

**Title:**

Emergency clinician participation and performance in the CMS Merit-based Incentive Payment System

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**Author Contributions:**

Study concept and design – CJG, CRH, AKV

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CTB, MAG, RTG, AM, and AKV serve on the Clinical Emergency Data Registry (CEDR) Committee within the American College of Emergency Physicians (ACEP). CJG, MAG, KEK, AM, JDS, RTG, and AKV serve on the Quality & Patient Safety Committee within ACEP. KEK and AZA serve on the Emergency Care Quality Measures Consortium. KEK also reports a grant from Blue Cross Blue Shield of Michigan and Blue Care Network to support a statewide emergency department quality improvement network. AKV also receives support for contracted work from the Centers for Medicare and Medicaid Services to develop hospital and healthcare outcome and efficiency quality measures and rating systems.

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1 **Title:**

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3 System

4  
5 **Abstract**

6 Background: The Merit-based Incentive Payment System (MIPS) is the largest national pay-for-  
7 performance program and the first to afford emergency clinicians unique financial incentives for  
8 quality measurement and improvement. With little known regarding its impact on emergency  
9 clinicians, we sought to describe participation in the MIPS and examine differences in  
10 performance scores and payment adjustments based on reporting affiliation and reporting  
11 strategy.

12 Methods: We performed a cross-sectional analysis using the Centers for Medicare & Medicaid  
13 Services 2018 Quality Payment Program (QPP) Experience Report dataset. We categorized  
14 emergency clinicians by their reporting affiliation (individual, group, MIPS alternative payment  
15 model [APM]), MIPS performance scores, and Medicare Part B payment adjustments. We  
16 calculated performance scores for common quality measures contributing to the Quality category  
17 score if reported through Qualified Clinical Data Registries (QCDRs) or claims-based reporting  
18 strategies.

19 Results: In 2018, 59,828 emergency clinicians participated in the MIPS - 1,246 (2.1%) reported  
20 as individuals, 43,404 (72.5%) reported as groups, and 15,178 (25.4%) reported within MIPS  
21 APMs. Clinicians reporting as individuals earned lower overall MIPS scores (median  
22 [interquartile range (IQR)], 30.8 [15.0-48.2] points) than those reporting within groups (median  
23 [IQR], 88.4 [49.3-100.0]) and MIPS APMs (median [IQR], 100.0 [100.0-100.0]) ( $p < 0.001$ ), and  
24 more frequently incurred penalties with a negative payment adjustment. Emergency clinicians  
25 had higher measure scores if reporting QCDR or QPP non-EM-Specialty Set measures.

26 Conclusions: Emergency clinician participation in national value-based programs is common,  
27 with one in four participating through MIPS APMs. Those employing specific strategies such as  
28 QCDR- and group-reporting received the highest MIPS scores and payment adjustments,  
29 emphasizing the role that reporting strategy and affiliation play in the quality of care.

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34

35 **Introduction**

36 The 2006 Tax Relief and Health Care Act authorized the Centers for Medicare &  
37 Medicaid Services (CMS) to establish the Physician Quality Reporting System (PQRS), an early  
38 federal foray into physician pay-for-performance.<sup>1</sup> The impact of this program on emergency  
39 care value was limited due to the small amount of payment at risk, the paucity of emergency  
40 medicine (EM)-specific quality measures, and the lack of connection between Quality and Cost  
41 categories as elements determining payment.<sup>2</sup> In response, Congress passed the Medicare Access  
42 and CHIP Reauthorization Act of 2015 (MACRA), therein creating the Quality Payment  
43 Program (QPP).<sup>3,4</sup> The QPP was designed to promote the transition from fee-for-service into  
44 value-based and/or quality-adjusted payments specifically through a track called the Merit-Based  
45 Incentive Payment System (MIPS).<sup>4</sup> The MIPS arm of the QPP started in 2017 and was designed  
46 to measure clinicians across four key performance categories intended to drive value: Quality,  
47 Promoting Interoperability, Improvement Activities, and Cost. Based on quality measure  
48 performance in these four categories, points from a given performance year are combined to  
49 produce a final overall score. Starting in the 2020 performance year, the penalty for not meeting  
50 MIPS requirements could be as high as 9% of Medicare Part B reimbursements for typical EM  
51 groups, potentially representing over \$200,000 annually for an 80,000 visit/year emergency  
52 department (ED).<sup>5-8</sup>

