

# MACRA, Alternative Payment Models, and the Physician-Focused Payment Model: Implications for Radiology



Andrew B. Rosenkrantz, MD, MPA<sup>a</sup>, Gregory N. Nicola, MD<sup>b</sup>, Bibb Allen Jr, MD<sup>c</sup>, Danny R. Hughes, PhD<sup>d,e</sup>, Joshua A. Hirsch, MD<sup>f</sup>

### **Abstract**

The Medicare Access and CHIP Reauthorization Act (MACRA) of 2015 describes alternative payment models (APMs) as new approaches to health care payment that incentivize higher quality and value. MACRA incentivizes increasing APM participation by all physician specialties over the coming years. Some APMs will be deemed Advanced APMs; clinicians who are a Qualifying Participant in an Advanced APM will receive substantial benefits under MACRA including an automatic 5% payment bonus, regardless of their performance and savings within the APM, and a larger payment rate increase beginning in 2026. Existing APMs are most relevant to primary care physicians, and opportunities for radiologists to participate in Advanced APMs fulfilling Qualified Participant requirements are limited. Physician-Focused Payment Models (PFPMs), as described in MACRA, are APMs that target physicians' Medicare payments based on quality and cost of physician services. PFPMs must address a new issue or specialty compared with existing APMs and will thus foster a more diverse range of APMs encompassing a wider range of specialties. The PFPM Technical Advisory Committee is a new independent agency that will review proposals for new PFPMs and provide recommendations to CMS regarding their approval. The PFPM Technical Advisory Committee comprises largely primary care physicians and health policy experts and is not required to consult clinical experts when reviewing new specialist-proposed PFPMs. As PFPMs provide a compelling opportunity for radiologists to demonstrate and be rewarded for their unique contributions toward patient care, radiologists should embrace this new model and actively partner with other stakeholders in developing radiology-relevant PFPMs.

Key Words: Health policy, alternative payment models, radiologists, radiology practice

J Am Coll Radiol 2017;14:744-751. Copyright © 2016 American College of Radiology

#### INTRODUCTION

The US Department of Health and Human Services has an overarching vision for health care in the United States that focuses on "better care, smarter spending, and healthier people" [1], seeking to link 90% of Medicare payments to the quality of care by 2018, in stark contrast with the current fee-for-service system [2,3].

These goals serve as guiding policy principles in the bicameral, bipartisan Medicare Access and CHIP Reauthorization Act (MACRA) of 2015 [4]. MACRA seeks to achieve these aims through significant changes in how care is delivered to incentivize quality and value over quantity as well as through more efficient clinical decision making [5,6]. If successful, the legislation will

Corresponding author and reprints: Andrew B. Rosenkrantz, Department of Radiology, Center for Biomedical Imaging, NYU School of Medicine, NYU Langone Medical Center, 660 First Avenue, 3rd Floor, New York, NY 10016; e-mail: Andrew.Rosenkrantz@nyumc.org.

Dr Rosenkrantz is supported by a research grant from the Harvey L. Neiman Health Policy Institute. Dr Hirsch has received fees unrelated to the present work from Medtronic, Carefusion, and Codman Neurovascular. The authors have no conflicts of interest related to the material discussed in this article.

<sup>&</sup>lt;sup>a</sup>Department of Radiology, NYU Langone Medical Center, New York, New York

<sup>&</sup>lt;sup>b</sup>Hackensack Radiology Group, P.A., River Edge, New Jersey.

<sup>&</sup>lt;sup>c</sup>Department of Radiology, Grandview Medical Center, Birmingham, Alabama.

<sup>&</sup>lt;sup>d</sup>Harvey L. Neiman Health Policy Institute, Reston, Virginia.

<sup>&</sup>lt;sup>e</sup>Department of Health Administration and Policy, George Mason University, Fairfax, Virginia.

