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RESEARCH ARTICLE

Access to Care for Medicare-Medicaid Dually Eligible Beneficiaries: The Role of State Medicaid Payment Policies

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Study Objectives. Medicaid programs are not required to pay the full Medicare coinsurance and deductibles for Medicare-Medicaid dually eligible beneficiaries. We examined the association between the percentage of Medicare cost sharing paid by Medicaid and the likelihood that a dually eligible beneficiary used evaluation and management (E&M) services and safety net provider services.

Data Sources. Medicare and Medicaid Analytic eXtract enrollment and claims data for 2009.

Study Design. Multivariate analyses used fee-for-service dually eligible and Medicare-only beneficiaries in 20 states. A comparison group of Medicare-only beneficiaries controlled for state factors that might influence utilization.

Principal Findings. Paying 100 percent of the Medicare cost sharing compared to 20 percent increased the likelihood (relative to Medicare-only) that a dually eligible beneficiary had any E&M visit by 6.4 percent. This difference in the percentage of cost sharing paid decreased the likelihood of using safety net providers, by 37.7 percent for federally qualified health centers and rural health centers, and by 19.8 percent for hospital outpatient departments.

Conclusions. Reimbursing the full Medicare cost-sharing amount would improve access for dually eligible beneficiaries, although the magnitude of the effect will vary by state and type of service.

Key Words. Medicare-Medicaid, dually eligible, access to care, Medicaid payment for Medicare cost sharing

In 2011, there were 10.2 million low-income seniors and younger persons with disabilities enrolled in both the Medicare and Medicaid programs (Medicaid and CHIP Payment and Access Commission [MACPAC] 2014b). Beneficiaries who are dually eligible for Medicare and Medicaid have high needs for health care, accounting for only 20 percent of Medicare beneficiaries and 14 percent of Medicaid beneficiaries, but 34 percent of Medicare and Medicaid

spending in 2010 (Medicare Payment Advisory Commission [MedPAC] and Medicaid and CHIP Payment and Access Commission [MACPAC] 2015). Although Medicare cost sharing (deductibles and coinsurance) can be a barrier to accessing care for these low-income populations, dually eligible beneficiaries get help covering these expenses from Medicaid. Medicaid coverage of Medicare cost sharing was expected to ensure that these high-need populations would have access equal to that of other Medicare beneficiaries.

Approximately 87 percent of dually eligible beneficiaries qualify for Medicaid coverage of Medicare cost sharing (MedPAC and MACPAC 2013). Typically, for dually eligible beneficiaries, providers first bill Medicare (and any third-party payers) before billing Medicaid for cost sharing. States historically have had flexibility in how Medicaid reimburses Medicare cost sharing, but the Balanced Budget Act of 1997 (BBA) clarified that Medicaid programs are not required to pay the full Medicare cost sharing if the total provider payment would exceed the state's Medicaid payment rate. A recent study (MACPAC 2013) surveyed states about their Medicare cost-sharing payment policies in 2012 for four types of providers (inpatient hospitals, outpatient hospitals, skilled nursing facilities, and physicians), and identified, by provider type, whether the state pays (1) the full amount of Medicare cost sharing, so that the provider receives the same amount for services rendered to dually eligible beneficiaries and Medicare-only beneficiaries (full payment); (2) the lesser of the full Medicare cost sharing or the difference between the Medicaid rate and the amount already paid by Medicare, so the provider never receives more than the Medicaid-approved rate for services rendered to dually eligible beneficiaries (lesser-of payment); or (3) some other amount. Since passage of the BBA, there has been a shift away from full payment policies and toward lesser-of policies. For physician services, for example, only 11 states reported paying the full amount of Medicare cost sharing in 2012, down from 31 states in 1997; in contrast, 39 states used a lesser-of policy in 2012, up from 12 states in 1997 (MACPAC 2013).

Policy makers have long been concerned that state limits on cost-sharing payments might impede access to care for dually eligible beneficiaries when

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providers are unwilling to serve them if they are not reimbursed the full Medicare-approved payment. An earlier study found that Medicaid cost-sharing payments fell in six of nine study states from 1996 to 1998 following passage of the BBA, and access to outpatient physician services for dually eligible beneficiaries was reduced relative to Medicare-only beneficiaries in these states (Mitchell and Haber 2004).

This study uses more current data and examines a larger number of states than previous studies (Mitchell and Haber 2004) to understand the implications of Medicaid payment for Medicare cost sharing on access to care for dually eligible beneficiaries. Specifically, the study addresses the following questions:

- How much do Medicaid payments for Medicare cost sharing vary across states? Do states' actual cost-sharing payments correspond to their written policies?
- Are higher state Medicaid payments for Medicare cost sharing associated with dually eligible beneficiaries' higher utilization of (indicating better access to) outpatient services?

