

Operating Profitability of For-Profit and Not-for-Profit Florida Community Hospitals During Medicare Policy Changes, 2000 to 2010

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Abstract

Medicare Advantage was implemented in 2004 and the Recovery Audit Contractor (RAC) program was implemented in Florida during 2005. Both increase surveillance of medical necessity and deny payments for improper admissions. The purpose of the present study was to determine their potential impact on for-profit (FP) and not-for-profit (NFP) hospital operating margins in Florida. FP hospitals were expected to be more adversely affected as admissions growth has been one strategy to improve stock performance, which is not a consideration at NFPs. This study analyzed Florida community hospitals from 2000 through 2010, assessing changes in pre-tax operating margin (PTOM). Florida Agency for Health Care Administration data were analyzed for 104 community hospitals (62 FPs and 42 NFPs). Academic, public, and small hospitals were excluded. A mixed-effects model was used to assess the association of RAC implementation, organizational and payer type variables, and ownership interaction effects on PTOM. FP hospitals began the period with a higher average PTOM, but converged with NFPs during the study period. The average Medicare Advantage effect was not significant for either ownership type. The magnitude of the RAC variable was significantly negative for average PTOM at FPs (-4.68) and positive at NFPs (0.08), meaning RAC was associated with decreasing PTOM at FP hospitals only. RAC complements other Medicare surveillance systems that detect medically unnecessary admissions, coding errors, fraud, and abuse. Since its implementation in Florida, average FP and NFP operating margins have been similar, such that the higher margins reported for FP hospitals in the 1990s are no longer evident.

Keywords

hospital profitability, Medicare, Recovery Audit Contractor program, for-profit hospitals, not-for-profit hospitals

Introduction

During the 1990s, for-profit (FP) hospitals in Florida were found to achieve significantly higher margins than not-for-profit (NFP) hospitals, measured as either operating margin or basic earning power.^{1,2} The purpose of the present study was to determine whether FP hospitals sustained their operating profit advantage following the heightened scrutiny of medical necessity from Medicare Advantage and Medicare's Recovery Audit Contractor (RAC) programs, and to assess the association of these two Medicare programs on operating profitability at FP and NFP hospitals. Both programs heighten surveillance of medical necessity and deny payments for unnecessary hospital admissions.

Medicare Advantage was enacted in December 2003, enhancing benefits and managed care options to beneficiaries. In Florida, Medicare Advantage enrollment increased

from 18% in 2004 to 36% in 2013.^{3,4} Medicare Advantage plans approve or deny payment for member services, typically *prospectively*. An incentive exists to deny funding for medical services deemed unnecessary as Medicare Advantage plans are private companies that must assure their own financial success.

As Medicare Advantage plans typically deny medically unnecessary admissions prospectively, neither revenue nor

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expense is incurred for a disallowed admission because the admission does not occur. Nonetheless, a hospital's pre-tax operating margin (PTOM) can be affected. The PTOM measures a hospital's ability to generate revenue while controlling for expense. When an admission is denied, a hospital is precluded from generating earnings, where earnings are maximized from increasing revenue while controlling for expense. In general, admissions deemed unnecessary may have been more profitable as patients had acuity levels determined inappropriate for admission, meaning if reimbursed at inpatient rates, such patients should be profitable, on average. Furthermore, when fewer patients are admitted, fixed costs are spread among fewer patients, thus increasing the average cost per patient.

During 2005, a 3-year RAC pilot program was implemented in Florida, California, and New York, which affected Medicare fee-for-service (FFS) patients. In 2007, the pilot program was expanded to include 3 additional states. The 6-state pilot concluded in 2008. Independent RAC contractors examined Medicare admissions to detect improper overpayments and underpayments. Overpayment occurred when a provider's claim did not meet Medicare's medical necessity or coding requirements, and payment was then denied *retrospectively*. When underpayments were detected, the amount was reimbursed to the provider. The 6-state RAC pilot detected \$1 billion in overpayments, of which nearly \$700 million was returned to Medicare trust funds, and detected \$38 million in underpayments.^{5,6} RAC was implemented nationwide in 2010, allowing audits of admissions from 2007 and beyond. Consequently, all Medicare FFS admissions in Florida have been eligible for RAC review since the pilot was first implemented during 2005.

