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National Medicare Readmission Findings: Recent Data and Trends

Office of Information Products and Data Analytics
Centers for Medicare and Medicare Services

Methods and Definitions

- **Data source:** Chronic Condition Warehouse (CCW) which contains 100% Medicare FFS claims data for 2007-2010

- **Population:** Medicare FFS beneficiaries, <u>excluding</u>:

  - Beneficiaries enrolled in a Medicare Advantage plan at any point during the year

  - Beneficiaries enrolled in only Part A or Part B

  - Beneficiaries who age-in after January

- **30-day, all cause readmissions (readmissions):** Inpatient hospital admission that occurs within 30 days of discharge from a previous inpatient hospital admission

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2010 Medicare Readmission Stats

- Medicare data on readmissions highlight both the scale of the problem facing the Medicare program and the size of the opportunity facing the multiple efforts underway

- In 2010, the readmission rate for Medicare benes was 19.2%

  - Just under 10 million admissions

  - Approximately 1.9 million readmissions

- Readmissions cost the Medicare program $17.5 billion just in inpatient spending

- Out of more than 31 million Medicare beneficiaries less than 4% had a readmission (just over 1.2 million benes)

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National Readmission Rate Relatively Unchanged from 2007 to 2010

	2007	2008	2009	2010	*07-10 change*
Readmission Rate	19.2%	19.3%	19.4%	19.2%	*0.1%*
Index Admits per 1,000 Benes	329	327	320	316	*-3.9%*
Readmits per 1,000 Benes	63	63	62	61	*-3.8%*

- The actual number of readmissions decreased by about 75,000 between 2007 and 2010

- However, the change was accompanied by a proportional decrease in total index admissions, leaving the readmission rate relatively unchanged

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Preliminary 2011 Readmission Figures

- Preliminary figures (as of March 2012) indicate the 2011 readmission rate remains relatively similar to 2010

  - Past experience leads us to expect the 2011 readmission rate to rise slightly as final claims for the end of 2011 are processed

- However, both index admissions and readmissions appear to continue to decline in 2011

	2010	2011
Readmission Rate	19.2%	19.0%
Index Admits per 1,000 Benes	316	308
Readmits per 1,000 Benes	61	58

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Percentage of Beneficiaries with a Readmission

In addition to looking at the readmission rate, we also identified the percent of beneficiaries that have a readmission

	# of Benes with a Readmit	% of Benes with a Readmit	Distribution of readmits
Any readmissions	*1,209,229*	*3.9%*	*100.0%*
1 readmit	834,005	2.7%	43.9%
2 readmits	226,900	0.7%	23.9%
3+ readmits	148,324	0.5%	32.3%

Percentage of Benes with a Readmission over Time

- From 2007 to 2010 the percent of beneficiaries experiencing a readmission declined from nearly 4.1% to less than 3.9%

- The decline was largely driven by a decline in the percent of benes with 1 or 2 readmissions

Percent of Benes w/:	2007	2008	2009	2010
Any readmission	*4.07%*	*4.05%*	*3.96%*	*3.86%*
1 readmit	2.83%	2.80%	2.73%	2.66%
2 readmits	0.76%	0.76%	0.74%	0.72%
3+ readmits	0.48%	0.49%	0.48%	0.47%

Variation in Readmission Rates across Subgroups

- The generally flat trend in readmission rates between 2007 and 2010 persisted even when stratifying by subgroup

- Focus on 2010 to highlight differences for various subgroups:

  - Age: <65, 65-74, 75-84, 85+

  - Medicaid eligibility: full dual, partial dual, not a dual

  - Nursing home stay of 3+ months: yes, no

  - Race/ethnicity: non-Hispanic white, African-American, Hispanic, Asian/Pacific Islander, American Indian/AK Native, other/unknown

Readmission Rates: by Age

Subgroup (% of popn)	Readmission Rate	% with 1+ Readmit
All Benes	*19.2%*	*3.9%*
Age < 65 (17%)	23.1%	1.8%
Age 65 - 74 (39%)	17.9%	3.5%
Age 75 - 84 (29%)	18.6%	8.5%
Age 85 + (15%)	18.4%	5.3%

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Readmission Rates: by Medicaid eligibility and nursing home stay

Subgroup (% of popn)	Readmission Rate	% with 1+ Readmit
All Benes	*19.2%*	*3.9%*
Medicaid eligibility		
Full dual (17%)	23.8%	6.7%
Partial dual (4%)	20.4%	4.6%
Not a dual (78%)	17.3%	3.2%
Nursing Home Stay		
Yes (4%)	23.3%	10.8%
No (96%)	18.8%	3.6%

Readmission Rates: by race/ethnicity

Subgroup (% of popn)	Readmission Rate	% with 1+ Readmit
All Benes	*19.2%*	*3.9%*
White, non-Hispanic (81%)	18.3%	3.7%
African-American (10%)	24.1%	5.3%
Hispanic (6%)	21.2%	3.9%
Asian/Pacific Islander (2%)	19.4%	2.6%
Am. Indian/AK Native (<1%)	20.6%	4.7%
Other/unknown (1%)	19.5%	2.7%

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Benes with 3+ Readmissions

- Just under 150,000 benes (0.5%) experience 3+ readmits

- These benes:

  - Account for nearly one-third of all readmissions, a percent that has grown between 2007 and 2010

  - Average more than four readmissions per bene, with 3,900 benes experiencing 10 or more readmissions in the year

For benes with 3+ readmits	2007	2008	2009	2010
% of total readmissions	31.0%	31.5%	32.1%	32.3%
Avg # of readmissions	4.07	4.09	4.13	4.14

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Age and Medicaid Eligibility for Benes with 3+ Readmits vs. All Benes

