**Health Policy Review** 

# Proposed Medicare Physician Payment Schedule for 2017: Impact on Interventional Pain Management Practices

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The Centers for Medicare and Medicaid Services (CMS) released the proposed 2017 Medicare physician fee schedule on July 7, 2016, addressing Medicare payments for physicians providing services either in an office or facility setting, which also includes payments for office expenses and quality provisions for physicians. This proposed rule occurs in the context of numerous policy changes, most notably related to the Medicare Access & CHIP Reauthorization Act of 2015 (MACRA) and its Merit-Based Incentive Payment System (MIPS). The proposed rule affects interventional pain management specialists in reimbursement for evaluation and management services, as well as procedures performed in a facility or in-office setting.

Changes in the proposed fee schedule impacting interventional pain management practices include adjustments to the meaningful use (MU) program, care management in patient-centered services, identification and review of potentially misvalued services, evaluation of moderate sedation services, Medicare telehealth services, updated geographic practice cost index, data collection on resources used in furnishing global services, reporting of modifier 25 for zero day global services, Medicare Advantage Part C provider and supplier enrollment, appropriate use criteria (AUC) for advanced imaging services, and Medicare shared savings programs.

The proposed schedule has provided rates for new epidural codes with or without imaging (fluoroscopy or computed tomography [CT]) and a fee schedule for a new code covering endoscopic spinal decompression. Review of payment rates show major discrepancies in payment schedules with high payments for hospitals, 2,156% higher than in-office procedures. Some procedures which were converted from in-office settings to ambulatory surgery centers (ASCs) are being reimbursed at 1,366% higher than ASCs. The Medicare Payment Advisory Commission (MedPAC) recommendation on avoiding the discrepancies and site-of-service differentials in in-office settings, hospital outpatient settings, and ASCs has not been agreed to by CMS. Thus, even though the changes appear to be minor in physician services and in-office service payment, these changes cumulatively have been reducing payments for interventional procedures. Further, in-office reimbursement is overall significantly lower than ASCs and hospital outpatient departments (HOPDs) specifically for intraarticular injections, peripheral nerve blocks, and peripheral neurolytic injections. The significant advantage also continues for hospitals in their reimbursement for facility fee for evaluation and management services.

This health policy review describes various issues related to health care expenses, health care reform, and finally its effects on physician payments for all services and also for the services provided in an office setting.

**Key words:** Physician payment policy, physician fee schedule, Medicare, Merit-Based Incentive Payment System, interventional pain management, regulatory tsunami, Medicare Access and CHIP Reauthorization Act of 2015

#### Pain Physician 2016; 19:E935-E955

Centers for Medicare and Medicaid he Services (CMS) released its proposed 2017 Medicare physician fee schedule on July 7, 2016, addressing Medicare payment and quality provisions for physicians (1). At the same time, the Obama administration has declared the success of the Patient Protection and Affordable Care Act (ACA) with significant progress towards solving longstanding challenges facing the U.S. health care system related to access, affordability, and quality of care (2). This sentiment has been echoed by multiple authors, but has also come with some dissent (3-6). At the same time, the regulatory atmosphere continues to increase, creating fatigue for physicians and posing specific challenges for independent practices. The Merit-Based Incentive Payment System (MIPS) will be the predominant payment mechanism for interventional pain management doctors and failure to optimize regulatory compliance may lead to fines potentially for over 70% of practicing physicians. This regulatory atmosphere and resultant expense will continue to push independent practitioners into larger hospital systems and networks managed by insurers, without showing any real improvement in quality, access, or affordability (7-38). This is manifested by continued high national health care spending surpassing \$3 trillion or \$9,523 per person in 2014 up from \$8,508 in 2011, reflecting 17.5% of gross domestic product (GDP) in 2014 (24,25,39). At the same time, the ranking of health care quality in the United States among peer countries internationally has declined from fifth in 2004 to eleventh in 2014, with escalating physician dissatisfaction and regulatory fatigue (24,25,39,40-44). Further, health care services utilization continues to increase in the United States in general and for interventional techniques in particular (24, 39, 45, 46)

