Comparison of Medicaid Payments Relative to Medicare Using Inpatient Acute Care Claims from the Medicaid Program: Fiscal Year 2010–Fiscal Year 2011

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Objective. To compare Medicaid fee-for-service (FFS) inpatient hospital payments to expected Medicare payments.

Data Sources. Medicaid and Medicare claims data, Medicare's MS-DRG grouper and inpatient prospective payment system pricer (IPPS pricer).

Study Design. Medicaid FFS inpatient hospital claims were run through Medicare's MS-DRG grouper and IPPS pricer to compare Medicaid's actual payment against what Medicare would have paid for the same claim.

Principal Findings. Average inpatient hospital claim payments for Medicaid were 68.8 percent of what Medicare would have paid in fiscal year 2010, and 69.8 percent in fiscal year 2011. Including Medicaid disproportionate share hospital (DSH), graduate medical education (GME), and supplemental payments reduces a substantial proportion of the gap between Medicaid and Medicare payments.

Conclusions. Medicaid payments relative to expected Medicare payments tend to be lower and vary by state Medicaid program, length of stay, and whether payments made outside of the Medicaid claims process are included.

Key Words. Inpatient hospitals, Medicaid, Medicare, payments

The Medicaid program is jointly administered by the Federal government and each individual state and provides health insurance for certain populations who are eligible due to income or disability. Medicaid payments to providers have often been categorized as being less than providers' costs (American Hospital Association 2016, Cunningham et al. 2016). The variability and adequacy of Medicaid payments have become increasingly important as the 2010 Patient Protection and Affordable Care Act (Public Law 111-148; ACA) allowed states to expand Medicaid coverage eligibility with the associated costs largely offset through Federal funds. The ACA also decreased Federal

allotments for Medicaid disproportionate share hospital (DSH) payments, but these reductions have been delayed until FY 2018.¹ Combined, these legislative actions are anticipated to increase the number of patients covered under Medicaid (Centers for Medicare & Medicaid Services [CMS] 2015), reduce costs for uncompensated care, and decrease the amount of Federal Medicaid DSH payments that hospitals receive (KFF 2013). Because some states have decided to expand their Medicaid programs while others have not, the impact of the ACA will vary greatly across states (KFF 2014).

One way to assess the variability and adequacy of Medicaid's payment rates is to compare them to those of other payers. Prior research comparing Medicaid prices to other payers consists of using payment-to-cost ratios (American Hospital Association [AHA] 2016), provider surveys (Zuckerman, Williams, and Stockley 2009; Zuckerman and Goin 2012), and other survey data to study payment-to-charge ratios (Selden et al. 2015). Each of these approaches has its advantages and disadvantages. For instance, using payment-to-cost and payment-to-charge ratios allows costs and charges to act as proxies for the intensity of care when comparing payments across payers. However, the Medicare IPPS does not pay for inpatient hospital services based on a proportion of charges and/or costs, but it instead uses a bundled payment system.

This study seeks to expand upon the existing literature using Medicaid claims data, the CMS IPPS pricer, and the MS-DRG grouper to calculate what Medicare would have paid for the exact same inpatient stay. This ensures that only those factors that are formally part of the IPPS are allowed to influence the estimated Medicare payments. Using actual claims, this analysis is not dependent on hospital charges or subject to underreporting (as is often the case when using patient self-reported survey data). Additionally, leveraging the IPPS pricer allows for the possibility of future work where analysis can be performed at a more granular level, such as the ability to compare prices by MS-DRG or to decompose Medicare payments by operating, capital, and outlier dollars.

This study evaluates FFS Medicaid inpatient payments in an attempt to better understand how they vary and to better apprise the potential financial

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impact of Medicaid's expansion on the hospital industry. Included is an examination of the role of Medicaid DSH, GME, and supplemental payments, which currently help to reduce the gap between Medicaid and Medicare amounts paid through claims. Notably, Federal matching Medicaid DSH funds are to be reduced starting in FY 2018. The data are also examined by state, length of stay, age, and disability status.

