

Database & Methods Cyberseminar Series

Session #6: *Measuring Veterans' Medicare Health Services Use*

The objective of this cyberseminar is to

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

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

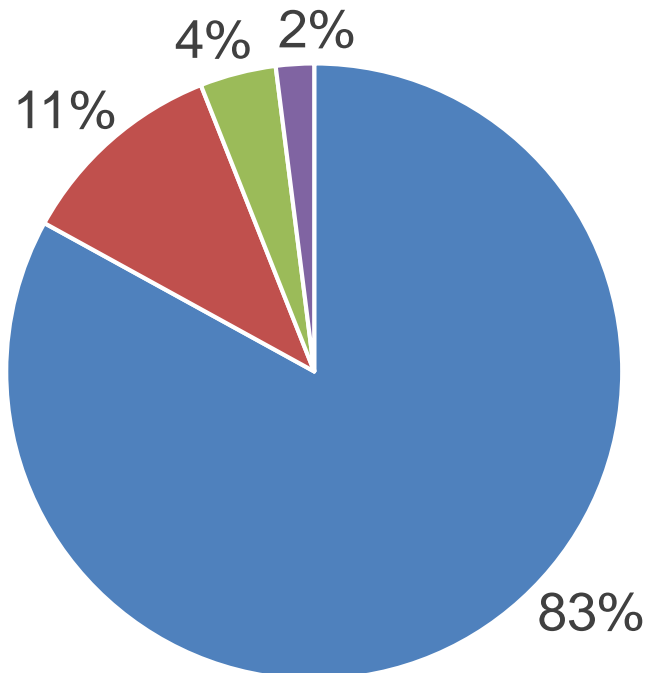
- Researchers need knowledge of health care use to draw accurate conclusions
- Many Veterans who use VA health care also obtain care outside VA
- Not included in VA data

Veterans' Enrollment in Medicare & Medicaid

Percent of VHA Enrollees in Medicare and/or Medicaid during FY12

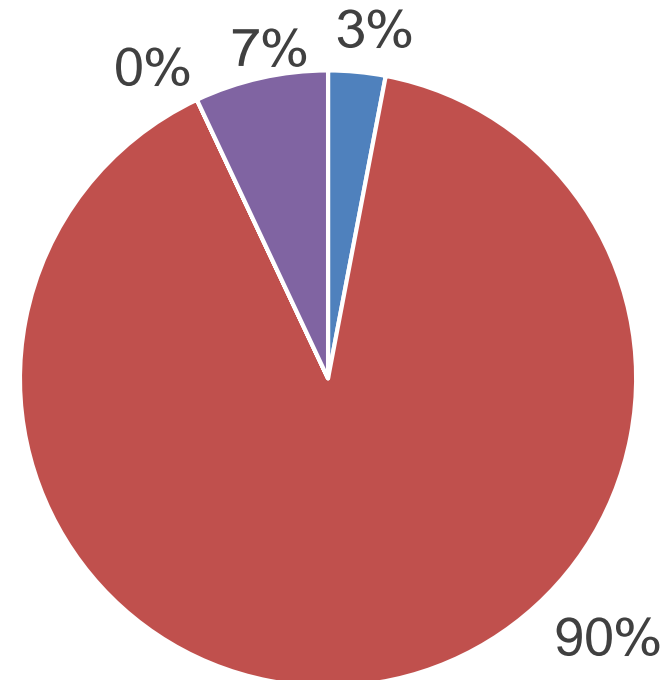
Veterans age <65

N = 4.9 million



Veterans age 65+

N = 4.4 million



Poll Question #1

What is your role in research and/or quality improvement?

- Investigator, PI, Co-I
- Data manager, analyst, or programmer
- Project coordinator
- Other – please describe via the Q&A function

Poll Question #2

Have you ever used Medicare data for a VA project?

- Yes
- No



Session roadmap

- Medicare 101
- Types of Medicare Data
- Using Medicare Data in Research
- Research Examples
- Medicare data in OMOP Common Data Model
- Data Access and Assistance

Session roadmap

- **Medicare 101**
- Types of Medicare Data
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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
 - 14% 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 2016, 25% of veterans in Medicare were enrolled in a managed care plan

Part D

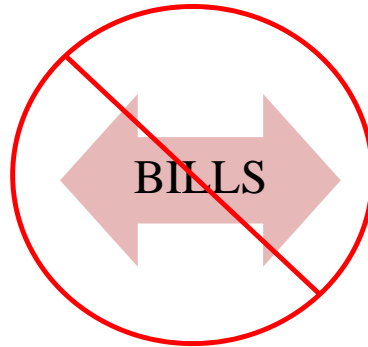
- Part D: Prescription Drug Plans
 - New in 2006
 - Administered by insurance companies under contracts with CMS
 - Premiums often required
- Enrollment in 2016
 - 47% of Veterans
 - 74% of all Medicare beneficiaries (Vets + non-Vets)

Who pays?

