

Using Medicare Data to Accelerate Health System Change

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Introduction

- CMS is the largest single payer for health care services in the US
- 2.5 billion claims submitted annually
- Significant additional data sources on the way
  - EHRs
  - Medicare Advantage encounter data
  - Health Insurance Exchange/Medicaid expansion data
- Receive billions of other “non-claim” data points
- Transitioning from a passive payer to active purchaser and expected to drive innovation
- Trusted to protect beneficiary privacy

Transforming CMS's approach to data analytics and dissemination

- Increase the amount of publically available data on CMS programs
- Improve access to identifiable CMS data for approved users
- Enable and employ advanced analytics to create actionable information

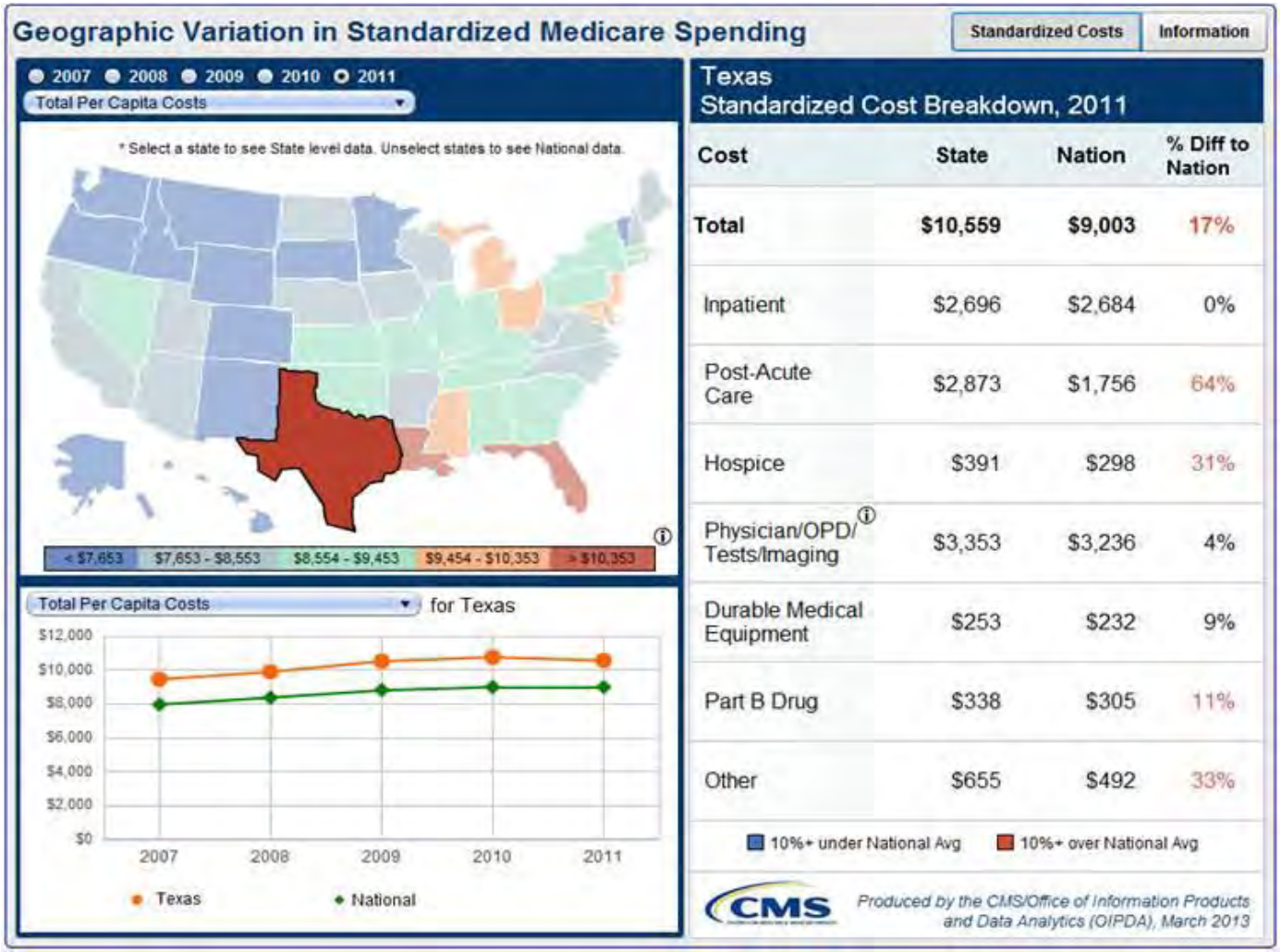
Publicly Available Data and Information Products

CMS Data Navigator

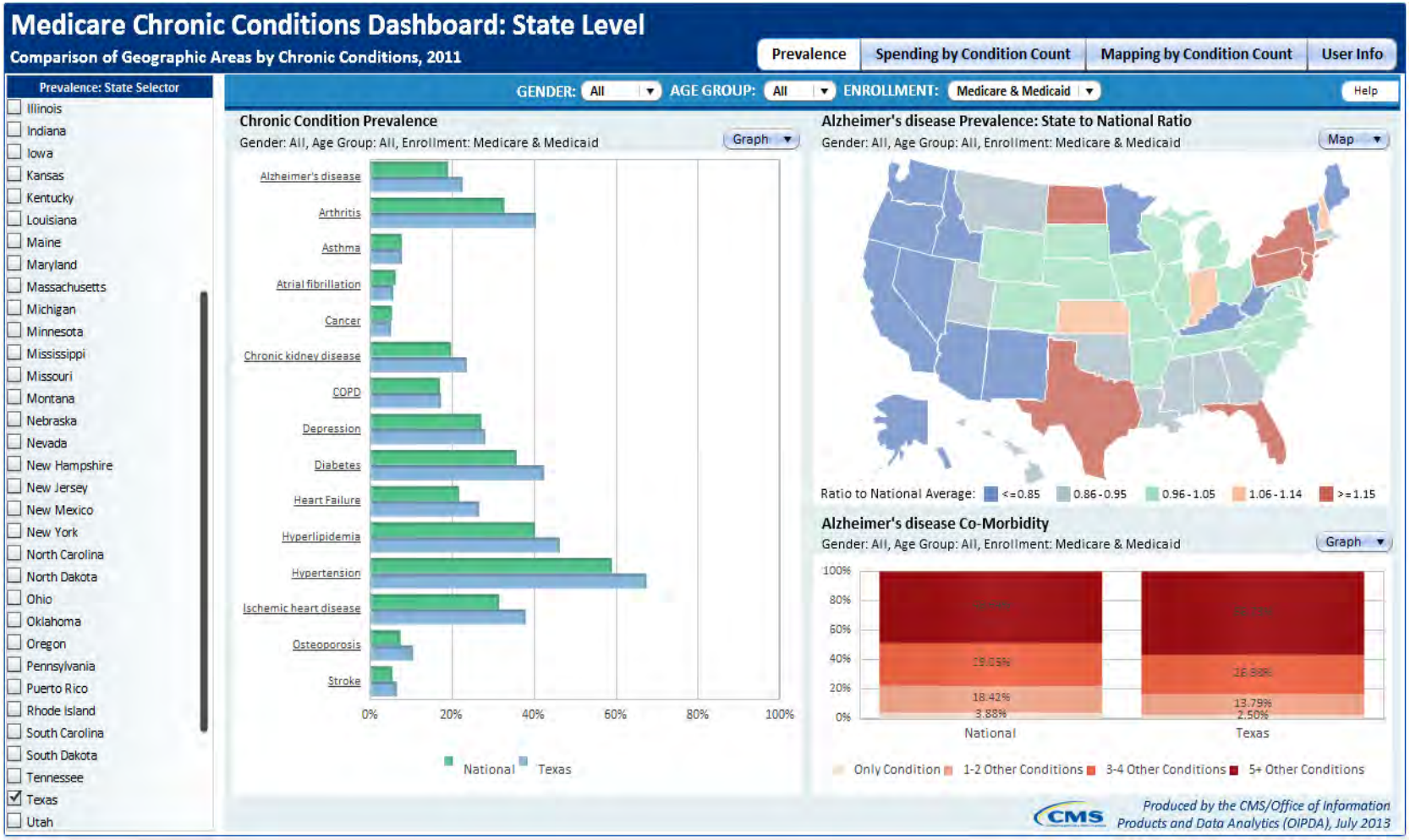
- One-stop shop for CMS data
- Simple point-and-click interface
- Nearly 300 active data sources
- Displays search results by file type