STUDY DATA AND METHODS

The starting point of the analysis was a total of 14.2 million Medicaid inpatient claims. These claims were obtained from the Medicaid Statistical Information System (MSIS) in May of 2016 for 46 states and the District of Columbia for all discharges between October 1, 2009 and September 30, 2011. Claims were limited to those which are FFS and acute care hospitalizations. A total of 4.4 million managed care claims were excluded as they rarely contain payment amounts associated with the claim. Claims were then removed if they belonged to dual-eligible beneficiaries (0.5 million claims),² contained a third-party or beneficiary payment (0.1 million claims), had zero or negative Medicaid payments listed on the claim (0.2 million), or if the beneficiary was hospitalized outside of his or her state of residence (1.6 million claims), as state Medicaid programs have different rules regarding how hospitals are paid in such situations. Claims where the beneficiary had multiple claims submitted on their behalf during overlapping hospital stays were removed as well (1.1 million).

The diagnoses, procedure codes, and beneficiary age/sex information contained on the remaining 6.3 million Medicaid claims were run through the CMS's Medicare Severity-Diagnosis Related Grouper (MS-DRG) for the corresponding fiscal year (Grouper Versions 27 and 28).³ Next, Medicare claims data were used for FYs 2010 and 2011 to develop a crosswalk of National Provider Identifier (NPI) numbers to Medicare provider numbers for acute care hospitals. This crosswalk was then applied to Medicaid claims data to assign a Medicare provider number based on the NPI value listed on the Medicaid claim. Each Medicaid claim, along with the assigned MS-DRG and Medicare provider number, was run through CMS' IPPS pricer.⁴ The resulting price reflects the amount that Medicare would have been expected to pay for the same inpatient hospital stay and includes both beneficiary and Medicare payments. The expected Medicare payment generated by the IPPS pricer also accounts for Medicare DSH and indirect medical education payments, as well

as outlier payments, which are computed using covered charges and hospital-specific cost-to-charge ratios. The IPPS pricer does not include other pass-through payments such as organ acquisition costs, direct medical education payments, or bad debt.

Following the assignment of MS-DRGs, claims corresponding to MS-DRGs for pregnancy, puerperium, and newborns (MS-DRGs 765–795) were removed (2.7 million claims) as these MS-DRGs are extremely rare in the Medicare program. Finally, a small percentage of claims (less than 0.1 percentage point of total claims) were removed for various reasons such as incomplete data regarding the beneficiary's age. The final sample contained 3,657,990 inpatient Medicaid claims.

To compare expected Medicare payments with actual Medicaid payment amounts, all Medicaid payments associated with the claims and all expected Medicare payments were summed for each of the remaining hospitalizations. Total Medicaid payment amounts were divided by total expected Medicare payment amounts to derive a ratio of Medicaid to expected Medicare payments.

Payments were calculated for 46 states and the District of Columbia where inpatient FFS Medicaid claims data were available. Payments were also aggregated into three categories: (1) the 10 largest states by total Medicaid claims by FY; (2) the 10 smallest states by total Medicaid claims by FY; and (3) all other states.⁵ Throughout this analysis, FY 2010 is represented by claims for October 2009 through September 2010, and FY 2011 is represented by claims for October 2010 through September 2011.

Two approaches were explored to quantify how Medicaid DSH, GME, and supplemental payments influence the relationship between Medicaid and Medicare payments for inpatient hospitalizations. In each of these approaches, explicit adjustments are made to either the Medicaid or expected Medicare payment amounts in order to estimate the effect of any additional Medicaid payments that are not captured via the claim. More detailed descriptions of the two approaches are provided below.

LIMITATIONS

While the analysis discussed in this study provides an indication of the amount that Medicaid pays relative to Medicare for similar hospital services, several limitations should be noted. First, although a rough calculation of Medicaid DSH, GME, and supplemental payments is included for illustrative purposes

below, tying these payments to individual claims can be problematic. State Medicaid programs can make payments after care has been provided, and the amounts can be quite substantial for individual states. An estimate of the impact of incorporating these payments is discussed in the study results.

Secondly, the ability to identify acute care hospitals via Medicaid claims data is limited; therefore, hospitals were included in this analysis only if they had a NPI number that was paid under the Medicare inpatient prospective payment system. Acute care hospitals that bill Medicaid and Medicare using different NPI numbers were excluded, as there is no way to crosswalk such hospitals across the Medicare and Medicaid programs. Of the claims excluded due to the NPI value listed on the Medicaid claim, half could be linked to provider numbers corresponding to non-acute care hospitals, which fall outside the scope of this analysis, while the other half contained invalid NPI numbers.⁶

Third, the cost of treating a Medicaid beneficiary may differ from the cost of treating a Medicare beneficiary. However, these differences are not believed to be large as the average cost of a hospitalization was similar between the Medicaid and Medicare populations after controlling for case mix and labor costs. This analysis suggests that the MS-DRG weights used in Medicare are a reliable method to capture the variation in Medicaid inpatient costs (see Appendix 1 in Appendix SA2 for additional details).

