Measuring Veterans Health Services Use in VA and Medicare

January 6, 2014

Presented by:
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Topics for Today

- Overview of Medicare Claims
- Medicare Claims Data
- Identifying Health Care Use in Medicare Claims
- Common Measures and Research Examples
- Data Access and Assistance
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)
Topics for Today

Overview of Medicare Claims

Medicare Claims Data

Identifying Health Care Use in Medicare Claims

Common Measures and Research Examples

Data Access and Assistance
Why are Medicare Data 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 all Veterans age 65 and older are enrolled in Medicare
VA and Medicare Billing

- The VA does NOT bill Medicare for services provided at a VA facility.
- In most situations, Medicare providers can NOT bill the VA for services provided.

VA Medical Center
- VA pays

Community Hospital
- Medicare pays

BILLS
How the data get from “Bedside to Bench”

A Medicare beneficiary obtains healthcare outside the VHA

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

Claims are collected by CMS, stored in databases, and released to researchers as analytic datasets
Strengths of Medicare Claims Data

Data directly related to billing is likely to be accurate

- SSN (or scrambled SSN)
- Charge and payment amounts
- Dates
- Diagnosis codes
- Procedure codes
- Provider information
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 not billed (non-covered services)
  - Managed care (HMO) enrollees

- **Care-to-claim relationship can be complicated**
One Event, Multiple Claims

- **Long stays may not be contained in one claim**

<table>
<thead>
<tr>
<th>Stay</th>
<th>Claim</th>
<th>From: Dec 15</th>
<th>Thru: Dec 31</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admit: December 15</td>
<td>Claim 1</td>
<td>From: January 1</td>
<td>Thru: January 15</td>
</tr>
<tr>
<td>Discharge: January</td>
<td>Claim 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Events may have 2 types of claims**
  - Facility charges
  - Physician charges
Multiple Events, One Claim

- Many Medicare services are paid using Prospective Payment System (PPS)
  - Single payment is made to cover all services
  - Providers often not required to itemize all services provided
  - Levels of detail vary
  - PPS used is based on provider type
PPS Examples

- **Hospice**
  - Per diem rate based on category of care

- **Skilled Nursing Facility**
  - Per diem rate based on patient’s Resource Utilization Group (RUG)

- **Acute Inpatient**
  - Based on patient’s Diagnostic Related Group (DRG)
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## Bills & Providers

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

<table>
<thead>
<tr>
<th>Types of Providers</th>
<th>Examples</th>
<th>Bill</th>
<th>Medicare Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional</td>
<td>Hospitals</td>
<td>CMS 1450/UB-04</td>
<td>Part A or Part B</td>
</tr>
<tr>
<td></td>
<td>Skilled Nursing Facilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Home Health Agencies</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hospices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-institutional</td>
<td>Physicians, Clinical Labs, Ambulance,</td>
<td>CMS 1500</td>
<td>Part B</td>
</tr>
<tr>
<td></td>
<td>Suppliers</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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)
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**
- **A stay may involve one or multiple claims**
Skilled Nursing Facility File

- **Includes services provided by a skilled nursing facility**
  - Skilled nursing and rehabilitation care
  - Does not include custodial care

- **Includes facility charges**

- **A stay often involves multiple claims**
MedPAR File

- Created from Inpatient and Skilled Nursing Facility (SNF) claims
- Claims are “rolled up” to the stay level
  - Eliminates need for researchers to do this manually
- Contains many summary variables
- Does not contain all variables from Inpatient/SNF files
- Only diagnosis and procedures codes from last Inpatient/SNF claim
Hospice File

- Includes services provided when doctor has certified life expectancy of 6 months or less
  - Care at home (80-90%) or as inpatient
Home Health Agency File

- Includes services provided by Medicare-certified home health agencies:
  - Skilled nursing
  - Physical/occupational/speech therapy
  - Home health aide
- Up to 60 days of care on one claim
Outpatient File

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

- Includes facility charges
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
  - Rental or purchase
- Prosthetics and orthotics
- Oxygen
- Diabetic testing supplies
- Drugs (limited coverage) provided in outpatient setting
About a third of VHA/Medicare enrolled Veterans are enrolled Part D

