Measuring Veterans' Medicare Health Services Use

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Presented by:

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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

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Audience Poll

- Have you ever used Medicare data for a VA project?
  - Yes
  - No
- How would you rate your overall knowledge of Medicare data?
  - 1 (No knowledge)
  - 2
  - 3
  - 4
  - 5 (Expert-level knowledge)

Topics for Today

1. Medicare 101
2. Types of Medicare Data
   a. Enrollment
   b. Claims
   c. Summary
   d. Utilization in Managed Care
3. Using Medicare Data in Research
4. Research Examples
5. 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 2013, 24% of veterans in Medicare were enrolled in a managed care plan

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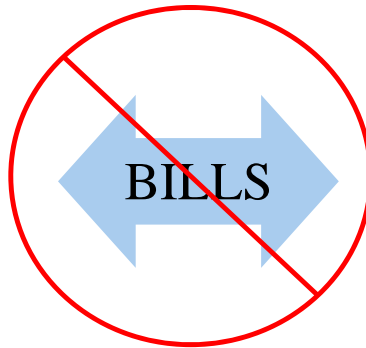RESEARCHERS' GUIDE TO VA DATA

Part D

- Part D: Prescription Drug Plans
  - New in 2006
  - Administered by insurance companies under contracts with CMS
  - Premiums often required
- Enrollment in 2013
  - 44% of Veterans
  - 68% of non-Veterans

Who pays?

VA Medical Center

BILLS

Community Hospital

VA pays

Medicare pays

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

- In most situations, non-VA 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

NEW

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 (2011-13)

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

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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

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Example: Splitting stays across 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

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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

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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 Summary Data?

- Variables created by CMS, based on the FFS claims
- One record per person, per calendar year
- Two types of summary data
  - Cost and Use
    - Medicare and Beneficiary payments
    - Number of "events"
  - Chronic Conditions
    - Uses standard definitions for 27 conditions
    - Disease flags
    - When diagnosed?

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
  - Calendar year quarter
- Alzheimer's disease mid-year flag
- Colorectal cancer end-of-year flag

Where to find summary variables?

Types of variables	1999-2010	2011- forward
Cost and Use variables	Beneficiary Annual Summary File (BASF)	MBSF: Cost and Use
Chronic Condition variables		MBSF: Chronic Conditions

MBSF = Master Beneficiary Summary File

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HEDIS

NEW

- 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

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Examples of HEDIS Measures

- Preventive care

- Medication management

- Comprehensive Diabetes Care

- Surgeries & major procedures

- Hospitalizations

- Antibiotic use

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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

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Procedures

- Two types of procedure codes in Medicare claims data
  - ICD-9 procedure/surgery codes
    - MedPAR and Inpatient files

  - 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 diagnosis codes
  - No diagnosis codes in Part D data

- Inpatient/MedPAR claims include Diagnostic Related Group (DRG)

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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

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Identifying Inpatient/SNF Stays

- Inpatient/Skilled Nursing care are provided by institutional providers
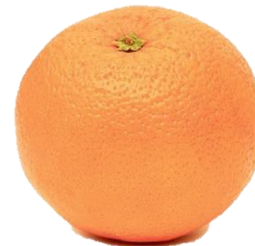 - And often non-institutional providers too

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

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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

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Inpatient Stays: VA vs. Medicare

- VA facility
  - ▫ Acute care
  - ▫ Rehab
- 1 stay

- Medicare
  - ▫ Acute care facility
  - ▫ Rehab 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 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

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?
  - When was an individual's first lung cancer diagnosis in the Medicare claims data?

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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

- Kini V, et al. Variation in use of echocardiography among veterans who use the Veterans Health Administration vs Medicare. *American Heart Journal*. 2015 Oct; 170(4): 805-11.

