

Nephrologist Performance in the Merit-Based Incentive Payment System



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Rationale & Objective: The Merit-Based Incentive Payment System (MIPS) is the largest quality payment program administered by the Centers for Medicare & Medicaid Services. Little is known about predictors of nephrologist performance in MIPS.

Study Design: Cross-sectional analysis.

Setting & Participants: Nephrologists participating in MIPS in performance year 2018.

Predictors: Nephrologist characteristics: (1) participation type (individual, group, or MIPS alternative payment model [APM]), (2) practice size, (3) practice setting (rural, Health Professional Shortage Area [HPSA], or hospital based), and (4) geography (Census Division).

Outcomes: MIPS Final, Quality, Promoting Interoperability, Improvement Activities, and Cost scores. Using published consensus ratings, we also examined the validity of MIPS Quality measures selected by nephrologists.

Analytical Approach: Unadjusted and multivariable-adjusted linear regression models assessing the associations between nephrologist characteristics and MIPS Final scores.

Results: Among 6,117 nephrologists participating in MIPS in 2018, the median MIPS Final score was

100 (interquartile range, 94-100). In multivariable-adjusted analyses, MIPS APM participation was associated with a 12.5-point (95% CI, 10.6-14.4) higher score compared with individual participation. Nephrologists in large (355-4,294 members) and medium (15-354 members) practices scored higher than those in small practices (1-14 members). In analyses adjusted for practice size, practice setting, and geography, among individual and group participants, HPSA nephrologists scored 1.9 (95% CI, -3.6 to -0.1) points lower than non-HPSA nephrologists, and hospital-based nephrologists scored 6.0 (95% CI, -8.3 to -3.7) points lower than non-hospital-based nephrologists. The most frequently reported quality measures by individual and group participants had medium to high validity and were relevant to nephrology care, whereas MIPS APM measures had little relevance to nephrology.

Limitations: Lack of adjustment for patient characteristics.

Conclusions: MIPS APM participation, larger practice size, non-HPSA setting, and non-hospital-based setting were associated with higher MIPS scores among nephrologists. Our results inform strategies to improve MIPS program design and generate meaningful distinctions between practices that will drive improvements in care.

Visual Abstract included

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The Merit-Based Incentive Payment System (MIPS) is the largest quality payment program administered by the Centers for Medicare & Medicaid Services (CMS), with 874,515 clinicians participating in 2018.¹ MIPS is a mandatory pay-for-performance program in which

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eligible clinicians report their performance in 4 categories of measures: Quality, Promoting Interoperability, Improvement Activities, and Cost. Participating clinicians are assigned a Final score that is tied to a financial bonus or penalty. MIPS is part of federal efforts in the United States to incentivize value-based care that is both high quality and cost-efficient.²

Although MIPS program design has been described previously, nephrologist performance in MIPS has not been reported.^{3,4} Given significant quality-of-care gaps in nephrology, including inadequate hypertension control,⁵ suboptimal use of guideline-directed medical therapies,⁶⁻⁸ and delays in modality education and access planning,⁹

large-scale population health strategies for kidney disease are urgently needed, and value-based programs such as MIPS may play an important role if designed effectively.¹⁰

Previous analyses have examined physician characteristics associated with MIPS performance across specialties, but not among nephrologists specifically. One analysis found that MIPS alternative payment model (APM) participation, larger practice size, and multispecialty practices were associated with higher MIPS scores.¹¹ In another study, clinician affiliation with a health system through common ownership or joint management was associated with higher MIPS scores.¹² Understanding nephrologist characteristics associated with higher MIPS performance could inform strategies to invest in lower performing practices in future program iterations.

In recent years, a key concern about MIPS is whether quality measures used in the program are valid and relevant. The American College of Physicians deemed that 63% of internal medicine measures were not valid or had uncertain validity due to lack of evidence, unclear attribution to the reporting physician, and other criteria.¹³ Our prior

PLAIN-LANGUAGE SUMMARY

The Merit-Based Incentive Program (MIPS) is the nation's largest pay-for-performance program, incentivizing high-quality cost-efficient care. Understanding nephrologist performance in MIPS may inform efforts to improve care for patients with chronic kidney disease and other nephrology conditions. In this study, we examined how performance in the MIPS program differed by nephrologist participation type, practice size, practice setting, and geography. We found that MIPS alternative payment model (APM) participation, larger practice size, non-Health Professional Shortage Area setting, and non-hospital-based setting were associated with higher MIPS scores among nephrologists in performance year 2018. Our results inform strategies to improve MIPS program design and generate meaningful distinctions between practices that will drive improvements in care.

work assessing nephrology quality measures showed similar results: only half the nephrology measures were rated as highly valid and many were based on outdated evidence, were not attributable to nephrology care, and lacked appropriate definitions.¹⁴

Given the magnitude of the MIPS program and ongoing quality-of-care gaps in nephrology, it is critical to characterize the performance of nephrologists in MIPS. In this study, we assessed the association of nephrologist participation type, practice size, practice setting, and geography with MIPS performance in performance year 2018. We hypothesized that nephrologists practicing in larger practices would have higher MIPS scores due to greater resources to support high-quality care, consistent with evidence from physicians across other specialties.¹¹ Given prior concerns about the lack of chronic kidney disease-specific performance measures,¹⁴ we also examined the most frequently selected MIPS measures by nephrologists to characterize their validity and relevance to nephrology care.