<sup>&</sup>lt;sup>f</sup>Department of Radiology, Massachusetts General Hospital, Harvard Medical School, Boston, Massachusetts.

catalyze innovative patient-centered delivery approaches that are meaningful, flexible, resource-effective, and operationally feasible, thereby improving health outcomes and care experience for the American public [1]. MACRA will first begin to impact physicians' Medicare Part B payments in 2019. For the overwhelming majority of physicians, such changes in payments will initially be determined by the Merit-Based Incentive Payment System (MIPS), which has been the focus of numerous separate works [7-10]. Under MIPS, physicians will be required to report a large array of performance metrics in multiple categories, which in turn will form the basis of positive, neutral, or negative payment adjustments to their traditional fee-for-service payments. However, a small fraction of physicians will instead initially receive Medicare payments under MACRA through Advanced Alternative Payment Models (APMs), which achieve a larger transformation in how physicians deliver care and get reimbursed. Participation in Advanced APMs offers numerous benefits compared with participation in MIPS and is expected to increase considerably over time. Although a diverse range of APMs have been piloted through the years, MACRA introduces a new particular form of APM termed the Physician-Focused Payment Model (PFPM) that specifically targets the quality and cost of physician services. Recognizing historic low participation rates by specialists, MACRA legislates that CMS must establish pathways for participation in PFPMs, not only by primary care physicians but also by specialty providers, and establishes a new PFPM

Technical Advisory Committee (PTAC) to accept and review proposals for new PFPMs from specialties and other stakeholders. Despite that, real barriers remain for radiologists to participate in PFPMs. This article summarizes key aspects of Alternative APMs, PFPMs, and the PTAC, including relevant considerations for radiologists (Table 1).

# APMs, ADVANCED APMs, AND THEIR INCENTIVES

MACRA describes an APM as any new approach to paying for medical care that incentivizes higher quality and value [4]. However, the legislation also provides three strict criteria that an APM must fulfill for its participants to be exempt from the MIPS reporting requirements and to receive the complete benefits of being in an APM [1]. These CMS-designated Advanced APMs must (1) require use of certified electronic health record technology, (2) base payment on quality measures that are comparable to those in the MIPS Quality performance category, and (3) either require the participating entity to bear more than nominal financial risk for monetary losses or be a Medical Home Model expanded under Center for Medicare and Medicaid Innovation (CMMI) authority [1]. In addition, individual clinicians who receive a certain threshold of either their Medicare Part B payments or covered Medicare beneficiaries through an Advanced APM entity are deemed an APM Qualifying Participant (QP). These percentages start in 2019 at 25% of payments or 20% of patients and will increase in

Table 1. Summary of acronyms

Acronym	Full Term	Brief Summary
MACRA	Medicare Access and CHIP Reauthorization Act	2015 federal legislation that reforms the Medicare payment system to link most payments to the quality and value of care
MIPS	Merit-Based Incentive Payment System	The first of two payment paths in MACRA; provides clinicians a positive or negative adjustment to their fee-for-service payments based on a range of performance metrics
APM	Alternative Payment Model	Any of an array of new approaches to health care payments that incentivize clinicians to provide higher quality and value
Advanced APM	Advanced Alternative Payment Model	The second of two payment paths in MACRA; includes those APMs that require use of certified electronic health record technology, base payment on quality measures comparable to those in MIPS, and bear more than nominal financial risk
PFPM	Physician-Focused Payment Model	An APM that targets the quality and costs of physician services in determining Medicare payments for physicians or physician groups
PTAC	PFPM Technical Advisory Committee	A new independent federal committee made up of 11 recognized health care delivery experts that will accept and review proposals for new PFPMs and provide a recommendation to CMS regarding the PFPM's approval and implementation

subsequent years. Participants in an Advanced APM who fulfill a lower threshold (20% of payments or 10% of patients) are deemed a Partial QP. Participants in an APM that that do not meet the three requirements to be an Advanced APM default to being a MIPS-eligible clinician.