53 In response to CMS quality programs and incentives, medical specialty societies,  
54 healthcare data companies, and collaborating clinicians have developed CMS-approved qualified  
55 clinical data registries (QCDRs) to serve as a reporting strategy to the MIPS. QCDRs collate data  
56 streams (electronic health records, administrative claims, revenue cycle) and facilitate quality  
57 measure reporting to CMS using newly developed and validated specialty-specific measures  
58 beyond the available limited claims-based quality reporting strategies.<sup>9-11</sup> Within EM, two  
59 prominent, fee-based QCDRs include the American College of Emergency Physicians (ACEP)  
60 Clinical Emergency Data Registry (CEDR) and the Vituity Emergency-Clinical Performance

61 Registry (E-CPR).<sup>12,13</sup> If not reporting on the approximately 25 measures within one of those  
62 available QCDRs, EM clinicians in the 2018 performance year could use claims-based reporting  
63 strategies to report on the 14 measures within the QPP EM Specialty Set or the 270 measures  
64 captured within the broader QPP non-Specialty Set.<sup>9</sup>

65 With the initiation of the MIPS alongside many other federal efforts to transform  
66 payment, a recent report from the Department of Health and Human Services identified a goal  
67 that 50% of health care payments to traditional Medicare would be within two-sided risk  
68 alternative payment models (APMs) by 2022, despite only 18% of payments identified as having  
69 met that target in 2019.<sup>14-16</sup> APMs are a payment approach to provide high-quality and cost-  
70 efficient care, and can apply to a specific clinical condition, a care episode, or a population such  
71 as patients seeking emergency care. Most efforts to transition clinicians away from fee-for-  
72 service payments have focused on global payment models or on clinicians paid for a bundle of  
73 care, such as joint replacement models for orthopedic surgeons,<sup>17,18</sup> with little known about  
74 emergency clinician engagement or performance in this transition towards increased payment  
75 risk. A recent report of 377 EDs identified little EM participation, with only 9.2% of EDs  
76 participating in a federal APM and 5.0% participating in a commercial APM.<sup>19</sup> A deeper  
77 understanding of how emergency clinicians perform in the MIPS is important to guide policy and  
78 practice.

79 During the inaugural 2017 performance year, over 1 million eligible clinicians across all  
80 specialties participated in the MIPS with 93% earning a positive or exceptional payment  
81 adjustment.<sup>20</sup> Studying the 2018 MIPS performance year offers several key benefits, including  
82 the incorporation of the Cost category absent in the 2017 MIPS, as well as increased  
83 performance thresholds to improve payment adjustment distribution. A recent analysis of  
84 otolaryngologists found that clinicians reporting via APMs received payment bonuses for  
85 exceptional performance more commonly than those with reporting affiliations of groups or  
86 individuals.<sup>21</sup> Despite substantially more consolidation in EM, a knowledge gap exists regarding  
87 the clinician-level MIPS performance and subsequent payment adjustments in this new national  
88 pay-for-performance program. While measure reporting within the Quality category represents  
89 the most heavily-weighted for clinician payment in the MIPS, little is known about the impact of  
90 newer EM-specific quality measures or reporting strategies, such as QCDRs, on performance  
91 scores and payment adjustments.

92 Therefore, we sought to characterize emergency clinician participation and performance  
93 in the MIPS. Specifically, we describe emergency clinician participation within APMs and  
94 examine organizational factors associated with MIPS performance scores and payment  
95 adjustments.

## 97 **Methods**

### 98 Study Design

99 We performed a cross-sectional analysis of EM clinician MIPS performance in the 2018  
100 performance year. Emergency clinicians, including physicians and non-physician practitioners,  
101 were identified using the primary specialty listed in the publicly available 2018 Quality Payment  
102 Program (QPP) Experience Report dataset as of November 1, 2020 (Figure 1).<sup>22</sup>

### 103 MIPS Eligibility Criteria

104 To avoid a penalty, clinicians were required to participate in the MIPS if they: 1) were a  
105 MIPS-eligible clinician type, 2) exceeded the low volume threshold, and 3) were not otherwise  
106 excluded.<sup>23</sup> MIPS-eligible clinician types are defined annually by CMS through rulemaking. In  
107 2018, MIPS-eligible clinicians met the low volume threshold and were required to participate in  
108 MIPS if they billed more than \$90,000 in Medicare Part B covered professional services and  
109 provided care for more than 200 Medicare Part B beneficiaries in two distinct annual  
110 determination periods. Clinicians may be excluded from MIPS reporting if they participated  
111 within the second arm of the QPP through an Advanced APM. Additional exclusions include  
112 enrollment in Medicare for the first time in 2018 or participation in a Medicare Advantage  
113 Qualifying Payment Arrangement Incentive.<sup>24</sup> We categorized emergency clinicians by their  
114 MIPS reporting affiliation (individual, group, MIPS APM) self-selected upon submission and  
115 listed within the dataset. We also extracted “special status” designations for emergency  
116 clinicians.<sup>24</sup> These designations determine whether certain rules affect the number of required  
117 reported measures, activities, or bonus points for a reporting clinician. In 2018, extracted  
118 “special status” designations included small practice, rural practice, and health professional  
119 shortage area (HPSA).