METHODS**Data Source and MIPS Program Design**

Our data source was the CMS 2018 Quality Payment Program Experience Report Public Use File.¹⁵ The Public Use File contains clinician-level data on specialty, MIPS eligibility and exclusion, participation type, practice characteristics, MIPS scores, and payment adjustments. Each clinician is given 5 scores: a Quality score, Promoting Interoperability score, Improvement Activities score, Cost score, and Final score. The Quality Payment Program was legislatively mandated by the Medicare Access and CHIP Reauthorization Act of 2015 and consists of 2 tracks: Advanced APMs and MIPS.^{16,17}

Physicians, advanced practice providers (eg, nurse practitioners and physician assistants), and other advanced clinicians such as nurse anesthetists are required to participate in MIPS if they are enrolled in Medicare and exceed a low-volume threshold. Participants in Advanced APMs, payment models that incorporate quality performance and 2-sided financial risk, such as the Medicare Shared Savings Program (Tracks 2 and 3) and End-Stage Renal Disease Seamless Care Organizations with 2-sided risk, are exempt from MIPS if they exceed specific payment and patient thresholds.¹⁸ Nonexempt clinicians can report to MIPS through 3 participation types: (1) as an individual, (2) part of a group practice, or (3) part of a MIPS APM. MIPS APM clinicians are part of APMs, such as the Medicare Shared Savings Program (Track 1), that are distinct from Advanced APMs exempt from MIPS.¹⁹

Patients (beneficiaries) are attributed to clinicians by CMS. Clinicians report measure performance for each patient to CMS through multiple methods, including the CMS Web Interface, electronic health records, registries, Qualified Clinical Data Registries, attestation, or Medicare Part B claims. Data for Taxpayer Identification Numbers/National Provider Identifier with fewer than 11 beneficiaries were suppressed administratively.

Study Population

Our study population included nephrologists participating in MIPS in performance year 2018. We excluded nephrologists who experienced extreme hardship (eg, Federal Emergency Management Agency-designated major disaster), nephrologists with 100 or fewer Medicare Part B patient-facing encounters (defined as “non-patient-facing” by CMS), and nonreporting (defined as “non-participants” by CMS, no reported data with a Final score of zero), as designated by CMS (Fig S1). Nurse practitioners and physician assistants were not included in analyses.

Study Predictors

Our predictors included participation type, practice size, practice setting, and geography. Participation type was classified as individual, group, or MIPS APM.^{18,19} Practice size, defined as the number of clinicians associated with the taxpayer identification number, was classified into tertiles (tertile 1, 1-14 clinicians; tertile 2, 15-354; and tertile 3, 355-4,294). Practice setting included: (1) rural versus nonrural, (2) Health Professional Shortage Area (HPSA) versus non-HPSA, and (3) hospital based versus non-hospital based, according to CMS special status designations.²⁰ Geography was classified into census division and state, based on the location of the clinician's billing practice.

Study Outcomes

Our primary outcome was nephrologist-level MIPS performance scores, including Final scores and scores by category: Quality (50% of Final score in 2018), Promoting Interoperability (25% for individuals and groups, 30% for

MIPS APM), Improvement Activities (15% for individuals and groups, 20% for MIPS APM), and Cost (10% for individuals and groups, 0% for MIPS APM).

For Quality measures, individual and group clinicians choose at least 6 measures to report on from a list of more than 284 available measures. Examples of Quality measures include MIPS 119: Diabetes: Medical Attention for Nephropathy, MIPS 130: Documentation of Current Medications in the Medical Record, MIPS 236: Controlling High Blood Pressure, etc. Alternatively, clinicians could report Quality measures from a specialty measure set; the nephrology specialty measure set contained 15 measures in 2018.

Each Quality measure received a score between 3 and 10 points based on historical benchmark performance of the measure among all clinicians, including non-nephrologists.²¹ Benchmarks differ based on measure submission type (eg, electronic health records, Qualified Clinical Data Registries, and claims). In contrast, most MIPS APM participants were required to report a designated set of 15 measures using the CMS Web Interface and were compared with separate APM benchmarks. Clinicians received Quality bonus points if they reported electronically or submitted additional outcome measures, patient experience measures, or other high-priority measures beyond the requirements.²¹ Improvement points (capped at 10%) were added to the Quality score based on the percent improvement in the Quality performance category from the previous year.

For the Promoting Interoperability performance category, clinicians were required to report on 1 of 2 base measures sets depending on their certified electronic health record edition. Clinicians could also select from additional Promoting Interoperability performance and bonus measures.

For the Improvement Activities performance category, individual and group clinicians reported on 2 to 4 Improvement Activities measures with a total of 113 Improvement Activities to select from in 2018. MIPS APM participants received credit for Improvement Activities required by their respective models and were therefore exempt from reporting additional Improvement Activities measures. The cost performance category included 2 claims-based measures in 2018: 1) Medicare Spending per Beneficiary, which captures costs of an inpatient stay through 30 days postdischarge; and (2) Total Per Capita Costs, which measures beneficiary Medicare Parts A and B spending.