Fourth, the analysis was limited to inpatient hospitalizations that occurred in the beneficiary's state of residence, as Medicaid payment policy for out-of-state patients can vary by state Medicaid program.

Lastly, the analysis was limited to FFS claims data only. Although managed care can comprise a large proportion of inpatient care for many individual state Medicaid programs, claims with capitated payments are often set to zero in the MSIS database. This study focuses on differences in payments between Medicaid and Medicare for fee-for-service claims only.

STUDY RESULTS

When all MS-DRGs are compared at the national level, it is estimated that average inpatient hospital claim payments for Medicaid were 68.8 and 69.8 percent of the expected Medicare payments for the same inpatient hospitalizations in FYs 2010 and 2011, respectively.⁷ A second set of calculations was produced to account for the fact that total Medicare DSH payments made via Medicare claims are influenced by each hospital's Medicaid volume. Removing Medicare DSH from the expected Medicare payments changes the ratio

of Medicaid to expected Medicare payments to 81 and 82.1 percent in FYs 2010 and 2011, respectively.

Payment Ratio by State Enrollment

In Table 1, states are grouped into three categories based on the volume of available claims data in each FY. States with the highest volume of Medicaid claims tended to pay a lower amount, relative to what Medicare would have been expected to pay, for the same service. This presents an opportunity for further research regarding whether states with greater Medicaid enrollment may have more leverage in setting inpatient prices while still retaining adequate provider participation. Notably, Table 1 does not include Medicaid payments made outside of the claims process, such as Medicaid DSH, GME, and supplemental payments. Attempts to estimate the impact of incorporating these payments are discussed below.

Aggregate Payments by State

Hospital payments under Medicaid are set by each state's Medicaid program. While payments for Medicaid can exceed those for Medicare for individual hospitalizations, the Medicaid upper payment limits, which are designed to be a reasonable proxy for what Medicare would pay in total for the same category of services, function as a ceiling for Medicaid payment amounts that are eligible for Federal matching funds (Scanlon 2015).

Medicaid payments, relative to those estimated for Medicare, vary across states, as shown in Figure 1. In FY 2010, there were seven Medicaid programs with ratios above 100 percent, including the District of Columbia, Utah, Idaho, South Carolina, South Dakota, Florida, and Kansas. Similarly, in FY 2011, the Medicaid programs with ratios above 100 percent were the District of Columbia, Florida, South Carolina, Utah, Kansas, Pennsylvania, and Mississippi. States are allowed to decide whether they want to include Medicare DSH payments when setting the Medicaid upper payment limit. When Medicare DSH payments are removed from the expected Medicare payments, a total of 11 states had Medicaid payments higher than the expected Medicare payment amounts in FY 2010 and 15 in FY 2011.⁸

A ratio above 100 percent does not necessarily indicate that these states were violating the Medicaid upper payment limit. It is possible that the inclusion of managed care beneficiaries, non-acute inpatient claims, maternity and newborn claims, and out-of-state beneficiaries would alter these results.

Table 1: Ratio of Medicaid to Expected Medicare Payments for Medicaid Inpatient Hospital Claims, Excluding Medicaid DSH, GME, and Supplemental Payments, and Medicare Pass-Thru Payments

	FY 2010				FY 2011			
	Average Medicaid Spending per Hospitalization	Average Expected Medicare Payment	Ratio of Medicaid to Expected Medicare Payment	Claims	Average Medicaid Spending per Hospitalization	Average Expected Medicare Payment	Ratio of Medicaid to Expected Medicare Payment	
Grouping of States								
All states with Medicaid FFS claims ¹	1,805,515	\$7,029	\$10,216	68.8%	1,852,475	\$7,065	\$10,122	69.8%
Top 10 states in size by claim counts in FY	1,263,468	\$6,491	\$10,191	63.7%	1,254,386	\$6,370	\$10,015	63.6%
Remaining states not part of top or bottom 10, as determined by claim counts in FY	513,309	\$8,259	\$10,296	80.2%	563,873	\$8,549	\$10,356	82.6%
Bottom 10 states in size by claim counts in FY	28,738	\$8,691	\$9,903	87.8%	34,216	\$8,074	\$10,163	79.4%

¹ Any state included if it had fee-for-service inpatient Medicaid claims data available in that fiscal year. States ranked by claims included in analysis for respective FY.