The conceptual model behind these questions was based on the market demand model developed by Sloan, Mitchell, and Cromwell and expanded by Mitchell and Cromwell (Sloan, Mitchell, and Cromwell 1978; Mitchell and Cromwell 1984). The model posits that physicians segment their potential patient pool, based on insurer type, and will prefer to treat higher-paying patients first. Thus, dually eligible beneficiaries residing in states that pay the full Medicare cost-sharing amounts will be as attractive to physicians as those Medicare beneficiaries with supplemental coverage or ability to pay their cost sharing. Conversely, dually eligible beneficiaries in states with restrictive cost-sharing payments will be less attractive, and some may experience difficulties finding physicians willing to treat them.

METHODS

Data Sources and Study Population

The main data sources for the analyses were Medicare and Medicaid Analytic eXtract (MAX) enrollment and claims data, which were used to establish eligibility for the study population, to calculate the percentage of the Medicare cost-sharing amount paid by Medicaid, and to construct measures of service utilization. The study used data for 2009, which was the most current year of MAX data available at the time of this study. The Area Resource File (ARF)

provided county-level market factors expected to influence service utilization. Finally, states' written policies regarding payment of Medicare cost sharing for physician services in 2012 was obtained from a survey conducted by NORC at the University of Chicago for MACPAC (2013). Data on states' written policies in 2009 were not available.

We used Medicare-only beneficiaries as a comparison group in a difference-in-differences model to control for state-specific factors other than Medicaid cost-sharing payments (such as provider practice patterns) that might influence utilization by dually eligible beneficiaries, assuming that providers receive close to full reimbursement of cost sharing for Medicare-only beneficiaries in all states, either through a Medigap policy or out-of-pocket payment. This model assumes that state-specific factors (other than cost-sharing payments) have similar impacts on dually eligible and Medicare-only beneficiaries, although these groups may have different patterns of utilization. Under this assumption, variation in the difference between dually eligible and Medicare-only beneficiaries across states is used to identify the impact of the level of cost-sharing payment on dually eligible beneficiaries' access to care.

The study population included dually eligible beneficiaries who were eligible for at least 1 month of Medicaid coverage of Medicare cost sharing in 2009 and a 20 percent random national sample of Medicare-only beneficiaries during the same time. To qualify for the study population, all beneficiaries also were required to be eligible for Medicare Part B and not be enrolled in a Medicare Advantage plan for at least 1 month during the year. We further required that qualifying dually eligible beneficiaries had at least 1 month where they were not enrolled in a medical or comprehensive Medicaid managed care plan or a Program of All-Inclusive Care for the Elderly plan.

We excluded states in which more than 40 percent of dually eligible months indicated enrollment in a Medicare or Medicaid managed care plan as the remaining beneficiaries would not be representative of the entire state.¹ We also excluded states with data quality problems for variables in the MAX data used to calculate the Medicaid cost-sharing payment percentage.² In addition, Maine was excluded because the state's claims were not included in the 2009 MAX data. Overall, 20 states were included.

Analytic Approach

Medicaid Payment for Medicare Cost Sharing. The key variable in analyses examining the impact of Medicaid payments for Medicare cost sharing on utilization of services by dually eligible beneficiaries was the average

percentage of the Medicare cost sharing for outpatient evaluation and management (E&M) services reimbursed by state Medicaid programs. It was calculated as:

$$\text{Avg \% of Medicare cost sharing paid by Medicaid} = \frac{\text{Sum of qualifying Medicaid payment amounts}}{\text{Sum of qualifying Medicare deductible and coinsurance amounts}}$$

The denominator is the sum of deductible and coinsurance amounts on Medicare Part B claims in which (1) the procedure code is an outpatient E&M service (99201–99215 or 99241–99245); (2) the provider specialty code indicates physician or advanced practice provider (nurse practitioner, physician assistant, certified nurse midwife, certified registered nurse anesthetist, or certified clinical nurse specialist) services; and (3) place of service is office. The numerator is the sum of Medicaid payment amounts on claims in the MAX OT file with (1) a procedure code for the outpatient E&M services noted above; (2) physician, nurse midwife, or nurse practitioner type of service; and (3) place of service in an office. Because there should be an associated Medicare claim for all Medicaid claims for Medicare cost sharing (but not necessarily vice versa), we further restricted the numerator to Medicaid claims that matched with a Medicare claim using beneficiary ID, procedure code, and date of service. This excluded less than 10 percent of claims across states.

We compared the calculated percentages to the categorization of states based on their written policies as (1) states that pay the full amount of Medicare cost sharing; (2) states that pay the lesser of the full Medicare cost sharing or the difference between the Medicaid rate and the amount already paid by Medicare; or (3) other.