Scores from each of the 4 categories are added to calculate the MIPS Final score, ranging from 0 to 100. Final scores are compared with a MIPS performance threshold to determine the payment adjustment amount applied to Medicare reimbursements in payment year 2020, which could be positive (0% to 1.68%), neutral, or negative (−5.0% to −0.01%). Full scoring methodology is reported in the 2018 MIPS Scoring Guide.²¹

Additional key outcomes of interest included a binary variable of achieving the maximum payment adjustment and scores on specific Quality measures. As descriptive outcomes, we determined the top 10 most frequently selected measures by nephrologists in the Quality, Promoting Interoperability, and Improvement Activities categories. For Quality measures, we classified measures as high, medium, and low validity, according to our prior work.¹⁴

Statistical Analysis

We first calculated the median and interquartile range (IQR) of nephrologist-level Final, Quality, Promoting Interoperability, Improvement Activities, and Cost scores, and the percentage of nephrologists achieving the maximum payment adjustment, overall and stratified by participation type, practice size, practice setting, and Census Division (Table 1; Fig S2). Differences in MIPS scores by nephrologist characteristics were assessed using Wilcoxon rank sum tests. Differences in achieving maximum payment adjustment were assessed using χ^2 tests (for binary predictors) or unadjusted logistic regression (for nominal or ordinal variables).

We then assessed the association of nephrologist characteristics with MIPS Final scores, using separate unadjusted linear regression models for participation type, practice size, practice setting, and Census Division (Fig 1).²² Because of statistically significant interactions between participation type and practice size, we stratified multivariable-adjusted analyses by 2 categories of participation type: (1) individual or group and (2) MIPS APM. We performed multivariable-adjusted linear regression to assess the association of nephrologist characteristics with MIPS Final scores, adjusting for practice size, practice setting, and Census Division (Tables 2 and S1). All analyses were at the nephrologist level. We calculated variance inflation factors that did not indicate multicollinearity of the predictors. Residuals plotted against fitted values were consistent with linearity assumptions.

We then reported the top 10 Quality, Promoting Interoperability, and Improvement Activities measures selected by nephrologists (Tables 3 and S2). We finally mapped the state-level variation of MIPS Final scores and achieving the maximum payment adjustment among nephrologists (Fig S3). Data were fully deidentified and publicly available. Analyses were performed using Stata/IC, version 15.1 (StataCorp), and R, version 4.0.2, statistical software (R Core Team).

RESULTS

Nephrologist Characteristics

A total of 7,120 nephrologists participated in MIPS in 2018. We excluded nephrologists who reported extreme hardship (222) and those who were non-patient-facing (464), nonreporting (310), or located in US Territories

Table 1. MIPS Performance by Participation Type, Practice Size, Practice Setting, and Geography

Characteristic	Final Score	Quality Score	Promoting Interoperability Score	Improvement Activities Score	Cost Score	Achieved Maximum Payment Adjustment, %
Overall (N = 6,117)	100 [94-100]	99 [85-100]	100 [93-100]	40 [40-40]	0 [0-70]	53%
Participation type						
Individual (N = 1,354, 22%)	97 [78-100]	90 [71-100]	91 [0-100]	40 [40-40]	0 [0-30]	43%
Group (N = 2,767, 45%)	99 ^a [91-100]	98 ^a [81-100]	100 ^a [99-100]	40 ^a [40-40]	70 ^a [60-82]	37% ^b
MIPS APM (N = 1,996, 33%)	100 ^a [100-100]	100 ^a [98-100]	100 ^a [100-100]	40 ^a [40-40]	NA	80% ^a
Practice size						
Small: 1-14 (N = 2,070, 34%)	99 ^a [83-100]	94 ^a [74-100]	95 ^a [61-100]	40 ^a [40-40]	0 ^a [0-63]	49% ^a
Medium: 15-354 (N = 2,011, 33%)	100 ^a [93-100]	99 ^a [85-100]	100 ^a [93-100]	40 ^a [40-40]	0 ^a [0-72]	54%
Large: 355-4,294 (N = 2,036, 33%)	100 ^a [98-100]	100 ^a [95-100]	100 ^a [100-100]	40 ^a [40-40]	52 ^a [0-72]	55%
Practice setting						
Rural (N = 578, 9%)	99 ^a [90-100]	98 ^c [81-100]	100 ^a [80-100]	40 [40-40]	0 [0-72]	47% ^b
Nonrural (N = 5,539, 91%)	100 [94-100]	99 [85-100]	100 [95-100]	40 [40-40]	0 [0-70]	53%
HPSA (N = 1,237, 20%)	99 ^a [90-100]	98 ^a [82-100]	100 ^a [81-100]	40 [40-40]	0 [0-69]	47% ^a
Non-HPSA (N = 4,880, 80%)	100 [94-100]	99 [86-100]	100 [97-100]	40 [40-40]	0 [0-71]	54%
Hospital-based (N = 399, 7%)	96 ^a [73-100]	89 ^a [63-100]	81 ^a [0-100]	40 ^a [40-40]	0 ^a [0-56]	40% ^a
Not hospital-based (N = 5,718, 93%)	100 [94-100]	99 [86-100]	100 [97-100]	40 [40-40]	0 [0-71]	53%
Census division						
New England (ref) (N = 310, 5%)	100 [98-100]	100 [98-100]	100 [100-100]	40 [40-40]	0 [0-65]	60%
Middle Atlantic (N = 1,076, 18%)	100 ^a [93-100]	97 ^a [85-100]	100 ^a [92-100]	40 ^b [40-40]	0 [0-63]	54%
East North Central (N = 832, 14%)	100 [97-100]	100 ^c [92-100]	100 [100-100]	40 [40-40]	0 [0-71]	64%
West North Central (N = 451, 7%)	100 [99-100]	100 [98-100]	100 ^b [100-100]	40 ^c [40-40]	72 ^a [0-82]	61%
South Atlantic (N = 1,132, 19%)	100 ^b [91-100]	99 ^a [84-100]	100 ^a [92-100]	40 [40-40]	40 ^c [0-67]	50% ^b
East South Central (N = 374, 6%)	98 ^c [90-100]	95 ^a [81-100]	100 ^a [94-100]	40 ^b [40-40]	0 [0-60]	43% ^a
West South Central (N = 854, 14%)	99 ^a [87-100]	98 ^a [79-100]	100 ^a [75-100]	40 ^a [40-40]	0 [0-65]	46% ^a
Mountain (N = 363, 6%)	96 ^a [88-100]	94 ^a [80-100]	10 ^a [78-100]	40 [40-40]	69 ^a [0-89]	33% ^a
Pacific (N = 725, 12%)	100 ^b [95-100]	99 ^a [83-100]	100 ^a [91-100]	40 [40-40]	0 ^c [0-76]	55%