VA Medical Center



VA pays



Community Hospital



Medicare pays

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

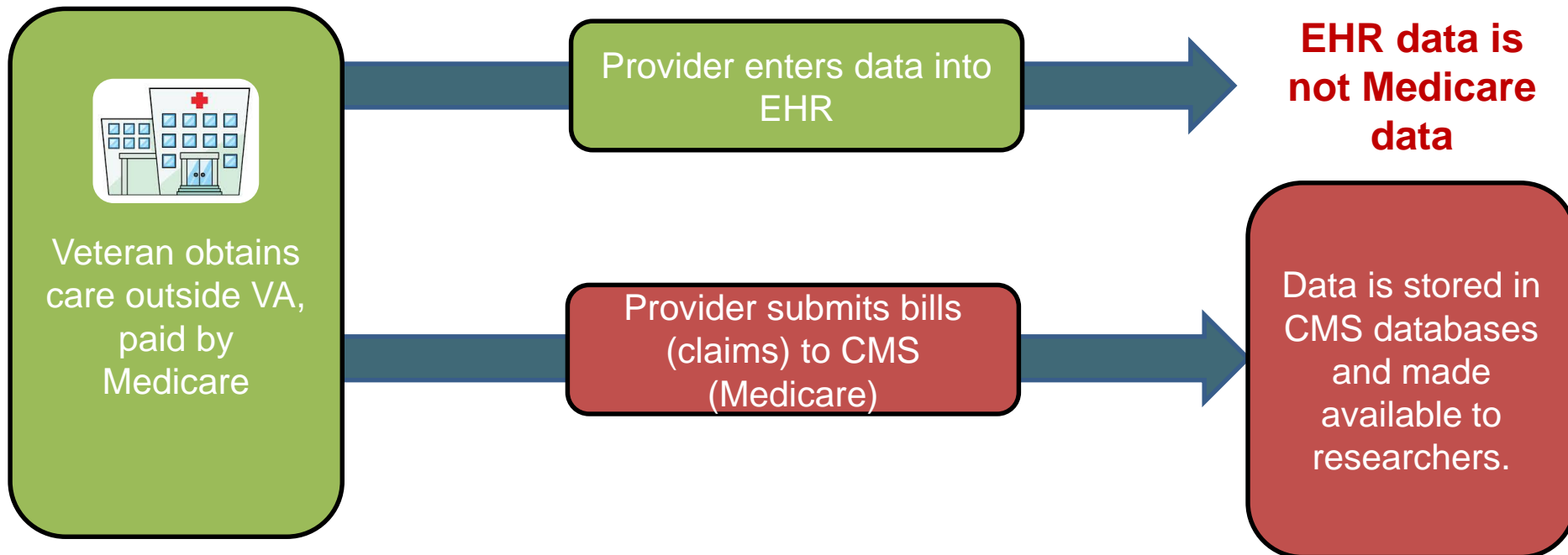
Except in special situations, community providers can not bill the VA for services provided

Source of VA and Medicare Data

VA Data Flow



Medicare Data Flow



What are included in Medicare data?

COMPLETE DATA

Social Security Number

Date of birth, date of death, address

Other insurance - primary to Medicare

Enrollment dates

Managed care contract number

Dates of service

Provider & place of service

Costs

Procedure codes*

Diagnosis codes*

NO or INCOMPLETE DATA

Marital Status, Income

Clinical data (Lab Results, Vital Signs, Symptoms)

Services not itemized (bundled services)

Other insurance – secondary to Medicare (e.g. Medigap plans)

Services paid for by managed care plans

*When needed for billing

Session roadmap

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Poll Question #3

How would you rate your overall knowledge of Medicare data?