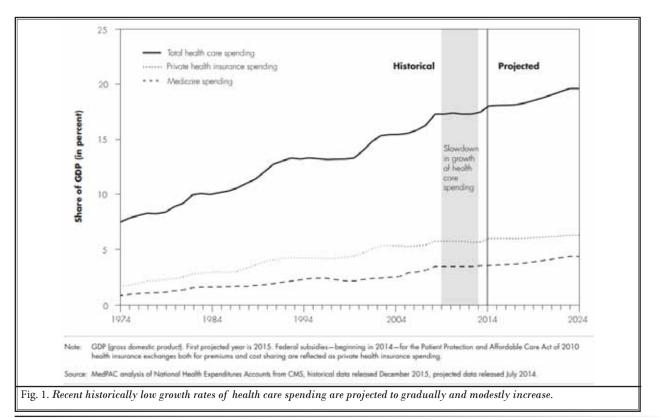
In a press release dated July 6, 2016, CMS stated that they are proposing a number of new physician fee schedule policies that will improve Medicare payment for those services provided by primary care physicians for patients with multiple chronic conditions, mental and behavioral health issues, cognition impairment or morbidity-related disabilities (47). The proposed policy affects interventional pain management's reimbursement for evaluation and management services, procedures performed in office settings, evaluation of moderate sedation services, and assessment of misvalued codes, and provides the release of new codes with new payment rates for multiple procedures. In addition, multiple changes made for Medicare Advantage plans also affect interventional pain physicians. This law also updates Medicare's physician conversion factor for the fee schedule by 0.5% in 2017. However, complicated calculations and formulas actually result in a reduction from \$35.8043 to \$35.7751.

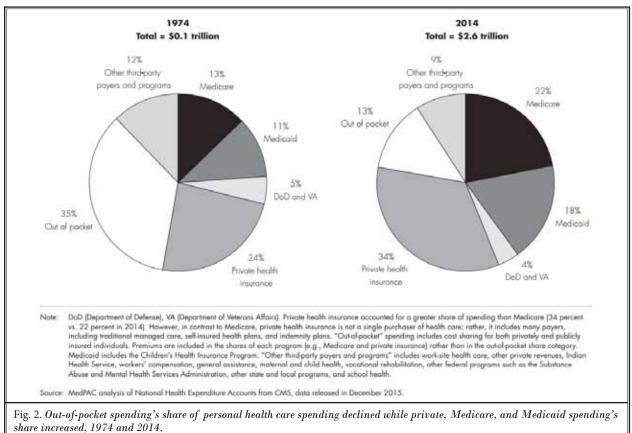
# BACKGROUND

Expenses for physician and other health professional services from Part B is one of the major items for Medicare and other health care services. Interventional pain physicians deliver a wide range of services, including office visits, interventional and surgical procedures, and diagnostic and therapeutic services in an office, ambulatory surgery center (ASC), or hospital inpatient and outpatient department (24). Medicare Payment Advisory Commission (MedPAC) data show that in 2014, 576,000 physicians and 315,000 nurse practitioners, physician assistants, therapists, chiropractors, and other practitioners billed Medicare \$69.2 billion, accounting for 16% of fee-for-service (FFS) Medicare spending in the U.S.

For decades, health care spending has risen as a share of GDP, but in the recent past, its growth rate slowed until 2014 when it rose again (24). The trend appears to be true for private health care spending and Medicare as shown in Fig. 1. From 1974 to 2014, health care spending as a share of GDP more than doubled, from 7.5% to 17.5%. Overall, national health care spending reached \$3.0 trillion with a health care expense per person of \$9,523 in 2014 (24). Medicare spending as a share of GDP quadrupled from 1974 to 2014 from 0.9% to 3.5%, whereas, private spending tripled from 1.7% to 5.8%. In 2014, Medicare covered 54 million people and government actuaries estimated that Medicaid covered about 65 million people. In addition, private health insurance covered 171 million people under the age of 65, and 36 million people were uninsured. Enrollment in Medicare, Medicaid, and private health insurance has increased due to the aging of the baby-boom generation and the enactment of ACA (2). During this period, the out of pocket share of personal health care spending declined while the private insurers', Medicare's, and Medicaid's share increased from 1974. Figure 2 shows the share of this spending in 1974 and 2014.

Claims of reducing out-of-pocket spending, increasing coverage, increasing quality as provided by the ACA (2-6) may not be accurate considering that out-of-pocket expenses have been significantly higher under the ACA with deductibles as high as \$13,000