Different than Medicare Parts A & B
- Claims for drugs are paid for by insurance companies, not CMS
- Insurance companies submit data to CMS on all prescription fills

Data for research use
- Prescription Drug Event (PDE)
- Drug, Pharmacy, Prescriber, Plan Characteristics
- Slim File is subset of PDE data
Topics for Today

Overview of Medicare Claims

Medicare Claims Data

Identifying Health Care Use in Medicare Claims

Common Measures and Research Examples

Data Access and Assistance
Identifying Inpatient/SN Services

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

<table>
<thead>
<tr>
<th>Types of Providers</th>
<th>Examples</th>
<th>Dataset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional</td>
<td>Hospitals/SNF</td>
<td>Inpatient/SNF or MedPAR files</td>
</tr>
<tr>
<td>Non-institutional</td>
<td>Physicians</td>
<td>Carrier file</td>
</tr>
</tbody>
</table>

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

- **Choose MedPAR when studying:**
  - Number of stays
  - Length of stay
  - Total cost

- **Choose Inpatient or SNF when studying:**
  - Detailed charges
  - All diagnosis & procedure codes

- **Add Carrier when studying:**
  - Consults
  - All procedures
Identifying Outpatient Services

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

<table>
<thead>
<tr>
<th>Types of Providers</th>
<th>Examples</th>
<th>Dataset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional</td>
<td>Hospitals</td>
<td>Outpatient File</td>
</tr>
<tr>
<td>Non-institutional</td>
<td>Physicians</td>
<td>Carrier File</td>
</tr>
</tbody>
</table>
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
Topics for Today

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Medicare Claims Data

Identifying Health Care Use in Medicare Claims

Common Measures and Research Examples

Data Access and Assistance
Measures Using Medicare Claims

Four common ways of measuring healthcare use using Medicare data:

1. Procedures
2. Costs
3. Inpatient Stays
4. Outpatient Visits
Measures: Examples from Four Research Studies

- **Procedures:**

- **Cost:**

- **Inpatient Stays:**

- **Outpatient Visits:**
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
**Example: Using Procedures**


**Goal**
- To determine whether colorectal cancer screening is targeted to healthy patients and is avoided in patients with severe comorbidity

**Cohort**
- VHA outpatient users at 4 VAMCs during 2000
- 70+ years old
- Due for a screening
- Not enrolled in Medicare managed care
- N= 27,068
Example: Using Procedures

Methods
- Used diagnosis codes found in 2000 VA and Medicare inpatient and outpatient data to calculate Charlson-Deyo co-morbidity score
- Searched for procedure codes indicating colorectal cancer screening during 2001-2002
  - VA outpatient data - CPT codes
  - Medicare Outpatient and Carrier files – HCPCS codes
Example: Using Procedures

Selected Results

- Overall, 46% of patients received colorectal cancer screening
  - 33% of screenings were in the Medicare system

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Adjusted Colorectal Cancer Screening 2-Year Cumulative Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>70-74</td>
<td>47.2%</td>
</tr>
<tr>
<td>75-79</td>
<td>46.3%</td>
</tr>
<tr>
<td>80+</td>
<td>43.9%</td>
</tr>
<tr>
<td><strong>Charlson Score</strong></td>
<td></td>
</tr>
<tr>
<td>0 (best health)</td>
<td>47.0%</td>
</tr>
<tr>
<td>1-3</td>
<td>45.8%</td>
</tr>
<tr>
<td>4+ (worst health)</td>
<td>40.7%</td>
</tr>
</tbody>
</table>
Costs

- Charges submitted to Medicare

- Payments made to providers by
  - Medicare
  - Beneficiaries (deductibles & co-payments)
  - Primary payers (some insurance)

- Claims do not include payments made by secondary payers (some insurance and Medigap)
Example: Using Costs
Hubbard Winkler et al., Medical Care, 2010

Goal
- Compare purchases of assistive technology devices (ATDs) in Medicare and VA