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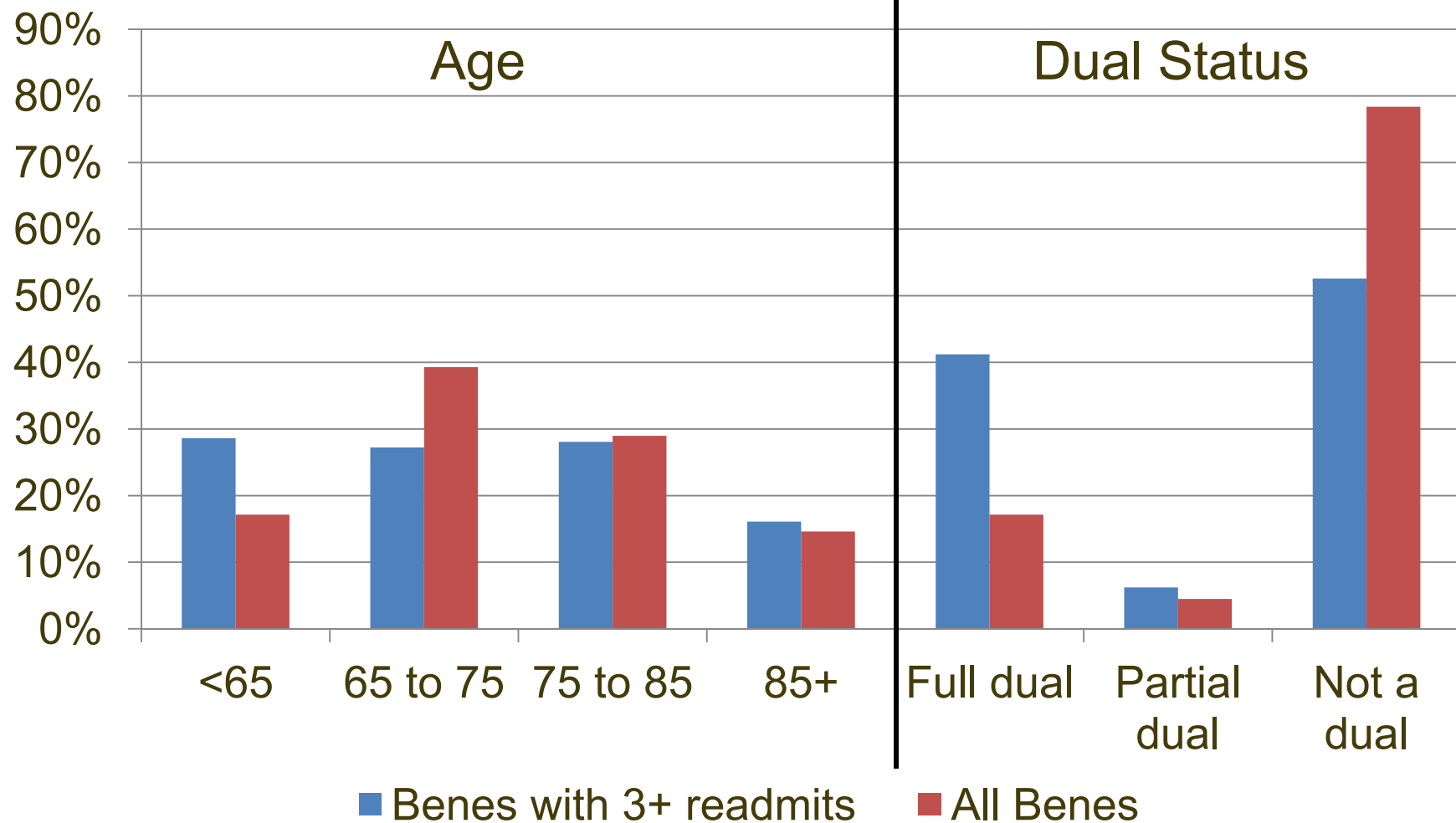
Race/Ethnicity for Benes with 3+ Readmits vs. All Benes
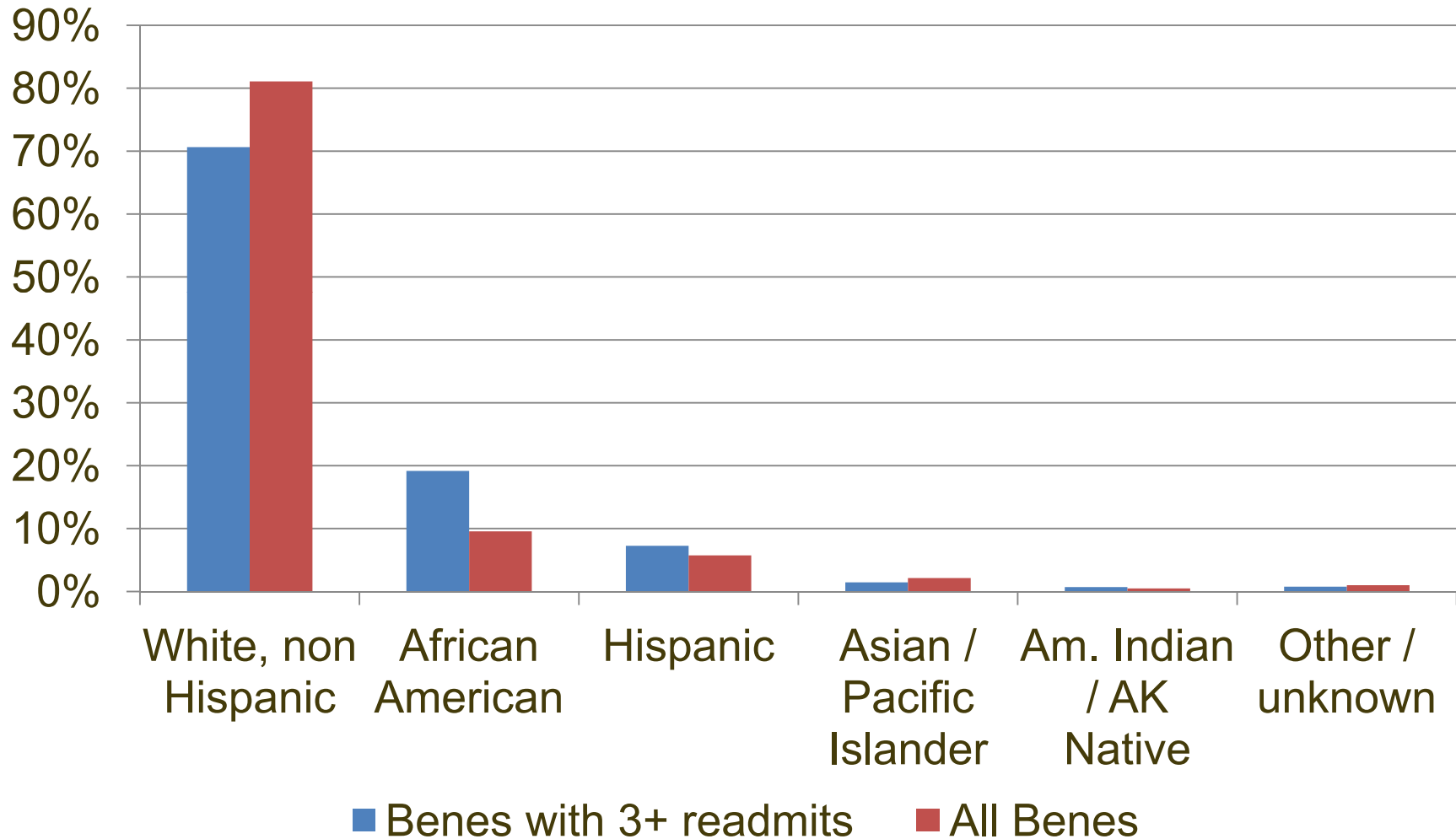
Benes with 3+ Readmits: Spending