Outcome Measures. The outcomes in our analyses were a number of commonly accepted claims-based indicators of realized access to outpatient provider care in the Medicare population (Kennell and Associates 2011). We included utilization of office and other outpatient E&M services and utilization of safety net provider services to analyze the impact of Medicaid payment of the Medicare cost-sharing amount for E&M visits. Safety net provider services included federally qualified health centers (FQHCs) or rural health centers (RHCs), and hospital outpatient departments. Greater use of these services might be indicative of problems with access

to office-based services caused by limitations on cost-sharing payments (Rosenbaum and Shin 2011).

In addition, we measured emergency department (ED) visits that were not preventable or avoidable using an algorithm developed by the New York University Center for Health and Public Service Research.³ These are visits for conditions that require care in an ED and could not be prevented with ambulatory care (e.g., trauma, appendicitis, myocardial infarction). We used this measure to test the validity of our difference-in-differences model as the rate of these ED visits for dually eligible beneficiaries does not reflect access to care and, therefore, should not be affected by the percentage of Medicare cost-sharing paid by Medicaid.

Statistical Methods. We used descriptive and multivariate analyses to examine the relationship between Medicaid payment of Medicare cost sharing for dually eligible beneficiaries and their service utilization. If lower Medicaid payments for Medicare cost sharing reduce access to services, then utilization differences in dually eligible beneficiaries between states with high and low payments should be larger compared to that for Medicare-only beneficiaries.

For descriptive analyses, we used *t*-tests to compare the percentage of beneficiaries utilizing a service between dually eligible beneficiaries and Medicare-only beneficiaries within each state. Multivariate analyses used logistic regression models with following equation:

$$\text{Log}\left(\frac{P(Y_{is})}{1 - P(Y_{is})}\right) = \beta_0 + \beta_1 \text{DUAL}_{is} + \beta_2 \text{CS}_s + \beta_3 (\text{DUAL}_{is} * \text{CS}_s) + \beta_4 X_{is} + \varepsilon_{is}$$

Y_{is} is an indicator for whether beneficiary i in state s used service Y . DUAL_{is} is an indicator for whether beneficiary i is dually eligible for Medicare and Medicaid (vs. Medicare-only). CS_s represents the percentage of the Medicare cost sharing paid by Medicaid in state s . $\text{DUAL}_{is} * \text{CS}_s$ is an interaction term and measures the effect of the cost-sharing payment percentage on utilization of dually eligible beneficiaries relative to Medicare-only beneficiaries. X_{is} represents covariates expected to influence service utilization. The individual-level covariates included age, gender, race, and whether the beneficiary was originally entitled to Medicare due to disability. The county-level covariates included whether the county is a Metropolitan Statistical Area, physician and hospital bed supply, percentage of population in poverty, percentage of

population older than 65, and Medicare managed care penetration rate. We estimated robust standard errors to account for the clustered data within each state. Because our analysis included a small number of clusters (20 states), these robust standard errors can be underestimated. Therefore, we estimated block-bootstrap standard errors on state for the key variable, $DUAL_{is} * CS_s$, using the full sample and 100 replications.

Both descriptive and multivariate analyses of service utilization were weighted using the number of months during the year the beneficiary was eligible for the analyses. The weights for Medicare-only beneficiaries also took consideration of the 20 percent sampling probability for this population.

The treatment effect in difference-in-differences models estimated with nonlinear models, such as the logistic regression models used in our analyses, is not constant across different values of the explanatory variables (Karaca-Mandic, Norton, and Dowd 2012). As a result, the effect of cost-sharing payment percentages on utilization cannot be derived directly from the interaction term, $DUAL_{is} * CS_s$. We thus used estimated coefficients from each model to predict outcomes for dually eligible beneficiaries and Medicaid-only beneficiaries assuming a high cost-sharing payment amount (100 percent) and a low cost-sharing payment amount (20 percent), setting all covariates at the sample mean. We then calculated the difference between predicted utilization for dually eligible beneficiaries and for Medicare-only beneficiaries at the high cost-sharing reimbursement level and at the low level. The difference between dually eligible beneficiaries and Medicare-only beneficiaries at the high payment level minus the difference at the low payment level (the difference-in-differences estimate) represents the estimated effect of the higher cost-sharing reimbursement percentage on dually eligible beneficiaries' service utilization. As with $DUAL_{is} * CS_s$, statistical significance for the difference in differences estimates was determined by block-bootstrapping standard errors on state.