Available at: http://dnav.cms.gov

Geographic Variation Dashboard



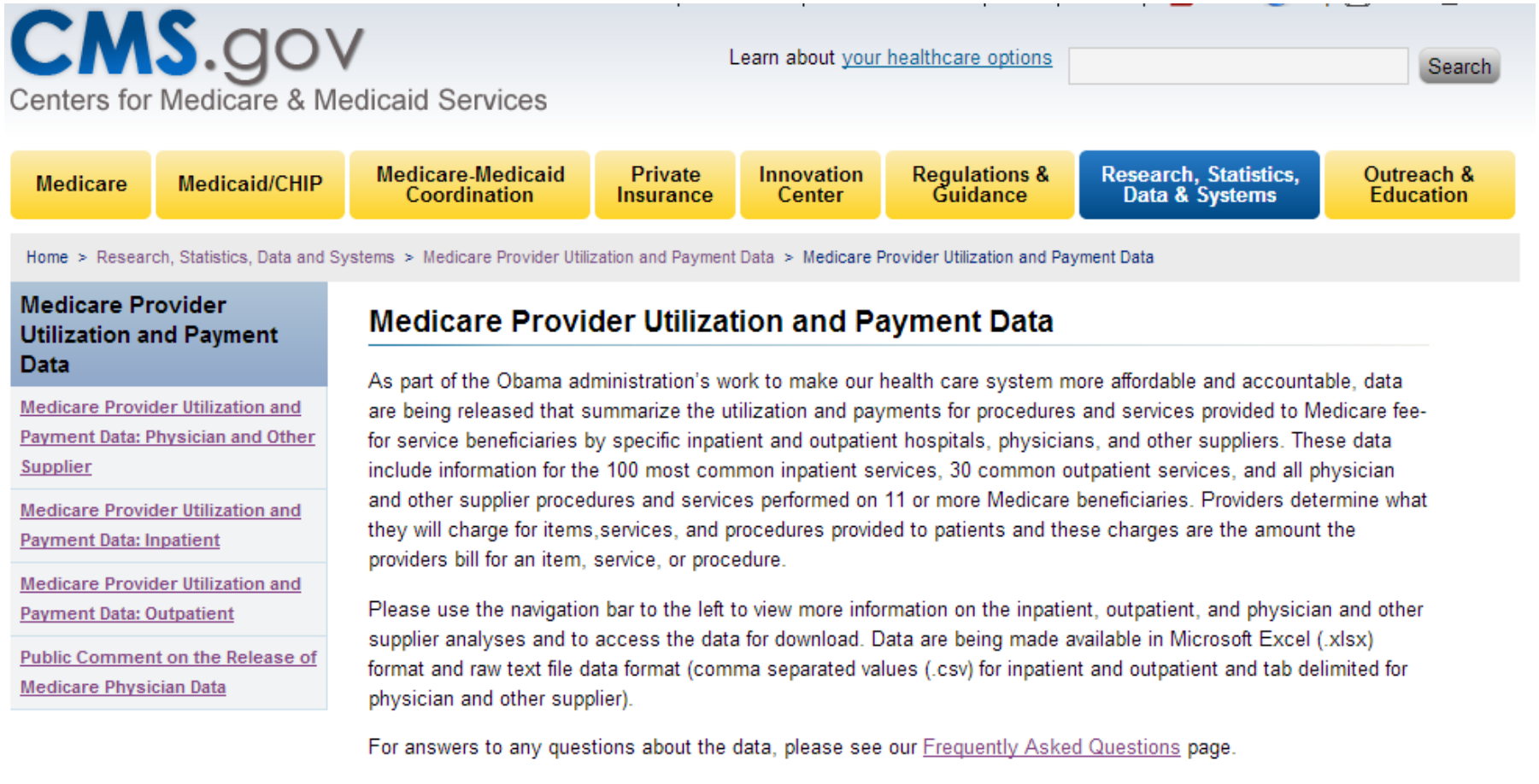
Chronic Condition Dashboard



State, HRR, and County-Level Data

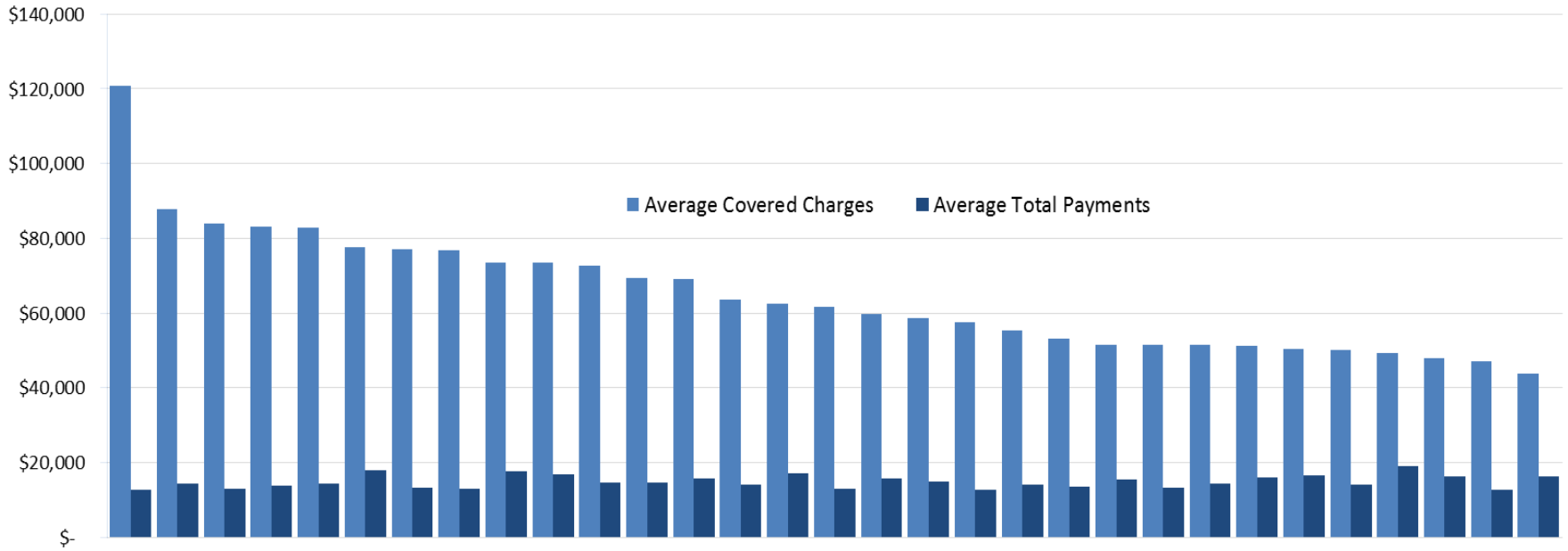
- Datasets with aggregated indicators at the state, HRR and county level
  - **Geographic Variation Public Use Files:** aggregated demographic, spending, utilization and quality indicators (http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Geographic-Variation/index.html)
  - **Chronic Condition Public Use Files:** aggregated data on the prevalence of chronic conditions and spending for beneficiaries with multiple chronic conditions (http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Geographic-Data.html)
- Based on 100% Medicare claims data for beneficiaries enrolled in FFS for 2007-2011

Provider Utilization and Payment Data



Inpatient Data: Covered Charges and Payments

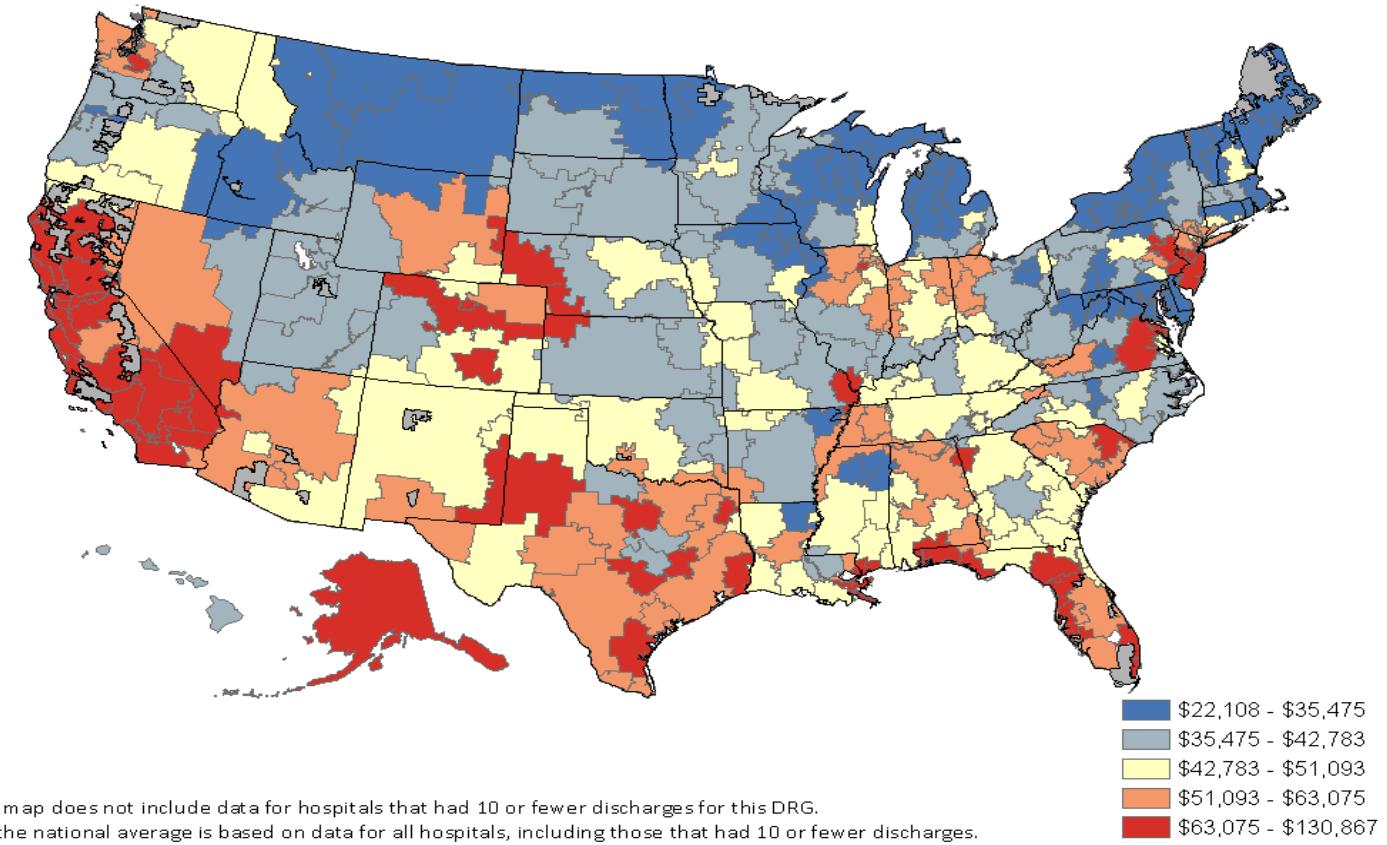
DRG 470 in NJ: Hospitals with 100 or more discharges



Each pair of bars represents an individual hospital.

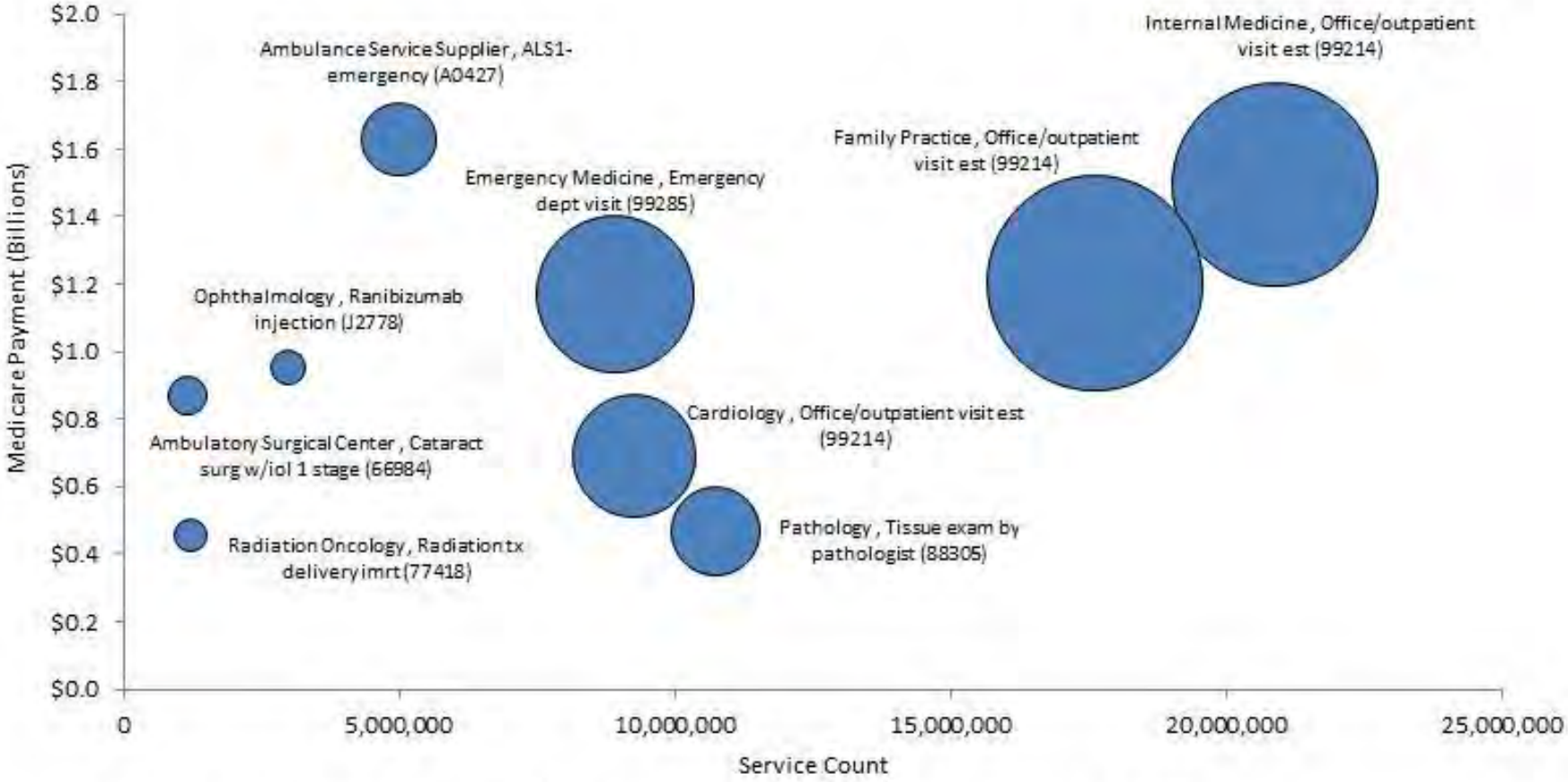
Inpatient Data: Variation in Hospital Charges