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

Enrollment & Demographic File

- One record per person, per calendar year
- Monthly indicators for
 - Parts A, B, D
 - Managed care
 - Medicaid
- Actual name varies by year
 - Denominator (1997-2008)
 - Beneficiary Summary (2009-10)
 - Master Beneficiary Summary File: Base (2011-17)

EDB Extracts

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

Type of Provider → Type of Bill → Type of Data

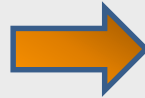
Institutional



Hospital or
nursing
facility



Home health agency
or hospice



Part A or B
CMS 1450/
UB-04



5 Institutional Files

Inpatient
Skilled Nursing
Home Health
Hospice
Outpatient

Non-Institutional



Clinical
laboratories



Individual
physicians,
chiropractors,
other providers



Physician
groups



Part B
CMS 1500



2 Non-Institutional Files

Carrier
Durable Medical Equipment



Medical
Suppliers



Ambulances

Medicare Claims Files

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

Inpatient & Skilled Nursing Facility Files

- Inpatient
 - 90% short-term (acute) hospitals
 - Rehab, psych, other long-term hospitals
- Skilled Nursing Facility (SNF)
 - Skilled nursing and rehabilitation care
 - Does not include custodial care
- 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

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 (e.g. physician's NPI)
 - Only diagnosis and procedures codes from last IP/SNF claim

Hospice & Home Health Agency Files

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

Outpatient File

- Types of facilities
 - Hospital (87%)
 - Dialysis facilities, Rural Health Clinics, Federally Qualified Health Centers, mental health centers, rehab centers
- Types of services
 - 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

PDE is NOT readily available for VA research

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

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

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
 - Received eye exam?
 - Number of hospitalizations, length of stay
- Limitations of HEDIS data
 - No data on Dates, Diagnosis or procedure codes, Provider
 - More limited assistance for researchers

Medicare Advantage Encounter Data



- Utilization for beneficiaries in managed care organizations
- Data submitted to CMS by insurance companies
- Data structure and files types are similar to claims files
 - No hospice file
 - No cost variables
- Limitations
 - Messy
 - Non-adjudicated
 - Chart review records
 - Best practices & pitfalls unknown

Session roadmap

- ✓ Medicare 101
- ✓ Types of Medicare Data
- **Using Medicare Data in Research**
- Research Examples
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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

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
- Physicians' NPI
- 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 (specialty, location)

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

Use **Outpatient**
when studying:

- Services provided in a facility

Use **Carrier**
when studying:

- Physician services

Add **Home Health**
when studying:

- Services that could be provided at home, like physical therapy

Some events will have claims in both files

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

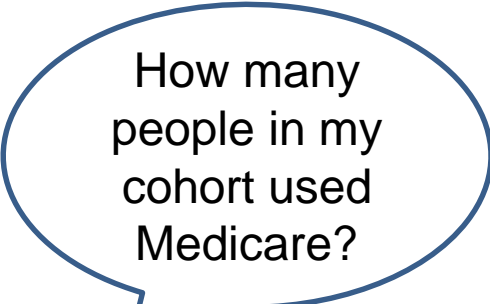
**3 claims, 3 visits,
1, 2, or 3 days of care**



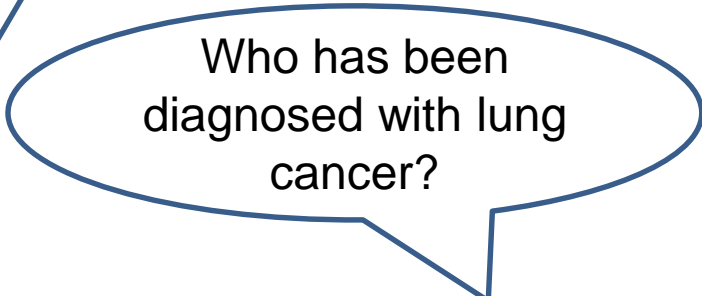
Are annual summary files right for me?

Pros

- Easy to work with, small files



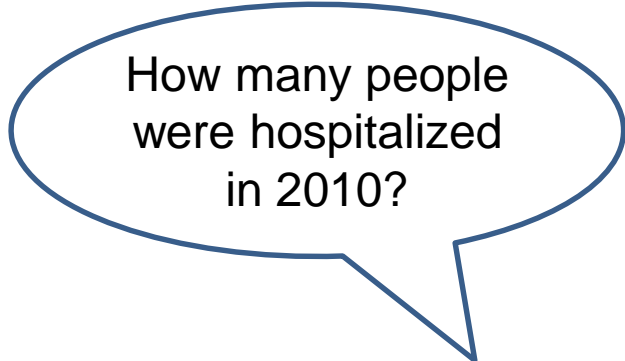
How many people in my cohort used Medicare?



Who has been diagnosed with lung cancer?

Cons

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



How many people were hospitalized in 2010?

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- **Research Examples**
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HSR

Health Services Research

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Volume 53, Issue S3

Special Issue: Linking VA and Non-VA Data to Address US Veteran Health Services Issues

Pages: 5129-5454

December 2018

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Example 1

Wang, V, et al. Comparative Assessment of Utilization and Hospital Outcomes of Veterans Receiving VA and Non-VA Outpatient Dialysis. Health Serv Res. Aug 2018. 53 (S3): 5309-5330.