MIPS-eligible clinicians who are APM participants are required to report performance measures into MIPS, and Partial QPs may elect to do so. Nonetheless, both receive key benefits relative to MIPS-participating clinicians who are not APM participants [1]. Namely, rather than submitting standard MIPS performance measures, clinicians may submit MIPS performance measures that are used by their APM to determine positive or negative payment adjustments under the MIPS; in addition, the APM measures can be used to receive partial or even full credit in the Improvement Activities MIPS performance category. These benefits reduce the MIPS reporting burden and avoid a potential lack of alignment between the MIPS measures and those tracked by the APM in which the clinician is participating. In addition, this strategy will generally result in more favorable scores in MIPS for APM participants. Nonetheless, such physicians are still subject to positive or negative payment adjustments based on their performance on the APM measures submitted to MIPS. Note that although MACRA provides benefits for clinicians participating in an APM, it does not itself alter how the APM rewards quality of care or otherwise change the APM's functioning.

MACRA provides even greater benefits for QPs participating in an Advanced APM [1]. As QPs are exempt from MIPS participation altogether, they are not subject to the budget neutral MIPS positive or negative payment adjustment as are MIPS-participating clinicians. Rather, the advanced APM entity receives an automatic 5% bonus incentive payment based on aggregate Medicare Part B payments during the first 6 years of the program implementation (2019 to 2024), regardless of actual performance on the APM measures or actual achieved savings. This automatic bonus incentive payment of 5% of estimated aggregate Part B payments only partially offsets losses that an Advanced APM may incur given a much larger (more than nominal) required financial risk (defined by regulators at the time of this writing as up to 4% of total APM Part A and Part B expenditures over expected expenditures). In addition, beginning in 2026, QPs will receive a 3-fold higher increase in their fee schedule conversion factor

rate used to calculate Medicare Part B payments: 0.75% per year for QPs, compared with an increase of only 0.25% per year for clinicians within the MIPS. These differences are anticipated to entice a growing number of physicians to participate in Advanced APMs, rather than in MIPS.

CMS recognized a number of existing APMs at the time of MACRA's introduction [1]. These include, among others, CMS Innovation Center demonstration projects, Bundled Payment for Care Initiative (BPCI), Comprehensive Care for Joint Replacement (CJR), the Medicare Shared Savings Program tracks 1 to 3, Comprehensive ESRD Care, the Next Generation Accountable Care Organization Model, and the Oncology Care Model (OCM). Of these models, a potential key role for radiology in BPCI and CJR has been described previously [11]. However, the initial CMS-proposed rule on MIPS and APMs from April 2016 only recognized six APMs as meeting the detailed statutory criteria to be an Advanced APM [1]: Medicare Shared Savings Program tracks 2 and 3, the Next Generation Accountable Care Organization, Comprehensive ESRD Care, the recently created Comprehensive Primary Care Plus, and the OCM (qualified for Advanced APM status in 2018). These few initially recognized Advanced APMs are focused almost entirely on primary care providers, with no episode-based or disease-based models available for specialists at the present time and only one specialty-specific Advanced APM available in 2018 (namely, the OCM for oncologists) [12]. Subsequently, in August 2016, CMS published a new proposed rule specifically relating to episode payment models [13] that retrofitted the CJR to fit the Advanced APM criteria and introduced four new payment models relating to cardiac and orthopedic care that may qualify as Advanced APMs as early as 2018. Although this further rule making is encouraging, the scope of APMs deemed Advanced APMs remains narrow, and opportunities to participate remain limited for many specialties. The spectrum of Advanced APMs will thus need to be greatly expanded and cover a much more diverse range of patient populations, physician specialties, and clinical scenarios for the Advanced APM path to achieve its intended impact under MACRA [1,14,15].