### 120 Methods of Measurement

121 In 2018, the CMS calculated overall MIPS scores by applying the following performance  
122 category weights unless the clinician qualified for reweighting: Quality – 50%, Cost – 10%,



123 Improvement Activities – 15%, Promoting Interoperability – 25%.<sup>5</sup> The Quality category is the  
124 most important for emergency clinicians because most are exempt from the Promoting  
125 Interoperability category, with performance reweighted to the Quality category, which then  
126 accounts for over 75% of the overall MIPS score. Consistent with CMS methodology and based  
127 on their 2018 overall MIPS score, we categorized clinicians as having received a payment  
128 adjustment – exceptional (overall MIPS score 70-100), positive (overall MIPS score 15.01-  
129 69.99), neutral (overall MIPS score 15.00), and negative (overall MIPS score 0-14.99) – during  
130 the 2018 performance year.<sup>5,23</sup>

131 Within the MIPS Quality category, a few technical points merit clarification. Clinicians  
132 must report and are scored on 6 measures, and these may be from the QPP EM Specialty Set,  
133 QPP non-Specialty Set, or QCDRs. The QPP EM Specialty Set from the 2018 performance year  
134 included 14 measures (e.g. QPP 254 – Ultrasound determination of pregnancy location for  
135 pregnant patients with abdominal pain) that are intended to be more relevant to EM practice.<sup>9</sup>  
136 The QPP non-Specialty Set included the remaining 270 quality measures (e.g. QPP 111 –  
137 Pneumococcal vaccination status for older adults) that clinicians could choose to report to CMS.  
138 If a group or individual emergency clinician reported more than 6 measures, then CMS  
139 methodology notes that the 6 highest scoring measures contribute towards the Quality category  
140 performance score. If fewer than 6 measures were reported, a score of 0 was assigned towards  
141 each non-reported measure.<sup>5</sup> Additional bonus points were available within the Quality category  
142 if reporting additional outcome, patient experience, or high-priority measures beyond the one  
143 required, as well as if meeting end-to-end electronic reporting criteria (e.g. qualified registry,  
144 QCDR).<sup>25</sup> Based on model requirements, emergency clinicians reporting within MIPS APMs  
145 could have had more than 6 measures reported and scored within the Quality category.<sup>24</sup> Due to  
146 the importance of the Quality category, we identified common quality measures contributing to  
147 the category's score, particularly assessing measures reported by >1% of emergency clinicians.

#### 148 Statistical Analysis

149 We performed descriptive statistical analyses of clinician characteristics, MIPS reporting  
150 affiliations, MIPS performance overall and category scores, and payment adjustments. Because  
151 distributions of MIPS performance scores were not normally distributed, we used the Kruskal-  
152 Wallis test and the post-hoc Dunn test with Bonferroni adjustments for multiple comparisons to  
153 compare medians across reporting affiliations. Given its large contribution to the overall MIPS

154 score, we also examined the Quality category by presenting decile measure scores for each  
155 quality measure if scored by >1% of EM clinicians. All analyses were performed in Stata,  
156 version 16.0 (StataCorp) between November 2, 2020 and December 8, 2020. The institutional  
157 review board deemed this study exempt, as this research used a public data source without  
158 patient health information.

159

## 160 **Results**

161 During the 2018 performance year, 59,828 emergency clinicians participated in the  
162 MIPS. Of those, 1,246 (2.1%) emergency clinicians reported data as individuals, 43,404 (72.5%)  
163 reported data as groups, and 15,178 (25.4%) reported data as MIPS APMs (Figure 1). A greater  
164 proportion of emergency clinicians reporting as individuals practiced in small size practices,  
165 urban designations, and HPSAs, achieving “special status” designations, when compared to  
166 emergency clinicians reporting within groups and MIPS APMs.

167 Emergency clinicians reporting as individuals earned lower overall scores (median  
168 [interquartile range (IQR)], 30.8 [15.0-48.2] points) than those reporting as groups (median  
169 [IQR], 88.4 [49.3-100.0] points) and MIPS APMs (median [IQR], 100.0 [100.0-100.0] points) ( $p$   
170  $<0.001$ ). The difference was largely driven by scores within the Quality category – emergency  
171 clinicians reporting as individuals earned lower Quality category scores (median [IQR], 21.7  
172 [8.3-40.0] points) than those reporting as groups (median [IQR], 79.7 [30.0-100.0] points) and  
173 MIPS APMs (median [IQR], 100.0 [98.7-100.0] points) ( $p <0.001$ ) (Table 2).