Overview (Wang, 2018)

Objective

To compare outcomes among Veterans receiving dialysis in VA and non-VA settings

Cohort

- Dual enrollees (VHA + Medicare) who initiated dialysis 2008-2011
- Excluded: Medicare Advantage, hospitalized entire follow up period, pre-emptive kidney transplant, died within 90 days, recovered renal function within 180 days
- N=27,301

Methods (Wang, 2018)

Data Sources

- VA Enrollment, Vital Status file, inpatient & outpatient SAS files
- VA Fee Basis claims file
- Medicare enrollment, MedPAR, outpatient, carrier
- US Renal Data Systems (USRDS) – ESRD registry

Used VA and Medicare data to identify

- Dialysis setting
- Hospitalization in 2 years following dialysis initiation
- Covariates, such as demographics, comorbid conditions, VA reliance

Selected Results (Wang, 2018)

	VA only	VA Purchased Care only	Medicare only	More than one setting
Dialysis Setting	4%	11.3%	66.9%	17.8%
Characteristics (% of cohort)				
VA copayment	9.4	7.6	40.9	9.4
30+ miles to VAMC	11.1	86.5	65.9	54.6
Mental health condition	56.2	53.8	29.6	52.4
Outcomes				
% with admissions (all-cause)	82.2	81.1	83.0	84.9
Number of hospital days (adjusted)	31.6	31.13	32.08	31.40

Example 2

Lei L, et al. Attributable Cost of Dementia: Demonstrating Pitfalls of Ignoring Multiple Health Care System Utilization. Health Serv Res. Sept 2018. 53 (S3): 5331-5351.

Overview (Lei, 2018)

Objective

To determine prevalence and costs attributable to dementia using VHA data with and without Medicare data

Cohort

- Veterans 65+ enrolled in VHA & traditional (FFS) Medicare in FY13
- N=1.9 million

Methods (Lei, 2018)

Data Sources

- VA CDW, inpatient & outpatient data
- VA purchased care claims
- Medicare enrollment, utilization and cost data
- Minimum Data Set (MDS, from VA, community, and state nursing homes)

Used VA and Medicare data to

- Identify diagnosis of dementia
- Comorbidities
- Costs
 - VHA expenditures
 - Medicare + VHA expenditures

Selected Results (Lei, 2018)

VHA Data Alone	Prevalence of dementia	Average Costs	
		Dementia	No Dementia
VHA	4.8%	\$23,305	\$8,803
Combined VHA + Medicare Data	Prevalence of dementia	Average Costs	
		Dementia	No Dementia
VHA		\$18,025	\$8,080
Medicare	7.4%	\$23,539	\$9,535
VHA + Medicare		\$39,230	\$14,673

Session roadmap

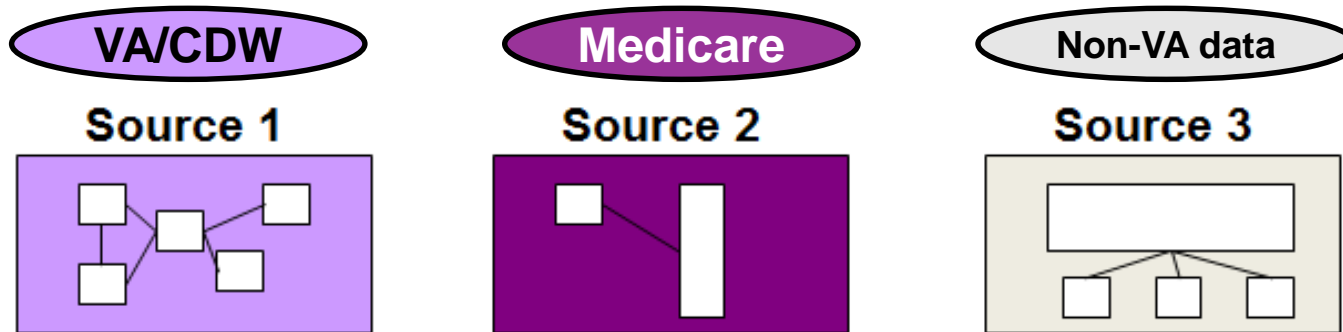
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Poll Question #4