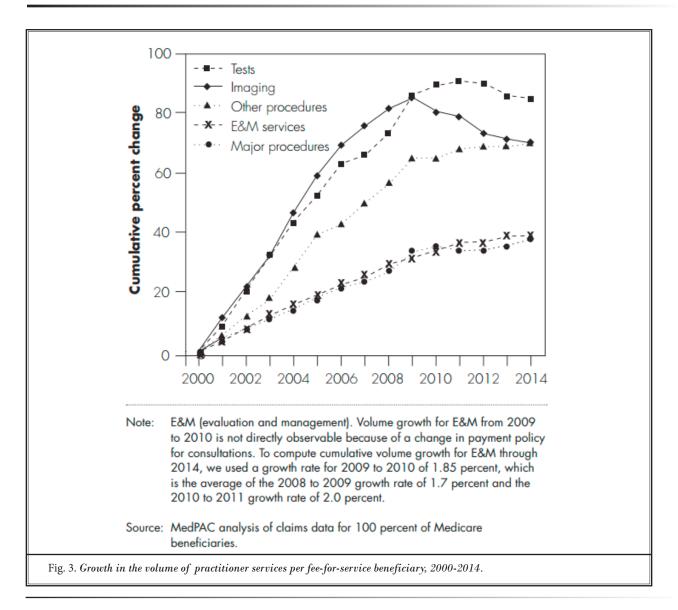




per family.In fact, the Health Care Cost Institute has demonstrated that out-of-pocket spending in 2013, accounted for 16.4% of health care spending per individual covered by employer-sponsored insurance, with an increase of 4% from the previous year to \$800 per capita (48). Further, the reductions in the health care expenditures and reductions in out-of-pocket expenses may indicate omitting of health care rather than improvement. For some, premium rates have continued to increase at an unaffordable rate with high deductibles and reduced coverage options (16). In addition, health spending growth in the United States also has been projected to average 5.8% for 2014 to 2024, with increasing growth rates in the use of medical goods and services, as well as medical prices, reversing the trend from a recent historically low growth rate (49). An analysis published recently in Medical Economics has given the ACA an "F" rating based on a survey of its editorial advisory board, a 200 member reader panel comprised of physician readers nationwide, and Medical Economics e-newsletter subscribers grading the various elements based on their own experiences. The survey uniformly provided an "F" rating for the Medicare bonus for primary care services, the lack of increased coverage through health care insurance exchanges, narrow networks, the role of Accountable Care Organizations (ACOs), and the much anticipated outcomes-based reimbursement to improve quality and reduce cost with increased access. Similar "F" ratings were given for Medicaid/Medicare parity, widely published physician ratings via the physician compare website, and, the primary focus of affordable care with improving quality access and reducing cost with expansion of health information technology (IT) (15). Health care insurance exchanges have been responsible for enrolling many Americans, but the launch of the federal exchanges was marred by computer problems that undermined early enrollment, and some states completely botched the role out of their exchanges. Even though coverage is now more available because of the exchanges, affordability remains a problem for many. Premiums on the exchanges increased more in 2016 than in 2015 and are expected to increase even further in 2017. Due to high deductibles and restricted coverage from narrow networks, access has been affected (15,16,48). Finally, exchanges may have been unable to make profits because they attracted a large percentage of sick people and a very small percentage of healthy people. To combat this effect, the ACA authorized risk corridors to help stabilize costs for insurers by offsetting high losses and sharing in large profits, but these will end in 2016. Even then, multiple insurers have dropped out of the market citing losses (16).

ACOs have been promoted as the future of the health care, specifically under a merit-based health payment system with advanced alternate payment models, though participation continues to be voluntary (33-38,50-61). As many as 450 ACOs across the country, serving more than almost 80 million beneficiaries, have been initiated through 2016 (38,50,54). CMS initiated a pioneer ACO model in January 2012 to support organizations that already had experience operating an ACO. However, only 9 pioneer participants remained after others dropped out of the program. Based on a 2015 CMS report (56), among ACOs that entered the program in 2014, only 19% generated shared savings, compared with 27% of those that entered in 2013 and 37% that entered in 2012. Further, the savings of ACOs have been meager with \$34 per participant (38,50,54). Similarly, outcomes-based reimbursement has also had challenges with reporting fatigue of meaningful use, Physician Quality Reporting System (PQRS), and valuebased payment, among others. Medicaid and Medicare parity also has failed (15,20-24,38,53,57). Further, physician ratings via the physician compare website have been marred with errors and misinformation. Finally, expansion of health IT, a major focus of the ACA, continues to result in physician dissatisfaction, loss of patient-physician contact, and overall failure of expansion of health IT (15,20-24,38,53,57).

The Trustees and Congressional Budget Office (CBO) project Medicare annual spending to reach \$1 trillion within the next 10 years. Overall, 23% of the health care expenditures were allocated to physician and clinical services with Medicare and private insurance at the same level. Health care spending has been straining not only the federal budget, but also state and personal budgets. However, growth in the volume of practitioner services for FFS beneficiary from 2013 to 2014 as shown in Fig. 3 was small. Between 2013 and 2014, across all services, volume per beneficiary grew by 0.4%. Growth rates were 0.3% for evaluation and management services, -1.1% for imaging services, 1.4% for major procedures, 0.8% for other procedures, and 0.6% for tests. MedPAC has repeatedly stated that volume growth, however, is sensitive to shifts in the site of care. Migration of services to hospitals increases the costs in line with other services. Interventional pain management services also decreased 1.2% per 100,000 Medi-



care population from 2013 to 2014. In fact, as shown in Table 1 and Fig. 4, interventional pain management decreased from 2011 onwards with 1.3%, 3.4%, and, finally, 1.2% (45,46).