- Benes with 3+ readmits spent nearly $5.4B on readmits in 2010 or $36,211 per capita

- These benes spent over $116,000 per capita compared to $9,732 for all benes

	Benes with 3+ Readmits	All Benes
Total Per Capita Spending	$116,358	$9,732
Inpatient Per Capita Spending	$67,837	$3,254
Post Acute Care Per Capita Spending	$19,310	$1,747

- The rate of ED visits per 1,000 benes for the population of benes with 3+ readmits was 8,048 (vs. 658 overall)

Identifying Benes at Risk for A Readmission in Advance

- Identifying beneficiaries at greater risk of readmission in advance would allow CMS to target resources to preventing these benes from returning to the hospital

- Building a model to identify these benes is one option – taking into account demographics, claims history, and other factors

- But there are also options using readily available CMS data:

  - Using the CMS risk scores (HCCs)

  - Targeting benes with readmissions in the previous year

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Using CMS HCC Scores to Identify Benes at High Risk for a Readmission

- Benes with an HCC score greater than 4.0:

  - Are 2.6% of the Medicare population (~830,000 benes)

  - Experienced nearly 21% of all Medicare readmissions for 2010 with an approximate program cost of $4.4B

	% of All Benes	% of All Readmits	% with 1+ readmits	% with 3+ readmits
All Benes	-	-	*3.9%*	*0.5%*
HCC: <1.0	61.2%	20.4%	1.5%	0.1%
HCC: 1.0 to 2.0	25.2%	26.7%	4.5%	0.4%
HCC: 2.0 to 3.0	7.7%	18.5%	9.4%	1.1%
HCC: 3.0 to 4.0	3.3%	13.5%	14.8%	2.3%
HCC: >4.0	2.6%	20.9%	23.5%	5.4%

Using Historical Readmission Data to Identify Benes at High Risk for a Readmission

- Identified benes with a readmission in 2009 (who survived the year) and looked at their experience in 2010

- Of those benes with 3+ readmits in 2009:

  - Nearly 44% had at least one readmit in 2010 (vs. 4% overall)

  - Over 17% had 3 or more readmits (vs. 0.5% overall)

	# of Benes Alive in 2010	% with 1+ readmits	% with 3+ readmits
All Benes	*31,329,983*	*3.9%*	*0.5%*
Benes with 1+ readmits in 09	871,120	22.2%	5.4%
Benes with 3+ readmits in 09	99,466	43.8%	17.6%

Regional Variation in Medicare Readmissions: Recent Data and Trends

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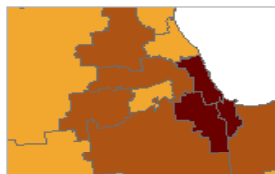Centers for Medicare and Medicare Services

Examining Regional Variation in Medicare Readmissions

- Medicare readmission rates vary across the country from a low of 12.2% to a high of 26.7% in 2010

- Although some of the variation is driven by underlying characteristics in the population in an area, analyses at a regional level highlight opportunities to address Medicare's readmission problem by targeting areas that are outliers

- Geographic unit of analysis:

  - Mainly use the Hospital Referral Regions (HRRs) developed by the Dartmouth Atlas
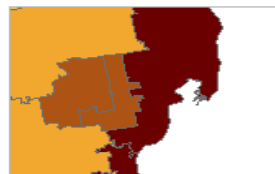
  - Also look at state and county level findings

