

Which Rural and Urban Hospitals Have Received Readmission Penalties Over Time?

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Key Findings

- Over the first three years of the Readmissions Reduction Program, the proportion of both rural and urban Prospective Payment System (PPS) hospitals receiving penalties has increased.
- About two-thirds of both rural and urban hospitals received penalties for FY 2013 and 2014; in FY 2015, almost four in five rural and urban hospitals received penalties.
- Among rural and urban hospitals, the likelihood of receiving readmission penalties varied as a function of hospital characteristics such as size, ownership, and region of the country.
- Both rural and urban hospitals located in communities with fewer primary care physicians, lower family income and education levels, and a higher proportion of the population age 65 and older were more likely to be penalized.
- The average payment reduction (as a percentage of Medicare payments) for rural hospitals has exceeded that of urban hospitals for all three years.

Background

The Centers for Medicare & Medicaid Services (CMS) has historically paid hospitals based on the volume of services they provide to patients rather than on their performance. The Affordable Care Act authorized CMS to implement several initiatives to realign hospitals' financial incentives to provide high-quality care, including the Hospital Readmissions Reduction Program, the Hospital Value-Based Purchasing Program, and the Hospital-Acquired Condition Reduction Program. The Hospital Readmissions Reduction Program reduces Medicare payments for hospitals determined to have "excess" rates of patient readmissions for specific conditions. Maximum payment reductions were 1% for FY 2013; 2% for FY 2014; and 3% in FY 2015 and thereafter. The program applies to all hospitals paid under the Prospective Payment System (PPS); Critical Access Hospitals (CAHs) are exempt.

Under the Readmissions Reduction Program, readmission rates are based on three years of Medicare discharge data for selected conditions, and are risk-adjusted for patient demographic characteristics, frailty, and comorbidities. Planned readmissions are excluded from the rates. Hospital performance is compared to the national average for patients with each condition. For FY 2013 and FY 2014, the applicable conditions were acute myocardial infarction (AMI), congestive heart failure, and pneumonia. For FY 2015, CMS expanded the conditions to include chronic obstructive pulmonary disease (COPD) and elective total-hip and total-knee arthroplasty (joint replacement surgery). In FY 2017, CMS will expand the conditions to include coronary artery bypass graft (CABG) surgery. Nationally, a total of 2,610 hospitals received readmission penalties in FY 2015.¹ Readmission penalties for FY 2015 were calculated based on a hospital's readmission performance from July 2010 to June 2013.

Purpose

The purpose of this project was to assess rural-urban differences in the proportion of hospitals that received penalties under the Readmissions Reduction Program over time, and whether condition-specific hospital readmission rates differed for rural and urban hospitals.

Approach

This project included all PPS hospitals eligible for the Readmissions Reduction Program. The sample consisted of 2,471 urban and 860 rural PPS hospitals. Rural areas were defined based on the Office of Management

and Budget's definition of a non-metropolitan county. We used publicly-available, hospital-level, readmission penalty data from CMS from FY 2013 - FY 2015. These data were merged with FY 2012 American Hospital Association Annual Survey data and FY 2012 Area Health Resource File data.

We employed descriptive and bivariate statistics. Two-group t-tests were used to identify significant differences in condition-specific readmission rates between urban and rural PPS hospitals.

Results

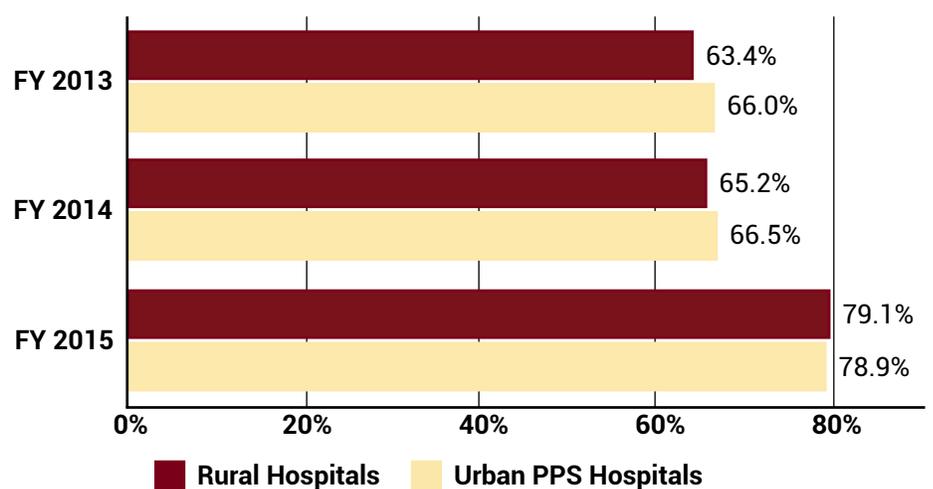
Receipt of Penalties by Rural and Urban Hospitals