Average Hospital Charges in fiscal year 2011 for
DRG 470 - MAJOR JOINT REPLACEMENT OR REATTACHMENT OF LOWER EXTREMITY W/O MCC
(National average = $50,116)



Note: This map does not include data for hospitals that had 10 or fewer discharges for this DRG.
However, the national average is based on data for all hospitals, including those that had 10 or fewer discharges.

Physician Data: Payment, Total Services, and Number of Providers for Selected HCPCS Codes



Bubble size represents the number of distinct providers that Medicare paid for the service in 2012

Data Entrepreneurs' Synthetic-PUF for Medicare Claims Data (DE-SynPUF)

- New type of 'synthetic' file useful for data entrepreneurs for software and application development
- Preserves detailed data structure of key variables at beneficiary and claim levels
  - Data is fully 'synthetic' for disclosure safety
  - Limited analytic utility due to lack of preservation of interdependence between variables
- Contents
  - 5% sample of enrolled Medicare beneficiaries in 2008
  - 3 years of claims (2008-2011): inpatient, outpatient, carrier, prescription drugs (PDE)

Improving Access to CMS Data Resources

Data Dissemination Activity

- CMS is routinely and safely sharing data to support the transformation of the delivery system
  - Accountable Care Organizations (ACOs)
  - Qualified Entities (QEs) – Medicare Data Sharing for Performance Measurement Program
  - Researchers
  - Quality Improvement Organizations (QIOs)
  - States
  - CMS demonstrations – Innovation Center grantees (e.g., Health Care Innovation Awardees)
- CMS has also allowed beneficiaries full and open access to their Medicare claims data through the Blue Button Initiative

Monthly Data Feeds for ACOs

- CMS is sending near real-time data to Accountable Care Organizations (ACOs) for patients enrolled in ACO
- Include beneficiaries entire claims history, including all service types, procedures and supplies.
- Opportunity for private sector to help ACOs transform the data to clinical information

Medicare Data Sharing for Performance Measurement

NOW

FUTURE

Research Data Dissemination

- The Chronic Condition Warehouse (CCW) is CMS' **research** data warehouse designed to support external researchers and internal CMS research and analytic functions
- Unique beneficiary ID allows user to link data across all CCW data – including:
  - Medicare beneficiary demographics and enrollment (1999-current)
  - Medicare fee-for-service (FFS) claims (1999-current)
  - Medicare Part D event data (2006-current)
  - Medicaid eligibility and claims (1999-2009)
  - Medicare-Medicaid linked files (2006-2008)
  - Assessment data (instrument inception-current)
- New data access method: Virtual Research Data Center (RDC)

CMS Virtual RDC Benefits

ACCESS

- Researchers use own laptop to securely access data remotely
- Increases efficiency of data sharing and reduces infrastructure costs for data users

SECURITY

- No shipping of data on external media
- Users only see data files with the data they need to conduct their project
- CMS can track and monitor use of the data

PRIVACY

- Users may only remove aggregated output files; no granular identifiable output may be taken out
- CMS encrypts all beneficiary identifiers
- CMS can encrypt physician identifiers

DATA & ANALYSIS

- Users can perform their own analyses and data manipulation in the virtual environment
- Secure File Transfer System allows users to upload their own data and download output files efficiently and securely

Blue Button

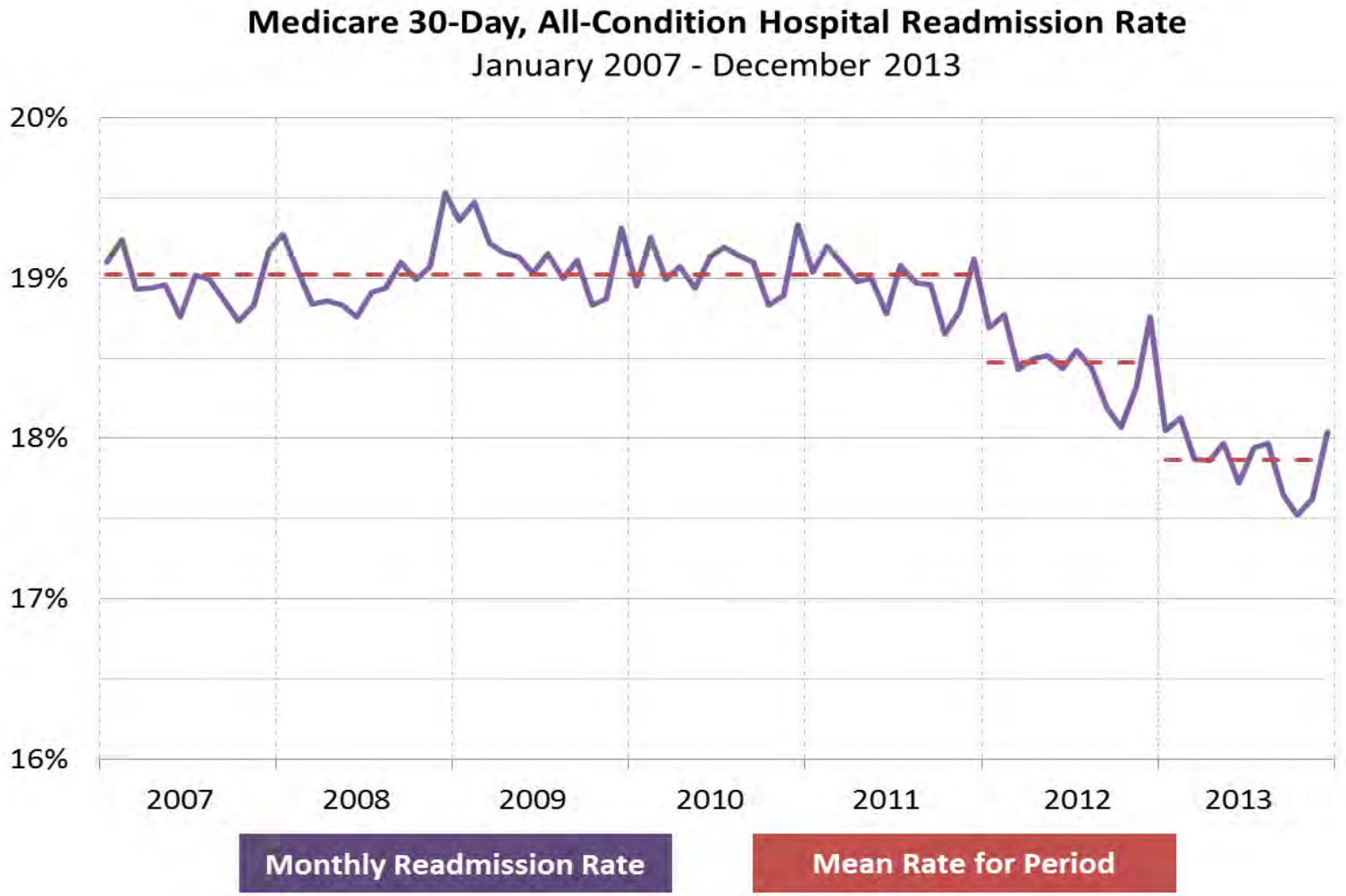
- VA, DoD and CMS effort to give patients access to their own data (FEHB plans beginning to also offer blue button)
- 300,000 CMS beneficiaries have downloaded their data to date
- 2012 enhancements:
  - Moved from 1 year of data to 3 years of data
  - Moved from Parts A and B data to Parts A, B and D data
- Opportunities for private sector