# CHANGES IN PROPOSED FEE SCHEDULE

Multiple provisions made in the proposed fee schedule include the following (1,47):

- Changes to the meaningful use (MU) program
- Improving payment accuracy for primary care
- Care management and patient-centered services
- Identification and review of potentially misvalued services

- Evaluation of moderate sedation services
- Medicare telehealth services, payment for mammography services
- Updated geographic practice cost index
- Data collection on resources used in furnishing global services
- Reporting of evaluation and management services with modifier -25 for 0 day global services
- Medicare Advantage Part C provider and supplier enrollment
- AUC for advanced imaging services
- Medicare shared savings program

	Epidural and adhesiolysis procedures		interventions	acet joint Disc Procedures entions and SI int blocks nerve blocks			-					
	Services (Facility %)	Rate	Services (Facility %)	Rate	Services (Facility %)	Rate	Services (Facility %)	% of Change in services	Rate	% of Change in Rate		
2000	860,787 (79%)	2,172	424,796 (67%)	1,072	183,912 (87%)	464	1,469,495 (72%)		3,708			
2001	1,013,552 (78%)	2,531	543,509 (62%)	1,357	203,395 (87%)	508	1,760,456 (69%)	19.8%	4,396	18.6%		
2002	1,199,324 (74%)	2,961	708,186 (58%)	1,748	275,542 (81%)	680	2,183,052 (64%)	24.0%	5,390	22.6%		
2003	1,370,862 (71%)	3,333	884,035 (53%)	2,150	304,426 (80%)	740	2,559,323 (60%)	17.2%	6,223	15.5%		
2004	1,637,494 (65%)	3,924	1,354,242 (46%)	3,245	343,311 (79%)	823	3,335,047 (54%)	30.3%	7,992	28.4%		
2005	1,776,153 (65%)	4,180	1,501,222 (47%)	3,533	383,324 (78%)	902	3,660,699 (54%)	9.8%	8,614	7.8%		
2006	1,870,440 (63%)	4,316	1,896,688 (40%)	4,376	378,996 (75%)	874	4,146,124 (49%)	13.3%	9,567	11.1%		
2007	1,940,454 (62%)	4,384	1,820,695 (46%)	4,113	349,978 (73%)	791	4,111,127 (52%)	-0.8%	9,288	-2.9%		
2008	2,041,155 (61%)	4,495	1,974,999 (46%)	4,349	417,257 (70%	919	4,433,411 (51%)	7.8%	9,763	5.1%		
2009	2,136,035 (59%)	4,664	2,111,700 (46%)	4,611	397,944 (69%)	869	4,645,679 (49%)	4.8%	10,143	3.9%		
2010	2,226,486 (57%)	4,746	1,937,582 (48%)	4,130	414,909 (62%)	884	4,578,977 (52%)	-1.4%	9,760	-3.8%		
2011	2,309,906 (58%)	4,782	2,064,227 (50%)	4,274	441,540 (61%)	914	4,815,673 (48%)	5.2%	9,970	2.2%		
2012	2,324,563 (58%)	4,621	2,159,057 (50%)	4,292	464,354 (57%)	923	4,947,974 (53%)	2.7%	9,837	-1.3%		
2013	2,278,790 (58%)	4,391	2,197,766 (51%)	4,235	456,394 (51%)	879	4,932,950 (53%)	-0.3%	9,505	-3.4%		
2014	2,273,104 (57%)	4,249	2,370,000 (50%)	4,430	382,800 (47%)	716	5,025,904 (52%)	1.9%	9,394	-1.2%		
Change	165%	96%	458%	313%	108%	54%	242%		153%			
Average	7.2%	4.9%	13.1%	10.7%	5.4%	3.1%	9.2%		6.9%			

Table 1. Utilization/frequency of interventional techniques in the fee-for-service Medicare population from 2000 to 2014