#### PHYSICIAN-FOCUSED PAYMENT MODELS

The MACRA legislation requires that a process be established to provide physician specialties and other

stakeholders the flexibility to participate in the design and implementation of new PFPMs [4]. In its subsequent proposed ruling, CMS defined PFPMs as an APM that includes Medicare as a payer and a physician group practice or individual physician (rather than a facility, nurse, or other allied health practitioner) as the APM entity and that targets the quality and costs of physician services, for example by addressing physician behavior or decision making [1]. Any PFPM that also meets the previously listed three criteria for Advanced APMs will automatically be designated as such. Although not all Advanced APMs will be PCPMs and not all PCPMs will be Advanced APMs, the PCPM is likely to represent the dominant pathway through which stakeholders will introduce new Advanced APMs. By encouraging innovation by physician specialties in the design of new delivery and payment models of relevance to their practice, PFPMs are intended to allow participation of a broader range of physician specialties in the Advanced APM path, with physician payments associated with PFPMs anticipated to begin in 2018. CMS has provided criteria by which new PFPMs will be evaluated [1]. The criteria, which are intended to be flexible and potentially applicable to all specialties, are stratified into three categories (Table 2): promotion of payment incentives for higher-quality care, care delivery improvements, and information availability and enhancements [16].

The first category of promoting payment incentives for higher-value care will include criteria requiring

PFPMs to provide specific and detailed information regarding how quality and performance will be measured; how the new payment methodology will work, including descriptions of the estimated amounts of the new payments, potential barriers, and the level of financial performance risk; as well as how the new payment methodology will improve quality or lower cost [1,16]. How the proposed system differs from any existing payment methodologies will need to be made clear. Proposed PFPMs will also need to indicate how they will remain flexible and operationally feasible in accounting for different patient subgroups and responding to a changing health care environment, including introduction of new drugs and technologies. To satisfy this criterion, a detailed evaluation plan regarding specific goals must be provided, including study design, comparisons, and outcomes. additional criterion in this category relates to the overall scope of the PFPM. Specifically, CMS requires that the PFPMs address a new payment policy issue not addressed by an existing CMS APM or include a physician specialty or other entity with limited previous APM participation. This criterion is included to directly respond to the requirement in MACRA that PFPMs encompass physician specialties.

The care delivery improvement category includes criteria relating to how the PFPM will achieve care coordination, promote access and coverage, impact disparities among patient populations, preserve patient choice and preference, improve patient safety, and improve

Table 2. Criteria for evaluation of new PFPM proposals, stratified into three categories\*

#### Categories

#### Paying for higher-value care

Scope (high priority): Directly addresses a payment issue that broadens the existing APM portfolio or includes a stakeholder with prior limited opportunity for APM participation

Promoting quality and value (high priority): Improves quality, lowers costs, or both, and includes incentives for delivery of high-quality care

Payment methodology (high priority): Provides detailed information regarding payment methodology, including how it differs from existing methods and why the proposed model cannot be tested under existing regulations

Flexibility: Offers practitioners flexibility in providing high-quality care

Evaluation goals: Includes evaluable goals for quality and cost

#### Care delivery improvements

Integration and care coordination: Promoted integration across clinicians and health care settings

Patient choice: Supports patients' individual needs and preferences

Patient safety: Improves patient safety standards

#### Information enhancements

HIT: Promotes use of HIT in care decisions

APM = Alternative Payment Model; HIT = health information technology; PFPM = Physician-Focused Payment Model. \*Based on materials from the Assistant Secretary for Planning and Evaluation, US Department of Health and Human Services [16].

overall population health [1]. The information enhancement and availability category includes criteria relating to how the PFPM will promote transparency regarding cost and quality as well as greater use of certified electronic health record technology [1].

To facilitate the development and approval of new PFPMs, MACRA called for the creation of the new selfgoverning PTAC [4]. The purpose of the PTAC is to receive and review proposals from physician specialties and other stakeholders for new PFPMs and ultimately make an independent recommendation to CMS regarding whether the proposed new model meets the criteria to be deemed a PFPM. According to the MACRA legislation, the PTAC is made up of 11 members, all appointed by the Comptroller General of the United States [4]. The members are required to be nationally recognized experts in aspects of care delivery relevant to PFPMs. At the time of this writing, the PTAC roster includes seven physicians, two of whom are specialists (namely, an otolaryngologist and an interventional cardiologist) [17]. However, if needed when reviewing proposed models, the PTAC will consult with impartial outside experts without any perceived conflict of interest.