Although RAC provides enhanced oversight of medical necessity, Medicare claims administrator (MAC) contractors, formerly known as fiscal intermediaries, have provided claims administration and review activities since the origins of Medicare in 1965. The transition from fiscal intermediaries to MAC contractors also began during 2005, but was not fully implemented by 2010. In contrast to MAC contractors, RAC enhanced existing claims review processes, which was needed due to the multiple responsibilities of MAC contractors that limited their review of claims to a small percentage, pre-payment and post-payment. RAC and MAC contractors use similar review processes (automated reviews and complex reviews); however, RAC focuses exclusively on post-payment claims review. During the RAC pilot, 85% of overpayments pertained to inpatient admissions. In addition, Centers for Medicare & Medicaid Services (CMS) uses other surveillance to identify cases for referral to law enforcement. Prior to reviewing a claim, RACs are required to assure a MAC contractor did not previously review the claim and that the review would not hinder a fraud investigation.⁷ Thus, RAC functions in

coordination with MAC contractors and avoids interfering with fraud and abuse investigations.

RAC can adversely affect a hospital's PTOM. When a RAC audit determines an admission was medically unnecessary, the provider is notified and can appeal the decision in a process initially conducted by MAC contractors. If the RAC decision is ultimately sustained, repayment for the admission is required from the provider. Consequently, a hospital incurs the expense of the admission, but will receive no payment (revenue), thereby reducing the hospital's PTOM. During the pilot program, RAC audits in Florida focused on short-stay claims. Hospitals with high levels of short-stay admission denials made significant paybacks to Medicare. The American Hospital Association reported that, in Florida, a significant number of 1-day admissions were denied because they could have been managed through observation or at a lower level of care, for example, chest pain. In addition, it was reported that 3-day stays were often denied because the admissions were primarily used to qualify patients for Medicare Part A coverage for a skilled nursing facility.⁸ During the RAC pilot, vulnerabilities identified in improper payment were communicated to MAC contractors for use in further development of their strategies. Due to RAC denials, where expense is incurred from an admission but not revenue, RAC is expected to have a greater negative impact on PTOM than Medicare Advantage.

Furthermore, Medicare Advantage and RAC programs may have a greater impact on FP hospitals as the financial pressure to admit patients is more consequential than at NFP hospitals due to the influence of growth in admissions and revenue on the stock price of proprietary hospital chains. For example, 2 such chains, HCA Holdings, Inc. (HCA) and Health Management Associates (HMA), both experienced declining stock prices after reports of their first-quarter earnings in 2013 revealed slower growth in hospital admissions relative to prior periods.⁹ Ultimately, the HCA stock price increased by 57% in 2013, which followed favorable ratings for strong growth in admissions and revenue.^{10,11} Although growth can be attained by acquiring more hospitals, growth in admissions at a given hospital is more challenging to achieve due to the surveillance of medical necessity from Medicare Advantage plans and RAC. For example, in 2012, some former physicians at HMA hospitals alleged they were pressured to admit patients from the emergency department, not always based on medical need.¹² However, with increased surveillance, unnecessary Medicare admissions are less likely to be funded, therefore reducing hospital operating profitability.

The importance of growth and increasing revenue to publically traded companies, including FP hospital chains, is that stock analysts use this information to estimate earnings, which can enhance a stock's future value. For example, a certified financial analyst explained the benefit of growth

over several periods as follows, “it will command multiples that exceed the market multiple.”¹³ Furthermore, FP hospital communications to investors state their specific goal of revenue growth. In its annual report in 2013, the FP hospital chain Community Health Systems (CHS) stated that the company had “significant opportunities to improve financial performance in 2014 as [they] deploy new growth strategies” and their intent to leverage their “considerable size and scale to drive higher revenues.”¹⁴ Revenue growth is consistent with performing in the “growth stage” of the Product Life Cycle, as opposed to the “maturity stage,” which is associated with limited potential for growth in sales, for example, inpatient admissions. Furthermore, one strategy touted by a private equity firm is to achieve “organic growth enhancement,” which is “top line” (revenue) growth, not attained via acquisitions. The strategy is to fund continued revenue growth without decreasing short-term earnings. The organic growth strategy does not place cost-cutting at a premium for demonstrating financial performance.¹⁵

Based on hospital structure, the industry is not inherently highly profitable as it is real estate based and labor-intensive, meaning high fixed costs. Consequently, a former hospital CEO explained the focus of investors as follows: “The top line (revenue) is actually more important than your bottom line (net income after interest, taxes, and depreciation). You will do anything to add revenue.”¹⁶ Although NFP hospitals also seek growth, there are no consequences for these hospitals when it is not attained, as long as financial stability is achieved. Instead, the consequences may affect top-management bonuses, but there are no direct negative consequences relative to external capital measures, such as stagnating stock prices.

