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Impact of CMS Readmission Reduction and Value-Based Purchasing Programs on Rural PPS Hospitals

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Overview

- CMS historically paid hospitals based on volume rather than performance; ACA authorized efforts to realign financial incentives to provide high quality care
- The Readmissions Reduction Program reduces Medicare payments for hospitals determined to have excess readmissions for specific conditions
- The Value-Based Purchasing program raises or lowers Medicare payment rates for hospitals based on how they score on a range of quality measures
- Both programs apply to Prospective Payment System (PPS) hospitals; Critical Access Hospitals are exempt

Previous Studies

- Studies have found that safety-net hospitals are more likely to be penalized under the Readmission Reduction and/or VPB Programs (Gu et al, *HSR*, 2014; Gilman et al, *Health Affairs*, 2014 and 2015; GAO, 2015)

- Small rural hospitals ($\leq$100 beds) had similar median VBP payment adjustments to hospitals overall in 2013-2014, but larger bonuses and smaller penalties in 2015 (GAO,2015)

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Program Basics

- Readmission rates are based on 3 years of Medicare data, and risk-adjusted for patient demographic characteristics, frailty, and comorbidities.
  - FY 2013 -2014: AMI, heart failure, and pneumonia
  - FY 2015: COPD and elective hip & knee replacement added
  - FY 2017: CABG surgery added
- Maximum Medicare payment reductions were 1% for FY 2013; 2% for FY 2014; and 3% in FY 2015 and thereafter.
- Payment for all Medicare inpatient admissions are reduced by this amount.

Research Questions

- How did the proportion of rural and urban hospitals that received penalties under the Readmission Reduction Program change over time?
- Which hospital and county characteristics were associated with a higher likelihood of receiving readmission penalties?
- How did condition-specific hospital readmission rates differ for rural and urban hospitals?

Data and Methods

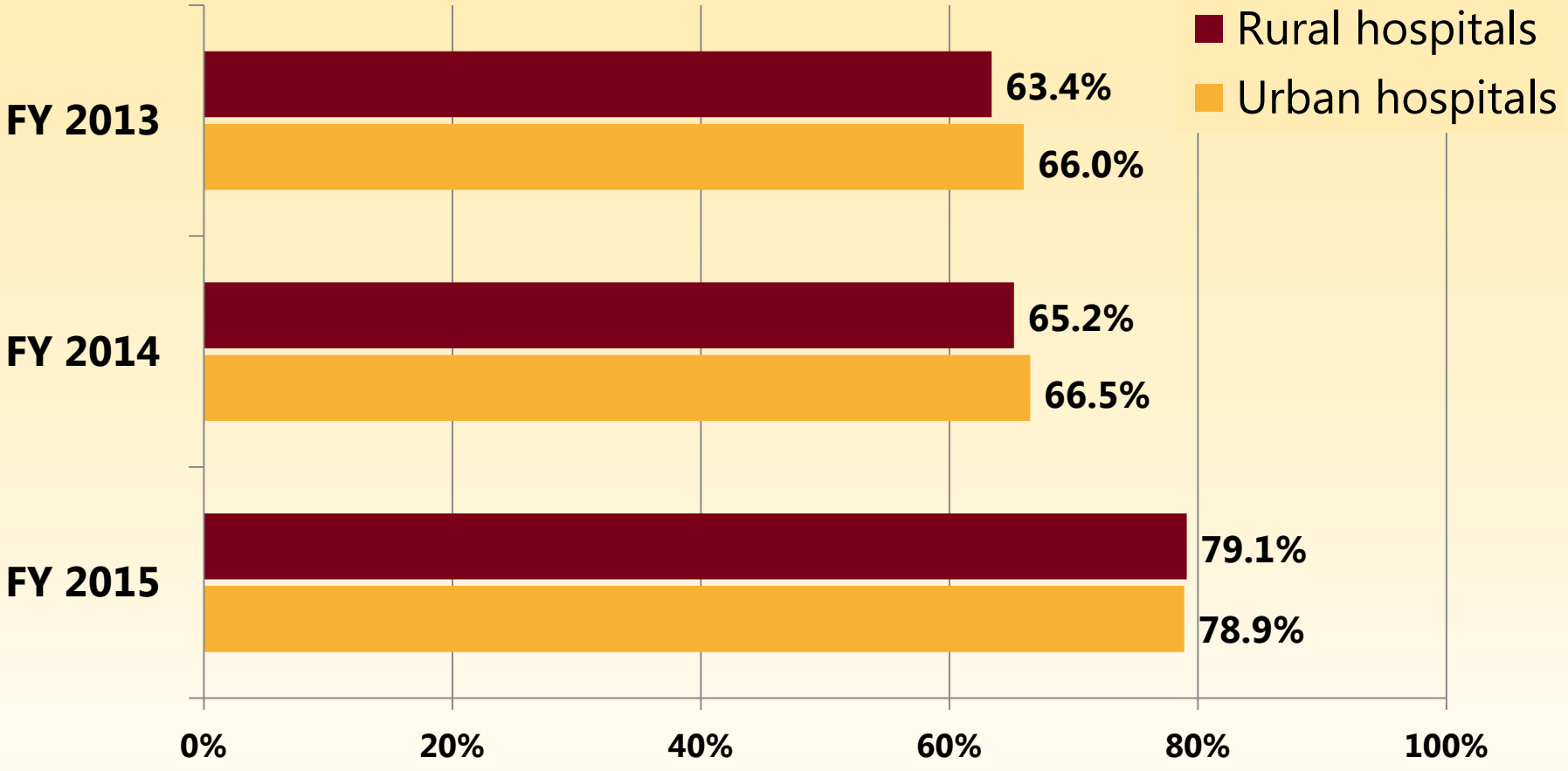
Data

- CMS hospital-level, readmission penalty data for FY 2013 - FY 2015
- American Hospital Association Annual Survey FY 2012
- Area Health Resource File 2012
- Sample: 2,471 urban and 860 rural PPS hospitals

Methods

- Descriptive and bivariate statistics
- Two-group t-tests to identify significant differences in condition-specific readmission rates between urban and rural PPS hospitals