#### IMPLICATIONS FOR RADIOLOGISTS

An important consideration for radiologists and other specialists in CMS's APM proposal is the disparity in physician payment between the MIPS and Advanced APMs. As previously noted, a QP participating in an Advanced APM will receive a 5% bonus in the initial 5 years of the program and a 3-fold higher annual adjustment in subsequent years than the typical MIPS-eligible clinician, all without any budget neutral payment adjustments [1]. Robust opportunities for Advanced APM participation will be particularly important for radiologists in view of the challenging nature of fulfilling the generic MIPS performance measures for specialists. In its feedback to CMS on the initial regulatory framework for the PTAC and PFPM evaluation criteria, the ACR proposed a number of reasons why radiologists are central to value-based care [12]. Given the major role of imaging to potentially achieve better quality and cost savings through the rendering of an early diagnosis, the ACR recognizes the importance of ensuring that radiologists have reasonable opportunity to participate in APMs. However, such opportunity is clearly lacking in the current state based on an insufficient number of disease-based or episode-based APMs. Rather, autonomous participation in many of the most prominent

models, for example accountable care organizations and patient-centered medical homes, is only available to primary care providers. Advanced APMs with potential relevance to radiologists are particularly limited and include CJR and Cardiac Rehabilitation Incentive as of this writing, with the specific role of imaging in the latter remaining undefined.

PFPMs offer a powerful new opportunity for enhancing Advanced APM participation by specialists, including radiologists. In discussions with the public and in keeping with the theoretical underpinnings of MACRA, CMS leadership has indicated the need for specialist groups to drive the development of new PFPMs relevant to their practice [18]. Given the variable nature of radiologists' practices across different sites of service, the ACR indicates the importance of development of multiple PFPMs relevant to radiology to maximize participation APM [12]. Although radiologists as a specialty generally do not have a large degree of experience with APMs at the present, such experience will expand by taking advantage of the mechanism set forth in MACRA for specialties to develop and seek approval of new models appropriate for their practice [19,20].

Of the currently available APMs, the BPCI initiative [14], which addresses payments for multiple services received during a single episode of care, would seem to have the most potential for adaptation into an Advanced APM. In explaining why the three BPCI models recognized as APMs were not also designated as Advanced APMs, CMS indicated that although these models met the financial risk criterion, they did not fulfill the requisite quality metrics or use of certified electronic health record technology [1]. An initial focus for specialists may therefore be to duplicate BPCI-like episodes as the basis for developing PFPMs that include these additional criteria so that they may qualify as Advanced APMs. Although none of the BCPI initiatives are specific to radiology, imaging plays a role in most of the care episodes in the three BCPI models [11,21]. It is thus likely that radiologists are to soon be called upon to participate in these models, and understanding the risk level of participation will be increasingly important. In response to this growing need, the Harvey L. Neiman Health Policy Institute recently developed the publicly available online Inpatient Cost Evaluation Tool to help understand radiologists' contribution to inpatient episodes of care [22]. This tool stands to be a valuable resource for radiologists to assess their financial risk when asked to participate in inpatient bundled care episodes. Radiology-specific APMs are also now being considered, as indicated by a recently proposed financial risk model for breast cancer screening based on analysis of Medicare and private payer claims data [23]. Currently, this model does not include quality and certified electronic health record technology criteria. However, because quality metrics for mammography reporting are used within the MIPS, such metrics, along with the requisite certified electronic health record technology criteria, could easily be incorporated to make this qualify as a PFPM meeting the CMS criteria for an Advanced APM. Similarly, PFPMs models for lung cancer screening and cancer staging and follow-up could be developed based on analyses of Medicare and private payer claims data.