2010 Readmission Rate Varies by HRR
(ratio to the national average: 19.2%)

Lowest: 12.2%
Idaho Falls, ID

Highest: 26.7%
Chicago, IL

Ratio of Readmission Rates to Natl Avg (19.2%)

- 0.85 or less (55 HRRs)
- 0.86 - 0.95 (97 HRRs)
- 0.96 - 1.05 (97 HRRs)
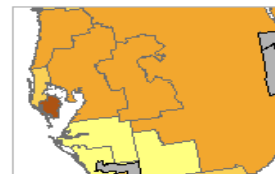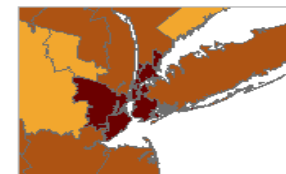- 1.06 - 1.14 (46 HRRs)
- 1.15 or more (11 HRRs)

San Francisco Bay   Chicago   Detroit   Central Florida   New York City
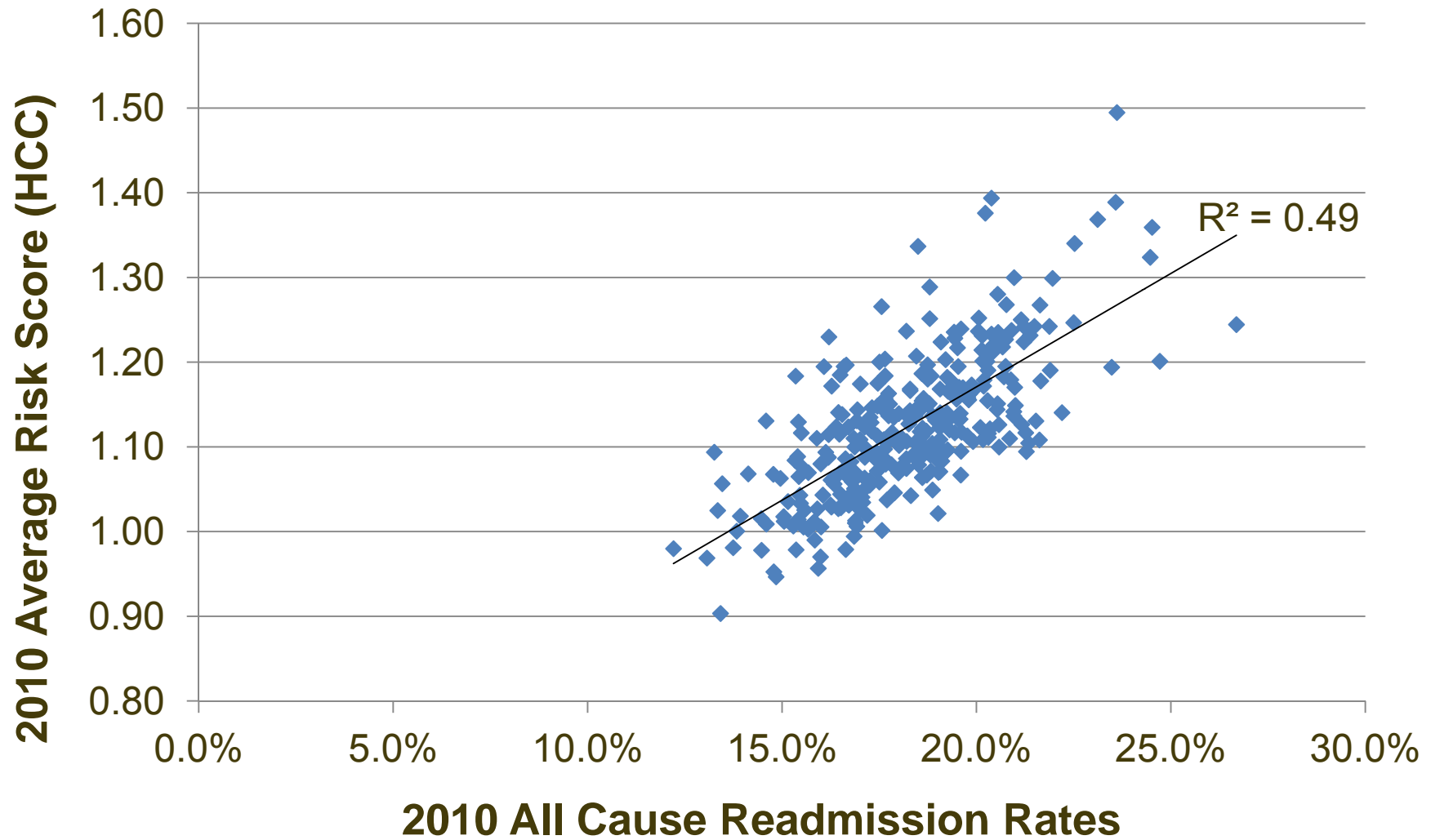
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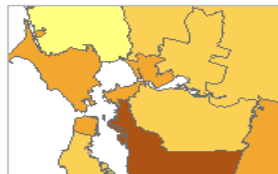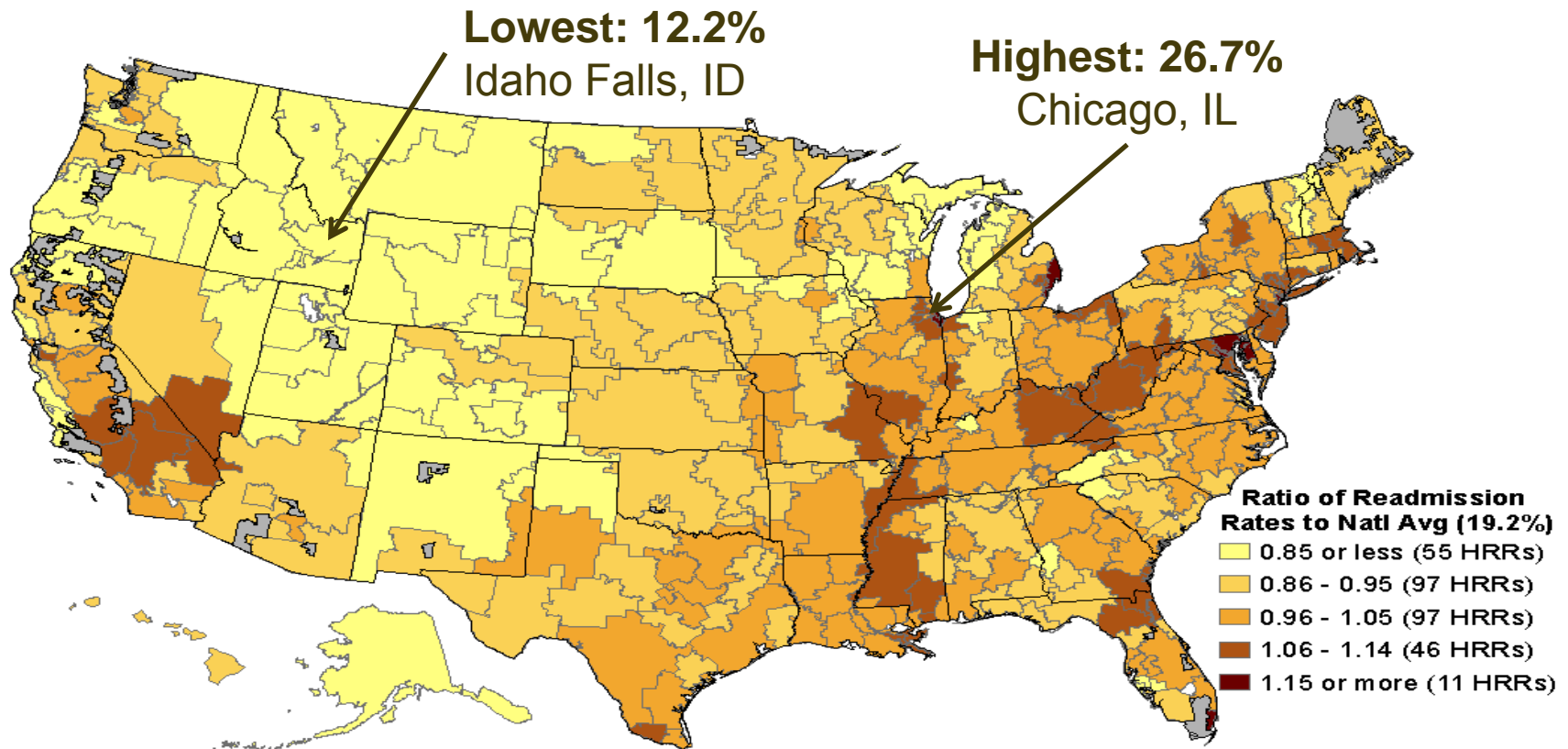
Number of HRRs with a Low Readmit Rate is 5x Greater than the Number with a High Rate