Note: Results presented as median [interquartile range] scores. Results reported are raw scores and do not reflect hardship exceptions or category reweighting. Rural nephrologists are associated with a practice in a zip code designated as rural using the most recent HRSA data. Rural practices defined as ≥75% of clinicians billing under the practice's TIN are in a zip code designated as rural using the most recent HRSA data. HPSA nephrologists practice in an area designated as an HPSA. HPSA practices defined as >75% of clinicians billing under the practice's TIN are designated as an HPSA. Hospital-based nephrologists furnish ≥75% of their covered professional services in a hospital setting, based on Place of Service codes. Hospital-based practices defined as all MIPS eligible clinicians associated with the practice are designated as hospital-based.

Abbreviations: APM, alternative payment model; HPSA, Health Professional Shortage Area; HRSA, Health Resources and Services Administration; MIPS, Merit-Based Incentive Payment System; NA, not applicable; ref, reference; TIN, tax identification number.

^aDifference significant at $P < 0.001$.

^b $P < 0.005$.

^c $P < 0.05$.

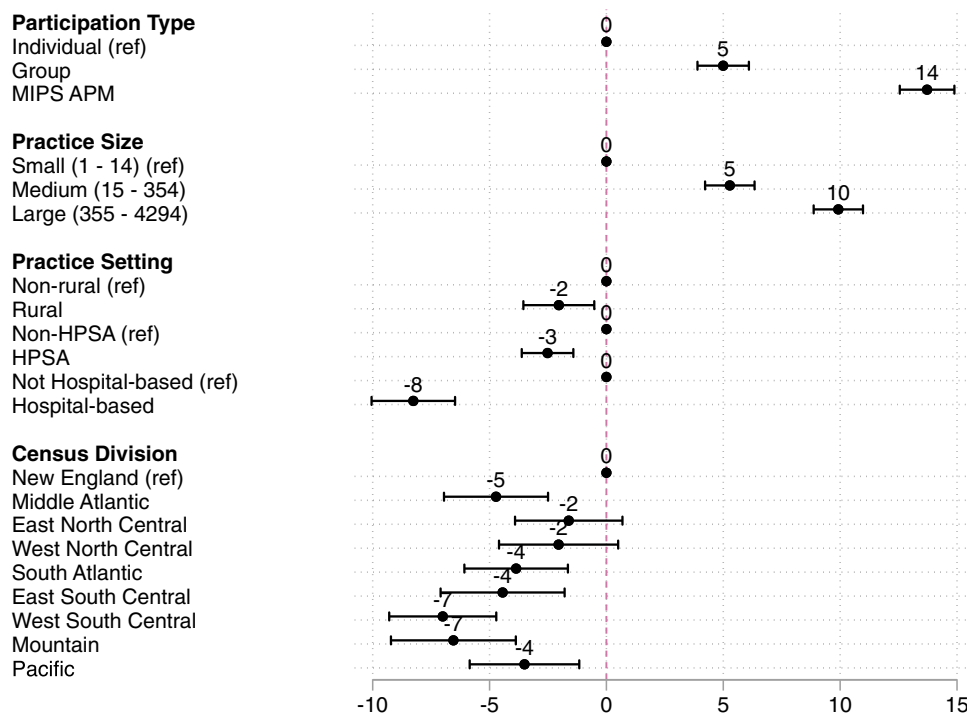


Figure 1. Association of participation type, practice size, practice setting, and census division with Merit-Based Incentive Payment System (MIPS) Final scores, unadjusted (N = 6,117). Coefficients and CIs of separate unadjusted linear regression models of the association between participation type, practice size, practice setting, and Census Division, and MIPS Final scores. MIPS alternative payment models (APMs) include Bundled Payments for Care Improvement Advanced (BPCI Advanced), Comprehensive ESRD Care (CEC), Comprehensive Primary Care Plus (CPC+), Medicare Accountable Care Organization (ACO) Track 1+, Medicare Shared Savings Program Accountable Care Organizations Track 1, 2, or 3, Next Generation ACO Model, Oncology Care Model (OCM), and the Vermont Medicare ACO Initiative. Abbreviation: HPSA, Health Professional Shortage Area.