Florida provides a unique market to assess FP and NFP hospital profitability during the implementation of Medicare Advantage and RAC as half the acute care hospitals are FP. Florida is a bellwether state with the highest percentage of elderly population and the second highest percentage of FP hospitals. Furthermore, from 1991 to 2005, several published studies analyzed hospital profitability in Florida,^{1,2,17-21} such that factors associated with profitability were established. Factors associated with hospital profitability have included bed size, ownership, and labor efficiency. Bed size is associated with economies of scale, as average cost was found to be higher in smaller hospitals.²² FP hospitals in Florida were associated with fewer full-time equivalent (FTE) staff per bed, fewer personnel hours per adjusted patient day, and lower wages.¹ Increases in labor efficiency were associated with sizable gains in hospital profitability.²

Third-party payer mix also influences profitability. In 2009, Medicare and Medicaid paid hospitals 90% and 89% of cost, respectively; in 1999, they had paid 100% and 96% of cost, respectively. Commercial insurers paid hospitals

134% of cost in 2009, an increase from the 115% funded in 1999.²³ Self-pay (uninsured) patients are associated with a net financial loss. In 2009, the median amount spent on uncompensated care by reporting NP hospitals was 1.52% of hospital expenses.²⁴ Consequently, commercial insurance is expected to be the most profitable and self-pay the least profitable.

The present study analyzed 11 years of data from 2000 through 2010 to assess whether Medicare Advantage or RAC was associated with changes in hospital PTOMs of FP and NFP hospitals during this time period.

Methods

Hospital financial data from the Florida Agency for Health Care Administration were used to analyze the operating profitability of community acute care hospitals in Florida from 2000 through 2010. Hospitals excluded from the analysis were the major teaching hospitals, public hospitals, taxing district hospitals, and those owned by foundations, as they have additional revenue sources, which may or may not accrue as operating revenue. In addition, hospitals with less than 50 beds were excluded as they are more likely to experience diseconomies of scale and many are critical access hospitals, making them dissimilar to the retained group. A total of 104 acute care hospitals remained for inclusion: 42 NFP and 62 FP hospitals.

PTOM was the dependent variable. It quantifies profitability from annual patient care operations, measuring a hospital’s ability to generate revenue while controlling expense. It was calculated as follows:

$$PTOM = \frac{\left(\frac{\text{Total operating revenue} - \text{Total operating expense}}{\text{Total operating revenue}} \right)}{\text{Total operating revenue}}$$

Independent variables used in the analysis were organized into three categories. The RAC variable captures time, pre-implementation and post-implementation of RAC. As the RAC pilot was implemented during 2005, fiscal year 2006 was the first year that would definitely be affected. The organizational variables capture both ownership type and decisions the organization can make, for example, Bed Size and Labor Efficiency. Adjusted patient days (APD) was used in calculating the Labor Efficiency variable. It was defined as follows, and accounts for both inpatient and outpatient services:

$$APD = \text{Inpatient Days} \times \left[1 + \left(\frac{\text{Gross Outpatient Revenue}}{\text{Total Gross Revenue}} \right) \right]$$

The payer type variables capture the payer mix for each hospital. All variables were continuous, except for RAC and Ownership. Each variable is defined below.

Variables	Definition
RAC variable	
RAC	2006-2010 (2000-2005 is the reference group)
Organizational variables	
Ownership	NFP (FP is the reference group)
Bed Size	No. of beds staffed and available at the end of year
Labor Efficiency	Adjusted patient days/(Direct FTEs + Indirect FTEs)
Payer type variables	
Commercial	Total commercial inpatient days/Total acute and intensive days
Self-pay	Total self-pay inpatient days/Total acute and intensive days
Medicare FFS	Total Medicare FFS inpatient days/Total acute and intensive days
Medicaid	Total Medicaid inpatient days/Total acute and intensive days
Medicare Advantage	Total Medicare HMO and PPO inpatient days/Total acute and intensive days
Other Payers	All other payer inpatient days/total acute and intensive days

Note. RAC = Recovery Audit Contractor; FTE = full-time equivalent; NFP = not-for-profit; FP = for-profit; FFS = fee-for-service; HMO = Health Maintenance Organization; PPO = Preferred Provider Organization.