Over the first three years of the Readmissions Reduction Program, the proportion of both rural and urban PPS hospitals receiving penalties has increased (Figure 1). In FY 2013 and 2014, about two-thirds of rural and urban hospitals received penalties. In FY 2015, nearly four out of five rural and urban hospitals received penalties, reflecting a 25% increase in the number of hospitals being penalized from FY 2013 to FY 2014 and a 20% increase in the number of hospitals being penalized from FY 2014 to FY 2015.

Organizational and County Characteristics of Hospitals Receiving Readmission Penalties

Analysis of the organizational characteristics of rural and urban hospitals that received readmission penalties in FY 2015 indicates several significant differences (Table 1, next page). Urban public and private non-profit hospitals were more likely to be penalized than urban for-profit hospitals ($p < 0.009$). The reverse was true for rural hospitals: for-profit rural hospitals were more likely to

Figure 1. Percent of Rural and Urban PPS Hospitals Receiving Readmission Penalties, FY 2013-15



be penalized than private non-profit or public rural hospitals ($p = 0.013$). System-affiliated hospitals in both urban and rural areas were more likely to be penalized ($p < .001$) than freestanding hospitals.

In the Northeast and West Census Region, a significantly higher percent of urban hospitals were penalized than rural hospitals (90% vs. 82%); the opposite was true in the South, where 79% of urban hospitals and 86% of rural hospitals were penalized. Lower-volume rural hospitals (those with less than 100 beds, 7,000 adjusted annual admissions, or 2,200 Medicare discharges) were more likely to receive readmission penalties than small urban hospitals; however, large urban hospitals were more likely to be penalized than large rural hospitals.

Both rural and urban hospitals located in communities with fewer primary care physicians relative to the population, lower family income, lower education levels, and a higher proportion of the population age 65 and older were significantly more likely to be penalized (all $p < .001$) (Table

2, page 4). In high-income counties (median family income $> \$65,000$), rural hospitals were significantly less likely to be penalized than urban hospitals ($p = 0.017$). Rural hospitals in high-education counties (more than 35% of population age 25 and older with four-year college education) were also less likely to be penalized than urban hospitals ($p = 0.0496$). Other differences in rural and urban hospitals' probability of being penalized conditioned on county-level characteristics were not significant.

Amount of Payment Reductions

As a percentage of Medicare payments, the average (mean) payment reduction for rural hospitals has been significantly higher ($p < .001$) than that of urban hospitals for all three years (Table 3, page 4). The mean payment reduction for rural hospitals increased from -0.49% in FY 2013 and 2014 to -0.71% in FY 2015. For example, for a hospital with \$5 million in total annual Medicare payments, the -0.71% reduction reflects a loss of \$35,500. However,

Table 1. Organizational Characteristics of Urban and Rural Hospitals Receiving Readmission Penalties, FY 2015