Figure 1: Count of States by Ratio of Medicaid to Expected Medicare Payments by FY, Excluding Medicaid DSH, GME, and Supplemental Payments, and Medicare Pass-Thru Payments

Payment-to-Cost and Payment-to-Charge Ratios

Prior literature has examined payment-to-cost and payment-to-charge ratios to compare Medicaid payments to Medicare payments. In this analysis, those same ratios were calculated in a two-step process. First, charges listed on the Medicaid claim were obtained and then multiplied by the cost-to-charge ratios located in the Provider Specific File used for the IPPS pricer, which are specific to each hospital. This calculation yielded estimated costs for the claims in the sample. Excluding Medicaid DSH, GME, and supplemental payments, total Medicaid payments divided by total costs were 74.5 percent in FY 2010 and 74.4 percent in FY 2011. To compare those payment-to-cost ratios to what Medicare would have paid, similar statistics were estimated using total charges from FFS Medicare claims and hospital-specific cost-to-charge ratios. Using that approach, total payments in the Medicare program (excluding pass-thru payments) to IPPS hospitals were 94.3 percent of all costs in FY 2010 and 93.6 percent in FY 2011 (results shown in Table 2). Data produced by the American Hospital Association suggest the Medicaid payment-to-cost and Medicare

Table 2: Payment-to-Cost and Payment-to-Charge Ratios for Medicaid and Medicare

	<i>Medicaid</i>		<i>Medicare</i>		<i>Medicaid</i>	<i>Medicaid</i>
	<i>Medicaid</i>	<i>Medicaid</i>	<i>Medicare</i>	<i>Medicare</i>	<i>Payments to</i>	<i>Payments to</i>
	<i>Payments</i>	<i>Payments</i>	<i>Payments</i>	<i>Payments</i>	<i>Cost/Medicare</i>	<i>Charge/Medicare</i>
	<i>to Costs</i>	<i>to Charges</i>	<i>to Costs</i>	<i>to Charges</i>	<i>Payments to Cost</i>	<i>Payments to Charge</i>
FY 2010	74.5%	22.5%	94.3%	27.6%	79.0%	81.3%
FY 2011	74.4%	21.4%	93.6%	26.2%	79.5%	81.6%

payment-to-cost ratios are closer when Medicaid DSH payments are included (American Hospital Association 2016).

One study using payment-to-charge ratios to focus on hospital payment rates worked with Medical Expenditure Panel Survey data and found the Medicaid payment rate (prior to DSH, GME, and supplemental payments) as a percentage of the Medicare payment rate to be 82.5 percent in 2009, 88.6 percent in 2010, and 91.2 percent in 2011 (Selden et al. 2015). As shown in Table 2, the analysis presented here found initially similar and then lower results when comparing payment-to-charge ratios (Medicaid was 81.3 percent of Medicare in FY 2010 and 81.5 percent in FY 2011).

Ratios by Length of Stay, Beneficiary Age, and Disability Status

The ratio of Medicaid to expected Medicare payments was also examined by its relationship to length of stay (LOS), the beneficiary’s age, and disability status. LOS was chosen for examination as some Medicaid state programs pay a proportion of charges, or use some other alternative to a bundled pricing system, which may not provide incentives for hospitals to discharge patients more rapidly. Figure 2 below shows that as LOS increases, the mean ratio of Medicaid to expected Medicare payments increases. Further research is needed to investigate whether the type of Medicaid payment system (bundled vs. other) influences hospital behavior such as LOS.

Table 3 shows the relationship between Medicaid payments relative to expected Medicare payments by the beneficiary’s age and by their disability status. The ratio of Medicaid to expected Medicare payments tends to increase with age, although the range was small. Medicaid payments, as a ratio of expected Medicare payments, were 68.1 percent for patients aged 19–35, and 71.1 percent for patients aged 60–64 in FY 2010. Non-dual patients on Medicaid due to disability had a slightly higher ratio of Medicaid to expected

Figure 2: Average Ratio of Medicaid to Expected Medicare Payments for All MS-DRGs by Length of Stay, Excluding Medicaid DSH, GME, and Supplemental Payments, and Medicare Pass-Thru Payments

Medicare payments relative to Medicaid non-dual patients that did not qualify due to disability, of 74.1 and 75.9 percent in FY 2010 and FY 2011, respectively.