CMS Analytics in Action

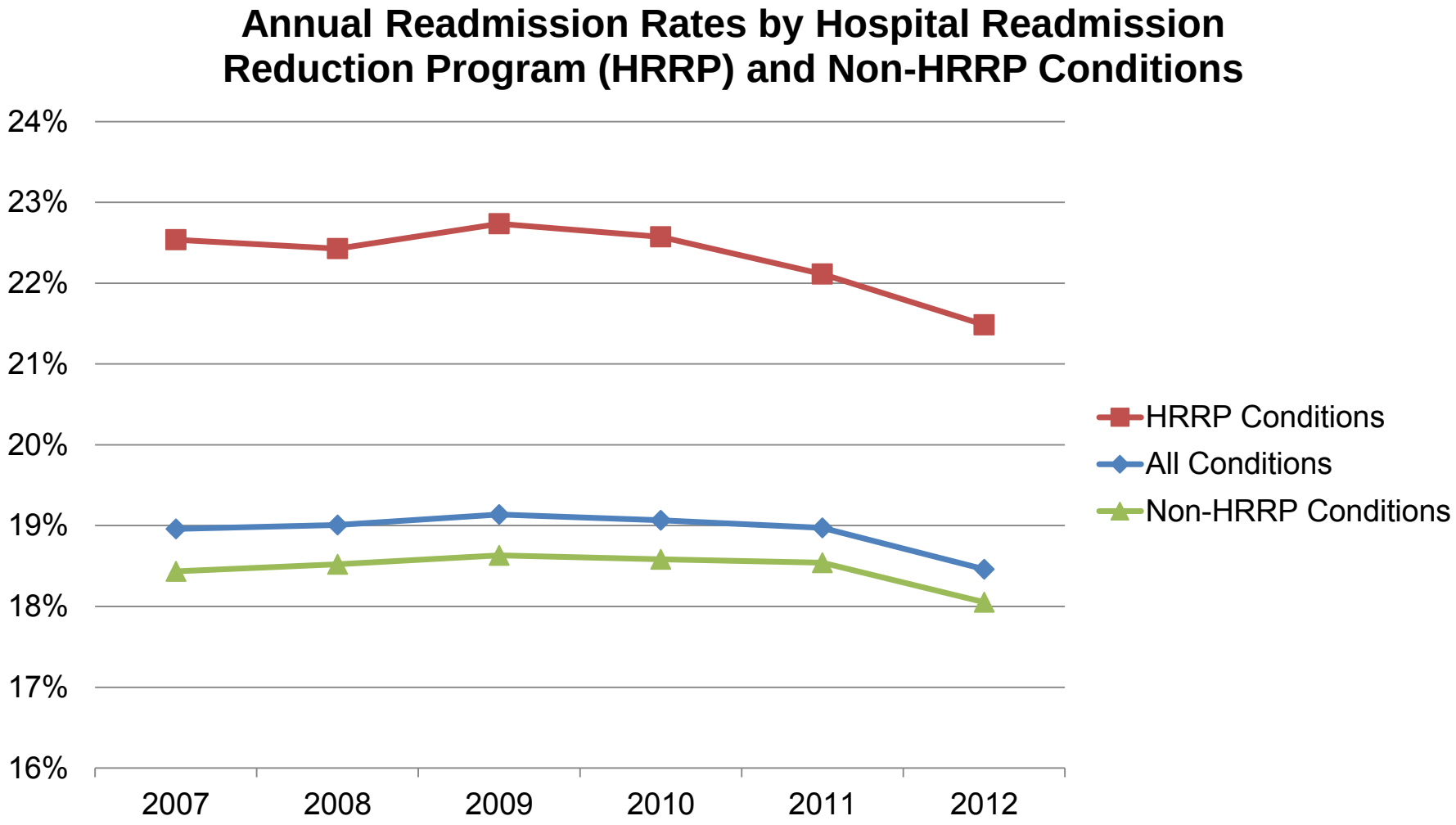
Medicare Readmissions

- Medicare data on readmissions highlights:
  - Scale of the problem facing the Medicare program
  - Size of the opportunity facing the multiple efforts underway
- In 2011, the readmission rate for Medicare beneficiaries was 19.1%
  - Just over 10 million admissions
  - Approximately 1.9 million readmissions
- Readmissions cost the Medicare program $16.8 billion in inpatient spending
- Out of more than 33 million Medicare beneficiaries 3.6% had a readmission (over 1.2 million benes)

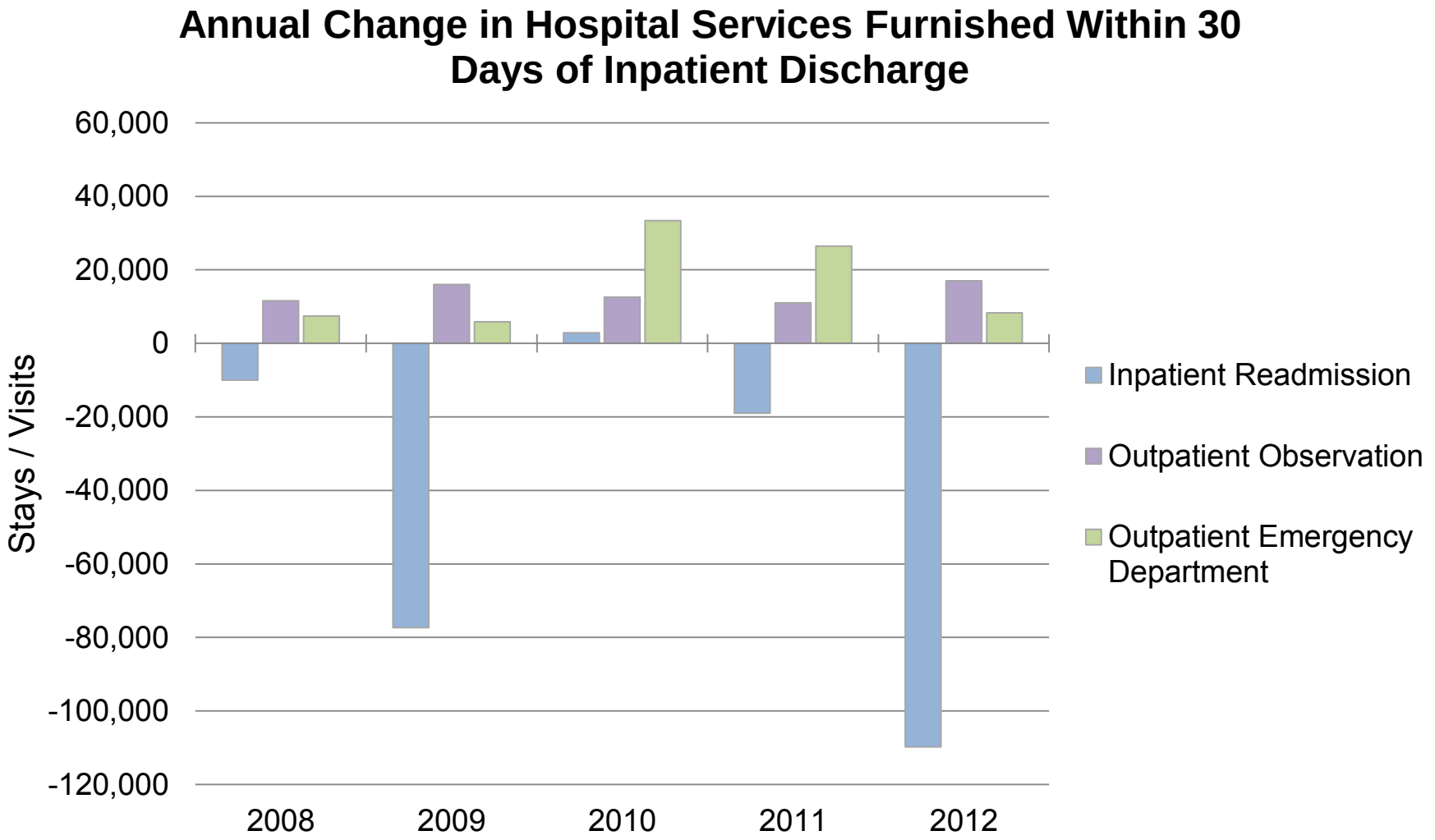
Results – Mounting Evidence of a Decline in Readmissions



Mounting Evidence of a Decline in Readmissions (cont)



Mounting Evidence of a Decline in Readmissions (cont)

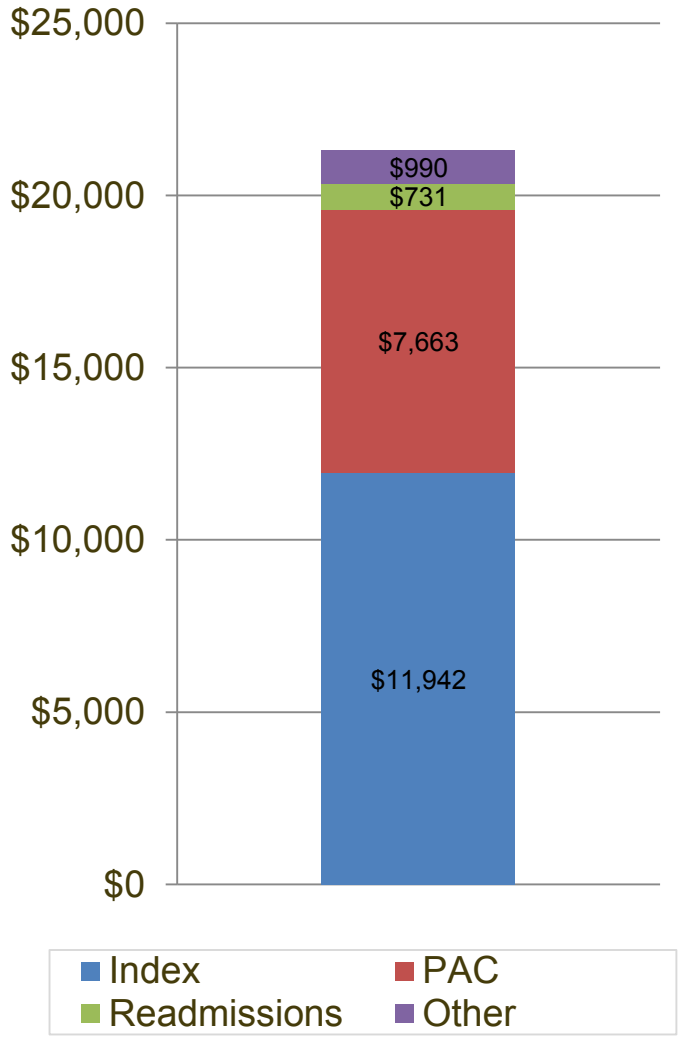


Analytics in Action – Episode Costs for MS-DRG 470

(Hip or Knee Replacement)

- Total 2010 Episodes = 285,520

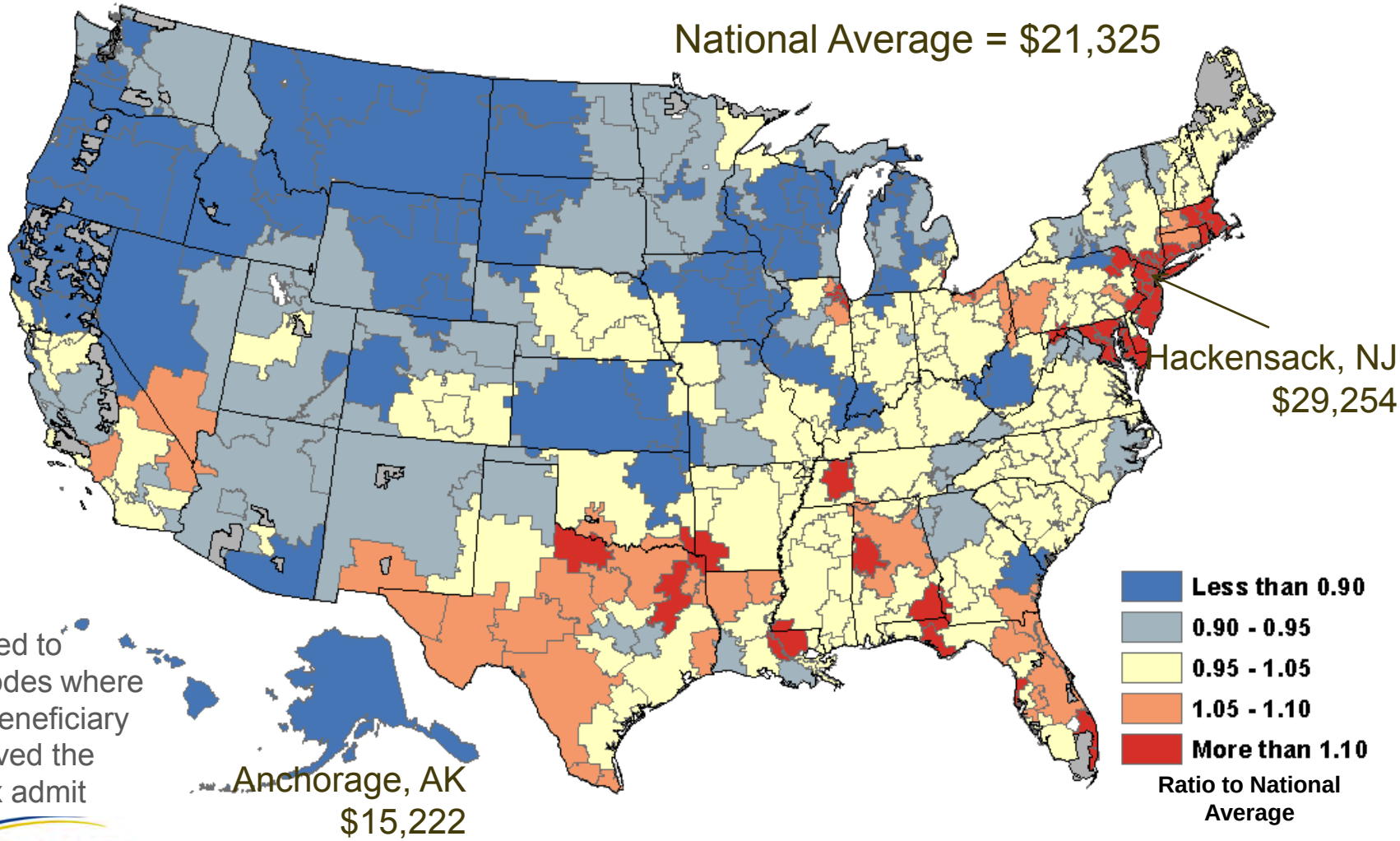
  (Total discharges for DRG 470 = 437,981)
- Total Spending = $6.1 B
- Average episode cost = $21,317
- Average episode length = 56 days
- Beneficiaries:
  - Survived the index admit in 99.9% of episodes (285,242)
  - Survived the index and used PAC as the first service after the index in 92.3% of episodes (263,507)
- Readmissions per episode = 0.09