Results: Percent of Hospitals Penalized



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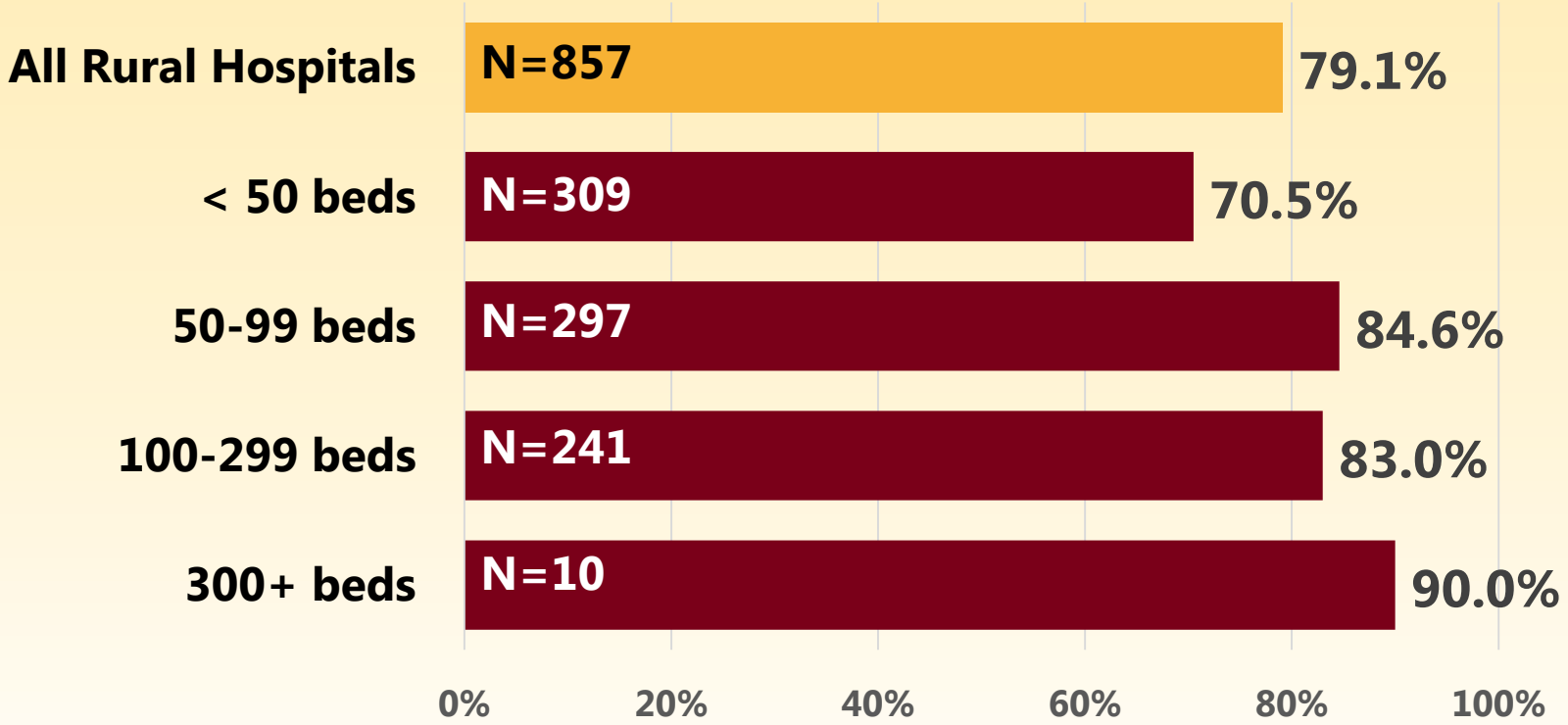
FY 2015 Results: Rural-Urban Differences

- Significant differences by hospital organizational and county characteristics
  - *Size:* among <50 bed hospitals, penalties more likely for rural (70.5%) than urban (44.8%)
  - *Ownership:* among for-profit hospitals, penalties more likely for rural (84.3%) than urban (73.1%)
  - *Census Region:* In NE, penalties more likely for urban hospitals than rural (89.9% vs. 81.6%); in South, penalties more likely for rural hospitals than urban (85.7% vs. 79.2%)