174 Almost three-quarters (43,560 of 59,828 [72.8%]) of emergency clinicians participating  
175 in the MIPS received bonuses for exceptional performance. The remainder received a positive  
176 payment adjustment (15,693 of 59,828 [26.2%]), a neutral payment adjustment (123 of 59,828  
177 [0.2%], or a negative payment adjustment (452 of 59,828 [0.8%]) (Supplemental Table 1).  
178 Payment adjustments also varied by reporting affiliation (Figure 2). Of those emergency  
179 clinicians reporting as individuals, 150 (12.0%) earned bonuses for exceptional performance and  
180 237 (19.0%) incurred penalties with a negative payment adjustment. Of those emergency  
181 clinicians reporting as a group, 28,257 (65.1%) earned bonuses for exceptional performance and  
182 215 (0.5%) incurred penalties with a negative payment adjustment. Of those emergency  
183 clinicians reporting within MIPS APMs, 15,153 (99.8%) earned bonuses for exceptional  
184 performance and no clinicians incurred penalties (Figure 2, Supplemental Table 1).

185 Within the Quality category, measures were reported by 1,154 individual clinicians,  
186 38,819 group clinicians, and 15,152 clinicians within MIPS APMs. Quality measure  
187 performance differed between reporting strategies within the QPP EM Specialty Set, QPP non-  
188 Specialty Set, and QCDRs (Table 3, Supplemental Table 2). Of the 14 quality measures within  
189 the 2018 QPP EM Specialty Set, 12 were scored by more than 1% of EM clinicians. QPP 091  
190 (Acute otitis externa: topical therapy) was the most frequently reported measure within this  
191 group, with scores ranging from 0 to 10.0, with a median of 9.0. Of the broader QPP non-  
192 Specialty Set, 31 measures were scored by more than 1% of emergency clinicians. Within Table  
193 3, we show the 9 most commonly scored for the sake of brevity. QPP 204 (Ischemic vascular  
194 disease: use of aspirin or another antiplatelet) was the most frequently reported measure within  
195 this group, with scores ranging from 9.0 to 10.0, with a median of 10.0. Of the 39 available  
196 QCDR measures, 11 were scored by more than 1% of emergency clinicians. ACEP 40 (median  
197 time from ED arrival to ED departure for discharged ED patients for pediatric patients) was the  
198 most frequently reported measure within this group, with scores ranging from 0 to 10.0, with a  
199 median of 8.1. Grouped by deciles, emergency clinicians scoring Quality category measures  
200 from QCDRs and the QPP non-Specialty Set had greater individual measure scores than  
201 measures from the QPP EM Specialty Set.

202  
203 **Discussion**

204 In this cross-sectional analysis of emergency clinicians, we evaluated 2018 MIPS  
205 performance scores and associated payment adjustments based on clinician reporting affiliation  
206 and reporting strategy. Our study has three major findings. First, emergency clinicians reporting  
207 as individuals earned lower overall MIPS performance scores than those reporting within groups  
208 or MIPS APMs with the difference largely driven by scores within the Quality category. Second,  
209 payment adjustments varied by reporting affiliation, with one in four emergency clinicians  
210 reporting within MIPS APMs and virtually all of those clinicians received an exceptional  
211 payment adjustment. Conversely, almost 20% of emergency clinicians reporting as individuals  
212 received a negative payment adjustment. Third, many emergency clinicians reported Quality  
213 category measures within QCDRs and used the QPP non-Specialty Set, with the lowest measure  
214 scores identified for measures within the QPP EM Specialty Set.

215 Our work builds upon the literature in a number of ways. MIPS performance has been  
216 assessed for otolaryngologists,<sup>21</sup> dermatologists,<sup>26</sup> ophthalmologists,<sup>27</sup> and radiologists<sup>28</sup> but to  
217 our knowledge, this is the first study addressing MIPS performance by emergency clinicians.  
218 Our findings suggest that over 99% of emergency clinicians received either a positive or  
219 exceptional payment adjustment, reflecting better performance than observed for these other  
220 specialties. This study is also the first to assess overall MIPS scores with the full complement of  
221 performance categories – including Cost – since its incorporation in the 2018 performance year.  
222 Furthermore, the increased use of QCDRs for quality reporting has offered clinicians measures  
223 that are clinically relevant and evidence-based, with this work being the first to calculate QCDR  
224 measure scores for emergency clinicians reporting in national pay-for-performance programs.