(7), resulting in 6,117 nephrologists in the final study cohort. A total of 1,354 (22%) participated in MIPS as individuals; 2,767 (45%), as groups; and 1,996 (33%), as MIPS APMs. Median practice size was 59 (IQR, 8-624). A total of 578 (9.4%) nephrologists practiced in rural settings, 1,237 (20%) practiced in an HPSA, and 399 (6.5%) were hospital based. Nephrologists by Census Division ranged from 374 (6.1%) in the East South Central and 1,132 (19%) in the South Atlantic.

MIPS Performance

Nephrologists' MIPS Final scores were a median of 100 (IQR, 94-100; Table 1). MIPS Final, Quality, Promoting Interoperability, and Improvement Activities scores were skewed toward the maximum score (Fig S2). A total of 3,185 (52%) nephrologists achieved the maximum Final score; 2,767 (45%), the maximum Quality score; 4,288 (70%), the maximum Promoting Interoperability score; and 5,819 (95%), the maximum Improvement Activities score, whereas 192 (3%) nephrologists had the maximum Cost score. A total of 5,893 (97%) nephrologists received Quality bonus points.

Regarding payment adjustments, 17 (0.3%) nephrologists received a negative payment adjustment, 12 (0.2%) received a no (neutral) payment adjustment, and the

remaining 6,088 (99.5%) received a positive payment adjustment. A total of 5,522 (90%) nephrologists met CMS's designation of "exceptional" (Final score between 70 and 100) and received a positive payment adjustment ranging from 0.20% to 1.68%, with 3,213 (53%) nephrologists achieving the maximum payment adjustment of 1.68% (Table 1).

MIPS Scores by Participation Type and Nephrologist Characteristics

In unadjusted analyses, compared with nephrologists participating in MIPS as individuals, group participants and MIPS APM participants had higher scores (Fig 1). MIPS APM participants were significantly more likely to receive a maximum payment adjustment (80% of MIPS APM vs 43% of individuals vs 37% of group participants). All scores (Final, Quality, Promoting Interoperability, Improvement Activities, and Cost) were higher for nephrologists in larger size practices in unadjusted analyses (Table 1; Fig 1), and larger practices were more likely to receive the maximum payment adjustment. Rural, HPSA, and hospital-based settings were associated with lower MIPS Final scores in unadjusted analyses (Fig 1).

In multivariable-adjusted analyses accounting for participation type and practice size interactions, MIPS APM

Table 2. Association of Practice Size, Practice Setting, and Census Division With MIPS Final Scores, Adjusted Analyses Stratified by Participation Type

Characteristic	Individual or Group Participants (N = 4,121) β (95% CI)	P	MIPS APM Participants (N = 1,996) β (95% CI)	P
Practice size				
Small: 1-14 (ref)	1	—	1	—
Medium: 15-354	4.4 (2.9 to 5.8)	<0.001	2.3 (1.6 to 2.9)	<0.001
Large: 355-4,294	8.6 (7.0 to 10.2)	<0.001	3.5 (2.8 to 4.1)	<0.001
Practice setting				
Rural	-0.5 (-2.8 to 1.8)	0.67	0.1 (-.9 to 1.0)	0.88
Nonrural (ref)	1	—	1	—
HPSA	-1.9 (-3.6 to -0.1)	0.04	0.2 (-0.5 to 1.0)	0.55
Non-HPSA (ref)	1	—	1	—
Hospital-based	-6.0 (-8.3 to -3.7)	<0.001	0.5 (-0.8 to 1.8)	0.43
Not hospital-based (ref.)	1	—	1	—
Census division				
New England (ref)	1	—	1	—
Middle Atlantic	-5.3 (-8.7 to -1.9)	0.003	-2.5 (-3.5 to -1.4)	<0.001
East North Central	-1.1 (-4.6 to 2.4)	0.53	0.2 (-0.9 to 1.3)	0.72
West North Central	-1.5 (-5.2 to 2.1)	0.41	-1.6 (-2.9 to -0.2)	0.02
South Atlantic	-2.8 (-6.1 to 0.5)	0.10	0.4 (-0.7 to 1.5)	0.51
East South Central	-3.1 (-7.0 to 0.7)	0.11	-1.2 (-2.5 to 0.2)	0.09
West South Central	-5.1 (-8.5 to -1.8)	0.003	0 (-1.2 to 1.1)	0.96
Mountain	-3.1 (-6.8 to 0.6)	0.10	-0.3 (-2.5 to 1.9)	0.78
Pacific	-1.8 (-5.3 to 1.6)	0.30	-1.4 (-2.5 to -0.2)	0.02

Note: N = 6,117. Results presented are from multivariable-adjusted linear regression models, adjusting for practice size, practice setting, and Census Division. Abbreviations: APM, alternative payment model; HPSA, Health Professional Shortage Area; MIPS, Merit-Based Incentive Payment System; ref, reference.

participation was associated with a 12.5 (95% CI, 10.6-14.4) point higher score compared with individual participants (Table S1). Among individual and group participants, HPSA nephrologists scored 1.9 (95% CI, -3.6 to -0.1) points lower than non-HPSA nephrologists, and hospital-based nephrologists scored 6.0 (95% CI, -8.3 to -3.7) points lower than non-hospital-based nephrologists, in analyses adjusted for practice size, practice setting, and geography (Table 2). Among MIPS APM participants, rural, HPSA, or hospital-based status was not associated with differences in MIPS Final scores in adjusted analyses.