RESULTS

Table 1 shows the average percentage of Medicare cost sharing covered by Medicaid payments by state, categorizing states by their written policies for Medicaid payment of Medicare cost sharing in 2012 (full payment, lesser of, or other). For E&M visits, we found a reasonable correspondence between our calculated measure and the states' written policies. States with a written policy of reimbursing the full Medicare cost-sharing liability generally had high cost-sharing payment percentages, although the percentages were typically less

Table 1: Average Percentage of Medicare Cost Sharing for Office and Other Outpatient Evaluation and Management Visits Covered by Medicaid Payments, 2009

<i>Payment Type*</i>	<i>State</i>	<i>Average Percentage of Medicare Cost Sharing Paid</i>
Full payment	MS	65.4
	NE	85.5
	VT	98.1
Lesser of	AL	26.9
	AK	91.2
	CT	11.3
	FL	16.0
	GA	21.9
	IL	13.8
	KY	24.2
	LA	42.1
	MD	79.8
	MA	23.9
	MI	13.1
	MT	92.9
	NM	31.8
	ND	71.2
	SC	23.0
WV	28.5	
Other	NY	24.9

*States are grouped on the basis of their Medicaid payment policies for Medicare cost sharing in 2012 as reported in the NORC survey.

than 100 percent of the cost sharing. In 2009, the cost-sharing payment percentage varied substantially among states with a lesser-of payment policy, ranging from Connecticut, which paid about 11 percent, to Montana, which paid 93 percent. However, most states with a lesser-of policy reimbursed 50 percent or less of the Medicare cost-sharing amount. New York, which was the only state that had a policy of paying some other amount, reimbursed about 25 percent of the Medicare cost-sharing amount in 2009.

Table 2 shows the utilization of office and other outpatient E&M services and safety net provider services by dually eligible beneficiaries and Medicare-only beneficiaries. In almost all the states, compared to Medicare-only beneficiaries, a smaller percentage of dually eligible beneficiaries had office or other outpatient E&M visits. On the other hand, a larger percentage of dually eligible beneficiaries had FQHC or RHC visits and hospital outpatient department E&M visits compared to Medicare-only beneficiaries. We

Table 2: Utilization of Office and Other Outpatient Evaluation and Management Services, and Safety Net Provider Services, 2009

State	Had at Least One Visit to Safety Net Provider (%)					
	Had at Least One Office or Other Outpatient E&M Visit (%)		FQHC or RHC Visit		Hospital Outpatient Department E&M Visit	
	Dually Eligible	Medicare-Only	Dually Eligible	Medicare-Only	Dually Eligible	Medicare-Only
High Medicaid payment [†]						
AK ^{LO}	76.7	76.6	15.2*	6.4	27.8*	16.5
MD ^{LO}	78.0*	87.1	7.0*	1.9	12.7*	10.0
MT ^{LO}	70.7*	80.2	25.5*	16.4	31.1*	34.0
NE ^{FP}	82.7*	85.0	20.6*	17.8	17.6*	16.7
VT ^{FP}	72.8*	81.2	28.7*	18.4	38.9*	45.1
Medium Medicaid payment [†]						
AL ^{LO}	77.4*	88.1	15.5*	6.3	6.1	5.9
LA ^{LO}	80.7*	86.5	13.1*	5.9	13.2*	8.2
MS ^{FP}	78.6*	85.4	29.9*	15.3	8.8*	6.2
NM ^{LO}	78.9*	80.2	21.9*	10.0	27.9*	20.8
ND ^{LO}	73.9*	83.7	23.1	22.2	38.7*	44.9
WV ^{LO}	76.2*	82.3	28.7*	17.1	15.6*	13.4
Low Medicaid payment [†]						
CT ^{LO}	75.8*	89.2	12.9*	0.9	13.4*	10.0
FL ^{LO}	78.7*	89.8	7.7*	2.9	11.2*	10.7
GA ^{LO}	80.6*	88.2	9.9*	3.7	13.0*	7.6
IL ^{LO}	73.3*	85.9	14.9*	8.2	17.1*	14.6
KY ^{LO}	77.9*	86.1	23.9*	10.6	8.2*	7.9
MA ^{LO}	80.1*	87.8	11.0*	1.6	33.0*	28.0
MI ^{LO}	76.1*	86.7	15.2*	7.9	19.3*	17.5
NY ^{OT}	78.9*	85.4	5.3*	1.5	21.7*	14.6
SC ^{LO}	77.6*	88.4	24.1*	8.6	13.2*	10.1

[†]High Medicaid payment = Average percentage of Medicare cost sharing paid > 75%; Medium Medicaid payment = Average percentage of Medicare cost sharing paid >25%; and ≤75%; Low Medicaid payment = Average percentage of Medicare cost sharing paid ≤25%.

*Significantly different from Medicare-only at .01 level.