	Urban Hospitals		Rural Hospitals		Significant Differences between Urban & Rural Hospitals
	N	Percent Receiving Penalty	N	Percent Receiving Penalty	
All Hospitals	2466	78.9	857	79.1	
Hospital Ownership^a					
Private not-for-profit	1534	81.7	446	78.6	
Government, non-federal	286	79.0	239	76.2	
For-profit	617	73.1	170	84.3	p<0.01
Missing	29	51.7	2	100.0	
System Affiliation^a					
Yes	1692	81.4	431	81.9	
No	774	73.4	426	76.2	
Hospital Size^a					
<50 beds	333	44.8	309	70.5	p<0.01
50-99 beds	302	76.6	297	84.6	p<0.05
100-299 beds	1118	85.9	241	83.0	
300+ beds	713	85.1	10	90.0	
Census Region^a					
Northeast	435	89.9	75	81.6	p<0.05
South	920	79.2	465	85.7	p<0.01
Midwest	545	78.6	219	74.0	
West	537	71.2	96	56.7	p<0.01
Adjusted Annual Admissions^a					
<=4000	222	37.9	214	65.6	p<0.01
4001-7000	211	68.1	204	85.3	p<0.01
7001-12000	372	83.1	240	82.9	
12001-30000	1034	85.4	185	82.7	
30001+	598	85.8	12	83.3	
Annual Medicare Discharges^a					
<=700	246	34.7	225	64.8	p<0.01
701-1200	176	66.7	206	83.2	p<0.01
1201-2200	278	80.9	217	83.9	
2201-6000	956	88.2	190	85.3	
6001+	781	84.8	17	88.2	

^aWithin each category of organizational characteristics, significantly higher percentages of rural and urban hospitals receiving a penalty are highlighted.

there is considerable variation in the payment reduction amounts within the groups of rural hospitals and urban hospitals, as shown by the standard deviations (Table 3, next page).

Condition-Specific, Risk-Adjusted Readmission Rates

Table 4 (page 5) shows the average (mean) risk-adjusted readmission rates for AMI, heart failure, pneumonia, COPD, and hip & knee replacement for rural and urban hospitals for FY 2015. This means, for example, that after adjusting for risk factors including patient demographic characteristics, frailty, and comorbidities, 18% of AMI patients admitted to urban hospitals were readmitted within 30 days, compared to 18.9% of AMI patients admitted to rural hospitals. Urban hospitals had, on average, significantly lower (better) risk-adjusted readmission rates for AMI patients than rural hospitals, but significantly higher (worse) rates for patients with heart failure, pneumonia, and COPD. Hip and knee replacement readmission rates did not differ significantly between urban and rural hospitals.

Among hospitals that received a readmission penalty, urban hospitals again had significantly lower risk-adjusted readmission rates for AMI patients than rural hospitals, but significantly higher rates for patients with heart failure, pneumonia, COPD, and hip & knee replacement than rural hospitals.

Among the hospitals that did not receive penalties, rural hospitals had significantly better performance for two conditions (pneumonia, COPD); urban hospitals had significantly

better performance for two conditions (AMI, hip & knee replacement); and heart failure readmission rates did not differ significantly between urban and rural hospitals.

Discussion and Implications

The Readmissions Reduction Program has raised concerns about the extent to which readmission rates are influenced by factors outside the control of hospitals, including the socioeconomic status of patients.²⁻³ Our study showed that both rural and urban hospitals located in counties with fewer resources and greater needs are more likely to incur readmission penalties, adding to previous research showing that readmission penalties disproportionately affect safety-net hospitals and those located in lower income communities.²⁻³

Additional concerns about the program include CMS' policy of assessing readmission penalties relative to the mean performance in a year rather than having fixed targets.⁴ Experts have also noted that the CMS readmission rates facilitate provider comparison, but do not help providers figure out why they are doing better or worse, or how they can improve.⁴

While the dollar amount of readmission reduction penalties may not seem large for the average rural hospital, the overall financial condition of many rural hospitals is precarious: the average Medicare acute inpatient margin for a rural PPS hospital was -2.6% in 2012,⁵ and several rural hospitals have closed since 2010.⁶ In addition, hospitals may also be incurring penalties under other Medicare programs such as the Hospital Value-Based Purchasing and Hospital-Acquired Condition Programs.