A mixed-effects model was used to capture the effect over time (11 years) of the repeated measurements for each hospital, containing both fixed and random effects, to estimate the association between PTOM and the independent variables described above. The study's unit of observation was an individual hospital. Ownership was modeled as a binary variable, and a hospital-specific random effect was included in the model to account for correlation of PTOM for the same hospital. The Commercial insurance variable was excluded from the model and all other payer type variables were included. Seven interaction terms with Ownership type were added to the model. All statistical analyses were performed with Statistical Analysis System software (Version 9.4; SAS Institute, Cary, North Carolina).

The final model was as follows:

$$\begin{aligned}
 \text{PTOM} = & \beta_0 + \beta_1 \text{Ownership} + \beta_2 \text{RAC} + \beta_3 \text{Bed size} + \\
 & \beta_4 \text{Labor efficiency} + \beta_5 \text{Self-pay} + \beta_6 \text{Medicare FFS} \\
 & + \beta_7 \text{Medicare Advantage} + \beta_8 \text{Medicaid} + \\
 & \beta_9 \text{Other payers} + \beta_{10} \text{RAC} \times \text{Ownership} + \\
 & \beta_{11} \text{Labor efficiency} \times \text{Ownership} + \\
 & + \beta_{12} \text{Self-pay} \times \text{Ownership} + \\
 & \beta_{13} \text{Medicare FFS} \times \text{Ownership} + \\
 & \beta_{14} \text{Medicare Advantage} \times \text{Ownership} + \\
 & + \beta_{15} \text{Medicaid} \times \text{Ownership} + \\
 & \beta_{16} \text{Other payers} \times \text{Ownership} + \text{Error}.
 \end{aligned}$$

Results

Table 1 provides the time trends for all performance indicator variables used in the model, as well as the percentage of patient days by payer type, for 2000 and 2010. The 11-year time trend statistical significance (P_{trend}) is based on data from 2000 through 2010. During the 11-year period, the average Bed Size increased by 16.8% ($P < .0001$), which was similar to Florida's population increase. The Adjusted patient

days variable did not significantly change. Patient care FTE and Non-patient care FTE increased, by 28.8% ($P < .0001$) and 10.3% ($P = .0004$), respectively. Labor Efficiency decreased by 11.2% ($P = .0124$), consistent with Adjusted patient days not changing whereas Patient care FTE and Non-patient care FTE increased. PTOM did not significantly change over the 11-year period.

Medicare FFS and Medicare Advantage together accounted for about 60% of patient days. From 2000 through 2010, the percentage of Medicare FFS patient days decreased by 4 percentage points ($P = .0033$), whereas Medicare Advantage increased by 3 percentage points ($P = .029$). Medicare FFS and Commercial insurance were the first and second most frequent payer types, respectively. Commercial insurance was 17.35% of patient days in 2010, which was a 2-percentage point decrease over the study period ($P = .020$). Medicaid increased by 4 percentage points ($P < .0001$), averaging 14.5% in 2010. Self-pay increased from 4.1% to 5.5% ($P < .0001$) during this period. Other Payers decreased from 5.4% to 3.2% ($P < .0001$).

Figure 1 illustrates changes in average PTOM at FP and NFP hospitals over the study period. In 2000, average PTOM was -2.3% for NFPs and 7.6% at FPs, which is nearly a 10-percentage point difference. By 2010, the difference decreased to 1.4 percentage points with average PTOM of 4.1% at NFPs and 5.5% at FPs. Although the FP hospitals started the period with a higher average PTOM, the PTOM of the two groups converged during the 11-year period. Average PTOM for FPs reached a nadir in fiscal year 2006, which is the year following the implementation of the RAC pilot program; however, this average has since monotonically improved.

The results of the final model are provided in Table 2. The chi-square statistic was 139.0, with 16 degrees of freedom. The resulting P value was less than .0001, which indicates that the full model was a good fit over the null model, using the likelihood ratio test.

Table 1. Variable Means by Year and Time Trend Significance.