All figures based on standardized dollars

Average Episode Cost by HRR

MS-DRG 470: Hip/Knee Replacement



Outlier HRRs

MS-DRG 470: Hip/Knee Replacement

	Average Episode Length	% of Episodes w/o PAC	Share of PAC Episode Dollars Going to . . .				
			SNF	HHA	IRF	Therapy	LTCH
High Outlier HRRs*	69	3.4%	46.4% ($5,217)	22.6% ($2,505)	24.0% ($2,825)	6.6% ($724)	0.4% ($42)
All HRRs	56	7.1%	47.9% ($3,986)	28.2% ($2,345)	16.2% ($1,344)	7.2% ($595)	0.5% ($46)
Low Outlier HRRs*	46	15.6%	54.0% ($3,112)	24.0% ($1,332)	11.1% ($648)	10.8% ($601)	0.1% ($6)

*Outlier HRRs had spending that was 15% above / below the national average.

Limited to episodes where the beneficiary survived the index admit

Analytics in Action: Wisconsin

Introduction

- Total WI population=5.7 million
- Medicare FFS population:
  - Just over 625,000 benes (1.8% of the national FFS population)
  - Spent $5.0B in 2012 (1.6% of national FFS spending)
- MA penetration=30.2%

Unless otherwise noted figures are for 2012

Demographic Profile for WI

Selected Demographic Indicators	*WI*	*National*
Average Age	71	71
% Female	55.2%	55.1%
% Dual Eligible	21.0%	21.7%
Race		
% White	91.6%	80.2%
% African American	4.0%	9.8%
% Hispanic	1.6%	6.0%

- HCC model predicts spending below the national average (adjusted HCC=0.95)

Prevalence of chronic conditions is mostly below the national average

Selected Chronic Conditions	*WI*	*National*
% with hypertension	48.9%	55.5%
% with ischemic heart disease	24.0%	28.6%
% with high cholesterol	40.8%	44.8%
% with arthritis	26.1%	29.0%
% with COPD	8.8%	11.3%
% with heart failure	13.0%	14.6%
% with heart attack	0.81%	0.86%
% with chronic kidney disease (CKD)	15.8%	15.5%

When spending is adjusted for risk, beneficiaries in WI are less costly

Total Medicare Spending in WI = $5.0B

- Actual per capita spending is 15% below the national average ($8,045 vs. $9,503)
- Standardized, risk-adjusted spending is nearly 9% below the national average ($8,600 vs. $9,418) because the population is generally healthier

Per Capita Spending	*WI*	*National*
Actual	$8,045	$9,503
Standardized	$7,717	$8,973
Risk-Adjusted, Standardized	$8,600	$9,418

Compared to a cohort of states with similar risk scores, WI has lower standardized spending

- 10 states have average HCC scores that are very similar to WI (WI's cohort)

  Kansas, Maine, Arkansas, Nevada, Virginia, South Carolina, Oklahoma, West Virginia, Alabama, and North Carolina

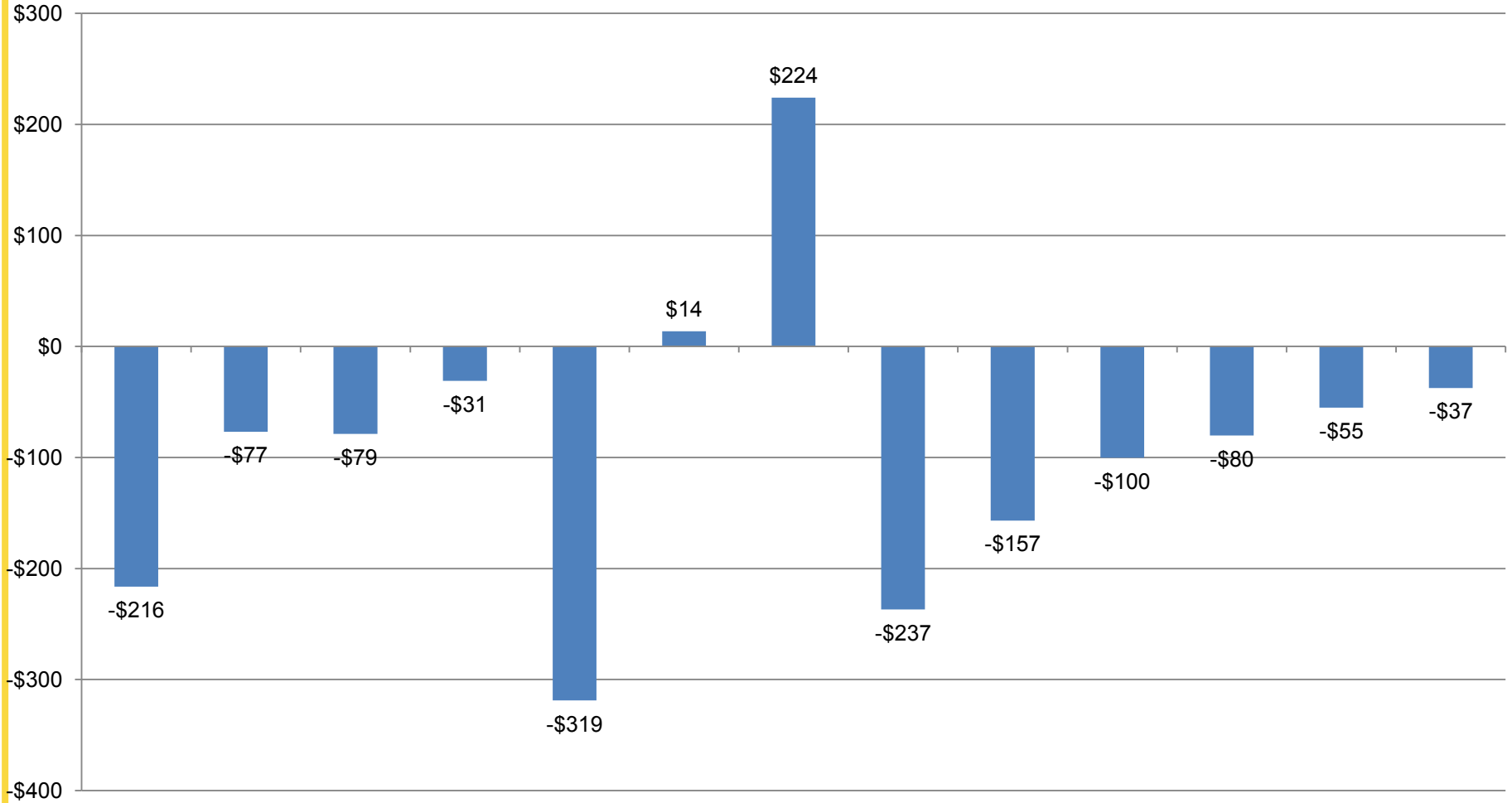
- Compared to WI's cohort
  - Actual per capita spending in WI is 6% below the cohort median ($8,045 vs. $8,530)
  - Standardized per capita spending in WI is 10% below the cohort median ($7,717 vs. $8,478)

Per Capita Spending	*WI*	*Cohort Median*
Actual	$8,045	$8,530
Standardized	$7,717	$8,478

Potential focus areas

- Services: high spending, over-utilization, and/or poor quality
  - Outpatient care
  - Inpatient care (including readmissions and other potentially avoidable hospitalizations)
- Geographic: areas with high per capita spending and/or poor quality
- Beneficiary: Top 1% costliest beneficiaries

Std per capita spending is below the national average for most services



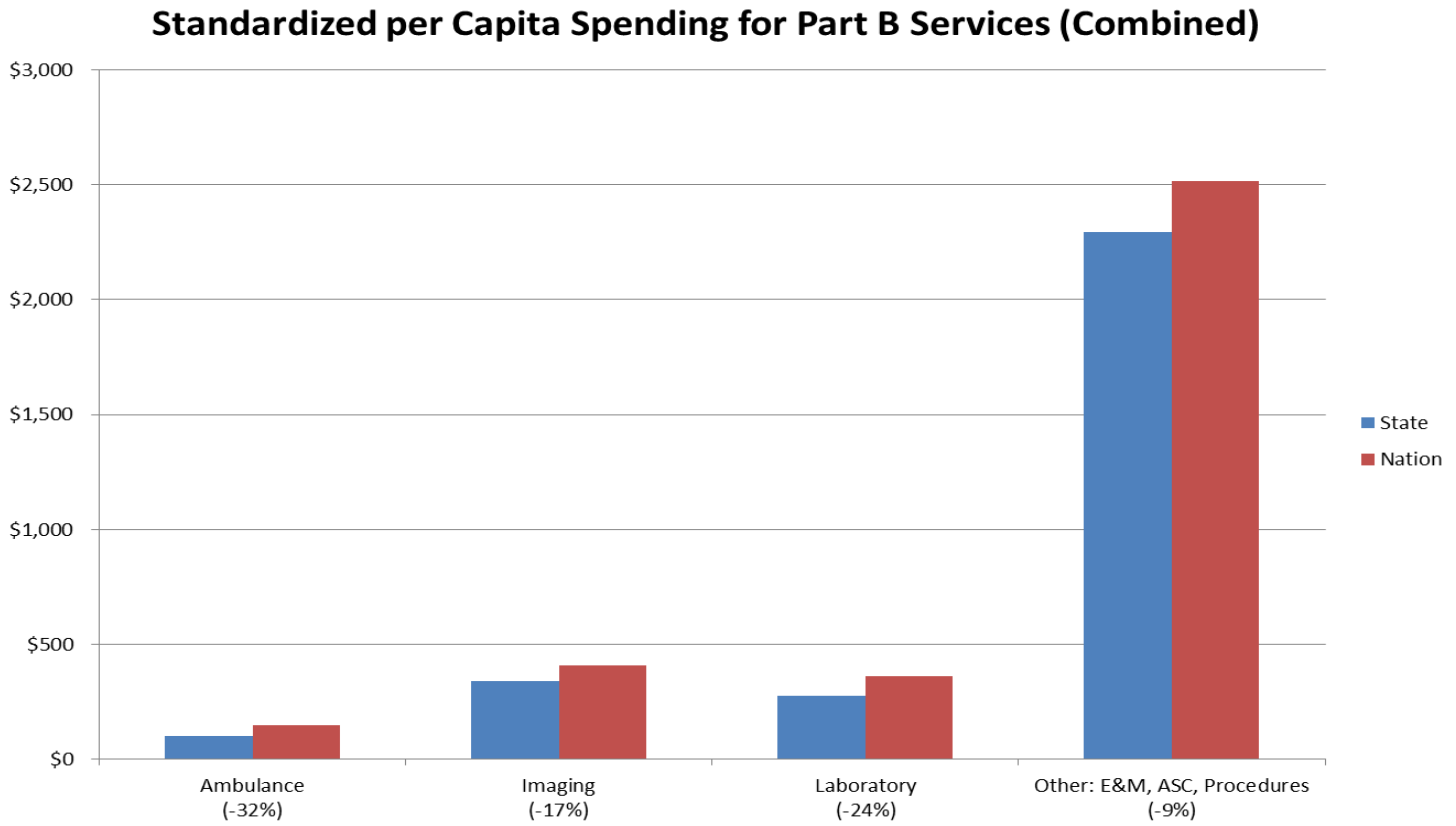
	IP	LTCH	IRF	SNF	HH	Hospice	OP	E&M	Procedures	Tests	Imaging	Part B Drugs	DME
Nat'l Avg	$2,595	$155	$180	$794	$520	$317	$1,129	$932	$643	$274	$231	$318	$236