Cohort
- Veterans who were hospitalized in a VA hospital for stroke during FY01-02
- Age 65+ at time of stroke
- N=12,046
Example: Using Costs
Hubbard Winkler et al., Medical Care, 2010

Methods

- 2-year study post-stroke
- Compared 6 products in VA and Medicare data
- Used HCPCS codes to identify products
- Data on ATDs obtained from:
  - VA National Prosthetic Patient Database
  - Medicare Durable Medical Equipment file
## Example: Using Costs
Hubbard Winkler et al., Medical Care, 2010

### Selected Results

<table>
<thead>
<tr>
<th>Device</th>
<th>HCPCS</th>
<th>Median Medicare Purchase</th>
<th>Median VA Purchase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walker-folding</td>
<td>E0135</td>
<td>$67</td>
<td>$29</td>
</tr>
<tr>
<td>Walker-wheeled/folding</td>
<td>E0143</td>
<td>$95</td>
<td>$48</td>
</tr>
<tr>
<td>Commode chair</td>
<td>E0163</td>
<td>$90</td>
<td>$33</td>
</tr>
<tr>
<td>Wheelchairs-power</td>
<td>K0011</td>
<td>$4,650</td>
<td>$3,421</td>
</tr>
<tr>
<td>Ankle Foot Orthotic, standard</td>
<td>L1930</td>
<td>$188</td>
<td>$35</td>
</tr>
<tr>
<td>Ankle Foot Orthotic, custom</td>
<td>L1970</td>
<td>$598</td>
<td>$599</td>
</tr>
</tbody>
</table>
## Inpatient Stays

<table>
<thead>
<tr>
<th>Measure</th>
<th>Data Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days</td>
<td>• Admission &amp; discharge dates</td>
</tr>
<tr>
<td></td>
<td>• Procedure dates</td>
</tr>
<tr>
<td>Provider information</td>
<td>• Facility number</td>
</tr>
<tr>
<td></td>
<td>• Attending physician UPIN/NPI</td>
</tr>
<tr>
<td>Types of care provided</td>
<td>• ICD-9 procedure/surgery codes</td>
</tr>
<tr>
<td></td>
<td>• Revenue center codes</td>
</tr>
<tr>
<td></td>
<td>• Diagnostic Related Group (DRG)</td>
</tr>
<tr>
<td>Patient condition</td>
<td>• ICD-9 diagnosis codes</td>
</tr>
<tr>
<td></td>
<td>• Diagnostic Related Group (DRG)</td>
</tr>
<tr>
<td>Outcome at discharge</td>
<td>• Discharge status/destination</td>
</tr>
</tbody>
</table>
Inpatient Stays: VA vs. Medicare

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

- **Medicare**
  - Acute care facility
  - Rehab facility
  - 2 stays
Example: Using Stays
Weeks W, et al., J Rural Health, 2009

Goal:
- To determine whether rural Veterans have higher rates of hospital readmission than urban Veterans

Cohort
- Admissions in VA hospitals OR paid by Medicare Fee-for-Service from 1997-2004
- Discharged to home
- Age 65+
- Living in rural or urban areas
- 2,810,067 Veterans
Methods

- Inpatient care obtained from
  - VA Patient Treatment File (aka Inpatient Medical SAS datasets)
  - Medicare MedPAR file
- Identified readmissions occurring within 30 days of being discharged
### Example: Using Stays
*Weeks W, et al., J Rural Health, 2009*

#### Selected Results

<table>
<thead>
<tr>
<th>Place of Index Adm.</th>
<th>Total Admissions</th>
<th>Place of Readmission</th>
<th>Readmission Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Urban</td>
<td>Rural</td>
</tr>
<tr>
<td>VA</td>
<td>296,324</td>
<td>854,476</td>
<td>VA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Non-VA</td>
</tr>
<tr>
<td>Non-VA</td>
<td>698,126</td>
<td>1,664,986</td>
<td>Non-VA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>VA</td>
</tr>
<tr>
<td>Any</td>
<td>994,450</td>
<td>2,519,462</td>
<td>Any</td>
</tr>
</tbody>
</table>
## Outpatient Visits