44% of Population

30% of Population

Readmission Rate in 2010

< 14.0 | 14.0 - 15.9 | 16.0 - 17.9 | 18.0 - 19.9 | 20.0 - 21.9 | 22.0 - 23.9 | 24.0 +

■ Percent of HRRs   ■ Percent of FFS Population
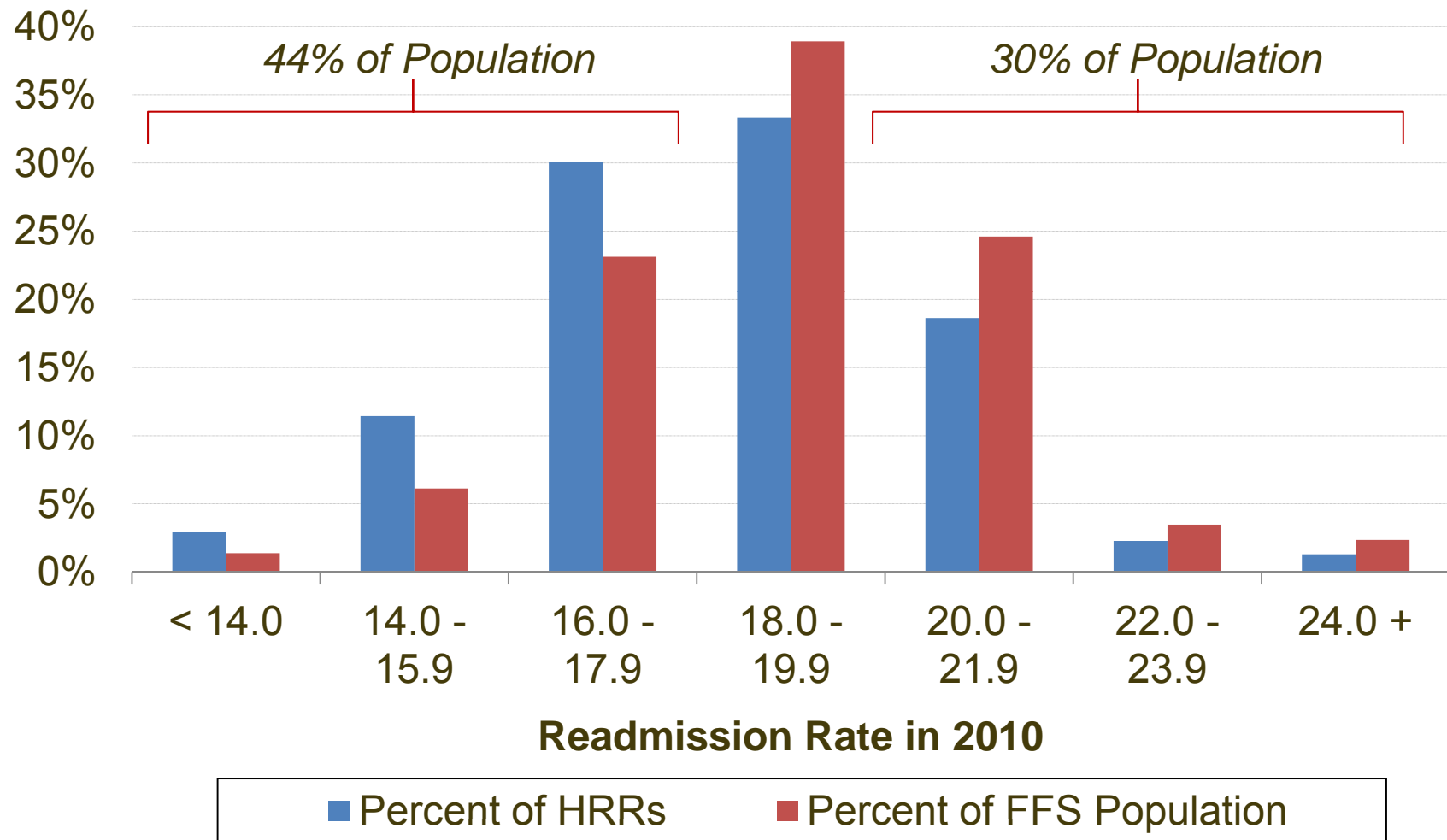
Readmission Rates for HRRs Highly Correlated with Avg Risk Score