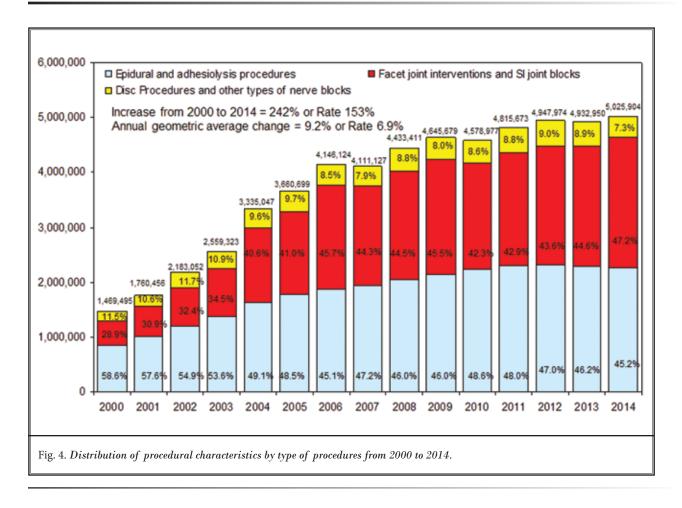
Rate - IPM services per 100,000 Medicare Beneficiaries

\*(Excluding continuous epidurals, intraarticular injections, trigger point and ligament injections, peripheral nerve blocks, vertebral augmentation procedures, and implantables)

# **Changes to Meaningful Use Program**

CMS has proposed changes to the MU program which are intended to relieve physician reporting burdens. These changes include reducing the 2016 reporting period to 90 days. However, these changes were not proposed in the physician payment rule, but they were proposed in the hospital Outpatient Prospective Payment System (OPPS) (58). However, the rule does not make any changes to the PQRS reporting period. Consequently, if a clinician is using clinical quality measures to satisfy PQRS reporting and MU together, clinical quality measures for a full calendar year must be reported.

Further, the MU program has been converted to the advanced care information category under MIPS starting with the 2017 performance year and 2019 payment year (10,11).



# Improving Payment Accuracy for Certain Services

CMS has proposed several revisions to the physician fee schedule billing code set to more accurately recognize the work of primary care and other cognitive specialties to accommodate the changing needs of the Medicare patient population. Historically, care management and cognitive work have been "bundled" into the visit codes used by specialties. This has meant that payment for these services has been distributed equally among all specialties that report visit codes, instead of being targeted towards practitioners who manage care and primary provider cognition services. Thus, to improve payment accuracy for such care, CMS created new codes that separately pay for chronic care management and transitional care management services. The new codes and payment changes could improve health care delivery for the types of services holding the most promise for healthier people and smarter spending, and advance health equity goals.

The relevance of this change may apply only for few interventional pain physicians providing care management and patient-centered services.

#### **Review of Potentially Misvalued Services**

CMS periodically identifies potentially misvalued services and reviews them to make appropriate adjustments to the relative values for those services (62). Congress set a target for adjustments to misvalued codes in the fee schedules for 2016, 2017, and 2018. The target was 1% for 2016 and will be 0.5% for 2017 and 2018. In the proposed rule, CMS has suggested misvalued code changes that would achieve 0.51% in net expenditure reductions.

The codes relevant to interventional pain physicians identified as misvalued for 2017 include the following:

- CPT 64461-64463 paravertebral blocks
- CPT 64553-64566 describing percutaneous implantation of neurostimulator electrodes of cranial nerves, peripheral nerve, and posterior tibial neurostimulation

 CPT 77002 – fluoroscopic guidance for needle placement (e.g., biopsy, aspiration, injection, localization device)

#### **Moderate Sedation Services**

Moderate sedation services are utilized in interventional pain management; however, CMS is concentrating on gastrointestinal endoscopic procedures. CMS has noted that practice patterns for certain endoscopic procedures were changing, with anesthesia increasingly being separately reported for these procedures even though payment for sedation services was automatically included in payment with the physician furnishing the primary procedure.

However, in response to CMS' request in prior rule making, the American Medical Association (AMA) Current Procedural Terminology (CPT) Editorial Panel created separate codes for reporting moderate sedation, and the specialty society relative value update committee provided CMS with recommended values for the moderate sedation codes and recommended adjustments to evaluation of the procedure codes (63,64). The 2017 proposed rule has shown values for the new CPT moderate sedation codes and a uniform methodology for evaluation of the procedural codes that currently include moderate sedation as an inherent part of the procedure. Further, CMS is also proposing to augment the new moderate sedation CPT codes with an endoscopy specific moderate sedation code, and proposing evaluation reflecting the difference in physician survey data between gastroenterology and other specialties.

While many physicians utilize conscious sedation or moderate sedation, only a few physicians charge for these services. However, it is also important to review the policies in local coverage determinations (LCDs) in reference to moderate sedation services.