Outpatient spending is higher than expected given healthier Medicare popn

- Outpatient standardized per capita spending is 20% above the national average and 16% above the median spending for WI's cohort ($1,352 vs. $1,168 for cohort)
- Outpatient utilization (visits per 1,000 benes) is:
  - 29% higher than the national average (5,436 vs. 4,204 nationally)
  - 39% higher than the median for WI's cohort (5,436 vs. 3,919 for cohort)
- However, E&M, procedures, tests, imaging, DME services and Part B drug use are lower than the national average

When Part B services are combined, WI's per capita spending is below the national avg

- Although outpatient services (ambulance, imaging, laboratory, and other services) appear have higher per capita spending, when you combine all Part B services, WI has lower per capita spending for all services compared to the nation



WI's readmission rate has decreased slightly over the past 6 years

- WI's readmit rate decreased 1.24 percentage points from 2008 to 2013

2008	2009	2010	2011	2012	2013*
17.32%	17.30%	16.98%	16.81%	16.90%	16.08%

- WI's 2012 readmit rate is:
  - Below the national average (16.90% vs. 18.64% nationally)
  - 0.63% below the cohort median (16.90% vs. 17.53% for cohort)
- Readmissions cost WI $316.2M in 2012 (19.4% of total inpatient spending)

* Note: The 2013 readmissions rate is an estimate.

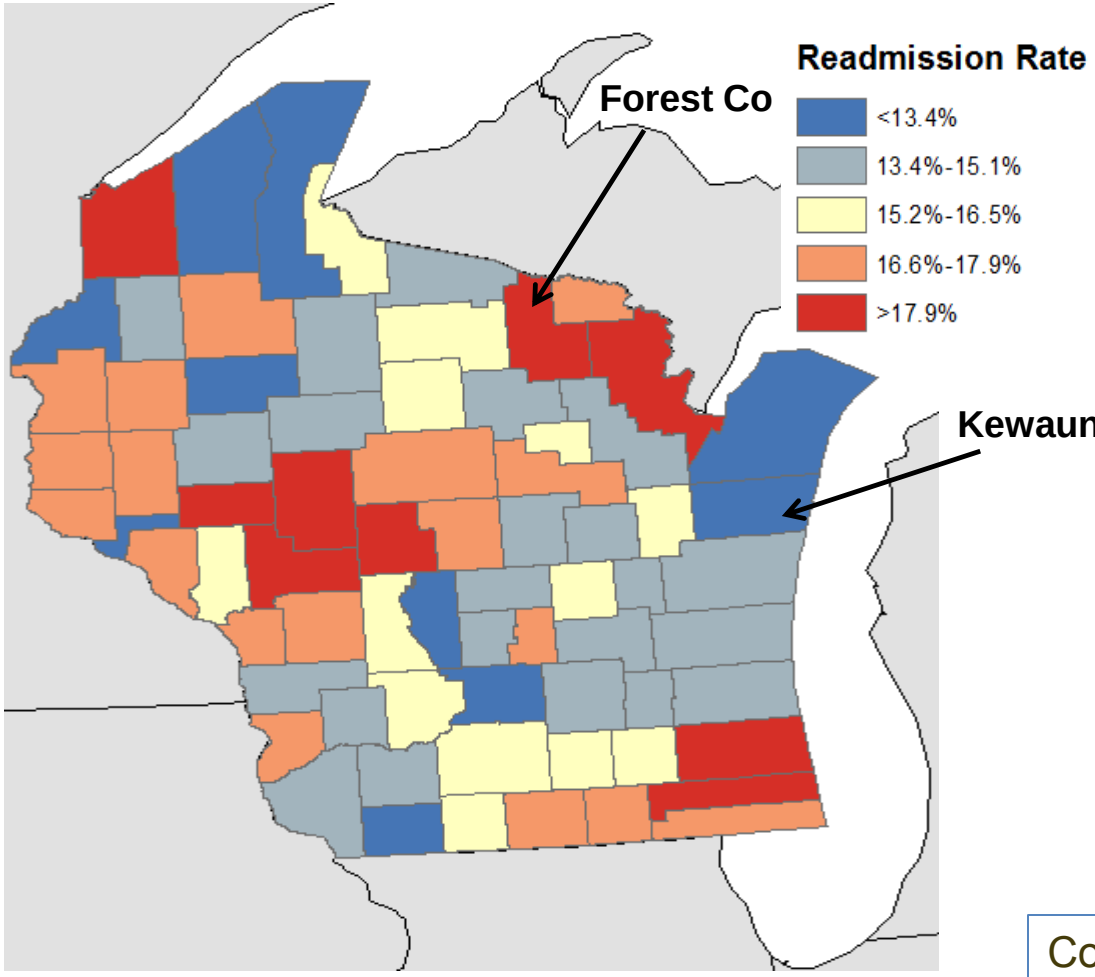
Just under 3% of WI benes were readmitted in 2012

- 2.99% of benes (~18,700) had at least one readmission
- 0.31% of benes (~1,950) had 3+ readmits – these benes:
  - Mostly lived in Milwaukee (over one-quarter)
  - Accounted for 28% of all readmits in the state
  - Averaged **4 readmits** per bene (over 7,800 readmits total)
  - Had an average readmission rate of **65.6%**

Roughly 40% of spending for benes with 3+ readmits is for acute care

- Total yearly spending for benes with 3+ readmits is nearly $213M or nearly $109,800 per capita
  - Spending for readmissions is over $86M or $44,500 per capita
  - Spending for all inpatient care is over $127M or $65,300 per capita
- Demographics for benes with 3+ readmits:
  - Nearly 43% are duals (compared to 19% in WI overall)
  - Over 18.5% are minorities (compared to 8.4% among the WI population)

County level readmission rates range from 11.7% (Kewaunee Co) to 21.1% (Forest Co)



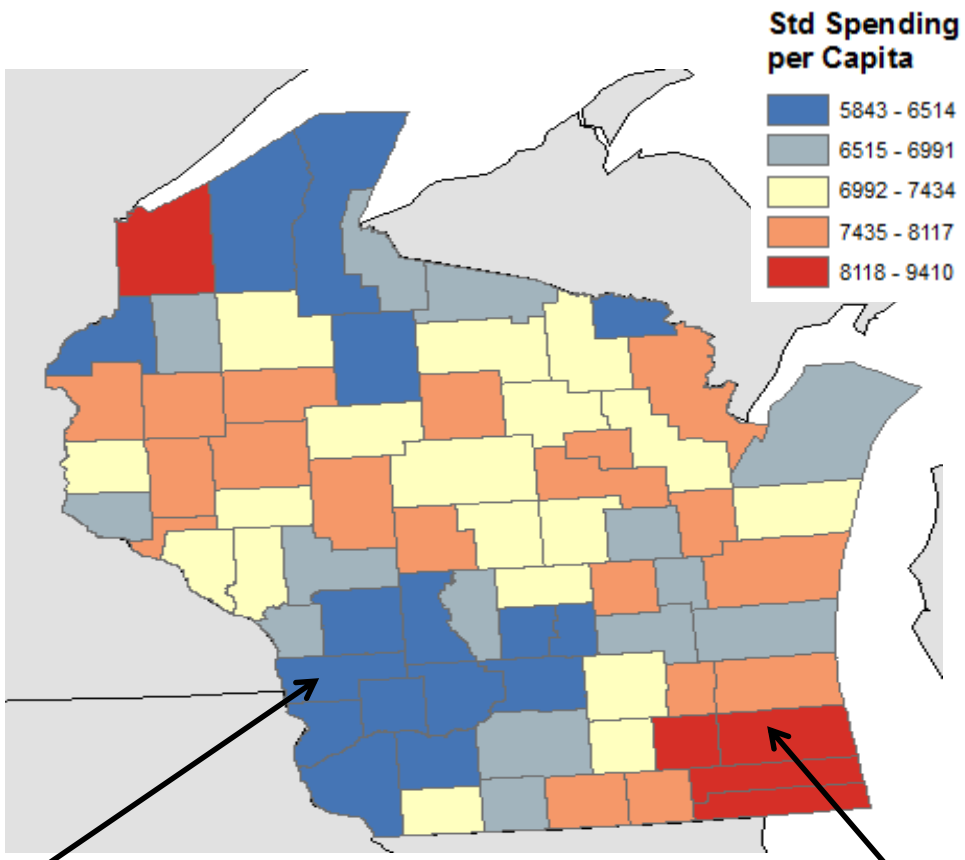
- In Forest County (1,681 benes):
  - 1.90% of benes had at least 1 readmit
  - 0.65% (11 benes) had 3+ readmits (~$547k in spending on readmits)
- 28/72 counties in WI have a readmission rate of less than 15%

County populations (2012) range from ~470 Medicare benes to ~90,500

Rates of potentially avoidable hospitalizations are lower than the national average

- Rates of potentially avoidable hospitalizations (using AHRQ prevention quality indicators) are:
  - Below the national average for benes under 65
    - 7.3% lower for dehydration admissions to 41.7% lower for younger adults (<40 years) with asthma admissions
  - Below the national average for benes age 65-74
    - 18.2% lower for lower extremity amputation admissions to 44.6% lower for hypertension admissions
  - Below the national average for benes age 75+
    - 7.4% lower for bacterial pneumonia admissions to 26.2% lower for hypertension admissions