FY 2015 Results: Hospital Size

- Larger rural hospitals are more likely to receive readmission penalties



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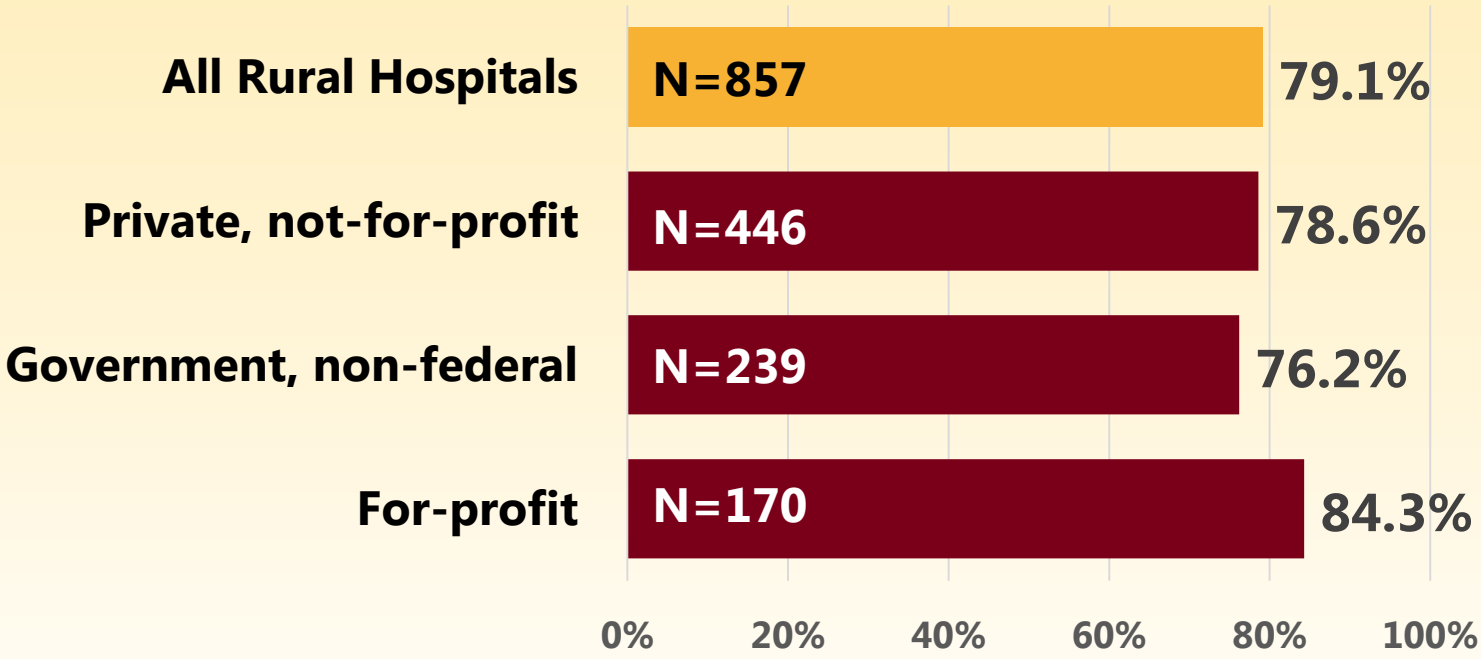
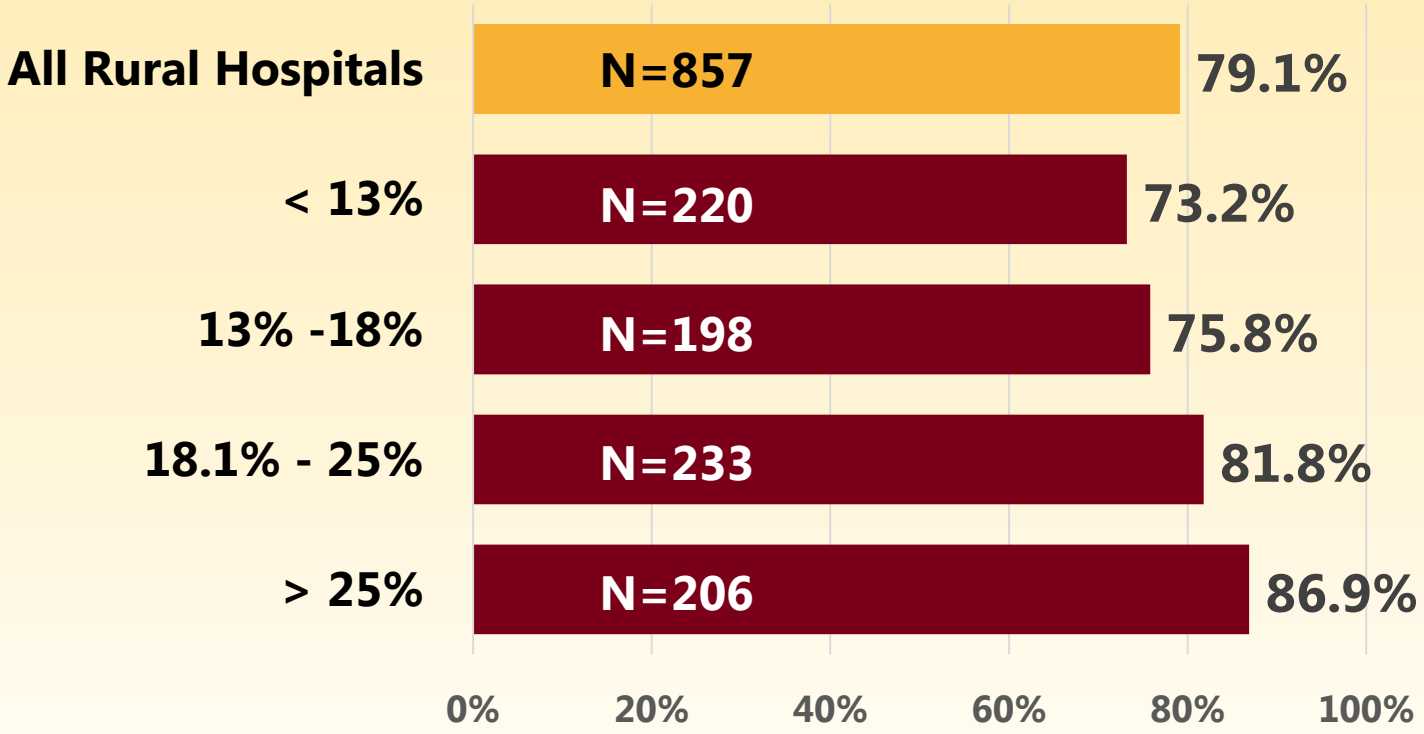
FY 2015 Results: Ownership Type

- For-profit rural hospitals are more likely to be penalized than other rural hospitals



FY 2015 Results: Medicare Inpatient Days

- Rural hospitals with a higher proportion of Medicare inpatient days more likely to receive readmission penalties



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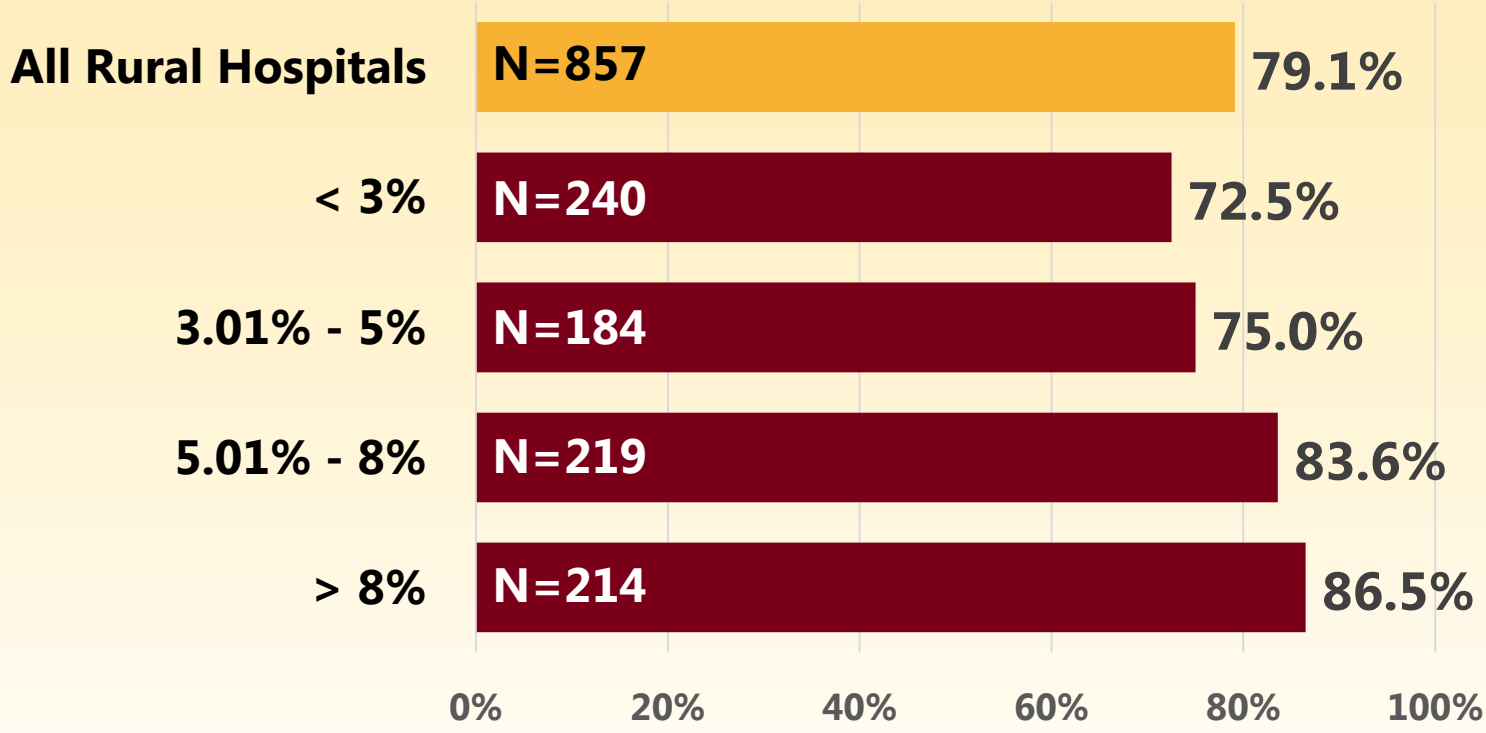
FY 2015 Results: Medicaid Inpatient Days