Although encouraged by the implementation of PFPMs and the PTAC, numerous factors beyond radiologists' direct control, occurring both before and after image interpretation, impact patients' health outcomes and costs. In addition, the savings relating to quality imaging may involve reductions in downstream tests and interventions that cannot be immediately captured. Thus, defining radiologists' impact in a meaningful fashion and properly accounting for their specific role in patient care is difficult. Therefore, in developing imaging-related APMs, radiologists will need greater clarity and transparency from CMS regarding how it intends to attribute outcomes and costs to specialists, including radiologists [12].

The current composition of the PTAC, which will review proposed new PFPMs, is a concern for radiologists and other specialists [18,24]. Physician representation on the PTAC is primarily from primary care physicians and policy experts, with only two specialties represented (both nonradiologists). Therefore, it is unclear whether the PTAC has the medical knowledge and technical expertise to appropriately evaluate specialty APMs. Numerous specialties have urged the PTAC to deem inclusion of a content expert to be a requirement, whether at a specialty or even a subspecialty level. Unfortunately, in response, the PTAC indicated it would not be feasible to include consultants covering the full range of expertise relevant to all proposals and it does not intend to do so moving forward [25]. Rather, the PTAC will assess whether the relevant specialties were involved in the proposal's development and provided their support. Nonetheless, radiologists have four representatives, including two coauthors on this article (GN and JH) on the CMS MACRA Episode Care Groups and Resource Use Measures Clinical Committee [26], which will hopefully play a pivotal role in advising the PTAC on proposed PFPMs. Also, rather than allowing proposed PFPMS to be purely conceptual in nature, the CMS criteria require that applicants provide a data-driven quantitative estimate of the proposed PFPM's impact on spending. However, it is likely that the appropriate data will be difficult or impossible to attain in many cases, particularly given that PFPMs by definition implement novel approaches to care delivery and payment. This concern is indeed likely to apply to PFPMs in radiology given the lack of robust data linking imaging with downstream outcomes and costs, such that the development of PFPMs defines an imperative for future health services research in radiology. When existing outcomes data are truly insufficient, the PTAC may allow decision making informed by initial small-scale testing to yield relevant data regarding implementing the PFPM on a larger scale [25]; applicant stakeholders, in conjunction with health services researchers, should take advantage of this unique opportunity when available.

The advent of specialty-driven PFPMs, as well as of the PTAC to guide their development and approval, provides a compelling opportunity for radiologists to demonstrate and be rewarded for their unique contributions toward patient care. Nonetheless, effective PFPMs will require creativity, innovation, and collaboration on the part of their developers. Radiologists should welcome this new model and actively partner with CMS, the public, and other stakeholders in designing radiology-relevant PFPMs. By embracing the transformations in care delivery afforded by APMs, and PFPMs in particular, radiologists will be positioned to contribute to higher-quality care, cost savings, and improved population health.

# TAKE-HOME POINTS

- The MACRA legislation of 2015 describes alternative payment models (APMs) as new approaches to paying for medical care that incentivize higher quality and value; MACRA incentivizes increasing participation in APMs by all physician specialties over the coming years.
- A fraction of APMs will meet criteria to be deemed an Advanced APM; clinicians who are a Qualifying Professional in an Advanced APM will receive substantial benefits under MACRA, including an

- automatic 5% payment bonus regardless of their performance and savings within the APM, as well as a larger increase in fee schedule payment rates beginning in 2026.
- Existing APMs meeting the criteria to be Advanced APMs are most relevant to primary care physicians, with relatively limited opportunity at present for radiologist participation.
- PFPMs are APMs that target the quality and cost of physician services and must address a new issue or specialty compared with existing APMs; PFPMs are intended to foster a much more diverse range of APMs that encompass a wider range of specialties.
- The PTAC is an independent agency that will review proposals for new PFPMs and provide a recommendation to CMS regarding their approval; of concern, the PTAC comprises largely primary care physicians and health policy experts and is not required to consult with experts when reviewing specialist-proposed new PFPMs.
- Because PFPMs provide a compelling opportunity for radiologists to demonstrate and be rewarded for their unique contributions toward patient care, radiologists should embrace this new model and actively partner with other stakeholders, including health services researchers, in developing radiologyrelevant PFPMs.