<table>
<thead>
<tr>
<th>Measure</th>
<th>Data Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days</td>
<td>• Claim from and thru dates&lt;br&gt;• Expense dates (non-inst)&lt;br&gt;• Revenue center dates (inst)</td>
</tr>
<tr>
<td>Provider information</td>
<td>• UPIN/NPI number&lt;br&gt;• Place of service (non-inst)&lt;br&gt;• Facility number (inst)</td>
</tr>
<tr>
<td>Types of care provided</td>
<td>• HCPCS procedure codes&lt;br&gt;• BETOS code (non-inst)&lt;br&gt;• Type of Service code (non-inst)&lt;br&gt;• Revenue center Codes (inst)</td>
</tr>
<tr>
<td>Patient condition</td>
<td>• ICD-9 diagnosis codes</td>
</tr>
</tbody>
</table>
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**
Example: Using Visits
Liu C-F, et al. Medical Care, 2011

- **Goal**
  - Examine longitudinal changes in Medicare-eligible veterans’ reliance on VA outpatient care

- **Cohort**
  - Medicare-eligible Veterans who used VA primary care in FY2000
  - Not enrolled in Medicare managed care
  - N=15,520
Example: Using Visits
Liu C-F, et al. Medical Care, 2011

Methods

- Measured co-morbidity based on diagnosis codes from 2000 VA and Medicare data
- Tracked outpatient utilization in VA and Medicare from FY2001-2004
- Developed algorithm to classify VA and Medicare visits
  - Primary, specialty, mental health, other
  - Using provider specialty and CPT/HCPCS procedure codes
- Calculated proportion of primary and specialty care occurring in the VA
Example: Using Visits
Liu C-F, et al. Medical Care, 2011

## Selected Results

<table>
<thead>
<tr>
<th></th>
<th>FY01</th>
<th>FY04</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Care Visits</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VA</td>
<td>2.4</td>
<td>1.9</td>
</tr>
<tr>
<td>Medicare</td>
<td>1.3</td>
<td>1.6</td>
</tr>
<tr>
<td>Total</td>
<td>3.7</td>
<td>3.3</td>
</tr>
<tr>
<td><strong>Specialty Care Visits</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VA</td>
<td>4.1</td>
<td>3.7</td>
</tr>
<tr>
<td>Medicare</td>
<td>3.7</td>
<td>8.8</td>
</tr>
<tr>
<td>Total</td>
<td>10.8</td>
<td>12.4</td>
</tr>
<tr>
<td><strong>Reliance on VA primary care</strong></td>
<td>68%</td>
<td>57%</td>
</tr>
<tr>
<td><strong>Reliance on VA specialty care</strong></td>
<td>50%</td>
<td>31%</td>
</tr>
</tbody>
</table>
Topics for Today

Overview of Medicare Claims

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Identifying Health Care Use in Medicare Claims

Common Measures and Research Examples

Data Access and Assistance
Data Access

- VIReC is the data steward for CMS (Medicare) data used for VA research
- Researchers can request data from VIReC’s VA/CMS Data Repository
- CMS data are available to VA researchers with projects approved by:
  - VA Research & Development (R&D) Committee
  - Institutional Review Board (IRB)
- VA researchers may not obtain CMS data directly from CMS/ResDAC
Description of CMS data available

Documentation:
- Data dictionaries
- SAS Proc Contents
- Variable frequencies

Description of cohorts

Links to download Public Use Files

Request Process and Forms

www.virec.research.va.gov/Index-VACMS.htm
**VIReC Help Desk**
- VIReC staff will answer your question and/or direct you to available resources on topics
  - **VIReC@va.gov**

**HSRData Listserv**
- Join at the VIReC Intranet web site
- Discussion among 800+ data stewards, managers, and users
- Past messages archived on intranet

**www.virec.research.va.gov**
- 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
Run by Buccaneer, a CMS contractor
Source of most CMS data that VHA receives
Documentation
  - Data dictionaries
  - Summary tables
  - User guides & technical guides
  - White papers & presentations

www.ccwdata.org
Questions?
Upcoming Seminars

February 3, 2014

Pharmacy Data and Medicare Part D

Kevin Strouppe, PhD