225 Our findings also have several policy implications. First, in agreement with prior  
226 evaluations,<sup>29</sup> we believe that CMS should consider strategies to make clinician performance a  
227 more normal and non-skewed distribution to allow for greater identification of practice variation  
228 and opportunities for meaningful improvement. While only a small proportion of emergency  
229 clinicians received a negative payment adjustment in the 2018 performance year, the financial  
230 incentive for those receiving positive and exceptional payment adjustments is attenuated due to  
231 the budget neutrality requirement of the MIPS.<sup>30</sup> Performance thresholds to avoid a negative  
232 payment adjustment will increase in the coming years, with an overall MIPS performance score  
233 of 45 required to avoid a negative payment adjustment in the 2020 performance year, compared  
234 to a score of 15 in the 2018 performance year. Globally, the MIPS follows a zero-sum game,  
235 suggesting that upward bonuses require other clinicians to be penalized.<sup>31</sup> Within the 2018  
236 performance year analyzed, payment adjustments could theoretically range from -5% (penalty) to  
237 5% (bonus). However, in reality, payment adjustments only ranged from -5% to +1.7% given the  
238 statutory requirement for the sum of penalties and bonuses to be budget-neutral. For the typical  
239 EM group covering an 80,000 visit/year ED introduced earlier, an estimated possible 5% penalty  
240 reached upwards of \$120,000, while the potential 1.7% bonus in the 2018 performance year was  
241 only about \$40,000.<sup>8</sup> With many clinicians performing above the thresholds set, CMS has also  
242 allotted an additional \$500 million in bonus payments for exceptional-performing clinicians in  
243 this program to increase incentives.<sup>32</sup> As the performance thresholds increase, future analyses  
244 comparing emergency clinicians to other specialties will be valuable in identifying specialties  
245 that are more readily adapting to national pay-for-performance programs. In this analysis,

246 emergency clinicians reporting as individuals were more likely than clinicians within groups or  
247 MIPS APMs to be penalized with a negative payment adjustment. This may be a result of  
248 decreased technological infrastructure available to these clinicians as suggested by prior  
249 literature,<sup>33</sup> and if evident, could lead to greater disparities in payment adjustment as  
250 performance thresholds increase.

251 Second, CMS should consider the array of quality measures reported by EM clinicians  
252 and whether they are clinically relevant. There exists little ability to identify meaningful  
253 variation in emergency care given that the three most common measures reported overall by  
254 emergency clinicians in the 2018 performance year were: 1) QPP 204 - Ischemic vascular  
255 disease: use of aspirin or another antiplatelet agent, 2) QPP 111 - Pneumococcal vaccination  
256 status for older adults, and 3) QPP 318 - Falls: screening for future fall risk. Reporting of quality  
257 measures with low clinical relevance results in uninformative data that mimics programs  
258 predating the MIPS. Currently, the myriad measures available to emergency clinicians prevents  
259 meaningful comparisons and also offers the potential for increased 'performance' scores, and  
260 thereby payment adjustments, without true improvement in quality. Going forward, quality  
261 measures should be prioritized that assess the clinical care of undifferentiated high-risk  
262 conditions (e.g. abdominal pain, chest pain), creating alignment with the ACEP Acute  
263 Unscheduled Care Model. Future iterations of emergency care value-based payment will also  
264 depend upon digital quality measures (captured directly from electronic medical records,  
265 registries, or health information exchanges) and a linkage between cost and quality measures.<sup>34,35</sup>

266 One solution to the lack of relevance of many reported EM measures is the broader  
267 adoption of QCDRs and development of quality measures focusing on clinically meaningful  
268 patient outcomes that are able to target performance variation. The creation of new quality  
269 measures, often led by specialty societies, requires significant effort and resources.<sup>36</sup> Future  
270 requirements of QCDRs will undoubtedly increase as CMS continues to develop a framework  
271 linking Quality and Cost.<sup>37</sup> Specialties, their associated societies, and respective QCDRs are  
272 increasingly strained, with limited resources to develop, test and validate meaningful measures.  
273 Going forward, this may perpetuate and even increase the likelihood of reporting on clinically  
274 irrelevant quality measures.

275

## 276 **Limitations**

277 This study has several limitations. First, we are limited to define the analytic sample as  
278 ‘emergency clinicians’, and based on the dataset are unable to further characterize differences  
279 between physicians and non-physicians. On a related note, the specialty description within the  
280 dataset is an identifier corresponding to the type of service that the clinician submitted most  
281 of their Physician Fee Schedule Part B claims, therefore appropriately including emergency  
282 clinicians not only based on residency training or Board Certification status. Second, the present  
283 analysis is limited to 2018 MIPS performance scores, which may lack generalizability as the  
284 program evolves. Future work should evaluate changes in performance over time. Finally, this  
285 study does not include patient-level data to assess the quality or outcomes of emergency care  
286 provided.