# **Medicare Telehealth Services**

CMS has proposed to add several codes to the list of services eligible to be furnished via telehealth. These include:

- Advanced care planning services
- Critical care consultations furnished via telehealth using new Medicare G codes
- End stage renal disease related services for dialysis

The practical applications of these codes for interventional pain physicians may be minimal.

#### **Payment for Mammography Services**

While not relevant for interventional pain physicians, mammography services are utilized by many of the patients in interventional pain management.

#### **Geographic Practice Cost Index for 2017**

CMS adjusts payments each year to reflect local differences in practice costs using geographic practice cost index (GPCI) for each component of physician payment which includes physician work, practice expense, and professional liability insurance. CMS is proposing a new GPCI using updated data to be phased in over 2017 and 2018. In addition, CMS is also proposing to review the methodology used to calculate GPCIs in the U.S. territories for consistency among Pacific and Caribbean islands. This proposed revision would increase overall payment rates in Puerto Rico. CMS provided new locality definitions for California based on a combination of metropolitan statistical areas as defined by the Office of Management and Budget and current local structure. The California locality provision is not budget neutral, essentially increasing payments to physicians in California in the aggregate without across the board reductions in physician services elsewhere.

# Data Collection on Resources Used in Furnishing Global Services

CMS also has proposed, under the misvalued code initiative in the 2015 final rule a policy to transform all 10 and 90-day global codes to 0-day global codes, beginning 2018. Under this policy, CMS would have valued the surgery or procedure to include all services furnished on the day of surgery and paid separately for visits and services furnished after the day of the procedure. However, the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) (8-10,65) prohibited CMS from implementing this policy and required the agency to gather data on visits in the postsurgical period that could be used to accurately value the services. Consequently, CMS has proposed a data collection strategy, including claims-based data collection and a survey of 5,000 practitioners to gather data on activities and resources involved in furnishing these services.

# Evaluation and Management Services with Modifier -25

CMS has observed that several high volume procedure codes are typically reported with a modifier that unbundles payment for visits from the procedure, even though modifiers should only be used for reporting services beyond those usually provided. As such, CMS proposes that these services may be misvalued and is proposing to prioritize 83 services for review as potentially misvalued.

Among the 83 services considered as potentially misvalued utilizing evaluation and management services with modifier 25 with zero day global period, codes of interest to interventional pain physicians include those related to injections of tendon sheath ligaments and intraarticular injections CPT codes 20526-20612.

#### **Medicare Advantage Programs**

CMS has proposed multiple changes to Medicare Advantage programs and suppliers in reference to enrollment, Medicare Advantage data transparency, Medicare Advantage bid pricing data, and medical loss ratio data.

# Appropriate Use Criteria for Advanced Imaging Services

CMS established the first of the 4 components of Section 218 (B) of the Protecting Access to Medicare Act of 2014 (PAMA) which established a new program under the statue for FFS Medicare to promote the use of AUC for advanced diagnostic imaging services in the 2016 physician fee schedule final rule focusing on requiring an evidence-based transparent process for developing AUC (66). AUC under this program may only be developed by qualified provider-led entities. In the 2017 proposed rule, 2014 PAMA (67) focuses on the next component of the Medicare AUC program and includes proposals for priority clinical areas, clinical decision support mechanism (CDSM) requirements, the CDSM application process, and exceptions for ordering professionals for whom consultation with AUC would pose a significant hardship. CDSMs are the electronic tools through which a clinician consults AUC to determine the level of clinical appropriateness for an advanced diagnostic imaging service for that particular patient's clinical scenario. CMS also has indicated that in this proposed rule, the third component of the program which includes ordering, professionals must begin consulting CDSMs and furnishing professionals must append AUC related information to the Medicare claim, and that this proposed rule will not begin earlier than January 1, 2018.

Multiple criteria have been developed in MIPS concerning AUC for advanced imaging services.

### **Medicare Shared Savings Program**

The Medicare shared savings program was established to promote accountability for a patient population, coordinate items and services under Part A and B, and encourage investment in infrastructure and redesigned care processes for high quality and efficient service delivery through provider and supplier participation in ACOs. The proposed physician fee rule includes multiple proposed policies specific to certain sections of the shared saving program regulations.

- Updates to ACO quality reporting include changes to the quality measure set and the quality validation audit, revisions to terminology used in quality assessment, revisions that would permit eligible professionals in ACOs to report quality apart from the ACO, and updates to align with the PQRS and the proposed quality program.
- Modifications are suggested to the assignment algorithm to align beneficiaries to an ACO when a beneficiary has designated an ACO professional as responsible for the overall care.
- Establishing beneficiary protection policies related to use of the SNF-3-day waiver.
- Technical changes to certain rules related to merged and acquired tax identification numbers and for reconciliation of ACOs that fall below 5,000 beneficiaries, and other program refinements.