Accounting for DSH, GME, and Supplemental Payments

As previously discussed, state Medicaid programs are able to make payments to individual hospitals that are not captured via claims through Medicaid DSH, GME, and supplemental payments. Research by the American Hospital Association using hospital payment-to-cost ratios, after including payments made outside the claims process such as Medicaid DSH, found that Medicaid payment rates were higher than Medicare for the 2010 and 2011 calendar years (American Hospital Association, 2016).

To understand the impact of Medicaid DSH, GME, and supplemental payments on our claims-based ratios of Medicaid to expected Medicare payments, two approaches were explored. In the first approach, Medicaid payment amounts without Medicaid DSH, GME, and supplemental payments were compared to the expected Medicare payment after removing the amounts that Medicare would have been expected to pay for Medicare DSH. This produced a ratio of Medicaid payments without DSH, GME, and

Table 3: Ratio of Medicaid Payments to Expected Medicare Payments by Age and Disability Status after Excluding Maternity and Newborn Claims

	FY 2010				FY 2011			
	Claims	Average Medicaid Spending per Hospitalization	Average Expected Medicare Payment	Ratio of Medicaid to Expected Medicare Payment	Claims	Average Medicaid Spending per Hospitalization	Average Expected Medicare Payment	Ratio of Medicaid to Expected Medicare Payment
All states with Medicaid FFS claims	1,805,515	\$7,029	\$10,216	68.8%	1,852,475	\$7,065	\$10,122	69.8%
Ratio after grouping inpatients by age								
1. Age 0 to 1	162,503	\$6,020	\$8,351	72.1%	162,167	\$6,499	\$8,398	77.4%
2. Age 2 to 18	220,689	\$5,562	\$8,425	66.0%	217,522	\$5,490	\$8,425	65.2%
3. Age 19 to 35	394,981	\$6,205	\$9,105	68.1%	426,498	\$6,024	\$8,791	68.5%
4. Age 36 to 54	641,807	\$7,369	\$10,773	68.4%	647,021	\$7,375	\$10,702	68.9%
5. Age 55 to 59	191,195	\$8,373	\$11,923	70.2%	203,059	\$8,567	\$11,865	72.2%
6. Age 60 to 64	139,418	\$8,727	\$12,283	71.1%	142,206	\$9,035	\$12,375	73.0%
7. Age 65 to 105	54,922	\$8,862	\$13,239	66.9%	54,002	\$8,771	\$13,194	66.5%
Ratio for disabled, non-dual Medicaid inpatients	992,814	\$8,608	\$11,619	74.1%	1,010,678	\$8,752	\$11,530	75.9%

supplemental payments, to expected Medicare payments without Medicare DSH of 81 percent in FY 2010 and 82.1 percent in FY 2011.

Managed care complicates how DSH, GME, and supplemental payments should be treated as some of the Medicaid DSH, GME, and supplemental payments may correspond to care that was provided outside of the inpatient FFS hospitalizations studied. As a second approach, for each state in each fiscal year, a portion of total Medicaid DSH, GME, and supplemental payments from the CMS-64 quarterly expense reports was estimated to be associated with the FFS Medicaid claims in the sample. This amount was calculated for each state by multiplying the CMS-64 quarterly expense DSH, GME, and supplemental payments by two ratios: (1) the ratio of total Medicaid inpatient dollars from the claims in this sample to total inpatient spending reported on the CMS-64 quarterly expense reports; and (2) the proportion of inpatient revenue within the state from Medicaid FFS. This second ratio was calculated using data from the American Hospital Association (Health Forum, 2012 AHA Annual Survey of Hospitals) and consists of taking total inpatient FFS Medicaid revenue for the state and dividing by the total of inpatient FFS Medicaid and inpatient Medicaid managed care revenue. This calculation attempts to identify and exclude the estimated portion of these DSH, GME, and supplemental payments that may be associated with Medicaid managed care payments. This second approach results in total Medicaid payments representing 100.8 percent and 104.7 percent of total expected Medicare payments in FY 2010 and FY 2011, respectively. An alternative upper bound approach to approximating Medicaid DSH, GME, and supplemental payments can be found in Appendix 3 in Appendix SA2.