MIPS scores in all domains were variable across geographies (Table 1; Fig S3). Among individual and group participants, nephrologists in the Middle Atlantic and West South Central Census Divisions had lower MIPS Final scores compared with those in New England in adjusted analyses (Table 2).

Measure Selection and Scores

Nephrologists participating as individuals or groups reported on a total of 147 Quality measures, 24 Promoting Interoperability measures, 104 Improvement Activities measures, and 2 Cost measures. The top 10 Quality measures included hypertension management, body mass index screening and follow-up, medication reconciliation, use of aspirin or antiplatelet, readmission, diabetes care, and pneumonia and influenza vaccination. Six of the top 10 Quality measures selected by individual and group

participants belonged to the Nephrology MIPS Specialty Measure Set. The top 10 measures for MIPS APM participants were required measures on the CMS Web Interface and included colorectal cancer screening, falls, depression screening, breast cancer screening, and diabetes care measures. Mean scores on the most frequently reported Quality measures ranged from 4.5 for MIPS 458: All-Cause Hospital Readmission to 9.5 for MIPS 204: Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antiplatelet (Fig S4). Compared with individual or group participants, nephrologists reporting as part of a MIPS APM had higher Quality measure scores for vaccination, controlling high blood pressure, and use of aspirin or antiplatelets, whereas scores for body mass index screening and follow-up did not differ by participation type (Fig 2).

Most Promoting Interoperability measures reported by individuals and group participants spanned topics of patient electronic access, health information exchange, and public health reporting (Table S2). Improvement Activities measures spanned a range of topics including access to care, patient engagement, medication management, use of decision support, patient experience, and chronic care management.

DISCUSSION

In our analysis of national MIPS data from the 2018 performance year, 7,120 nephrologists participated in MIPS,

Table 3. Top Ten Quality Measures Reported by Nephrologists in MIPS by Participation Type

Individual or Group Participants (N = 4,121) ^a				
Measure ID	Measure Title	Rating ¹⁴	Nephrology Specialty Measure Set	N (%)
MIPS 236 ^a	Controlling High Blood Pressure	High	No	2,036 (49%)
MIPS 128 ^a	Preventive Care and Screening: Body Mass Index (BMI) Screening and Follow-up Plan	Medium	No	1,736 (42%)
MIPS 130	Documentation of Current Medications in the Medical Record	High	Yes	1,579 (38%)
MIPS 204 ^a	Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antiplatelet	— ^b	No	1,490 (36%)
MIPS 458	All-cause Hospital Readmission	—	No	1,441 (35%)
MIPS 119	Diabetes: Medical Attention for Nephropathy	Medium	Yes	1,404 (34%)
MIPS 111 ^b	Pneumococcal Vaccination Status for Older Adults	High	Yes	1,334 (32%)
MIPS 1	Diabetes: Hemoglobin A _{1c} (HbA _{1c}) Poor Control (>9%)	Medium	Yes	1,303 (32%)
MIPS 317	Preventive Care and Screening: Screening for High Blood Pressure and Follow-up Documented	High	Yes	1,273 (31%)
MIPS 110 ^a	Preventive Care and Screening: Influenza Immunization	High	Yes	1,217 (30%)
MIPS APM Participants (N = 1,996)				
Measure ID	Measure Title	Rating ¹⁴	Nephrology Specialty Measure Set	N (%)
MIPS 110-	Preventive Care and Screening: Influenza Immunization	High	Yes	1,952 (98%)
MIPS 111 ^a	Pneumococcal Vaccination Status for Older Adults	High	Yes	1,952 (98%)
MIPS 112	Breast Cancer Screening	—	No	1,952 (98%)
MIPS 113	Colorectal Cancer Screening	—	No	1,952 (98%)
MIPS 128 ^a	Preventive Care and Screening: Body Mass Index (BMI) Screening and Follow-up Plan	Medium	No	1,952 (98%)
MIPS 134	Preventive Care and Screening: Screening for Depression and Follow-up Plan	—	No	1,952 (98%)
MIPS 204 ^a	Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antiplatelet	—	No	1,952 (98%)
MIPS 236 ^a	Controlling High Blood Pressure	High	No	1,952 (98%)
MIPS 318	Falls: Screening for Future Fall Risk	Medium	No	1,952 (98%)
MIPS 321	CAHPS for MIPS Clinician/Group Survey	—	No	1,952 (98%)
NQF 0729	Diabetes Composite	—	No	1,952 (98%)

Note: MIPS APM participants (2%) who did not report Quality measures received a Quality score of 0.

Abbreviation: APM, alternative payment model; CAHPS, Consumer Assessment of Healthcare Providers and Systems; MIPS, Merit-Based Incentive Payment System.

^aMeasure is a top 10 reported measure for both individual/group participants and MIPS APM participants.

^bNot rated in the nephrology Quality measure environmental scan.¹⁴

representing ~75% of US nephrologists focused on patient care.²³ Scores across the Quality, Promoting Interoperability, and Improvement Activities MIPS domains were very high among nephrologists. Half the participants attained the highest possible Final score, and 99.5% received a positive payment adjustment. MIPS APM participation, larger practice size, non-HPSA setting, and non-hospital-based setting were associated with higher MIPS scores among nephrologists. Nephrologists participating in MIPS APMs had the highest scores despite MIPS APM Quality measures having little relevance to nephrology care.