Variables	2000	2010	% change	<i>P</i> _{trend}
Bed Size				
Mean	262	306	16.8	<.0001
SD	149	187		
Adjusted patient days				
Mean	80,673	88,414	9.6	.2783
SD	50,813	58,173		
Patient care FTE				
Mean	635	818	28.8	<.0001
SD	473	621		
Non-patient FTE				
Mean	312	344	10.3	.0004
SD	234	291		
Labor Efficiency				
Mean	90.1	80.0	-11.2	.0124
SD	13.5	14.5		
PTOM				
Mean	3.4	5.0	47.1	.3751
SD	13.0	9.1		
Self-pay				
Mean	4.13	5.52	33.7	<.0001
SD	2.82	2.30		
Medicaid				
Mean	10.46	14.54	39.0	<.0001
SD	6.35	8.07		
Commercial				
Mean	19.43	17.35	-10.7	.0200
SD	9.62	6.27		
Medicare FFS				
Mean	50.11	45.74	-8.7	.0033
SD	15.11	12.74		
Medicare HMO				
Mean	10.46	13.66	30.6	.0290
SD	8.09	7.08		
Other Payers				
Mean	5.41	3.19	-41.0	<.0001
SD	3.56	2.16		

Note. PTOM = pre-tax operating margin; FTE = full-time equivalent; FFS = fee-for-service; HMO = Health Maintenance Organization.

Based on the size of coefficient estimates, both the Intercept and Ownership (NFP) have the largest magnitude coefficients at 24.96 and -18.18, respectively, and both were statistically significant. All the other variables have values less than the absolute value of 1, other than RAC (-4.68). The FP hospitals start this study period at a much higher and positive PTOM position than the NFPs, as evidenced in the intercept and the effect of NFP ownership status. The intercept results are an artifact of the model, so the values are not the true PTOM group mean at the start of the study period because all relevant variables were not considered. FPs, on average, had a higher and positive PTOM at the start of the study period, whereas the NFP group had, on average, a negative PTOM at the start, consistent with Figure 1. Based on the estimate for RAC, FP

hospitals, on average, lost 4.68 percentage points of PTOM following RAC; conversely, NFP hospitals achieved an average increase in PTOM of 0.08 percentage points as the RAC × Ownership interaction estimate was 4.76.

For payer type variables, the main effects for Medicare FFS and Medicaid were statistically significant, and main and interaction effects for Other Payers were also significant. The Medicare Advantage was not statistically significant for either ownership type. PTOM had the same association with payer types regardless of hospital ownership type, with the exception of Other Payers, which is a relatively small group of unidentified payers.

Larger bed size was positively associated with PTOM. However, Labor Efficiency, both main effects and interaction effects, was not statistically significant. This may suggest, overall, that hospitals have optimized labor efficiency, especially as the reimbursement environment is such that greater volume (adjusted patient days) does not always result in greater payment.

Discussion

The present study analyzed the association of two Medicare policy changes (Medicare Advantage and RAC) on hospital PTOM. Medicare Advantage was not associated with PTOM at FP or NFP hospitals, using Commercial insurance as the reference group. The lack of statistical significance may occur as Medicare Advantage plans use similar provisions in approving admissions as Commercial insurance plans, which was the reference group.

In contrast, the RAC variable was associated with a significant decrease in PTOM at FP hospitals, but not at NFP hospitals. The analysis does not allow for making conclusions about the potential association of RAC and decreased PTOM at FP hospitals. For example, PTOM may decrease due to RAC payment denials for purported medically unnecessary admissions or, alternatively, from FP hospitals decreasing potentially unnecessary admissions to avoid risk of payment denial.

As evidenced in Figure 1, the average PTOM at FP hospitals decreased in 2004, which is prior to the implementation of the RAC pilot program. This may be attributed to other federal surveillance initiatives regarding medical necessity, fraud, and abuse, which were not controlled for in the study because they existed throughout the study period. The four largest FP hospital chain settlements during the study period with Medicare over fraud and abuse are listed below with three occurring prior to RAC.

- 2000: \$731 million by HCA
- 2003: \$631 million by HCA
- 2004: \$325 million by HealthSouth
- 2006: \$900 million by Tenet Healthcare.