Overview (Kini, 2015)

- Goal
  - ▫ To examine how healthcare delivery system influences use of echocardiography
- Cohorts
  - ▫ Veterans age 65+ with heart failure who used VHA or Medicare services from 2007-2010
    - VHA-only users were matched to Medicare-only users using propensity scores
    - Excluded dual users
  - ▫ N=15,202 in each cohort

Methods (Kini, 2015)

- Data Sources
  - VA inpatient and outpatient data
  - Medicare MedPAR, Outpatient, Carrier
- Used VA and Medicare data to identify
  - Users of each system
  - Cardiac procedures using CPT and ICD-9 procedures codes
  - Comorbidities using ICD-9 diagnosis codes
  - Hospitalizations for heart failure

Selected Results (Kini, 2015)

	Medicare cohort	VA cohort	p
Hospitalized for HF during study period	12%	17%	<0.01
Died during study period	52%	52%	0.23
Adjusted mean use (echocardiograms per veteran/year)	1.25	0.38	<0.001

Example 2

- Malhotra A, et al. Elderly veterans with dual eligibility for VA and Medicare services: where do they obtain a colonoscopy? *American Journal of Managed Care*. 2015 Apr 1; 21(4):e264-70.

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Overview (Malhotra, 2015)

- Goal
  - To examine receipt of colonoscopy through VHA or Medicare by dually enrolled veterans
- Cohort
  - Veterans age 65+ enrolled in Medicare FFS
  - 2+ primary care visits in VHA in 2009
  - N=1,060,523

Methods (Malhotra, 2015)

- Data Sources
  - VA Outpatient Care File
  - VA Fee Basis data
  - Medicare Carrier
- Used VA and Medicare data to identify
  - Comorbidities using ICD-9 diagnosis codes
  - Colonoscopies using CPT procedure codes

Selected Results (Malhotra, 2015)

Odds Ratios		Colonoscopy at VA	Colonoscopy through Medicare
Site of primary care	CBOC VAMC	0.54 Ref.	1.23 Ref.
Race/ethnicity	Black Hispanic Other non-white Missing White	1.37 1.40 1.12 1.51 Ref.	0.69 0.65 0.86 0.44 Ref.
Age	65-69 70-74 75-79 80-84 85+	Ref. 0.75 0.50 0.24 0.11	Ref. 1.29 1.33 1.07 0.63

All $p < 0.05$

Example 3

- Cooper AL, et al. Dual-System Use and Intermediate Health Outcomes among Veterans Enrolled in Medicare Advantage Plans. *Health Services Research*. 2015 Dec; 50(6): 1868-1891.

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Overview (Cooper, 2015)

- Goal
  - To compare quality outcomes between VA only users and dual users (VA and Medicare Advantage (MA))
- Cohort
  - Veterans dually enrolled in VA and MA in 2008-09
  - Assessed in VA for diabetes, hypertension or CHD
  - 12 continuous months in a single MA plan
  - N=1,637 VA-only users; N=5,006 dual users

Methods (Cooper, 2015)

- Data Sources
  - ▫ VA External Peer Review Program clinical performance assessment data
  - ▫ Medicare HEDIS
- Used VA and Medicare data to identify
  - ▫ Outpatient services & VA reliance
  - ▫ Measures of outpatient quality

Selected Results (Cooper, 2015)

	VA-MA Dual Users	VA-Only Users
Annual outpatient visits (mean)	15.1 VA visits 8.8 MA visits	27.2 VA visits
Measure	%	%
Hypertension & BP <140/90	79.74	81.56
CHD & LDL-C<100	73.53	75.57
Diabetes & HbA1<9	90.66	88.28
Diabetes & LDL-C<100	75.54	72.89
Diabetes & BP <140/90	81.58	79.78
Diabetes & BP <130/80	47.74	45.61

All p>0.05

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VA/CMS DATA FOR RESEARCH

- VIReC's VA/CMS Data for Research Project - data steward for CMS (Medicare) data used for VA research

- Data available for VA researchers at no cost

- Website (VA intranet only)

  - vaww.virec.research.va.gov/Index-VACMS.htm

  - Data Descriptions and Documentation

  - Request Process and Forms

Data Access for VA Research

- VA researchers can request CMS data from VIReC
- Projects must be approved by:
  - VA Research & Development (R&D) Committee
  - Institutional Review Board (IRB)
- VA employees may not obtain CMS data directly from CMS/ResDAC

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- VIReC Resources:
  - VIReC Help Desk
    - VIReC@va.gov
  - HSRData Listserv
    - Discussion among 1,000+ VHA data stewards, managers, and users

- VHA Medicare and Medicaid Analysis Center (MAC) is the 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

Questions?

Upcoming Seminar

February 1, 2016

Extracting Data from the EHR Using CAPRI and VistAWeb

Linda Williams