287

## 288 **Conclusion**

289 Emergency clinician participation in national value-based programs is common, with one  
290 in four participating through MIPS APMs. Those employing specific reporting strategies such as  
291 QCDR- and group-reporting received the highest MIPS scores and payment adjustments. Many  
292 clinicians report on quality measures that are of questionable relevance to emergency medicine.  
293 These findings emphasize the need for clinically relevant EM-specific measures that improve the  
294 quality of care and reliably identify practice variation.

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409

410 **Table/Figure Legends**

411

412 **Table 1.** Clinician characteristics associated with MIPS reporting affiliation

413 Abbreviations: APM, alternative payment model; HPSA, Health Professional Shortage Area;  
414 IQR, interquartile range; MIPS, Merit-based Incentive Payment System

415 Note:

416 <sup>a</sup> Count of clinicians associated with the Taxpayer Identification Number (TIN)

417 <sup>b</sup> Dichotomized follows Medicare rules as small (15 or fewer clinicians)

418 <sup>c</sup> Practices in a zip code designated as rural using data from the Health Resources and Services  
419 Administration (HRSA)

420 <sup>d</sup> Practices in a designation that indicates health care provider shortages in primary care, dental  
421 health, or mental health using data from the HRSA

422

423 **Table 2.** Merit-based Incentive Payment System (MIPS) category and overall performance  
424 scores, stratified by reporting affiliation

425 Abbreviations: APM, alternative payment model; IQR, interquartile range

426

427 **Table 3.** Common measures scored by decile of performance for emergency clinicians within the  
428 Quality category of the Merit-based Incentive Payment System (MIPS) program, stratified by  
429 reporting strategy

430 Abbreviations: ACEP, American College of Emergency Physicians; ECPR, Emergency-Clinical  
431 Performance Registry; QCDR, Qualified Clinical Data Registry; QPP, Quality Payment Program

432 Note: Serving as the denominator for % clinicians reporting, 55,125 clinicians had  $\geq 1$  measure  
433 scored within the Quality category. The 2018 QPP EM Specialty Set included 14 measures.  
434 Shown above are the 12 measures that contributed to  $>1\%$  of EM clinicians MIPS Quality  
435 category scores. While 31 total QPP-non Specialty Set measures contributed to  $>1\%$  of EM  
436 clinicians MIPS Quality performance category scores, we show the top 9 most commonly  
437 reported for brevity. Available QCDRs included 38 possible measures. Shown above are the 11  
438 QCDR measures that contributed to  $>1\%$  of EM clinicians MIPS Quality category scores. The  
439 measure ID with associated title can be seen in Supplemental Table 2. Decile boxes show the  
440 distribution of scores across a specific measure. Decile 1 includes the lowest 10% of scores by  
441 EM clinicians (0-10<sup>th</sup> percentile), while Decile 10 includes the highest 10% of scores by EM  
442 clinicians (90-100<sup>th</sup> percentile). The value reported within the box is the lowest measure score  
443 within that specific 10-percentile range. For example, 15,159 (27.5%) EM clinicians had the  
444 QPP 091 measure scored towards their MIPS Quality category score. The minimum score was  
445 0.0, denoted by Decile 1; the maximum score was 10.0, denoted by Decile 10 (extrapolated  
446 because the 90<sup>th</sup> percentile score is 10.0 noted by this box); and the median score was 9.0,  
447 denoted by Decile 6 (lowest measure score between 50-60<sup>th</sup> percentile).

448

449 **Figure 1.** Analytic sample for emergency clinicians and quality measures

450 Abbreviations: APM, alternative payment model; EM, emergency medicine; MIPS, Merit-based  
451 Incentive Payment System

452 Note: Table 1, Table 2, and Figure 2 include the derived analytic sample above the dashed line.  
453 Table 3, assessing quality measure scoring within the Quality category, includes the derived  
454 analytic sample below the dashed line.