Table 2. County Characteristics of Urban and Rural Hospitals Receiving Readmission Penalties, FY 2015

County-Level Characteristics	Urban Hospitals		Rural Hospitals		Significant Differences between Urban & Rural Hospitals
	N	Percent Receiving Penalty	N	Percent Receiving Penalty	
Primary Care Physicians per 1,000 Population^a					
<1:2000 (Low)	314	82.5	332	81.1	
1:2000 to 1:1501	472	82.0	254	79.8	
1:1500 to 1:1001	1110	77.7	201	78.6	
>1:1000 (High)	541	78.0	68	67.6	
Median Family Income 2009-2013^a					
<\$50,000	213	88.7	493	82.7	
\$50,000 - \$59,999	784	76.0	265	76.7	
\$60,000-\$64,999	446	76.7	49	67.3	
≥\$65,000	994	80.8	48	66.7	p<0.05
Percent of Population 25 Years and Older with 4-Year College Degree^a					
<15%	130	77.9	404	80.5	
15%-25%	738	83.3	357	80.8	
25.1%-35%	1042	77.1	76	68.4	
>35%	527	77.9	18	55.6	p<0.05
Percent of Population 65 Years and Older^a					
<10%	763	75.1	51	64.7	
10.1-13%	662	79.2	67	69.1	
13.1-17%	699	81.5	330	83.7	
>17%	305	84.3	403	78.8	

^aWithin each category of organizational characteristics, significantly higher percentages of rural and urban hospitals receiving a penalty are highlighted.

Table 3. Medicare Payment Reductions for Hospitals Penalized under the Readmissions Reduction Program, FY 2013-15

Hospital Location	FY 2013	FY 2014	FY 2015
	Mean (Std. Dev.)	Mean (Std. Dev.)	Mean (Std. Dev.)
Rural	-0.49% (0.34)	-0.49% (0.45)	-0.71% (0.66)
Urban	-0.40% (0.33)	-0.34% (0.33)	-0.59% (0.56)

Table 4. Condition-Specific Risk-Adjusted Readmission Rates by Urban-Rural Location and Penalty Status, FY 2015

All Hospitals					
Condition	Urban		Rural		P-value
	N	Mean (Std)	N	Mean (Std)	
AMI	1816	18.0% (2.9)	361	18.9% (2.9)	P<.001
Heart Failure	2178	22.4% (2.5)	775	21.9% (2.4)	P<.001
Pneumonia	2188	17.3% (2.1)	803	16.5% (2.1)	P<.001
COPD	2150	20.5% (2.1)	775	19.4% (2.0)	P<.001
Hip & Knee	1971	5.4% (1.1)	516	5.3% (0.9)	0.0607
Hospitals that Received A Penalty					
Condition	Urban		Rural		P-value
	N	Mean (Std)	N	Mean (Std)	
AMI	1590	18.4% (2.8)	304	19.3% (2.7)	P<.001
Heart Failure	1882	22.8% (2.4)	650	22.2% (2.3)	P<.001
Pneumonia	1888	17.6% (2.0)	657	16.8% (2.1)	P<.001
COPD	1869	20.7% (2.0)	647	19.6% (2.0)	P<.001
Hip & Knee	1645	5.6% (1.0)	424	5.4% (0.9)	0.0032
Hospitals that Did Not Receive A Penalty					
Condition	Urban		Rural		P-value
	N	Mean (Std)	N	Mean (Std)	
AMI	226	15.4% (2.4)	57	16.9% (3.1)	P<.001
Heart Failure	296	20.0% (1.9)	125	19.9% (1.8)	0.6941
Pneumonia	300	15.6% (1.6)	146	15.0% (1.6)	P<.001
COPD	281	18.9% (1.5)	128	18.2% (1.6)	P<.001
Hip-Knee	326	4.4% (0.7)	92	4.7% (0.8)	0.0012

Better (lower) readmission rates are highlighted. Significant differences in condition-specific risk-adjusted readmission rates between urban and rural hospitals were noted in bold P-values.

Nationally, readmission rates for Medicare patients with AMI, heart failure, and pneumonia began declining in 2012; Kaiser Family Foundation researchers have suggested that this decline may be the result of hospitals implementing strategies to lower readmissions in response to enactment of the Hospital Readmissions Reduction Program.⁷ Clearly, the program has focused national attention on the issue of readmissions, and readmission rates are likely to remain part of the discussion on value in the Medicare program. ■

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