CONCLUSION

Given the different rules and payment systems used across state Medicaid programs, it is difficult to identify aggregate trends in Medicaid that hold true for all states. To better understand the financial impacts of Medicaid payment policy, running Medicaid claims through the Medicare IPPS pricer can provide a valuable benchmark that can place Medicaid payments into perspective.

This analysis found that, on average, direct Medicaid inpatient payments tend to be lower than the amounts expected to be paid by Medicare for the same services and that, relative to Medicare, Medicaid's payments can vary considerably across the states analyzed.

This analysis also suggests the need for further research to better understand how differences in incentives between the two public programs influence hospital behavior. The IPPS used by Medicare creates an incentive for hospitals to reduce costs to below the bundled payment amount, potentially encouraging hospitals to shorten their average length of stay. This same incentive may not exist in the different payment systems used by state Medicaid programs, and this distinction may help explain the relationship observed between length of stay and the ratio of Medicaid to Medicare payments. Ratios also tended to be influenced, by smaller degrees, by the beneficiary's age and whether the patient is disabled.

Finally, when Medicaid payments that are made outside the claims process are included—such as Medicaid DSH, GME, and supplemental payments—the gap between Medicaid and Medicare payment amounts is significantly reduced, although the Federal matching Medicaid DSH funds are to be lowered starting in FY 2018.

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Disclaimer: None.

NOTES

1. The legislative acts that collectively delayed these DSH reductions are the Continuing Appropriations Resolution, 2014 (Public Law 113-67); the Protecting Access to Medicare Act of 2014 (Public Law 113-93); and the Medicare Access and CHIP Reauthorization Act of 2015 (Public Law 114-10).
2. For more information on dual-eligible beneficiaries, see the Medicare Learning Network document from the Centers for Medicare & Medicaid Services (CMS) in the Department of Health and Human Services (DHHS), available at <http://www>.

- cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/Medicare_Beneficiaries_Dual_Eligibles_At_a_Glance.pdf
3. The CMS Medicare Severity-Diagnosis Related Grouper (MS-DRG) is available at <http://www.ntis.gov/products/grouper.aspx>
4. The Medicare IPPS Pricer for FY 2014.7 is available at <http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Acute-Inpatient-Files-for-Download-Items/FY-2014-Software-Release.html?DLPage=1&DLSort=1&DLSortDir=descending>
5. The top 10, bottom, and middle states are grouped by claim counts for each FY. A listing of states in each category by FY can be found in Appendix 2 in Appendix SA2.
6. The first NPI batch of NPI values assigned by CMS start with a value of 1 or 2, and all NPI values must satisfy the Luhn formula. Of the Medicaid claims with an NPI value that could not be cross-walked to a Medicare provider number, half had an NPI value that started with a digit other than 1 or 2. More information on how to validate NPI values can be found here: "Requirements for National Provider Identifier (NPI) and NPI Check Digit, January 23 2004." Centers for Medicare & Medicaid Services, accessed July 29 2016, <https://www.cms.gov/Regulations-and-Guidance/Administrative-Simplification/NationalProvIdentStand/Downloads/NPIcheckdigit.pdf>
7. Prior to excluding newborn and maternity claims, it is estimated that Medicaid paid 66.7 and 67.0 percent of the expected Medicare payment in the 2010 and 2011 FYs, respectively.
8. When Medicare DSH payments are removed from the expected Medicare payments, the following states have Medicaid claims payments that exceed the expected Medicare payments: in FY 2010, the District of Columbia, Florida, Idaho, Kansas, Mississippi, Oklahoma, South Carolina, South Dakota, Utah, Virginia, and Wisconsin; in FY 2011, the District of Columbia, Florida, Georgia, Iowa, Indiana, Kansas, Mississippi, Ohio, Pennsylvania, South Carolina, South Dakota, Utah, Virginia, Washington, and Wisconsin.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article:

Appendix SA1: Author Matrix.

Appendix SA2: Additional Analysis of Medicaid and Medicare Hospital Payments.

Appendix 1. Calculating and Assessing DRG Weights for the Medicaid Population.

Appendix 2. States Ranked by Count of Claims Included in Analysis, by Fiscal Year.

Appendix 3. Upper Bound Approach to Approximating Medicaid DSH, GME, and Supplemental Payments.