- The same holds true for rural hospitals with higher proportions of Medicaid inpatient days



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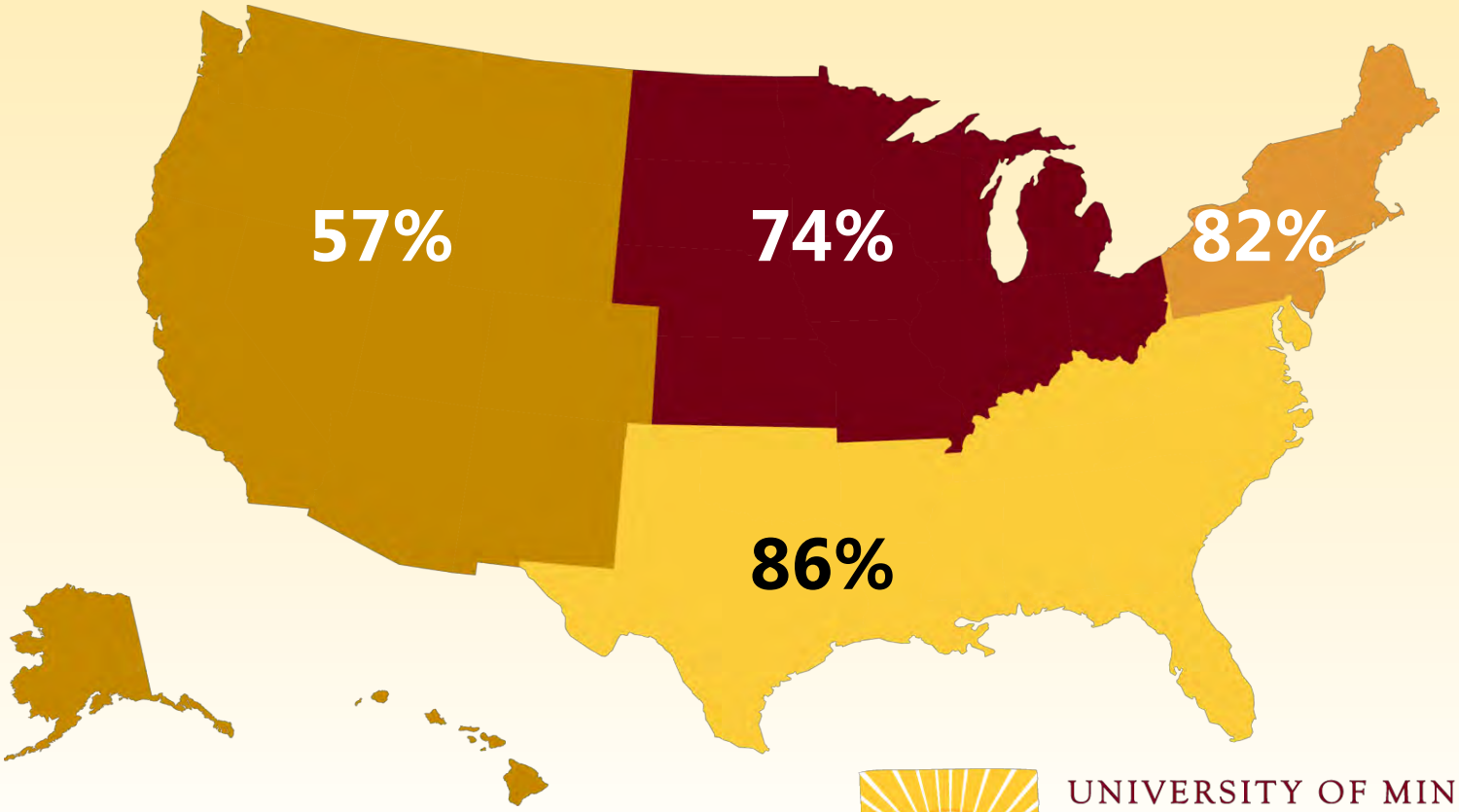
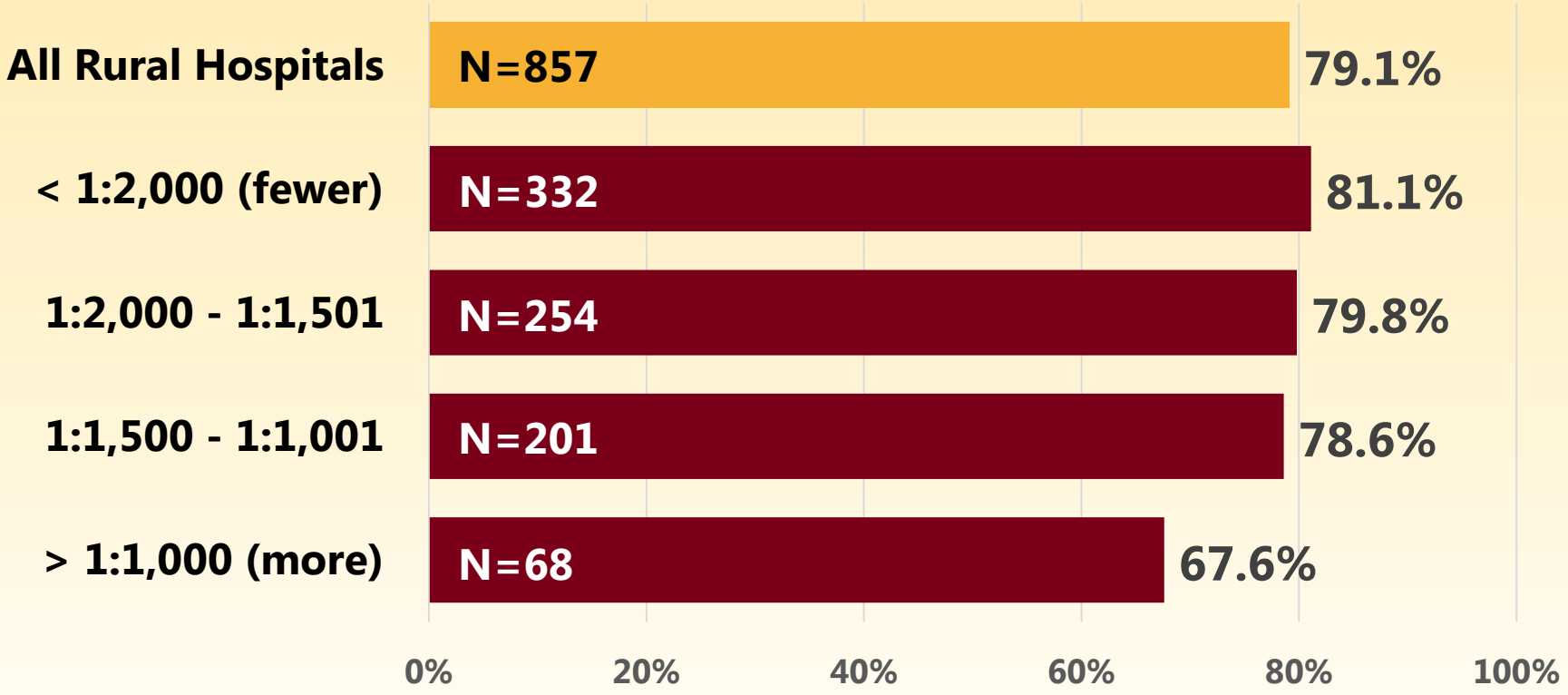
FY 2015 Results: Census Region