WI county level std per capita spending varies by nearly $3,600



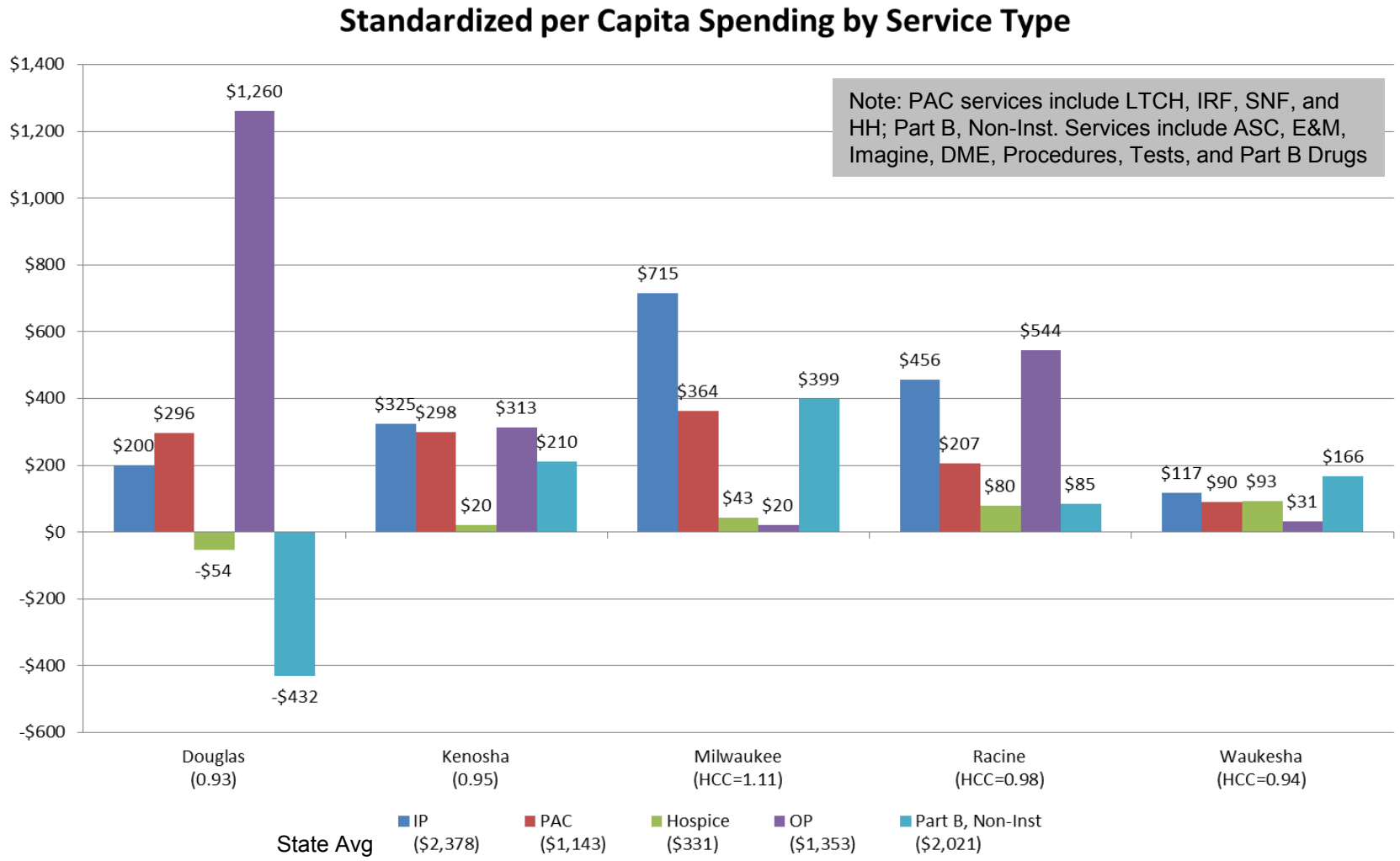
Vernon County (~$5,800 per capita, HCC = 0.87)

Milwaukee County (~$9,400 per capita, HCC = 1.11)

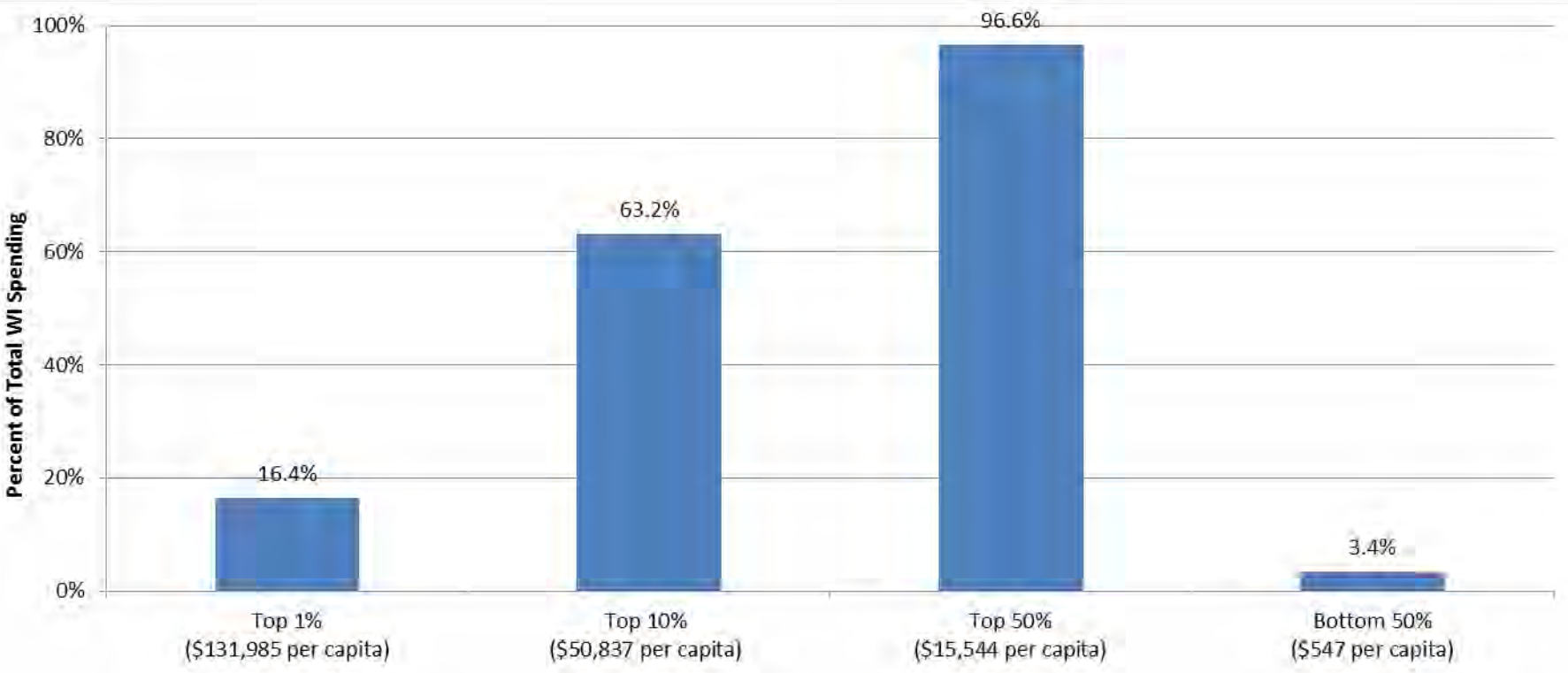
- Std per capita spending ranges from ~$5,800 in Vernon County to nearly $9,400 in Milwaukee County (total yearly spending is $851.3M in Milwaukee County)
- Avg HCC scores range from 0.78 in Door Co. to 1.11 in Milwaukee (natl average=1.00)

County populations (2012) range from ~470 Medicare benes to ~90,500

5 counties with the highest std per capita spending show variability among services