It is possible that such settlements resulted in changing practices among FP chains to avoid further penalties, which may

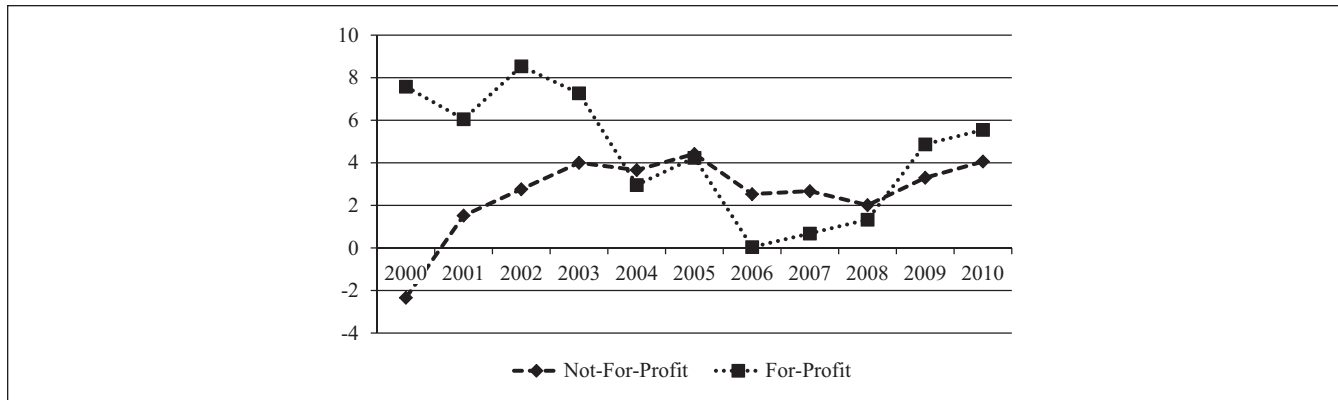


Figure 1. Eleven-Year average PTOM by ownership type.

Note. PTOM = pre-tax operating margin.

Table 2. Solution for Fixed Effects.

Variable	Binary variables	Estimate	SE	P value
Intercept		24.96	6.56	.0002
Ownership	NFP	-18.18	9.97	.0685
RAC	2006-2010	-4.68	0.61	<.0001
Bed Size		0.012	0.00	.0040
Labor Efficiency		-0.017	0.03	.5670
Self-pay		-0.32	0.19	.1036
Medicare FFS		-0.30	0.08	.0001
Medicaid		-0.19	0.09	.0306
Medicare Advantage		0.12	0.09	.1733
Other Payer		0.45	0.14	.0013
RAC × Ownership	2006-2010 × NFP	4.76	0.97	<.0001
Labor Efficiency × Ownership	NFP	0.01	0.05	.8697
Self-pay × Ownership	NFP	0.01	0.30	.9836
Medicare × Ownership	NFP	0.17	0.11	.1247
Medicaid × Ownership	NFP	-0.09	0.15	.5627
Medicare Advantage × Ownership	NFP	-0.19	0.14	.1636
Other Payer × Ownership	NFP	-0.60	0.18	.0008

Note. NFP = not-for-profit; RAC = Recovery Audit Contractor; FFS = fee-for-service.

have also affected PTOMs and were not controlled for in the present study. The FP hospital industry's perspective on increasing surveillance was explained as follows: "Nearly all publicly traded systems list the government's heightened and more well-coordinated, focus on policing healthcare fraud and abuse as a risk factor for their business."²⁵

Since 2006, the average PTOM at FP hospitals in Florida has improved. This may occur as information about RAC processes and the basis for payment denials became evident, thereby allowing hospitals to be more effective in appealing denials and determining, in advance, the types of cases that will be denied. Numerous publications advise providers on considerations in appealing RAC decisions as five levels of appeal exist, developing an internal RAC-response approach, improving clinical documentation and coding systems, as well as understanding reasons targeted by RACs for payment

denial, for example, cases involving inpatient rehabilitation admissions, high-risk diagnosis-related groups, and use of certain diagnosis and procedure codes.²⁶⁻³¹ One goal of the U.S. Senate Finance Committee is to assure that the RAC process is efficient, recognizing providers report that it can be overburdensome.³² The ultimate goal is to minimize RAC denials as hospitals avoid medically unnecessary admissions, coding problems, and other discrepancies targeted by RAC.

Although FP Florida community hospitals began the 21st century with higher average PTOMs, the margins converged with NFP Florida hospitals around the time RAC was implemented and have remained similar since. Although RAC was one Medicare initiative that appears to have contributed to this change, other CMS surveillance initiatives were also used. RAC coordinates with MAC contractors and fraud and abuse investigations, such that RAC is complementary to

other initiatives that preceded it and currently functions in coordination with these other federal initiatives.

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