Our results provide the first evidence of MIPS performance in nephrology, with implications for nephrology

practices, measure developers, and policy makers. Our results are concordant with prior analyses of MIPS performance across specialties showing that MIPS APM participation and larger practice size were associated with higher MIPS scores.^{11,12} Higher MIPS scores among MIPS APMs and large practices is multifactorial. First, scoring methodology differences benefit MIPS APM participants. In 2018, MIPS APM participants were evaluated on an APM scoring standard and compared with different benchmarks than individual or group participants.²¹ Second, MIPS APM participants report on a greater number of measures, which creates more opportunities to gain bonus points in the program.²¹ Third, MIPS APM participants and large

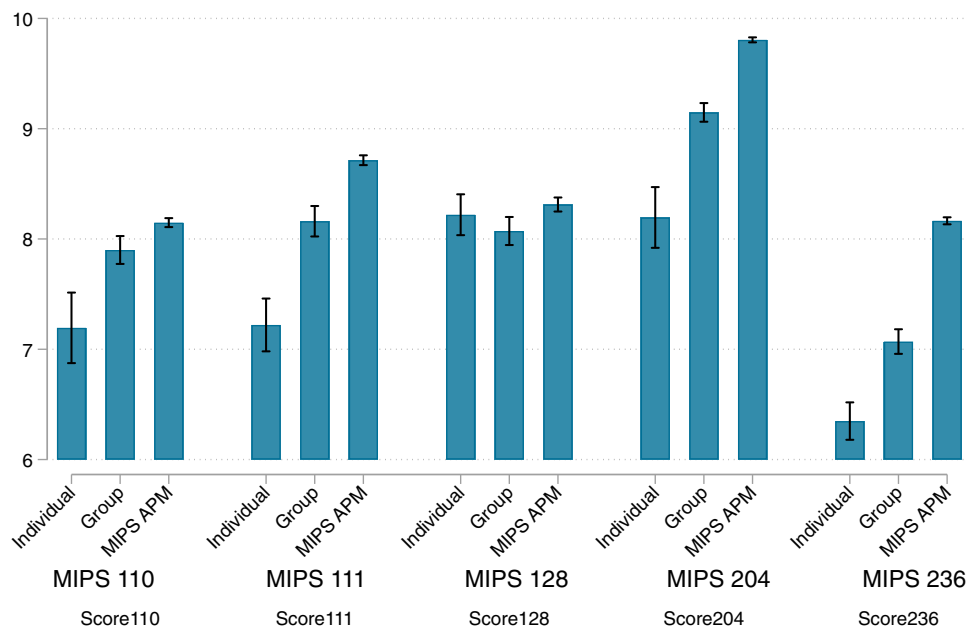


Figure 2. Mean scores of frequently reported quality measures by Merit-Based Incentive Payment System (MIPS) participation Type (N = 6,117). Performance benchmarks differ by submission type and for MIPS alternative payment model (APM) participants, limiting comparability. MIPS 110: Preventive Care and Screening: Influenza Immunization. MIPS 111: Pneumococcal Vaccination Status for Older Adults. MIPS 128: Preventive Care and Screening: Body Mass Index (BMI) Screening and Follow-up Plan. MIPS 204: Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antiplatelet. MIPS 236: Controlling High Blood Pressure.

practices have greater resources to devote to MIPS reporting, which may result in “teaching to the test” behavior to maximize scores.^{24,25} Last, there is evidence that higher resourced settings are associated with higher quality care, potentially due to differences in physician quality,²⁶ improved care coordination,²⁷⁻³⁰ and investments in health information technology.³¹ CMS has taken steps to address concerns about MIPS APM program structure: the APM scoring standard has been eliminated for 2021 and data submission will be the same across participation types, improving comparability of quality measure scores.

One major critique of MIPS has been that self-selection of measures limits reliable performance comparability and ultimately contributes to inequity across practices.⁹ Furthermore, self-selection raises concerns about “gaming” the system by choosing measures with easier to attain high scores. We found that the selection of measures was fragmented across more than 100 Quality and Improvement Activities measures. Reassuringly, among the top 10 Quality measures selected by individual and group participants, most had medium to high validity according to our prior work: 5 of the top 10 measures were rated with high validity; 3, with medium validity; and 2 were not rated.¹⁴ Notably, Quality measures reported by MIPS APM nephrologists were heavily focused on primary care. CMS should modify MIPS APM participation further so that their newly created APM Performance Pathway does not attribute primary care measures such as breast and colorectal cancer screening to nephrologists.

Several factors contribute to the widespread perfect or near-perfect MIPS scores among nephrologists. First, the MIPS scoring methodology is structured with multiple opportunities to attain the highest Final score, such as bonus points and improvement scoring. Notably, high Final scores were not a result of individual measure scores being “topped out” (Fig S4). For example, the mean Quality score on the most frequently reported measure, MIPS 236: Controlling High Blood Pressure, was 7.4 (scores range from 3-10 for those reporting), which may be reasonable based on hypertension control rates from the National Health and Nutrition Examination Survey.⁵

There is a discrepancy between near-perfect MIPS scores among nephrologists and known quality of care gaps in chronic kidney disease and hypertension care, including low chronic kidney disease awareness,³² suboptimal use of angiotensin-converting enzyme inhibitor or angiotensin receptor blocker and statins,⁶⁻⁸ and 80% of incident patients with kidney failure starting with a catheter,⁹ indicating that MIPS Final scores are not reflective of the actual quality of nephrology care being provided. This was particularly evident for MIPS APM nephrologists, who had the highest scores and maximum payment adjustments, but whose scores were driven primarily by non-nephrology-related quality measures. Hence, near-perfect MIPS scores provide an inaccurate picture of nephrology care, which may stifle efforts to achieve better population health for patients with kidney disease. Furthermore, universally near-perfect scores hinders the ability of payors and providers to distinguish between high-performing and

low-performing clinicians and practices and for patients to make comparisons on public reporting websites such as www.medicare.gov/care-compare.