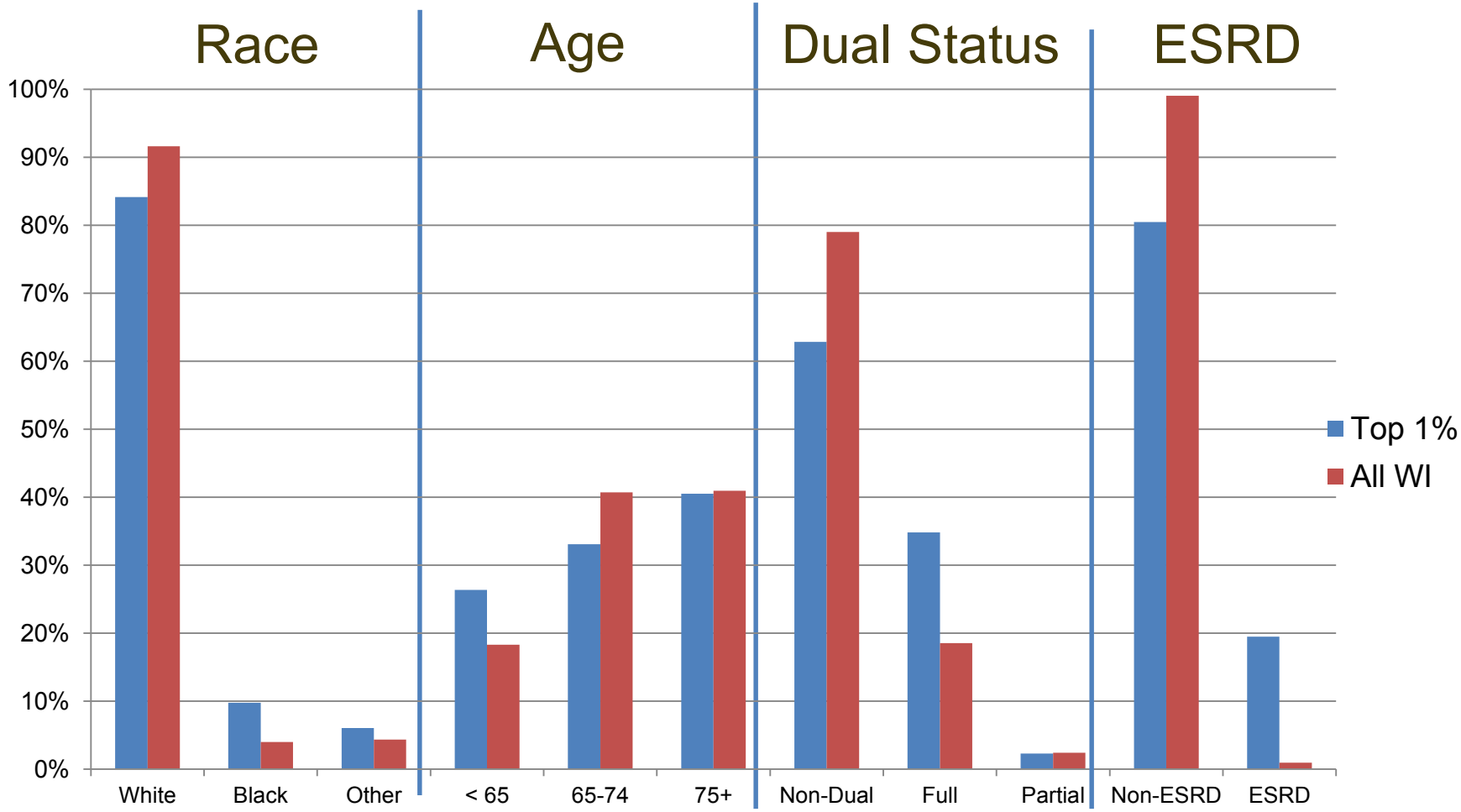


Medicare spending in WI is highly concentrated among a small number of benes

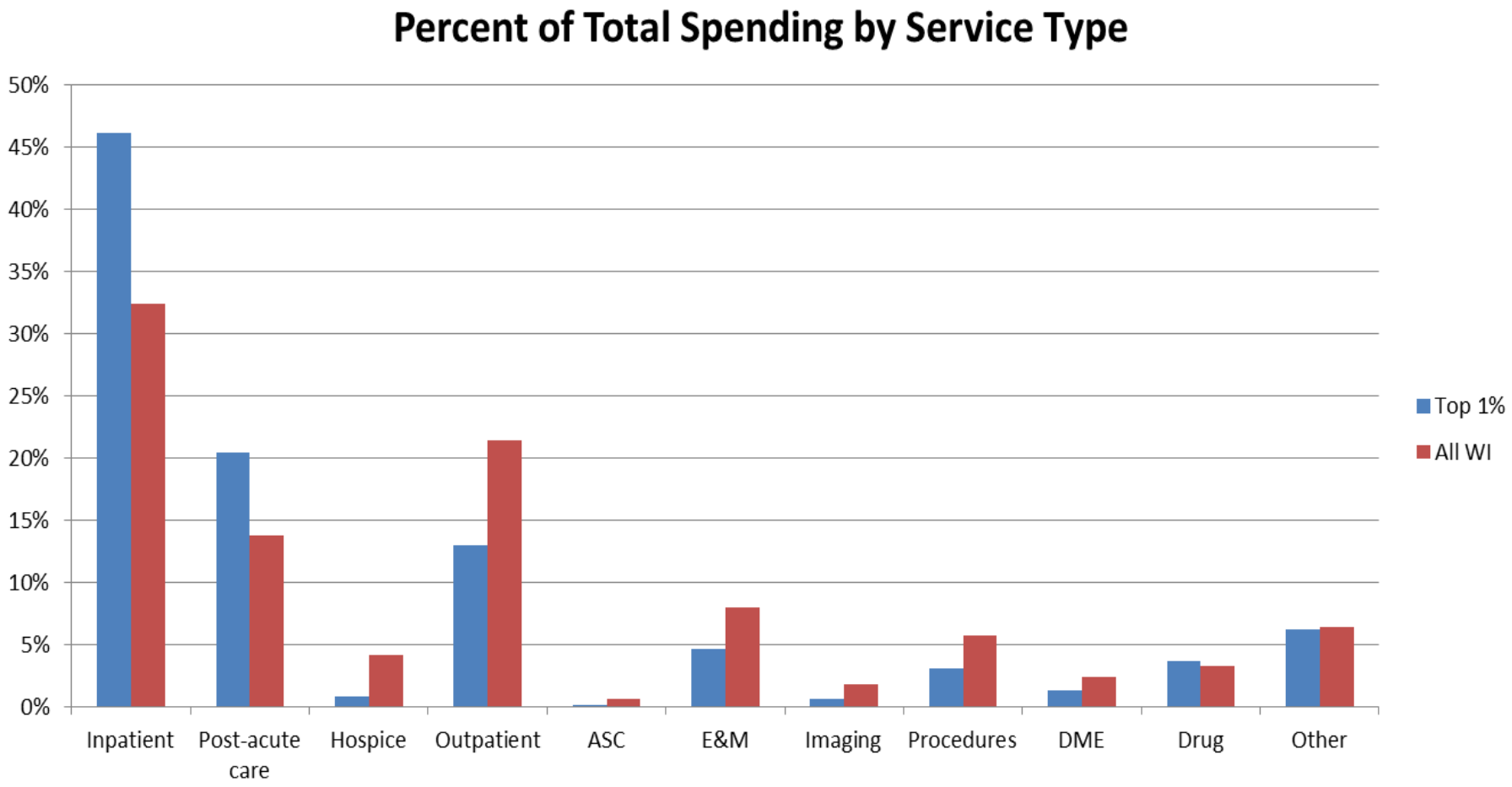


- Benes in the top 1% (~6,260 benes) accounted for over 16% of total spending in the state ($5.04B)

Benes in the top 1% are more likely to be black, younger, duals, and have ESRD

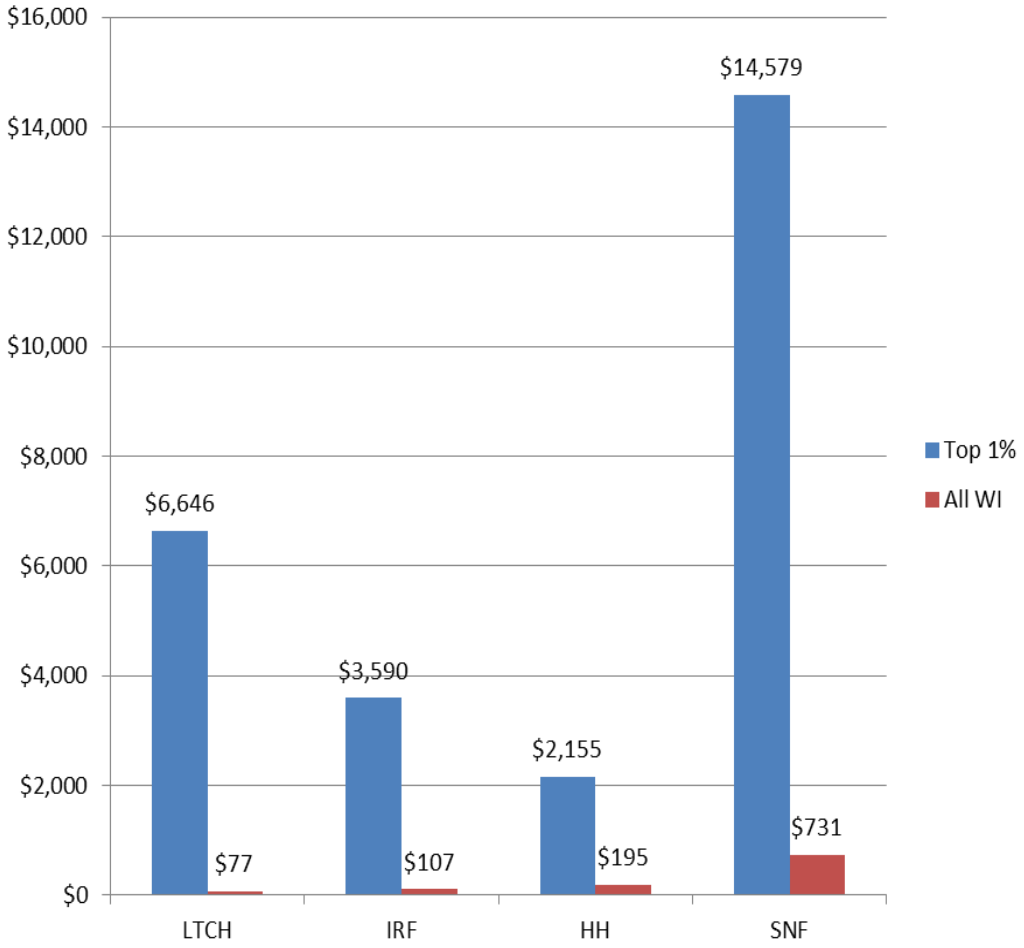


A larger portion of spending for benes in the top 1% goes to inpatient and PAC



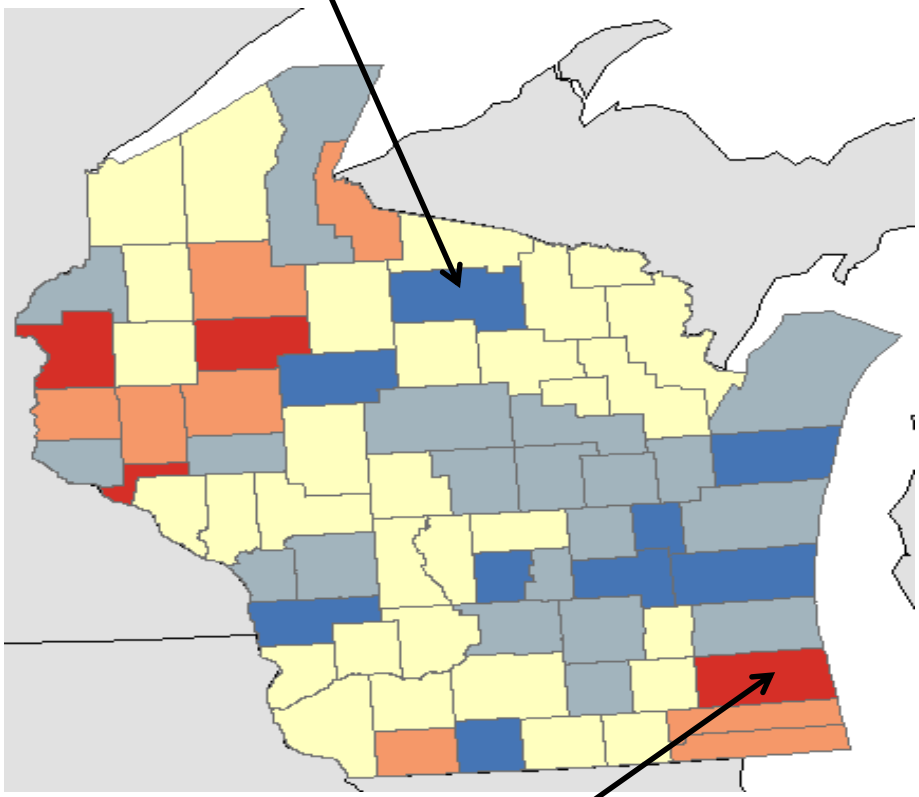
Benes in the top 1% spend nearly $94,000 per capita on acute and post acute care

- Inpatient per capita spending for benes in the top 1% is $66,989 (vs. $2,819 for all WI benes)
- PAC per capita spending for benes in the top 1% is $26,970 (vs. $1,111 for all WI benes)
  - Benes in the top 1% have particularly high spending on LTCH and SNF



Benes in the top 1% are more concentrated in certain counties

Oneida County (% in WI Top 1% = 0.52%)



Milwaukee County
(% in WI Top 1% = 1.66%)

- In 5 counties more than 1.3% of the Medicare population is in WI's top 1% costliest
- In 8 counties less than 0.6% of the Medicare population is in WI's top 1% costliest

County populations (2012) range from ~470 Medicare benes to ~90,500