455

456 **Figure 2.** Merit-based Incentive Payment System (MIPS) reporting affiliation and payment  
457 adjustments for emergency clinicians

458 Abbreviations: APM, alternative payment model; MIPS, Merit-based Incentive Payment System

**Table 1** – Clinician characteristics associated with MIPS reporting affiliation

	<b>Total (N = 59,828)</b>	<b>Individual (n = 1,246)</b>	<b>Group (n = 43,404)</b>	<b>MIPS APM (n = 15,178)</b>
Size (median, IQR) <sup>a</sup>	89 (39-284)	45 (20-93)	83 (37-251)	127 (51-440)
Small size, % <sup>b</sup>	4.5	17.4	3.9	5.1
Rural designation, % <sup>c</sup>	18.1	13.6	18.1	18.5
Practicing in HPSA, % <sup>d</sup>	25.9	28.4	27.4	21.5

Abbreviations: APM, alternative payment model; HPSA, Health Professional Shortage Area; IQR, interquartile range; MIPS, Merit-based Incentive Payment System

Note:

<sup>a</sup> Count of clinicians associated with the Taxpayer Identification Number (TIN)

<sup>b</sup> Dichotomized follows Medicare rules as small (15 or fewer clinicians)

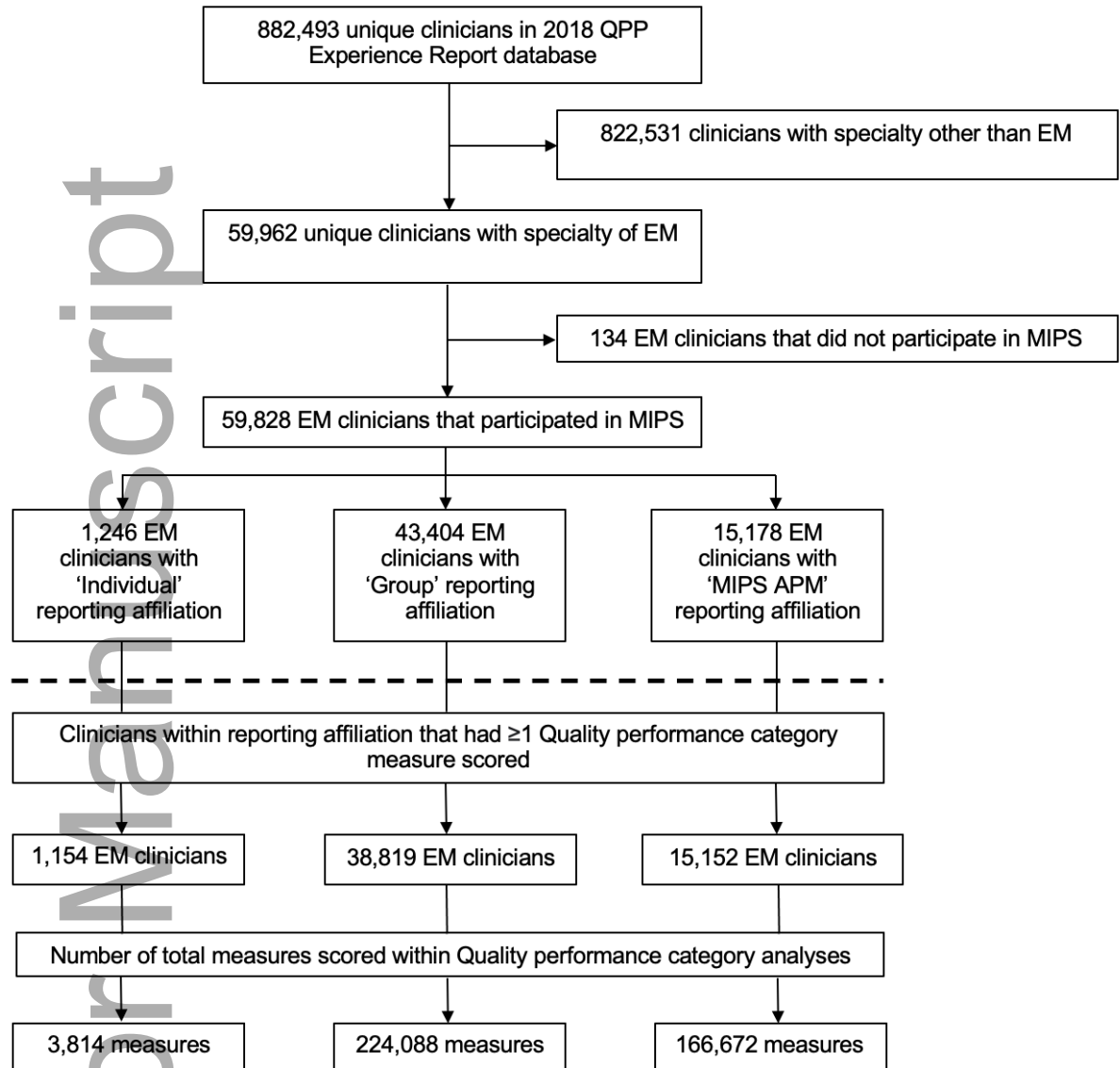
<sup>c</sup> Practices in a zip code designated as rural using data from the Health Resources and Services Administration (HRSA)