ED, emergency department; E&M, evaluation and management; FP, full payment on the basis of their Medicaid payment policies for Medicare cost sharing in 2012 as reported in the NORC survey; FQHC, federally qualified health center; LO, lesser of; OT, other; RHC, rural health center.

present the results from the multivariate regression models in Table A1. The interaction term between dual status and the cost-sharing payment, which measures the effect of the cost-sharing payment percentage on dually eligible beneficiaries' utilization relative to Medicare-only beneficiaries', was statistically significant in the models for office and other outpatient E&M services,

FQHC or RHC visits, and hospital outpatient department E&M visits.⁴ Table 3 shows the magnitude of the effect of differences in the percentage of the cost-sharing amount covered by Medicaid on the probability of dually eligible beneficiaries using office and other outpatient E&M services and safety net provider services estimated from the logistic regression models. At 100 percent payment of the Medicare cost-sharing, dually eligible beneficiaries had a slightly higher predicted likelihood of having an office or other outpatient E&M visit compared to Medicare-only beneficiaries (84.8 percent vs. 84.2 percent), but their likelihood was lower at 20 percent payment (82.6 percent vs. 87.3 percent). The likelihood of dually eligible beneficiaries having an office or other outpatient E&M visit was 6.4 percent (5.3 percentage points) higher under the 100 percent payment scenario than under the 20 percent payment scenario, relative to Medicare-only beneficiaries.

In contrast, higher cost-sharing payment was associated with a statistically significant decrease in the likelihood of dually eligible beneficiaries using safety net provider services relative to Medicare-only beneficiaries. Although dually eligible beneficiaries were more likely than Medicare-only beneficiaries to use FQHC or RHC services regardless of the percentage of the cost sharing reimbursed, the relative difference was larger at 20 percent cost-sharing payment. The likelihood of dually eligible beneficiaries having an FQHC or RHC visit was 37.7 percent (2.9 percentage points) lower under the 100 percent payment scenario compared to the 20 percent payment scenario, relative to Medicare-only beneficiaries. Similarly, the likelihood of dually eligible beneficiaries having a hospital outpatient department E&M visit was 19.8 percent (3.1 percentage points) lower under the 100 percent payment scenario than under the 20 percent payment scenario, relative to Medicare-only beneficiaries. While dually eligible beneficiaries are more likely than Medicare-only beneficiaries to have a hospital outpatient department visit at 20 percent cost-sharing payment, they are less likely at 100 percent cost-sharing payment.

We also estimated a regression model for the probability of having an ED visit that was not preventable or avoidable (see Table A2 for the prevalence of these visits among dually eligible and Medicaid-only beneficiaries) to test the validity of our difference-in-differences model. As described earlier, we did not expect the cost-sharing percentage to have an impact on this outcome because it should not be affected by the accessibility of care. The interaction term between dual status and the cost-sharing payment was not statistically significant in this model (Table A1). Although the difference between dually eligible and Medicare-only beneficiaries in the likelihood of having an ED visit that was not preventable/avoidable was significantly

Table 3: Impact of Percentage of Medicare Cost Sharing Paid by Medicaid on Dually Eligible Beneficiaries' Utilization of Office and Other Outpatient Evaluation and Management Services, and Safety Net Provider Services, 2009

	Cost-Sharing Payment = 100%			Cost-Sharing Payment = 20%						
	Dually Eligible	Medicare-Only	Difference	% Difference	Dually Eligible	Medicare-Only	Difference	% Difference	Difference in Difference (DD) [†]	% DD
Had at least one office or other outpatient E&M visit (%)	84.8	84.2	0.5	0.6	82.6	87.3	-4.7	-5.7	5.3**	6.4
Had at least one safety net provider visit (%)										
FQHC or RHC visit	7.4	6.3	1.2	15.8	7.7	3.6	4.1	52.9	-2.9**	-37.7
Hospital outpatient department E&M visit	16.6	17.1	-0.5	-2.8	15.5	12.8	2.6	16.9	-3.1**	-19.8

E&M, evaluation and management; ED, emergency department; FQHC, federally qualified health center; RHC, rural health center.

[†]Statistical significance was determined by block-bootstrapping standard errors on state.

**Statistically significant at .01 level.

smaller at 100 percent cost-sharing payment compared to 20 percent, the magnitude of the effect of the cost-sharing payment percentage was small, 2.3 percent or 0.3 percentage points lower (Table A3).

As a further test of the difference-in-differences model assumption, we conducted a sensitivity analysis by restricting the sample to people age 65 and older. This restriction aimed to increase the comparability of the dually eligible and Medicare-only beneficiaries in the study sample, making it more plausible that unmeasured factors affect their utilization in similar ways. For each of the outcomes, the sign and statistical significance of the interaction term between the percentage of the Medicare cost sharing paid by Medicaid and dual status (the key variable) were consistent with the model using all age groups.

DISCUSSION

Understanding the relationship between states' cost-sharing payments and service utilization by dually eligible beneficiaries is important because most states do not always pay the full Medicare cost sharing, which means that providers typically receive less payment for services rendered to dually eligible beneficiaries compared to Medicare-only beneficiaries. The financial implications for providers may have a negative impact on dually eligible beneficiaries' access to care.