- Rural hospitals: readmission penalties most likely in South, less likely in West



FY 2015 Results: County Characteristics

- Penalties more likely for rural hospitals located in counties with fewer primary care physicians per population



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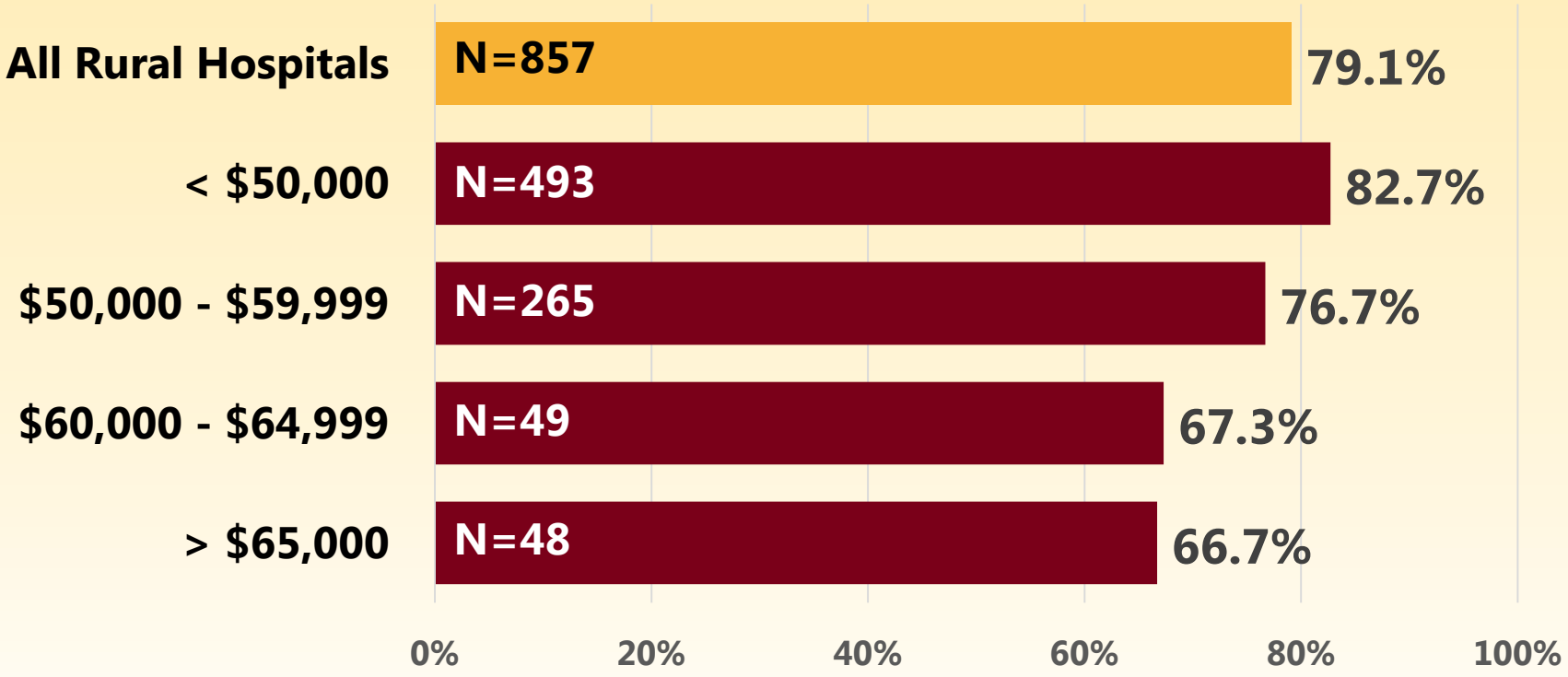
FY 2015 Results: County Characteristics

- Penalties also more likely for rural hospitals in counties with lower median family income



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FY 2015 Results: Readmission Rates by Condition

- Significantly lower (better) readmission rates in urban hospitals for AMI patients
- Significantly lower (better) rates in rural hospitals for patients with heart failure, pneumonia, and COPD
- Did not differ significantly between urban and rural hospitals for patients with hip and knee replacements

Discussion/Implications

- Our study builds on previous research to show that rural as well as urban hospitals with fewer resources and greater needs are more likely to incur readmission penalties
- Concerns about extent to which readmission rates are influenced by factors outside the control of hospitals, including socioeconomic status of patients

Discussion/Implications

- Additional concerns about penalty calculations
  - Aggregate penalties remain constant when national readmission rates decline
  - Single-condition readmission rates face significant random variation due to small numbers
- MedPAC recommendations (July 2015):
  - Set a fixed target for readmission rates
  - Use all-condition readmission measure
  - Evaluate hospitals against group of peers with a similar share of low-income Medicare beneficiaries

VBP Program Overview

- Maximum VBP bonuses and penalties increased from 1% of Medicare payments in FY 2013 to 2% in FY 2017
- VBP bonuses and penalties are based on achievement (relative to other hospitals) or improvement (over hospital's own baseline performance), whichever is higher

Calculating VBP Performance

- Number of domains, quality measures within each domain, and weight given to each domain has changed over time
- Decreased emphasis on process measures
- Consistent focus on patient experience of care (HCAHPS) and outcome (mortality) measures
- Efficiency (Medicare spending per beneficiary) domain and patient safety measures added starting in FY 2015

VBP Scoring Domains and Weighting by Payment Fiscal Year

	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Clinical Care: Process	70%	45%	20%	10%	5%	-
Patient Experience of Care	30%	30%	30%	25%	25%	25%
Clinical Care: Outcome	-	25%	30%	40%	25%	25%
Efficiency	-	-	20%	25%	25%	25%
Safety	-	-	-	-	20%	25%

Research Questions

- Over the first three years of the program, what proportions of rural hospitals and urban hospitals received penalties and bonuses?
- How did the probability of receiving penalties vary as a function of hospital characteristics and county characteristics?
- How did the probability of receiving bonuses/penalties change across time?