# **REFERENCES**

- Department of Health and Human Services. Center for Medicare & Medicaid Services. Federal Register 81:28161-6. 42 CFR Parts 414 and 495. Medicare Program; Merit-Based Incentive Payment System (MIPS) and Alternative Payment Model (APM) Incentive Under the Physician Fee Schedule, and Criteria for Physician Focused Payment Models. Available at: <a href="https://www.gpo.gov/fdsys/pkg/FR-2016-05-09/pdf/2016-10032.pdf">https://www.gpo.gov/fdsys/pkg/FR-2016-05-09/pdf/2016-10032.pdf</a>. Released April 25, 2016. Accessed August 20, 2016.
- Burwell SM. Setting value-based payment goals—HHS efforts to improve U.S. health care. N Engl J Med 2015;372:897-9.
- Hirsch JA, Leslie-Mazwi TM, Barr RM, et al. The Burwell roadmap. J Neurointerv Surg 2016;8:544-6.
- United States Congress. H.R.2—Medicare Access and CHIP Reauthorization Act of 2015. Available at: https://www.congress.gov/ bill/114th-congress/house-bill/2/text. Accessed August 20, 2016.
- Hirsch JA, Harvey HB, Barr RM, et al. Sustainable growth rate repealed, MACRA revealed: historical context and analysis of recent changes in Medicare physician payment methodologies. AJNR Am J Neuroradiol 2016;37:210-4.
- **6.** Hirsch JA, Leslie-Mazwi TM, Patel AB, et al. MACRA: background, opportunities and challenges for the neurointerventional specialist. J Neurointerv Surg 2016;8:868-74.
- Rosenkrantz AB, Nicola G, Allen B Jr, Hughes DR, Hirsch JA. MACRA, MIPS, and the New Medicare Quality Payment Program: an update for radiologists. J Am Coll Radiol. 2016 Dec 21 [Epub ahead of print].