We found substantial variation across states in the percentage of dually eligible beneficiaries' Medicare cost sharing paid by state Medicaid programs, ranging from 11 percent to 98 percent for office E&M services in 2009. In 2013, the national average payment for a 15-minute E&M visit with an established patient (procedure code 99213, the most commonly billed E&M visit) was approximately \$73, for which the Medicare coinsurance amount was \$14.60. Applying the range of payment percentages for office E&M visits in states with a lesser of payment policy, this translates to Medicaid cost-sharing payments from about \$1.61 to approximately \$13.58. In addition to the states' written policies for reimbursing the Medicare cost-sharing liability, Medicaid fee schedule amounts and provider practices about billing Medicaid for Medicare cost sharing contribute to the differences. As a result, the payment implications of a Medicare cost-sharing payment policy can differ markedly even among states with the same written policy, and the actual amounts covered may appear different from a state's written policy. The cost-sharing payments in full-payment states were typically less than 100 percent, but this could still

be consistent with a full-payment policy if Medicare providers do not submit a claim to Medicaid for Medicare cost sharing, perhaps because the provider does not participate in Medicaid or the additional payment is too low to warrant the effort of submitting a claim.

Controlling for beneficiary, market, and other state factors expected to influence service utilization, we found that paying a higher percentage of the Medicare cost sharing by Medicaid is associated with higher likelihood of using office and other outpatient E&M services and lower likelihood of using safety net providers for dually eligible beneficiaries, compared to Medicare-only beneficiaries. The findings are consistent with those from an earlier study that examined the impact of Medicaid reimbursement of Medicare cost-sharing payments on access to care for dually eligible beneficiaries using earlier years of data and a smaller number of states (Mitchell and Haber 2004). A recent study using states' written policies also found that paying less than the full amount of Medicare cost sharing may limit access to primary, routine, and preventive care for some dually eligible beneficiaries (Centers for Medicare & Medicaid Services 2015). In addition, other studies have found a positive association between generosity of Medicaid reimbursement and access for the nondually eligible Medicaid population to a variety of services including improved primary care appointment availability (Polsky et al. 2015), number of physician visits (Decker 2009), likelihood of any physician visits for adults (Shen and Zuckerman 2005), preventive visits for children (Cohen and Cunningham 1995), obstetrics care (Baker and Royalty 2000), dental care for children and adolescents (Decker 2011), dermatologists (Resneck, Pletcher, and Lozano 2004), and cancer screening (Halpern et al. 2014).

There are several limitations to our study. First, we could not include more than half of states in the analyses due to either Medicaid data quality problems or extensive enrollment of the dually eligible beneficiaries in managed care. However, the 20 study states still reflected about 40 percent of dually eligible beneficiaries nationally. Second, our measure of the percentage of Medicare cost sharing covered by Medicaid payments is an approximation. If the claims used in the numerator and the denominator of the percentage calculation are not comparable, the calculation of the percentage of the Medicare cost sharing covered could be biased upward or downward. We placed restrictions on the types of claims included in the calculation in order to increase the likelihood that we used comparable Medicare and Medicaid claims; however, these restrictions also limited the range of services represented by our calculation of the percentage of the Medicare cost sharing covered by Medicaid program payments. Nonetheless, the only effect of random errors in the

calculation of the percentage of the Medicare cost sharing covered by Medicaid payments would be to bias estimates from multivariate analyses toward 0. Third, the cost-sharing payment variable and utilization measures in our models were based on claims from the same year. We assume that beneficiaries' ability to access services reflects the providers' responses to the payments they receive. Therefore, it is likely that provider behavior is influenced by payments in prior years, not the concurrent year. However, a sensitivity analysis that used the percentage of the Medicare cost sharing paid in 2005 to predict utilization in 2009 yielded comparable results to the model based exclusively on 2009 data. Furthermore, the percentages of Medicare cost sharing covered by a state Medicaid program in 2005 and 2009 were highly correlated, suggesting that using the current year payment percentage was not a serious limitation. Fourth, we were not able to compare cost-sharing payment percentages calculated from 2009 claims with states' written payment policies in the same year. Nevertheless, there were relatively few changes from 1999 to 2012 in the number of states with full and lesser of payment policies, so the 2012 policies used in the comparison likely are a reasonably accurate representation of policies in 2009 (MACPAC 2013). Furthermore, as we used the actual cost-sharing payment percentages in 2009 in the multivariate regression models to predict utilization in the same year, any potential discrepancy between the 2009 and 2012 state policies should not bias our findings. Fifth, our multivariate analysis did not control for a comprehensive list of health and other beneficiary characteristics. Sixth, we included hospital outpatient department visits as an indicator for problems with access to office-based services. Greater consolidation of physician practices under hospitals might increase claims for hospital outpatient department services. However, the impact should be the same for both dually eligible and Medicare-only beneficiaries and thus should not bias the results.