In recent years, MIPS has come under greater scrutiny, with the Medicare Payment Advisory Commission recommending to eliminate MIPS.^{33,34} Our results point to several concrete policy recommendations that CMS should consider in reforming the MIPS program. First, CMS should change MIPS scoring methodology to provide greater differentiation between high-performing and low-performing clinicians. Although high scores may have been initially intended to encourage MIPS participation, MIPS Final scores continue to be “topped out,” which does an injustice to clinicians and patients by imposing substantial reporting burden and costs without meaningfully distinguishing performance. Importantly, we believe that this greater variability in scores should be used for assessment but not be tied directly to payment adjustments before other fundamental changes to the program are made because financial rewards are likely to further benefit highly resourced clinicians. CMS’s increased weighting of the cost category in subsequent participation years may help achieve greater differentiation between practices.

Second, moving to fewer valid measures that are less burdensome and costly to collect may narrow measured performance gaps between lower and higher resourced settings.²⁴ Surveys of practices indicate that reporting performance measures requires nearly 800 hours of administrative time, equivalent to \$40,000 per physician per year, costing the health care system tens of billions of dollars annually.³⁵ The vast number of measures (eg, 149 for quality) limits comparability across practices and opens opportunities for gaming. Creating a standardized core set of valid, relevant, specialty- (or condition-) specific measures would simplify the program and engender fair comparisons. In 2022, CMS intends to implement a revised iteration of the program called MIPS Value Pathways that seeks to streamline measure selection and create measure overlap between MIPS and Advanced APMs, such as the Kidney Care Choices voluntary models. The top 10 frequently reported Quality measures selected by individual and group nephrologists had high validity and relevance and could serve as a starting point for a MIPS Value Pathway creation.

Last, strategies to incorporate practice setting and social risk into program design should be tested.^{11,36,37} For example, the Hospital Readmissions Reductions Program compares hospitals within strata of their proportion of dual-eligible patients, which has been associated with reductions in penalties to dual-eligible-serving hospitals.³⁸ Similarly, MIPS could investigate a similar strategy of assigning financial penalties within strata of practice size or setting. Providing incentive payments for improvements in quality, rather than solely achievement, may also benefit practices with lower baseline performance, such as smaller or HPSA practices.

There are several limitations to consider in interpreting our results. First, data in the Public Use File were

deidentified so MIPS performance could not be linked to physician and practice characteristics through National Provider Information number, which would offer more detailed information on nephrologist characteristics. Similarly, information on patient clinical status is not linkable to these data. Last, we did not have data on submission type (eg, CMS web interface vs electronic health records, etc), which limited our ability to compare Quality measure scores with performance benchmarks to discern differences in quality of care.

In summary, MIPS APM participation, larger practice size, and practice setting were associated with higher MIPS performance among nephrologists. There is a discrepancy between high scores attained in MIPS and known opportunities to improve nephrology care. Our results point to areas in which the MIPS program needs substantial reform. These revisions could include a streamlined set of measures that reduces complexity and eases administrative burden and more meaningful scoring methodology that will drive improvements in care.

SUPPLEMENTARY MATERIAL

Supplementary File (PDF)

Figure S1: Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) flow diagram of inclusion and exclusion.

Figure S2: MIPS Final scores by participation type, practice size, practice setting, and census division (N = 6,117).

Figure S3: State-level variability in Final MIPS scores and % receiving the maximum payment adjustment among nephrologists.

Figure S4: Mean scores of frequently reported quality measures by nephrologists in MIPS (N = 6,117).

Table S1: Association of Participation Type, Practice Size, Practice Setting, and Census Division with MIPS Final Scores, Adjusted Analyses Accounting for Interactions (N = 6,117).

Table S2: Top Ten Promoting Interoperability and Improvement Activities Measures Reported by Nephrologists in MIPS (individual or group participants, N = 4,121).

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Which factors affect MIPS scores for nephrologists?



6117 nephrologists



Merit-based Incentive Payment System (MIPS) 2018

Adjusting factors

- Participation type
- Practice size
- Practice Setting
- Geography

Scores

- MIPS Final
- Quality
- Promoting Interoperability
- Improvement Activities
- Cost

Results



Median MIPS Final score 100
IQR 94 – 100



+12.5 (+10.6 to +14.4) points with MIPS APM
Compared with individual participation



Large and medium practices scored higher
Compared with small practices



HPSA nephrologists scored 1.9 (-3.6 to -0.1) points lower
Compared with non-HPSA nephrologists



Hospital-based nephrologists scored 6.0 (-8.3 to -3.7) points lower
Compared with non-hospital-based nephrologists

Conclusion: Half of MIPS participants achieved the highest possible score. MIPS alternative payment model (APM) participation, larger practice size, non-Health Professional Shortage Area (HPSA) setting, and non-hospital-based setting were associated with higher MIPS scores among nephrologists.

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