Readmission Rates Vary by HRR for African American Benes

- African American benes had a readmission rate of 24.1% in 2010, highest among racial/ethnic groups and 26% above the national rate

- Limited analyses to HRRs with a African American Medicare population of at least 5,000 benes (135 HRRs)

- The readmission rate for African American benes varied significantly across HRRs ranging from:

  - 17.3% in Spartanberg, SC – a rate lower than the national average for all benes

  - 29.9% in Chicago, IL – a rate more than 50% above the national average for all benes

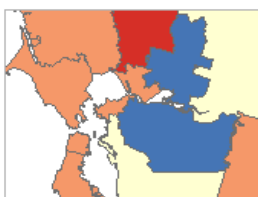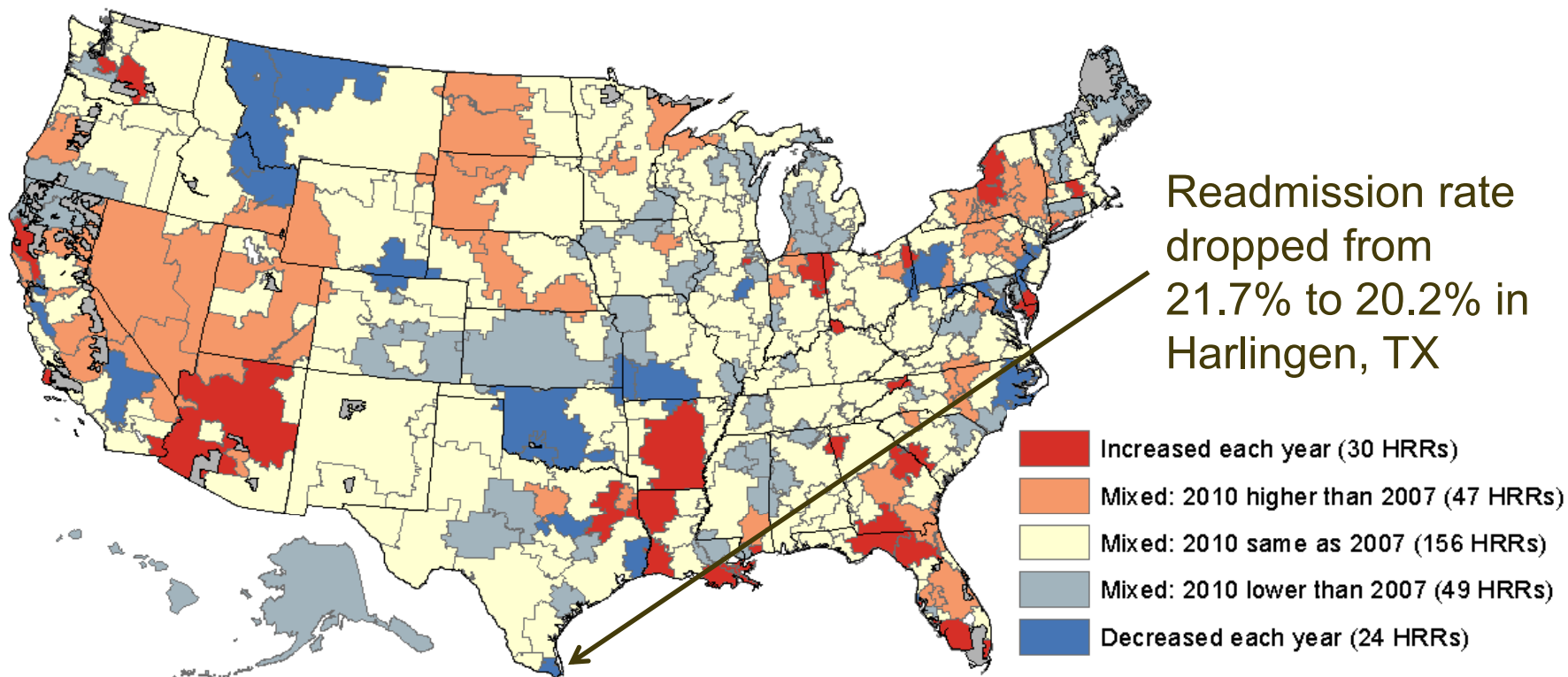# Readmission Rates Also Vary by HRR for Dual Eligible Benes

