

# Using Medicare Data for Research on Emergency Medicine

*Nathan D. Shippee, PhD*

*ResDAC Faculty*

*Division of Health Policy and Management*

*University of Minnesota*

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# Overview

- 1. Caveats and tips concerning CMS and administrative claims data**
- 2. A few “pictures” of ED use using Medicare data**
- 3. Briefly: how and where to get data, help with data**

# Reminders

- CMS is a payor, an “insurance ‘company’”
  - Administrative data
- Focused on Medicare today, but we also assist with MAX [Medicaid] files, survey linkages, and assessment data
- Size, research-friendliness, granularity differs by file
  - Smaller or more “friendly” files (e.g, MedPAR; 5% random sample) can shorten learning curve or decrease computational intensity
  - However, also differ in granularity, available variables

# Caveats

- For administrative claims data (including from CMS)
  - Rely on 100% FFS coverage to ensure complete claims
  - Rely on claims for services; creates multiple issues
    - » Diagnosis by proxy [services]; lack of services ≠ no condition; etc.
    - » Measurement error/bias depends on the condition or treatment
  - Lack certain pieces of the puzzle
    - » No time stamps, no lab values
    - » Consider certain uses carefully
      - costs, utilization vs. quality of care?
  - Context of the data can be important
    - » Changes in variable availability
    - » Reimbursement-related changes and issues to consider
- Regarding CMS administrative claims for emergency medicine research
  - The majority of data on ED visits that result in an admission are found in the IP data
    - » ED-based services or charges may not be not discernable from IP-based care in IP data
  - ED visits found in the OP data cannot be simply assumed to have not resulted in an admission

# Note on Data File Privacy Levels

- Different privacy levels for CMS files:
  - RIF (research-identifiable files- most protected and most restricted level)
  - LDS (limited datasets)
  - PUF (public use files)
- Use minimum privacy level, minimum specific files, and minimum analytic cohort to answer your questions—should reflect in your data request/application
- There are some differences in variable availability, granularity for RIF vs LDS versions of files, so be sure to check (help at [resdac.org](http://resdac.org))

# A Few Pictures of ED Use

[in Medicare data]

- **5% Random sample**
- **2012 MBSF, IP SAF, OP SAF files for most, also Carrier file for ambulance**
  - We used RIF versions, but you could do pretty much all of this and much more using LDS versions if you keep it 2010 forward
  - (prior years lack dates in LDS claims files)
- **Keep caveats and considerations for claims data in mind**
- **These are just examples**

# Who am I?

## Demographics

	ED visits		Total FFS enrollees	
	N	%	N	%
Age			N	%
65-74	294,422	34%	770,177	50%
75-84	313,080	36%	502,571	32%
85+	252,491	29%	282,983	18%
Sex				
Male	309,008	36%	625,903	40%
Female	550,985	64%	929,828	60%
Dual status				
Non-dual	631,629	73%	1,322,457	85%
Dual	228,364	27%	233,274	15%
Total	859,993		1,555,731	

# How did I get here?

[ambulance use]

- Independently owned service (“supplier”): claims in the Carrier file
- Hospital-owned service (“provider”): OP file
- **Level II Healthcare Common Procedure Coding System (HCPCS) codes** (for ref: CPT are *level I*)

	ED visit with Ambulance	Without Ambulance
<b>Overall</b>	39%	61%
65-74	29%	71%
75-84	38%	62%
85+	52%	48%
Male	36%	64%
Female	41%	59%

# Why am I here?

## [Diagnoses]

<b>By various dx groupings</b>	<b>N overall</b>	<b>% overall</b>	<b>% Men</b>	<b>% Women</b>	<b>% 65-74</b>	<b>% 75-84</b>	<b>% 85+</b>
Fractures (ICD 9 dx codes 800.xx - 829.xx)	49691	5.8%	3.9%	6.8%	4.2%	5.5%	8.0%
Dislocations, sprains, strains (830-848)	23847	2.8%	2.3%	3.1%	3.4%	2.6%	2.3%
Intracranial, internal injuries including nerve and spinal cord (850-869, 900-904, 950-957)	8513	0.9%	1.2%	0.9%	0.8%	1.0%	1.3%
Open wounds (870-897)	37407	4.4%	4.8%	4.1%	3.6%	4.1%	5.6%
Burns (940-949)	1065	0.1%	0.2%	0.1%	0.2%	0.1%	0.1%
Poisoning, [medical and non-med] (960-989)	3738	0.4%	0.4%	0.4%	0.6%	0.4%	0.3%
Signs and symptoms (780-799)	428224	49.8%	50.0%	49.7%	48.3%	50.5%	50.7%
Mental Illness (295-298, 300-301, 306-309, 311)	115026	13.4%	9.9%	15.3%	14.0%	13.3%	12.8%
"CV events" - AMI, Stroke (410, 434)	30930	3.6%	4.1%	3.3%	2.9%	3.6%	4.4%