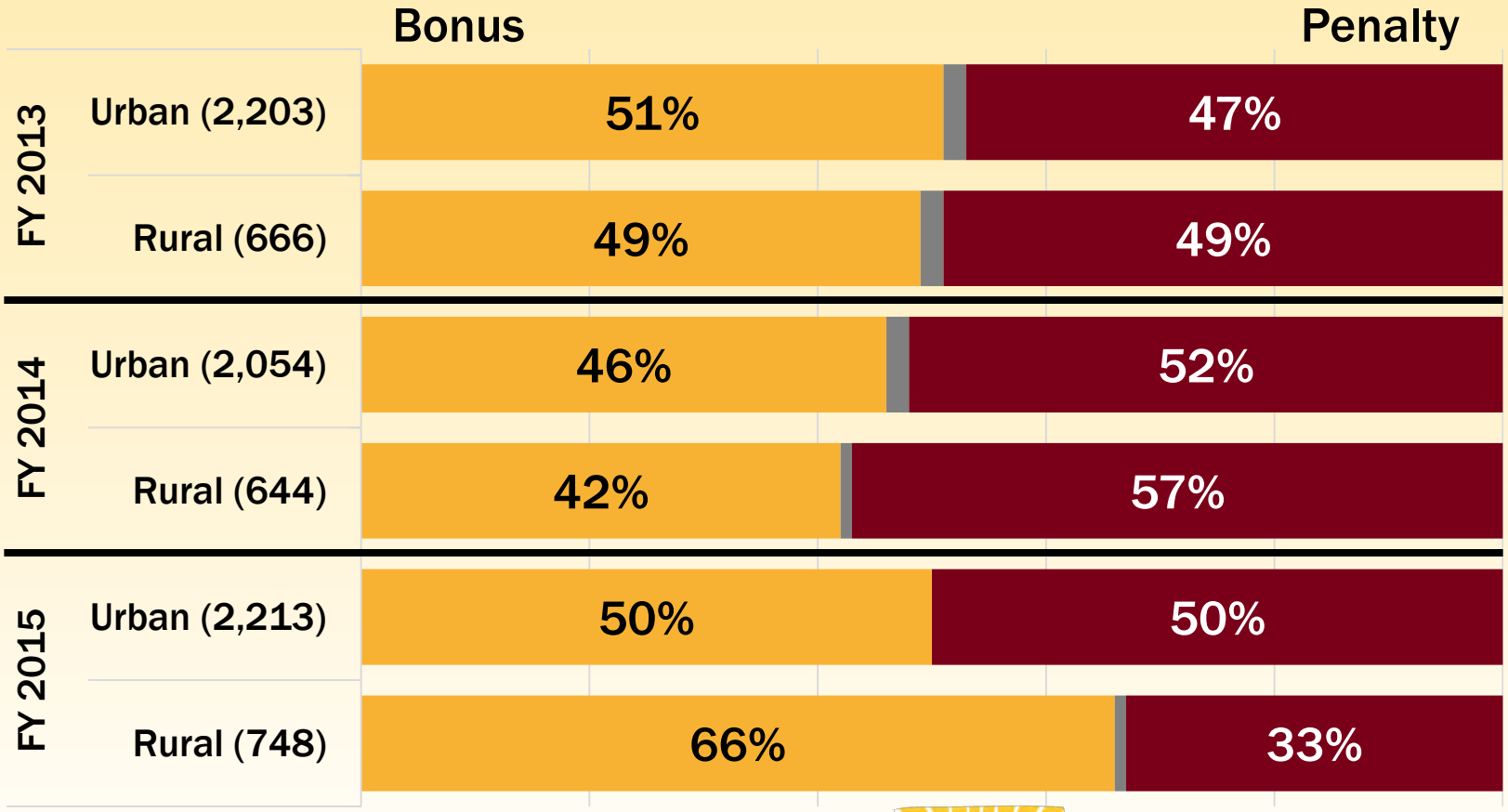
Data

- Hospital Inpatient PPS final rule impact file, FY 2013 - 2015
- American Hospital Association Annual Survey, FY 2011-12
- Area Health Resource File, 2011-13
- Sample: all eligible general medical and surgical acute care hospitals
  - 2,213 urban hospitals and 748 rural hospitals
  - Excluded 141 specialty care hospitals

Methods

- Chi-square tests examine factors associated with receipt of bonus/penalty within a group of urban or rural hospitals
- Difference-in-difference models identify differential effects of the program on rural and urban hospitals over time
  - Expected payment penalty was calculated conditional on a hospital's likelihood of being penalized in a year; likewise for expected payment bonus.