- The readmission rate for dual eligible beneficiaries in 2010 was 23.8%, 24% above the readmission rate for all benes

- Among the 246 HRRs with more than 5,000 dual eligible benes, the range of readmission rate was even more extreme than for African American benes

- Readmission rates ranged from:

    ○ 15.3% in Muskegon, MI

    ○ 31.9% in Baltimore, MD
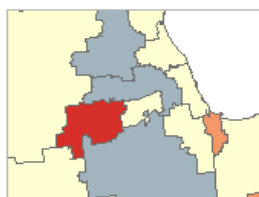
Trends in Readmission Rates between 2007 and 2010 by HRR

The trend in the readmission rate between 2007 and 2010 in individual HRRs differed from the national trend

	# of HRRs	% of HRRs	% of Benes
Got better each year	24	8%	8%
Mixed performance; better rate in 2010	49	16%	12%
Mixed performance; similar rate in 2010	156	51%	60%
Mixed performance; worse rate in 2010	47	15%	12%
Got worse each year	30	10%	8%

Change in Readmission Rates (2007-2010) by HRR

Readmission rate dropped from 21.7% to 20.2% in Harlingen, TX

Increased each year (30 HRRs)

Mixed: 2010 higher than 2007 (47 HRRs)

Mixed: 2010 same as 2007 (156 HRRs)

Mixed: 2010 lower than 2007 (49 HRRs)

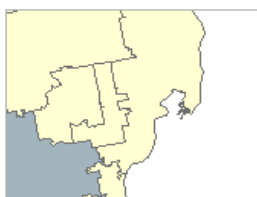Decreased each year (24 HRRs)

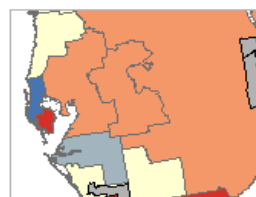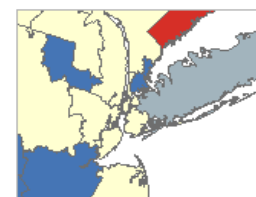San Francisco Bay

Chicago

Detroit

Central Florida

New York City

How the Readmission Challenge Varies across HRRs: Chicago, IL

The readmission rate in the Chicago HRR is 26.7%, the highest in the country and nearly 40% above the national average of 19.3%

Selected Demographic Indicators	Chicago, IL	National
Average Risk Score	1.09	1.00
% Dual Eligible	32.9%	21.6%
Race		
% White, non-Hispanic	41.7%	81.1%
% African-American	39.9%	9.6%
% Hispanic	13.8%	5.7%
% Other race	4.6%	3.6%

How the Readmission Challenge Varies across HRRs: Chicago, IL (cont.)

- Chicago's readmit rate has dropped just slightly from 07 to 10

2007	2008	2009	2010
27.1%	26.8%	26.9%	26.7%

- 5.7% of benes in Chicago were readmitted in 2010 (vs. 3.9% nationally) and benes with 3+ readmits played an outsized role:

  - 1.2% of benes in Chicago had 3+ readmits (2,633 benes)

  - These benes accounted for over half of all readmits in the HRR

  - Benes in this category average 4.9 readmits per bene, the highest in the country

  - If the number of readmits for these benes could be limited to an avg of 2, the number of readmits would drop by 30% in the HRR

How the Readmission Challenge Varies across HRRs: Idaho Falls, ID

Idaho Falls, ID is the HRR with the lowest readmission rate, 12.2% - more than 35% below the national average

Selected Demographic Indicators	Idaho Falls, ID	National
Average Risk Score	0.85	1.00
% Dual Eligible	16.9%	21.6%
Race		
% White, non-Hispanic	94.5%	81.1%
% African-American	0.2%	9.6%
% Hispanic	2.9%	5.7%
% Other race	2.4%	3.6%

How the Readmission Challenge Varies across HRRs: Idaho Falls, ID (cont.)

- The readmit rate in Idaho Falls has dropped every yr since 07

2007	2008	2009	2010
13.5%	13.4%	13.1%	12.2%

- Only 2.0% of Idaho Falls benes experienced a readmission in 2010 and most of them only had one readmission

  - Of benes with 1+ readmits, 84% of benes had one readmit (vs. 69% nationally and 59% in Chicago) and these benes accounted for 68% of all readmits in the HRR

- 0.1% of benes in Idaho Falls had 3+ readmits – these benes:

  - Accounted for 11% of all readmits in Idaho Falls (vs. 32% nationally)

  - Averaged 4 readmits per person

How the Readmission Challenge Varies across HRRs: Augusta, GA

The readmission rate in Augusta, GA was 19.1% in 2010, similar to the national average – however Augusta's readmission rate increased every year from 2007 to 2010

Selected Demographic Indicators	Augusta, GA	National
Average Risk Score	0.95	1.00
% Dual Eligible	22.7%	21.6%
Race		
% White, non-Hispanic	70.6%	81.1%
% African-American	27.0%	9.6%
% Hispanic	1.0%	5.7%
% Other race	1.4%	3.6%

How the Readmission Challenge Varies across HRRs: Augusta, GA (cont.)