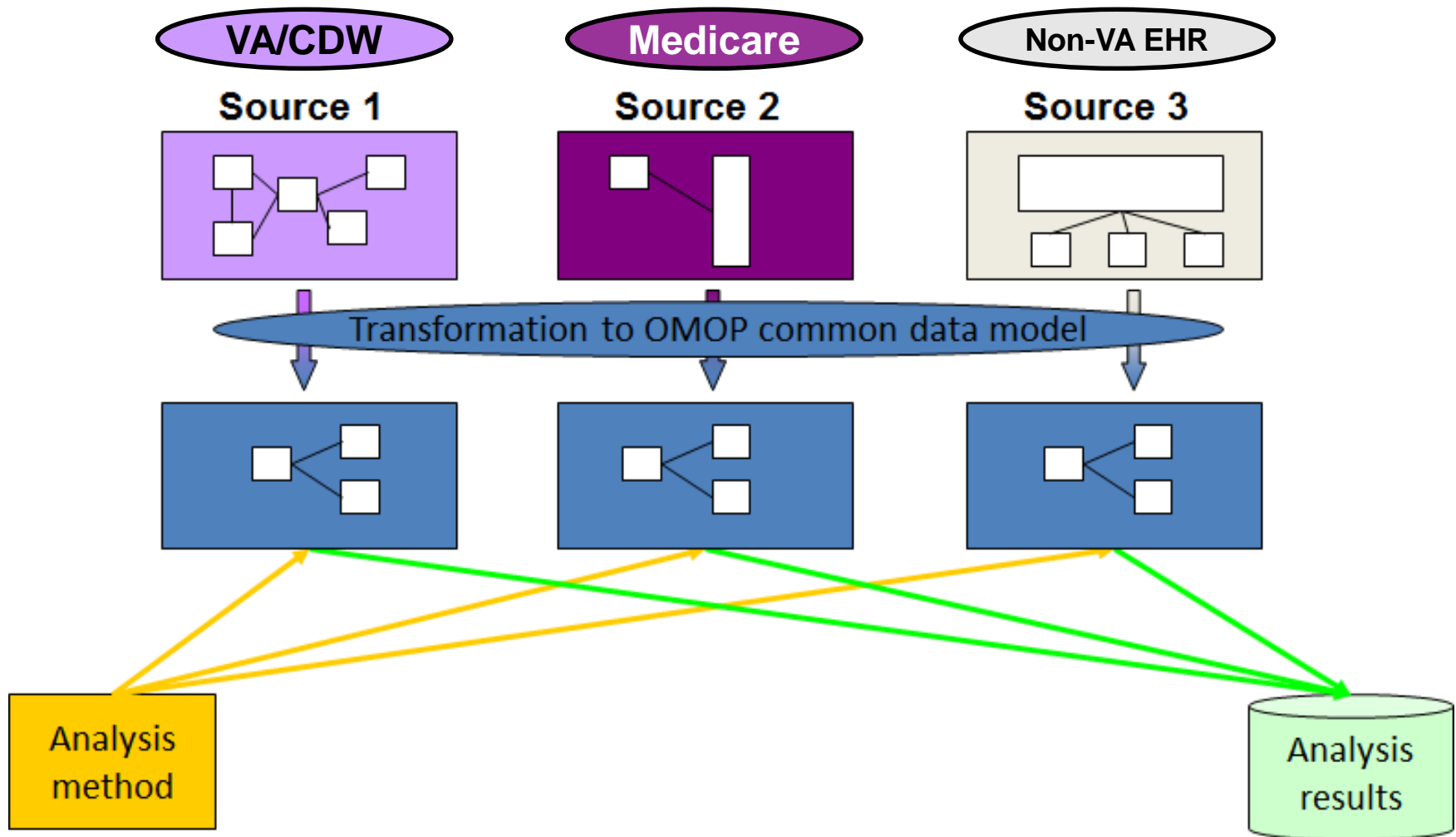
How would you rate your knowledge of and experience with OMOP?

- 1 (Have not heard of it)
- 2
- 3
- 4
- 5 (Extensive experience)

Why do we need a Common Data Model?



Benefits of Having Data in OMOP Common Data Model



Status and Timeline

- Version 1 (limited types of Medicare data)
 - Building – almost finished
 - Internal testing & documentation – in progress
 - User testing – starting soon
- Version 2 (more types of Medicare data)
 - Building, internal testing & documentation – in progress
 - Available to users in summer 2019?
- Many future versions - a work in progress

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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 or 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
- ~1,400 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



- Field office 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

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708-202-2413



**Next session:
April 1st at 1 pm Eastern**



Database & Methods Cyberseminar Series

Assessing Race and Ethnicity in VA Data

Maria Mor, PhD

VA Center for Health Equity Research and Promotion

Register here: <https://www.hsrd.research.va.gov/cyberseminars/catalog-upcoming-session.cfm?UID=3546>

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