Hospitals Receiving a Bonus or Penalty FY 2013- FY 2015



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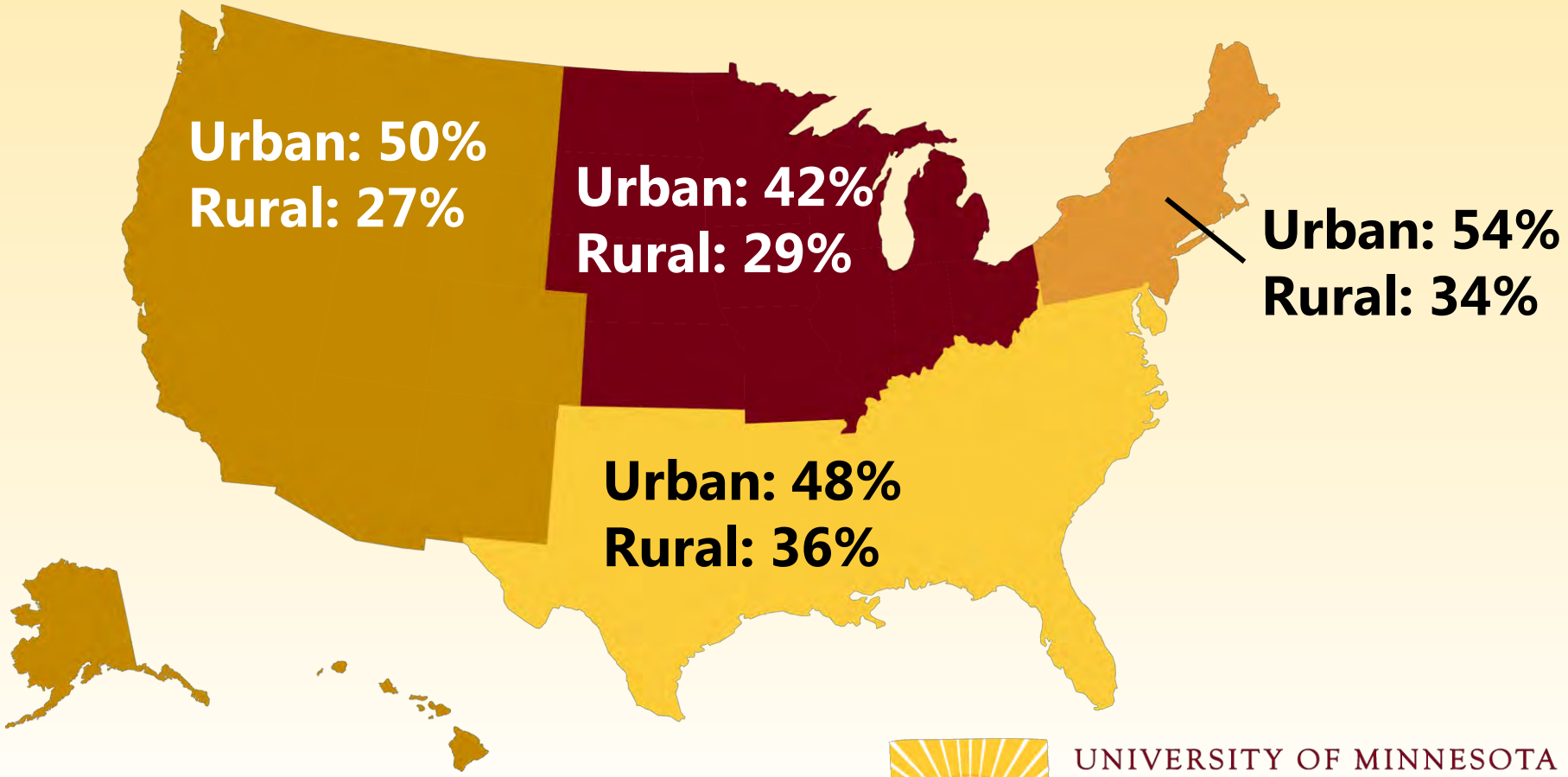
FY 2015 Bivariate Results

- Among rural and urban hospitals, probability of VBP penalty significantly more likely for:
  - Larger size
  - Publicly owned
  - Higher proportions of Medicare and Medicaid inpatient days
  - Located in counties with lower median family income, higher uninsured rates, and fewer primary care physicians per 1,000 county residents

Percent of Hospitals with Penalty by Census Region, FY 2015



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Multivariate Analysis

- Which hospitals were less likely to get penalized for FY 2013 – 2015?
  - Hospital Characteristics:
    - Rural vs. urban location, Ownership, System affiliation, Accreditation, Inpatient volume, Share of Medicare and Medicaid inpatient days, Census region
  - County Characteristics:
    - Uninsured Rate among Population Age 18-64, Primary Care Physicians per 1,000 Population

Rural vs. Urban Location

- Rural hospitals had higher probability of receiving penalties for FY 2013 and 2014, but lower for FY 2015.
- Across the first three years, differences in expected payment adjustments were less than 0.15%.

	Marginal Differences in Probability of Receiving Penalties between Rural and Urban
Rural vs. Urban Hospitals	
2013	2.5%**
2014	5.7%***
2015	-16.1%***
	*p<0.05 **p<0.01 ***p<0.001

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Other Hospital Characteristics

- Hospitals are more likely to be penalized if they are not accredited or system-affiliated, have higher adjusted inpatient days, higher shares of Medicaid and Medicare inpatient days, and/or lower nurse staffing ratios.

	Marginal Effects on Probability of Receiving Penalties
Accreditation	-5.0%*
System Affiliation	-4.7%**
Adjusted Inpatient Days (per 1,000)	0.7%***
% of Medicare IPD as of Total Inpatient Days (per 10%)	1.4%***
% of Medicaid IPD as of Total Inpatient Days (per 10%)	4.7%***
Licensed Nurse Hours per Patient Day	-0.7%***