- The readmit rate in Augusta has increased every yr since 07

2007	2008	2009	2010
17.9%	18.4%	18.8%	19.1%

- 3.7% of benes experienced a readmission in 2010 (vs. 3.9% nationally) and 0.4% experienced 3+ readmits (vs. 0.5%) - the same percentages are true for Augusta in 2007

- However, over the period from 2007 to 2010, the percent of readmits accounted for by benes with 3+ readmits grew from 26.9% to 30.1%

  - Augusta experience a corresponding decrease in the percent of readmits accounted for by benes with one readmit

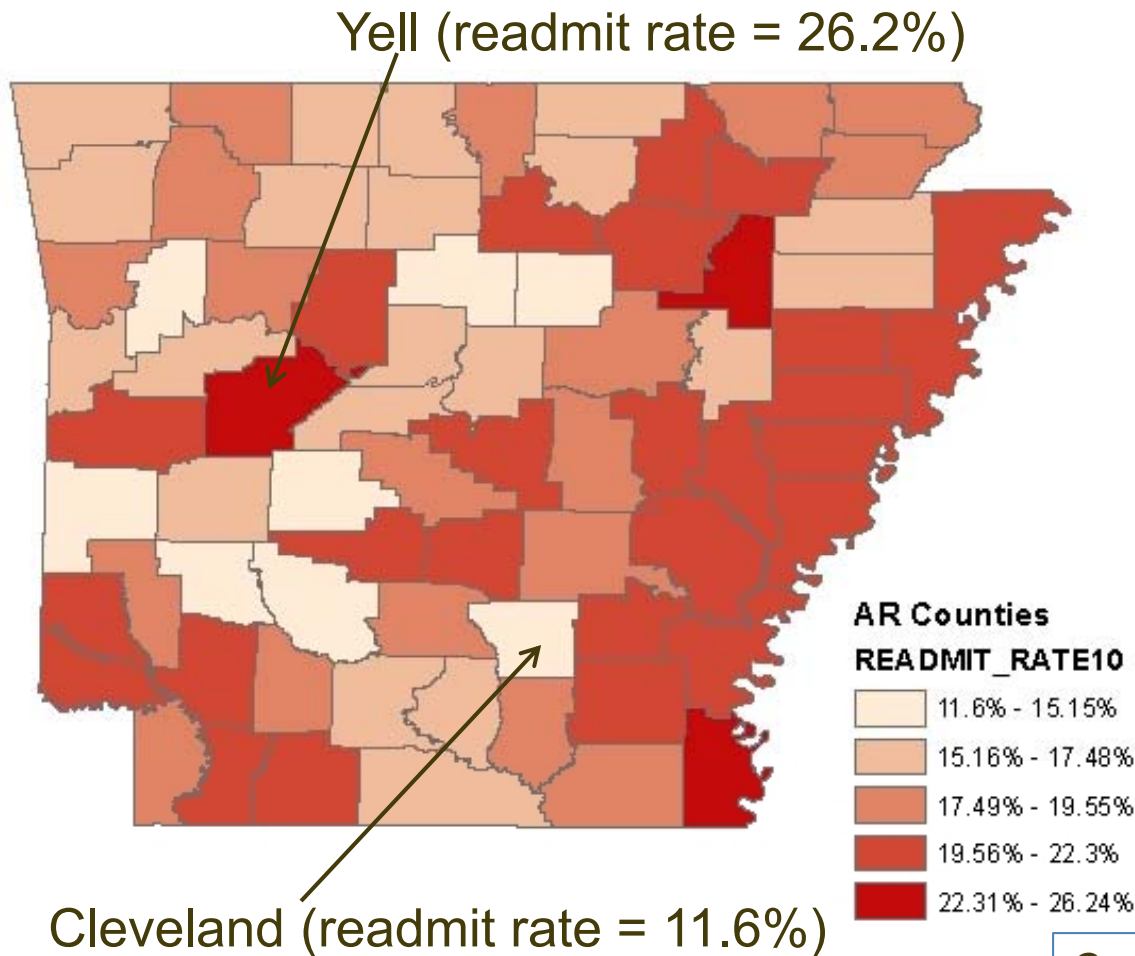 - Avg number of readmits for benes with 3+ went from 3.88 to 4.01

Variation at the State and County Level - Arkansas

- Arkansas's readmit rate increased slightly from 2007 to 2010

2007	2008	2009	2010
18.2%	18.4%	18.5%	18.5%

- The state's 2010 readmit rate is below the national average (18.5% vs. 19.2% nationally)

- 3.9% of benes (~16,000) had at least one readmission and 0.4% of benes (~1,800) had 3+ readmits – these benes:

  - Accounted for 30% of all readmits in the state

  - Averaged 4 readmits per bene (over 7,000 readmits total)

- Identifying variation within the state can help target readmission efforts

2010 County Level Readmission Rates Range from 11.6% to 26.2%

Yell (readmit rate = 26.2%)

AR Counties
READMIT_RATE10

	11.6% - 15.15%
	15.16% - 17.48%
	17.49% - 19.55%
	19.56% - 22.3%
	22.31% - 26.24%

Cleveland (readmit rate = 11.6%)

- In Yell county (3,675 benes):
  - 7.3% of benes had at least 1 readmits
  - 1.6% (58 benes) had 3+ readmits ($1.6M in spending on readmits)

- 7 counties in AR have a readmission rate of less than 15%

County populations (2010) range frm ~850 Medicare benes to ~51,000

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Where Does CMS Go From Here?

- Despite an increasing focus on readmissions over the past four years the national rate has essentially remained flat since 2010

- There has been some good news:

  - The overall number of readmissions for Medicare benes has declined

  - See evidence that targeted efforts to reduce readmissions such as the QIO 9th scope of work can be successful

- Data and analysis will play an important role in CMS's work on reducing readmissions