Our regression models did not compare the parallel time trends in utilization, but rather the difference in the difference between dually eligible and Medicare-only beneficiaries across states in 2009. We used Medicare-only beneficiaries as a comparison group to control for unmeasured state-specific factors that might contribute to cross-state utilization differences among dually eligible beneficiaries. Medicare-only and dually eligible beneficiaries' utilization is likely to vary, due to differences in health status and other characteristics. Although our difference-in-differences model does not require these two groups to have similar levels of utilization, it does assume that any unmeasured factors such as differences in practice patterns affect their utilization in similar ways. To the extent this is not true, our estimates of the impact of the

percentage of Medicare cost sharing paid by Medicaid could be biased. We tested the assumptions of our difference-in-differences model in two ways—by restricting the sample to people age 65 and older and by estimating models for ED visits that are not avoidable or preventable. Our results were robust to the age restriction. The weak association between the percentage of Medicare cost sharing paid by Medicaid and dually eligible beneficiaries' likelihood of having ED visits that are not preventable or avoidable, which was much smaller than the association for other outcomes studied, was consistent with the expectation that these visits should be unaffected by Medicaid cost-sharing payment levels. The small effect found may reflect the fact that the risk of some proportion of these visits likely could be affected by the adequacy of ambulatory care. Missed opportunities to manage health conditions in ambulatory settings due to lower utilization of office-based E&M service could still increase the risk of having an ED visit for some conditions classified as not preventable or avoidable (e.g., myocardial infarction).

Overall, our study found that reimbursing the full Medicare cost-sharing amount would improve access for dually eligible beneficiaries, although the magnitude of the effect will vary by state depending on their current cost-sharing payment rates and type of service. The goal of increasing access for dually eligible beneficiaries could be achieved either by requiring states to pay the full Medicare cost sharing or by transferring responsibility for the cost-sharing payments from Medicaid to Medicare. Requiring states to cover the full Medicare cost-sharing amount would impose additional financial burdens on states. The Affordable Care Act (ACA), which mandated that Medicaid payments for certain primary care services equal Medicare rates for 2 years, offers precedent for such a requirement. Similar to the ACA, which provided 100 percent federal match for the payment increase, the fiscal impact on states could be reduced by providing full or enhanced federal match for the higher cost-sharing payments. The full payment requirement could also be limited to selected services where increasing access is considered critical (MACPAC 2014a). Transitioning responsibility for reimbursing cost-sharing payments from Medicaid to Medicare might have an even greater impact on the supply of providers willing to see dually eligible beneficiaries as they would no longer have to participate in Medicaid or submit a separate claim in order to receive payment for the cost-sharing amount. While either alternative could improve access to care for dually eligible beneficiaries, both options have costs that must be balanced against alternative uses of funds.

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NOTES

1. This excluded: Hawaii, Minnesota, Oregon, Pennsylvania, and Tennessee.
2. This excluded from the remaining states: Arkansas, Arizona, California, Colorado, District of Columbia, Delaware, Iowa, Idaho, Indiana, Kansas, Missouri, New Hampshire, New Jersey, Nevada, North Carolina, Ohio, Oklahoma, Rhode Island, South Dakota, Texas, Utah, Virginia, Washington, Wisconsin, and Wyoming.
3. <http://wagner.nyu.edu/faculty/billings/nyued-background>
4. We repeated all regression models using linear probability models. The results showed consistent sign and statistical significance for the $DUAL_{is} * CS_s$ term and the difference-in-differences estimate, confirming that our results are robust to the functional form of the regression model.

REFERENCES

- Baker, L. C., and A. B. Royalty. 2000. "Medicaid Policy, Physician Behavior, and Health Care for the Low-Income Population." *Journal of Human Resources* 35 (3): 480–502.
- Centers for Medicare & Medicaid Services. 2015. "Access to Care Issues Among Qualified Medicare Beneficiaries (QMB)" [accessed on July 17, 2016]. Available at https://www.cms.gov/Medicare-Medicaid-Coordination/Medicare-and-Medicaid-Coordination/Medicare-Medicaid-Coordination-Office/Downloads/Access_to_Care_Issues_Among_Qualified_Medicare_Beneficiaries.pdf
- Cohen, J. W., and P. J. Cunningham. 1995. "Medicaid Physician Fee Levels and Children's Access to Care." *Health Affairs* 14 (1): 255–62.
- Decker, S. L. 2009. "Changes in Medicaid Physician Fees and Patterns of Ambulatory Care." *Inquiry* 46 (3): 291–304.