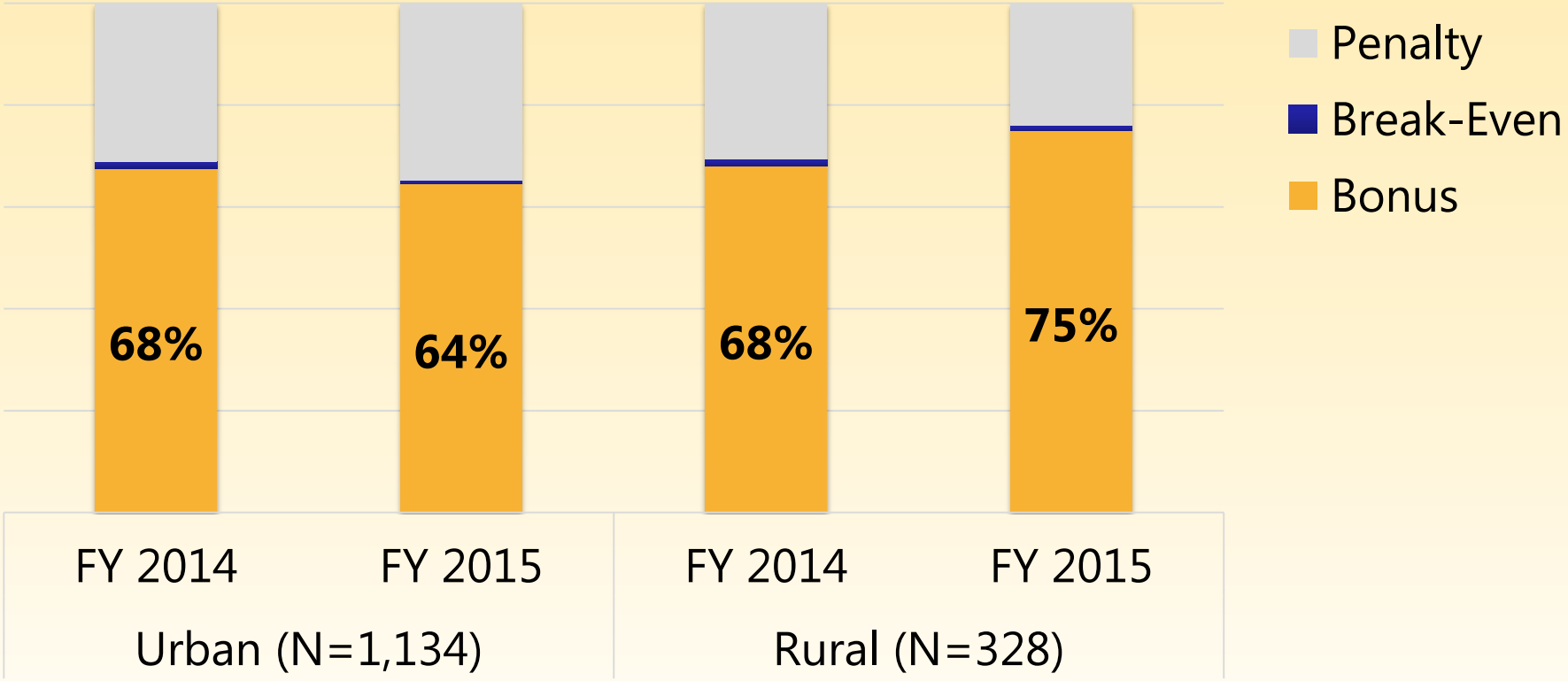
County Characteristics

- Hospitals in counties with lower supply of primary care physicians are more likely to get penalized
- No significant associations between uninsured rates and penalty probability, but higher uninsured rates are associated with higher expected amount of penalties

	Marginal Effects On Probability of Receiving Penalties
County-level Uninsured Rate among Population Age 18-64	2.04%
County-level Primary Care Physicians per 1,000 Population	-5.84%**

Payment Bonus Status: Changes Over Time

Of hospitals that received bonus in FY 2013:



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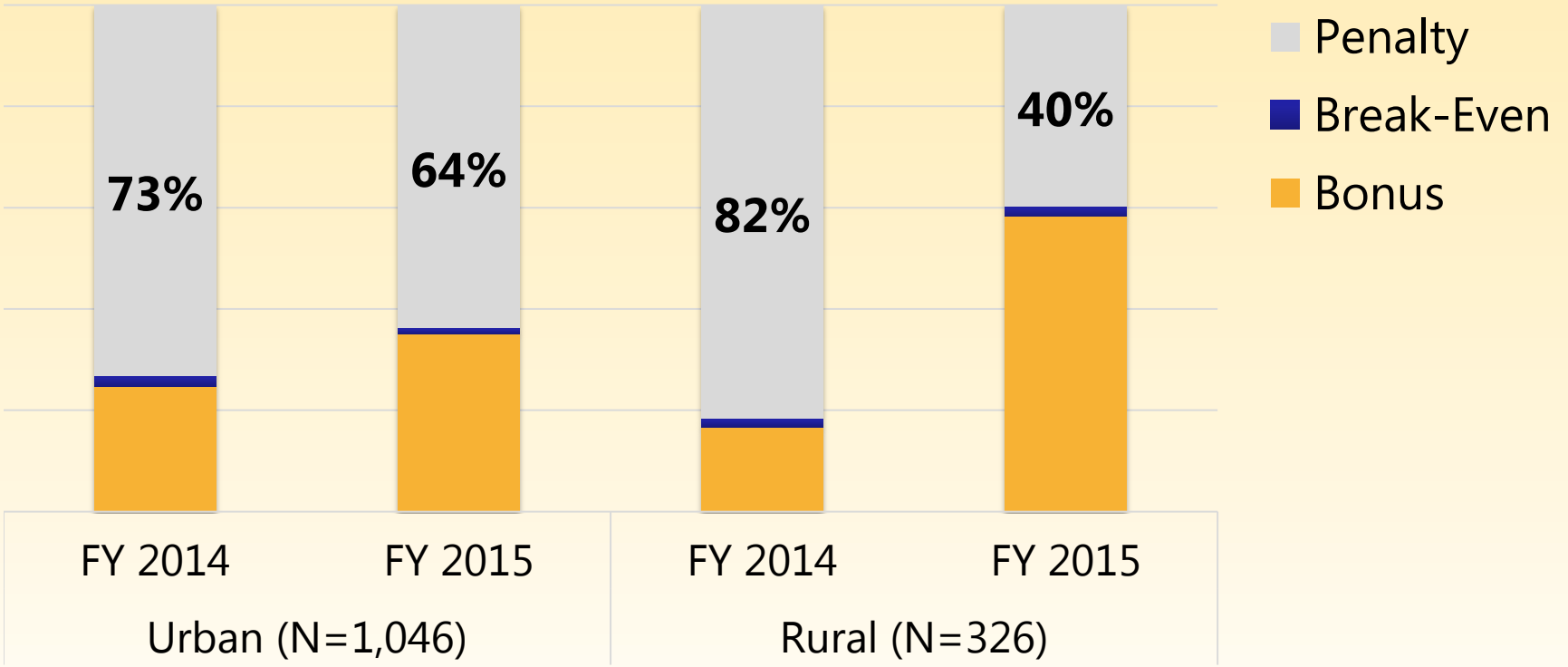
Payment Penalty Status: Changes Over Time

Of hospitals that received penalty in FY 2013:



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Discussion/Implications

- Which hospitals are more likely to receive VBP penalties?
  - Hospital characteristics: non-accredited, non-system affiliated, public ownership, lower licensed nurse staffing per inpatient day, higher proportions of Medicare and Medicaid inpatient days
  - County characteristics: higher uninsured rates, lower primary care physician supply, lower household income and education level
- How much control do hospitals have over these factors?

Discussion/Implications

- VBP is budget neutral: total bonuses must equal total penalties
- Which factors are responsible for rural-urban differences in the likelihood of receiving VBP penalties or bonuses over time?
  - Changing metrics or changing performance?

Discussion/Implications

- Amount of penalties may not seem large, but…
  - Hospitals may be incurring penalties under multiple programs: Readmissions, VBP, Hospital-Acquired Condition, EHR Meaningful Use
  - Penalties occurring in context of overall precarious financial condition of many rural hospitals
    - Average Medicare acute inpatient margin for a rural PPS hospital was -2.6% in 2012
    - 56 rural hospitals have closed since 2010

Additional Information

Hung, Casey & Moscovice. Which Rural and Urban Hospitals Have Received Readmission Penalties Over Time? University of Minnesota RHRC Policy Brief, October 2015.
http://bit.ly/1jTV3Hi

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