#### PROPOSED SCHEDULE FOR INTERVENTIONAL PAIN MANAGEMENT SERVICES

The proposed schedule for interventional pain management procedures provides a conversion rate of \$35.7751, a 0.15% reduction from \$35.8043 in 2015 in the final rule for 2016 (1,66). The physician payment schedule is a mixed bag for interventional pain management. As expected, the codes for epidural injections with and without fluoroscopy have been issued.

Table 2 shows the proposed physician payment schedule for top codes for interventional procedures. An extended schedule is available on the ASIPP website under physician fee schedules (www.asipp.org/ documents/Physicians2017Proposed.pdf). Table 3 shows payment and comparative evaluation in hospital outpatient department (HOPD), ASC, and in-office settings.

Based on available literature (45,46,68,69), an overwhelming majority of the interventional techniques are performed in outpatient settings, either in physician's offices, HOPDs, or ASCs. In fact, in 2012 MedPAC recommended that if the same service can be safely provided in different settings, a prudent purchaser should not pay more for that service in one setting than in another (70,71). MedPAC was also concerned that payment violations across settings may encourage arrangements among providers that result in care being provided in higher paying settings, thereby increasing the total Medicare spending and beneficiary cost sharing. This concern was reinforced by the Office of Inspector General (OIG) of Health and Human Services (HHS) (72). Data from MedPAC has shown significant increases in HOPD payments compared to freestanding offices or ASCs (70). It now also appears that there is a reversal of the site of services utilization with HOPDs dominating and hospitals acquiring physician practices (70-72). Based on multiple regulations related to the ACA, ACOs, and MIPS, services will be migrating to HOPDs. The majority of the interventional pain management procedures in HOPDs are performed outside the surgical suite, whereas the majority of the ASC procedures are performed in surgical suites. Despite these differences, hospitals are reimbursed over 85% more than ASCs for the procedures which are approved for ASCs and as high as 1,366% more for the procedures which are based on the physician payment schedule, except in few circumstances. The differentials for hospital overhead expenses range as high as 2,156% (1,58).

As Tables 2 and 3 show, multiple procedures from CPT 20526 to 20610 involving injections into ligaments and joints and trigger points are expected to be reimbursed for HOPD's at \$231, an increase of 3.3% compared to 2016 and 66% increase compared to 2007. Unfortunately, the same provided as in-office procedures are reimbursed at a rate of \$13 to \$20 with reductions in 2016 as high as 10.3%. These rates are inadequate for these procedures which must be performed in a sterile fashion following the guidance set by the CDC.

CPT 62263 and 62264 have been the subject of comments in the past on multiple occasions. CPT 62263 involving multiple percutaneous epidural adhesiolysis sessions, 2 or 3 days, is performed very infrequently or rarely; whereas, CPT 62264 is commonly performed (73-79). There is a reduction of 1.6% in the fee schedule for physicians. In reference to in-office procedures, there is a significant difference in payment rates for 3-day procedures versus one-day procedures: \$613.54 versus \$425.37 whereas for physicians, it is \$333.07 versus \$244.70. Consequently, this does not represent the actual work involved. A second day injection is performed in an office setting without fluoroscopy, contrast injection, etc.; however, the first procedure with catheter-

ization and repeat injections is the most extensive one This is in contrast to HOPD and ASC payment rates. Further, \$181 reimbursed for a one-day procedure for an in-office facility is inadequate considering the extensive supplies required for this procedure. This procedure was described similar to radiofrequency neurotomy procedures (CPT 64622, 64623, 64626, 64627), and should have very similar reimbursement. Once again, the discrepancy is substantial compared to hospital and ASCs which are \$711 for a hospital setting and \$382.99 for ASC setting. Thus, in-office payments defy the logic utilized by CMS.

The proposal related to new codes for epidural injections is flawed. Four old codes have been converted into 8 new codes. In the past, the payment was the same with and without fluoroscopy, now with a new code for the procedure without fluoroscopy the reimbursement is less. These codes were developed in some ways related to the FDA warnings about epidural steroid injections (80-90). The resultant proposals in CPT, which ASIPP opposed, requires that all procedures must be performed under fluoroscopy with anteroposterior (AP) and lateral views. The vignette that physicians were surveyed on involved a pregnant patient receiving 2 epidurals in the cervical and lumbar spine which has limited application for Medicare patients (59,64,84-90). Epidural injections with steroids are not safe for the fetus and their effectiveness has not been shown at all in pregnant patients with back or neck pain, while their effectiveness has been demonstrated in spinal pain, despite discordant opinions (91-96). In addition, it is rather surprising that in HOPDs continuous epidurals with or without fluoroscopy are reimbursed at a much higher level, \$572.60 versus \$711, which is similar to complicated procedures such as percutaneous adhesiolysis 62264.