- 8. Lampton LM. Bye-bye SGR, hello MACRA and MIPS. J Miss State Med Assoc 2015;56:118.
- **9.** Manchikanti L, Staats PS, Boswell MV, Hirsch JA. Analysis of the carrot and stick policy of repeal of the sustainable growth rate formula: the good, the bad, and the ugly. Pain Physician 2015;18:E273-92.
- Manchikanti L, Hammer M, Benyamin RM, Hirsch JA. Physician Quality Reporting System (PQRS) for interventional pain management practices: challenges and opportunities. Pain Physician 2016;19: E15-32.
- Silva E 3rd, McGinty GB, Hughes DR, Duszak R Jr. Alternative payment models in radiology: the legislative and regulatory roadmap for reform. J Am Coll Radiol 2016;13:1171-5.
- 12. American College of Radiology. Letter to Andrew Slavitt, Center for Medicare & Medicaid Services, Department of Health and Human Services. RE: Medicare Program; Merit-Based Incentive Payment System (MIPS) and Alternative Payment Model (APM) Incentive under the Physician Fee Schedule, and Criteria for Physician Focused Payment Models. June 24, 2016. Available at: http://www.acr.org/~/media/ACR/Documents/PDF/Economics/ACR%20MACRA%20MIPS%20 APMs%20Proposed%20Rule%20Comment%20Letter%20June%2029 %202016\_Final(2).pdf. Accessed August 19, 2016.
- 13. Department of Health and Human Services. Center for Medicare & Medicaid Services. Federal Register 81:28161-6. 42 CFR Parts 510 and 512. Medicare Program; Advancing Care Coordination Through Episode Payment Models (EPMs); Cardiac Rehabilitation Incentive Payment Model; and Changes to the Comprehensive Care for Joint Replacement Model (CJR); Proposed Rule. Released August 2, 2016. Available at: https://www.gpo.gov/fdsys/pkg/FR-2016-08-02/pdf/2016-17733.pdf. Accessed September 25, 2016.
- 14. Hirsch JA, Leslie-Mazwi TM, Barr RM, et al. The Bundled Payments for Care Improvement Initiative. J Neurointerv Surg 2016;8:547-8.
- Meehan TM, Harvey HB, Duszak R Jr, et al. Accountable Care Organizations: what they mean for the country and for neurointerventionalists. J Neurointerv Surg 2016;8:654-7.
- 16. Assistant Secretary for Planning and Evaluation. US Department of Health and Human Services. Physician–Focused Payment Model (PFPM) Proposal Information Requirements Draft for Public Comment. Available at: https://aspe.hhs.gov/sites/default/files/pdf/207 081/ProposalRequirements.pdf. Accessed September 23, 2016.
- 17. Assistant Secretary for Planning and Evaluation. US Department of Health and Human Services. Members: Physician-Focused Payment Model Technical Advisory Committee. Updated February 1, 2016. Available at: https://aspe.hhs.gov/members-physician-focused-payment-model-technical-advisory-committee. Accessed September 23, 2016.
- 18. Assistant Secretary for Planning and Evaluation. US Department of Health and Human Services. Physician-Focused Payment Model Technical Advisory Committee (PTAC) Meeting. Public Meeting. May 4, 2016. Available at: https://aspe.hhs.gov/sites/default/files/pdf/ 205391/minutes4may2016.pdf. Accessed September 23, 2016.
- **19.** Rosman DA, Farinhas J, Kassing P, Pattie LN, McGinty G. Radiology in pioneer accountable care organizations: much ado about nothing? J Am Coll Radiol 2015;12:124-6.
- Rosman DA, Farinhas JM, Ullrich CG, McGinty G. Accountable care organizations: is the radiologist at risk? J Am Coll Radiol 2013;10: 645-6.
- **21.** Seidenwurm D, Lexa FJ. A radiologist's primer on bundles and care episodes. J Am Coll Radiol 2016;13:1029-31.
- 22. Harvey L. Neiman Health Policy Institute. ICE-T Inpatient Cost Evaluation Tool. Available at: http://www.neimanhpi.org/ice-t/?activeView=index&drgList=. Accessed September 29, 2016.
- 23. Hughes DR, Jiang M, McGinty G, Shetty SK, Duszak R. An empirical framework for breast screening bundled payments. J Am Coll Radiol 2016 Aug 17 [Epub ahead of print].
- 24. Assistant Secretary for Planning and Evaluation. US Department of Health and Human Services. Physician-Focused Payment Model

- Technical Advisory Committee (PTAC). Meeting Summary. February 1, 2016. Available at: https://aspe.hhs.gov/sites/default/files/pdf/189846/PTACPublicMtg.pdf. Accessed: September 23, 2016.
- 25. Assistant Secretary for Planning and Evaluation. US Department of Health and Human Services. Physician-Focused Payment Model Technical Advisory Committee Response to Public Comments on Proposal Review Process. Version 6.0. July 2016. Available at: https://aspe.hhs.
- gov/sites/default/files/pdf/206731/PTACResponseToComments.pdf. Accessed September 23, 2016.
- 26. American College of Radiology. ACR Members Appointed to Key CMS MACRA Committee. July 29, 2016. Available at: http://www.acr.org/News-Publications/News/News-Articles/2016/Economics/20160729-ACR-Members-Appointed-to-Key-CMS-MACRA-Committee. Accessed September 29, 2016.



Credits awarded for this enduring activity are designated "SA-CME" by the American Board of Radiology (ABR) and qualify toward fulfilling requirements for Maintenance of Certification (MOC) Part II: Lifelong Learning and Self-assessment. Scan the QR code to access the SA-CME activity or visit http://bit.ly/ACRSACME.