# Why am I here?

## [Top E Codes and context]

Top 3 E codes by:	#1 for visits with these diagnoses			#2 for visits with these diagnoses			#3 for visits with these diagnoses			No E Code	
	Description	code	%	Description	code	%	Description	code	%	N	%
<b>Skull fracture (800-804)</b>	accidental fall from slipping, tripping or stumbling, NOS	e885.9	<b>34.0%</b>	other fall, NOS	e8889	<b>20.8%</b>	fall from stairs or steps, NOS	e8809	<b>5.8%</b>	219	<b>6.6%</b>
<b>Spine, trunk fracture (805-809)</b>	other fall, NOS	e8889	<b>24.2%</b>	accidental fall from slipping, tripping or stumbling, NOS	e8859	<b>21.9%</b>	fall, NEC	e8888	<b>4.7%</b>	2007	<b>12.8%</b>
<b>Limb fractures (810-829)</b>	accidental fall from slipping, tripping or stumbling, NOS	e8859	<b>33.2%</b>	other fall, NOS	e8889	<b>24.0%</b>	fall, NEC	e8888	<b>4.9%</b>	2597	<b>7.9%</b>
<b>Intracranial, internal injuries (850-869)</b>	other fall, NOS	e8889	<b>23.2%</b>	accidental fall from slipping, tripping or stumbling, NOS	e8859	<b>19.5%</b>	fall resulting in striking against other object, NEC	e8881	<b>5.1%</b>	807	<b>9.8%</b>
<b>Nerves &amp; spinal cord (950-957)</b>	other fall, NOS	e8889	<b>15.9%</b>	accidental fall from slipping, tripping or stumbling, NOS	e8859	<b>13.7%</b>	unspecified accident	e9289	<b>7.7%</b>	30	<b>16.4%</b>
<b>Open wounds (870-897)</b>	accidental fall from slipping, tripping or stumbling, NOS	e8859	<b>20.4%</b>	other fall, NOS	e8889	<b>14.2%</b>	accidents caused by cutting and piercing instruments or object, NOS	e9208	<b>6.4%</b>	3375	<b>9.0%</b>

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# Why am I here?

[other/misc.]

- **Avoidables, potentially preventables...**
  - Billings et al.; ACSCs (various lists out there) from ICD 9 diagnosis codes
- **May consider V codes**
  - (supplementary classification; “history of x”, aftercare indication, etc.)
  - Reliance on these would have to assume that they are regularly entered; reasonable assumption?

# What's being done for me?

[ED E&M]

## Raw look at E&M codes from Outpatient file

	2006	2007	2008	2009	2010	2011	2012
<b>N</b>	774,387	772,911	787,035	809,376	840,393	876,006	898,741
<b>Code</b>	<b>%</b>	<b>%</b>	<b>%</b>	<b>%</b>	<b>%</b>	<b>%</b>	<b>%</b>
<b>99281</b>	7%	6%	6%	5%	4%	4%	4%
<b>99282</b>	19%	17%	15%	13%	11%	10%	9%
<b>99283</b>	34%	34%	33%	33%	33%	32%	31%
<b>99284</b>	27%	29%	30%	32%	33%	34%	34%
<b>99285</b>	13%	14%	16%	18%	20%	20%	21%

5% OP SAF--all (no restrictions for 65+ or 100% FFS only)

1. **OP file only; does not guarantee there was not an IP stay (remember caveats)**
2. **No typical restrictions to ensure complete claims or 65+: this is a raw look**
3. **Can obtain counts of code use; facility reimbursements, etc.**

# What's being done for me?

- **Other CPT codes**
  - AKA, Level I HCPCS codes
- **ICD9-CM Procedure codes**
  - Inpatient services

# What happens next?

	% Admitted	% Transferred and admitted	% Died in ED
<b>Based on</b>	IP admit date=ED visit date -or- IP record w/ ED charges	IP admit date=ED visit date	OP ED record
<b>Plus</b>	Same provider ID	Different provider ID	Discharge status=20
<b>Overall</b>	37.8%	2.0%	0.4%
65-74	31.4%	2.1%	0.4%
75-84	38.5%	2.1%	0.4%
85+	44.4%	1.7%	0.5%
Male	38.7%	2.3%	0.6%
Female	37.3%	1.8%	0.3%
Dual	40.5%	2.0%	0.5%
Non-Dual	36.8%	2.0%	0.4%

- Of course, also: further visits, readmissions, procedures, incident diagnoses after the visit

# Accessing Data (may include costs)

- Find ResDAC training materials, information, and assistance at [resdac.org](http://resdac.org)
- Non-identifiable files process:
  - Download or simple ordering process
- LDS Data request process:
  - Order form, Data Use Agreement, research protocol
  - With the exception of MCBS data requests, are not reviewed by ResDAC
- Research Identifiable File process
  - Details at ResDAC.org; data request packet
  - ResDAC will assist during preparation of any data request packet
  - ResDAC review required for ALL Identifiable Data Requests
- Request any materials from [resdac.org](http://resdac.org): Data Request Center
- CMS Virtual Research Data Center (VRDC)
  - Access to most RIF files, so requires application materials
  - Single annual charge for a user “seat”
  - See [resdac.org](http://resdac.org) for details

# How to Contact Me

- Email
  - [nshippee@umn.edu](mailto:nshippee@umn.edu)
- On Twitter
  - @NathanDShippee

# How to Contact the ResDAC Assistance Desk

- **Phone**

- Toll free: 888-9ResDAC (888-973-7322)

- **Email**

- [resdac@umn.edu](mailto:resdac@umn.edu)

- **WEB**

- [www.resdac.org](http://www.resdac.org) (information, training materials, data process, this talk, etc.)

- **Follow on Twitter for news, other materials**

- @resdac\_cmldata