- . 2011. “Medicaid Payment Levels to Dentists and Access to Dental Care among Children and Adolescents.” *Journal of the American Medical Association* 306 (2): 187–93.
- Halpern, M. T., M. A. Romaine, S. G. Haber, F. K. Tangka, S. A. Sabatino, and D. Howard. 2014. “Impact of State-Specific Medicaid Reimbursement and Eligibility Policies on Receipt of Cancer Screening.” *Cancer* 120: 3016–24.
- Karaca-Mandic, P., E. C. Norton, and B. Dowd. 2012. “Interaction Terms in Nonlinear Models.” *Health Services Research* 47 (1 Pt 1): 255–74.
- Kennell and Associates. 2011. *An access monitoring system (AMS) for Medicare beneficiaries: Final report*. Prepared for the Centers for Medicare & Medicaid Services. Falls Church, VA: Kennell and Associates, Inc. and Mathematica Policy Research [accessed on July 17, 2016]. Available at https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Reports/Downloads/Kennell_AMS_Final_November_2011.pdf
- Medicaid and CHIP Payment and Access Commission [MACPAC]. 2013. *March 2013 Report to the Congress on Medicaid and CHIP. Chapter 4: Medicaid Coverage of Premiums and Cost Sharing for Low-Income Medicare Beneficiaries*. Washington, DC [accessed on August 24, 2016]. Available at <https://www.macpac.gov/publication/ch-4-medicaid-coverage-of-premiums-and-cost-sharing-for-low-income-medicare-beneficiaries/>
- Medicaid and CHIP Payment and Access Commission [MACPAC]. 2014a. *Medicaid and CHIP Payment and Access Commission Public Meeting Transcript*. Medicaid and CHIP Payment and Access Commission Public Meeting, Washington, DC [accessed on July 17, 2016]. Available at https://www.macpac.gov/wp-content/uploads/2014/12/MACPAC_2014-10_Transcript.pdf
- Medicaid and CHIP Payment and Access Commission [MACPAC]. 2014b. *Report to the Congress on Medicaid and CHIP*. Washington, DC [accessed on July 17, 2016]. Available at https://www.macpac.gov/wp-content/uploads/2015/01/2014-03-14_Macpac_Report.pdf
- Medicare Payment Advisory Commission [MedPAC] and Medicaid and CHIP Payment and Access Commission [MACPAC]. 2013. *Data Book: Beneficiaries Dually Eligible for Medicare and Medicaid*. Washington, DC [accessed on July 17, 2016]. Available at https://www.macpac.gov/wp-content/uploads/2015/04/Duals_DataBook_2013-12.pdf
- Medicare Payment Advisory Commission [MedPAC] and Medicaid and CHIP Payment and Access Commission [MACPAC]. 2015. *Data Book: Beneficiaries Dually Eligible for Medicare and Medicaid*. Washington, DC. [accessed on July 17, 2016]. Available at <http://www.medpac.gov/documents/data-book/January-2015-medpac-and-macpac-data-book-beneficiaries-dually-eligible-for-medicare-and-medicaid.pdf>
- Mitchell, J. B., and J. Cromwell. 1984. “Physician Behavior under the Medicare Assignment option.” *Journal of Health Economics* 1: 245–64.
- Mitchell, J. B., and S. G. Haber. 2004. “State Payment Limitations on Medicare Cost-Sharing: Impact on Dually Eligible Beneficiaries.” *Inquiry* 41 (4): 391–400.

- Polsky, D., M. Richards, S. Bassey, D. Wissoker, G. M. Kenney, S. Zuckerman, and K. V. Rhodes. 2015. "Appointment Availability after Increases in Medicaid Payments for Primary Care." *New England Journal of Medicine* 372 (6): 537–45.
- Resneck Jr, J., M. J. Pletcher, and N. Lozano. 2004. "Medicare, Medicaid, and Access to Dermatologists: The Effect of Patient Insurance on Appointment Access and Wait Times." *Journal of the American Academy of Dermatology* 50 (1): 85–92.
- Rosenbaum, S., and P. Shin. 2011. *Medicare's Accountable Care Organization Regulations: How Will Medicare Beneficiaries Who Reside in Medically Underserved Communities Fare?* New York: Geiger Gibson/RCHN Community Health Foundation Research Collaborative [accessed on July 17, 2016]. Available at http://hsrc.himmelfarb.gwu.edu/cgi/viewcontent.cgi?article=1020&context=sphhs_policy_ggrchn
- Shen, Y. C., and S. Zuckerman. 2005. "The Effect of Medicaid Payment Generosity on Access and Use among Beneficiaries." *Health Services Research* 40 (3): 723–44.
- Sloan, F. A., J. B. Mitchell, and J. Cromwell. 1978. "Physician Participation in State Medicaid Programs." *Journal of Human Resources* 18: 211–46.

SUPPORTING INFORMATION

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

Appendix SA1: Author Matrix.

Table A1: Results from the Multivariate Regression Models.

Table A2: Not Preventable/Avoidable Emergency Department Visits among Dually Eligible and Medicare-Only Beneficiaries, 2009.

Table A3: Impact of Percentage of Medicare Cost Sharing Paid by Medicaid on Not Preventable/Avoidable Emergency Department Visits among Dually Eligible Beneficiaries, 2009.