C, et al. Correlation of hip fracture with other fracture types: toward a rational composite hip fracture endpoint. *Bone*. 2015 Dec;81:67-71.
- Incident dementia (identified using diagnosis codes)
 - Orkaby A, et al. Continued use of warfarin in veterans with atrial fibrillation after dementia diagnosis. *J Am Geriatr Soc*. Epub 2016 Dec.
- Imaging (identified using procedure codes)
 - Makarov, et al. Appropriateness of prostate cancer imaging among veterans in a delivery system without incentives for overutilization. *Health Serv Res*. 2016 Jun;51(3):1021-51.
- Hospice
 - Mor V, et al. The rise of concurrent care for veterans with advanced cancer at the end of life. *Cancer*. 2016 Mar;122(5):782-90.

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VA/CMS DATA FOR RESEARCH

- VIREC is data steward for CMS (Medicare) data used for VA research
- Projects must be approved by:
 - VA Research & Development (R&D) Committee
 - Institutional Review Board (IRB)
- Data available for VA researchers at no cost
- VA employees may not obtain CMS data directly from CMS/ResDAC

VIReC Resources on CMS data

- Website (VA intranet only)
 - vaww.virec.research.va.gov/Index-VACMS.htm
- Data Descriptions and Documentation
- Request Process and Forms
- Pre-Request Consultation

Other VIREC Resources

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

(708) 202-2413



- Part of Office of the Assistant Deputy Under Secretary for Health for Policy and Planning
- Data steward for CMS (Medicare) data used for VHA operations
 - VHA Program Offices
 - Quality Improvement/Quality Assurance
- Website (VA intranet only)
 - vaww.va.gov/medicareanalysis/



- CMS contractor based at the University of Minnesota
- Provides free assistance and training to researchers using CMS data
 - Help desk
 - Knowledge base
 - Webinars
 - In-person workshops
- www.resdac.org

Chronic Conditions Data Warehouse

Your source for national CMS Medicare and Medicaid research data

- Source of most CMS data that VA receives
- Documentation
 - Data dictionaries
 - Summary tables
 - User guides & technical guides
 - White papers & presentations
- www.ccwdata.org

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.hsrdr.research.va.gov/for_researchers/cyber_seminars/archives/video_archive.cfm?SessionID=101

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**Next session:
February 6, 2017**



Database & Methods Cyberseminar Series

Measuring & Assessing Utilization

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