<sup>d</sup> Practices in a designation that indicates health care provider shortages in primary care, dental health, or mental health using data from the HRSA

**Table 2** – Merit-based Incentive Payment System (MIPS) category and overall performance scores, stratified by reporting affiliation

Affiliation	N	Median (IQR)				
		Quality	Promoting Interoperability	Improvement Activities	Cost	Overall
Individual	1,246	21.7 (8.3-40.0)	0 (0-0)	0 (0-40.0)	0 (0-0)	30.8 (15.0-48.2)
Group	43,404	79.7 (30.0-100.0)	0 (0-0)	40.0 (40.0-40.0)	87.3 (0-100.0)	88.4 (49.3-100.0)
MIPS APM	15,178	100.0 (98.7-100.0)	100.0 (100.0-100.0)	40.0 (40.0-40.0)	0 (0-0)	100.0 (100.0-100.0)

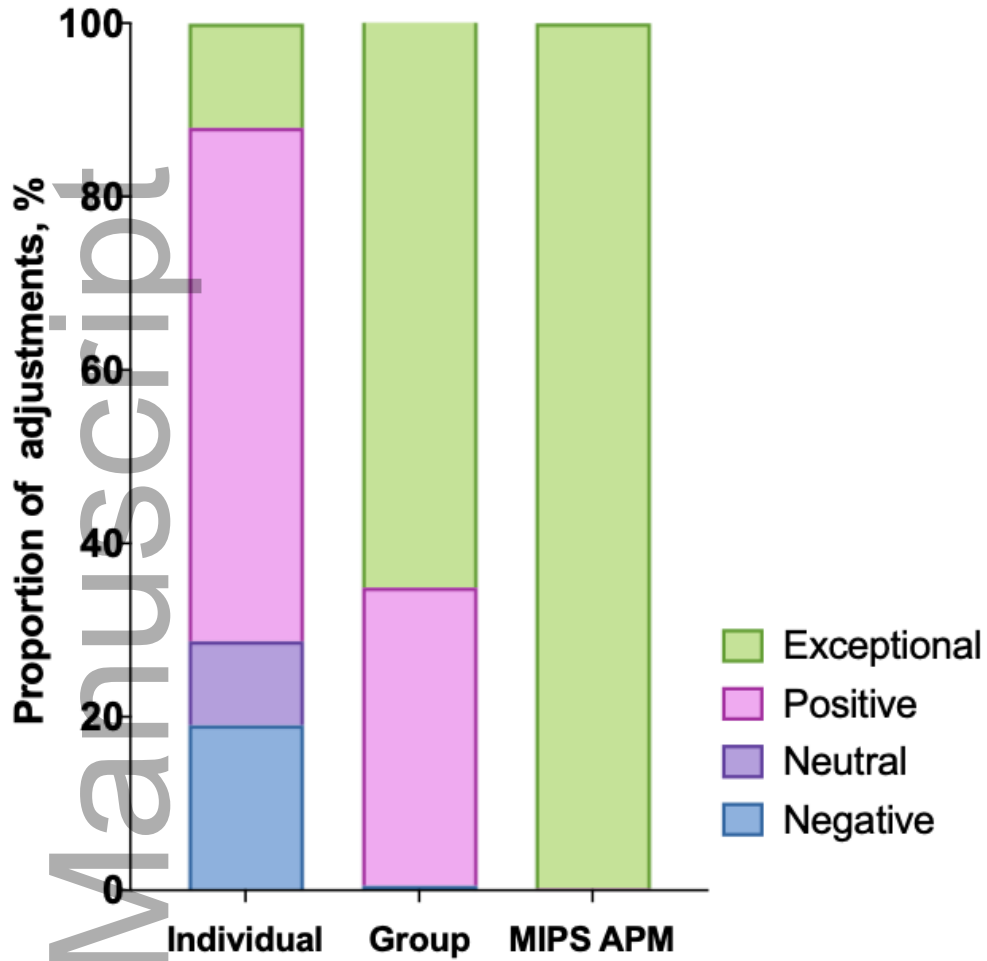
Abbreviations: APM, alternative payment model; IQR, interquartile range



**Figure 1.** Analytic sample for emergency clinicians and quality measures

Abbreviations: APM, alternative payment model; EM, emergency medicine; MIPS, Merit-based Incentive Payment System

Note: Table 1, Table 2, and Figure 2 include the derived analytic sample above the dashed line. Table 3, assessing quality measure scoring within the Quality category, includes the derived analytic sample below the dashed line.



**Figure 2.** Merit-based Incentive Payment System (MIPS) reporting affiliation and payment adjustments for emergency clinicians

Abbreviations: APM, alternative payment model; MIPS, Merit-based Incentive Payment System