ASIPP requested that CMS revise the 99213 \$51.52 payment for physicians' in-office procedures considering that each patient also receives a Level 3 visit prior to performing the procedure if they are performed appropriately. Echoing our feedback at a face to face meeting, ASIPP continues to believe that CMS should delete coverage for without imaging epidural steroid injection codes and increase the coverage for with imaging codes.

A new code and its coverage for endoscopic disc decompression (CPT 630X1) has been published. However, the proposed reimbursement is \$688.31 with relative value units (RVUs) of 9.09. There are multiple discrepancies surrounding this assessment, they are

		2016		2017 Prope	osed	% of change from 2016	
СРТ	Description	Non- Facility	Facility	Non- Facility	Facility	Non- Facility	Facility
20526	Injection, therapeutic, carpal tunnel	\$79.18	\$59.47	\$79.06	\$59.74	-0.15%	0.45%
20550	Tendon sheath, ligament injection	\$60.19	\$42.99	\$54.02	\$40.78	-10.25%	-5.14%
20551	Tendon origin/insertion injection	\$61.98	\$44.07	\$61.18	\$43.29	-1.30%	-1.77%
20552	Single or multiple trigger point(s), one or two muscle group(s)	\$56.25	\$39.05	\$56.17	\$38.99	-0.15%	-0.15%
20553	Single or multiple trigger point(s), three or more muscle groups	\$64.85	\$44.43	\$64.40	\$44.00	-0.70%	-0.95%
20600	Small joint injection	\$48.73	\$36.54	\$48.65	\$36.49	-0.15%	-0.15%
20605	Intermediate joint injection	\$51.23	\$38.34	\$50.44	\$37.92	-1.54%	-1.08%
20610	Major joint injection	\$61.62	\$47.65	\$61.18	\$47.58	-0.73%	-0.15%
22510	Vertebroplasty (Cervicothoracic)	\$1,803.93	\$469.35	\$1,684.65	\$450.05	-6.61%	-4.11%
22511	Vertebroplasty (Lumbosacral)	\$1,786.02	\$440.68	\$1,669.27	\$422.50	-6.54%	-4.13%
22512	Vertebroplasty - Additional	\$1,001.03	\$218.19	\$960.20	\$215.72	-4.08%	-1.13%
22513	Kyphoplasty, thoracic	\$7,504.15	\$560.71	\$7,198.31	\$539.49	-4.08%	-3.78%
22514	Kyphoplasty, lumbar	\$7,495.91	\$522.73	\$7,160.03	\$501.21	-4.48%	-4.12%
22515	Kyphoplasty, Additional	\$4,541.90	\$236.82	\$4,369.21	\$233.61	-3.80%	-1.36%
27093	Injection procedure for HIP arthrography – without anesthesia	\$191.32	\$72.73	\$188.18	\$71.91	-1.64%	-1.13%
27095	Injection procedure for HIP arthrography – with anesthesia	\$247.21	\$85.63	\$245.42	\$85.86	-0.73%	0.27%
27096	Sacroiliac joint, arthrography	\$165.52	\$87.42	\$160.99	\$85.86	-2.74%	-1.78%
62263	Percutaneous epidural adhesiolysis - 2 or 3 days	\$669.98	\$351.47	\$613.54	\$333.07	-8.42%	-5.24%
62264	Percutaneous epidural adhesiolysis – 1 day	\$437.10	\$248.65	\$425.37	\$244.70	-2.68%	-1.59%
62268	Percutaneous aspiration, spinal cord cyst or syrinx	\$157.10	\$269.07	¢ 125.57	\$266.17	2.0070	-1.08%
62269	Biopsy of spinal cord, percutaneous needle		\$280.17		\$274.75		-1.94%
62270	Spinal puncture, diagnostic	\$162.30	\$80.61	\$159.91	\$80.49	-1.47%	-0.15%
62270	Spinal puncture, therapeutic	\$207.44	\$87.06	\$203.20	\$86.58	-2.04%	-0.56%
62273	Epidural, blood patch	\$179.14	\$118.59	\$174.58	\$116.98	-2.54%	-1.35%
62287	Disc decompression	ψ17 <b>9</b> .14	\$589.01	\$174.50	\$588.86	-2.5470	-0.03%
62290	Discography each level: lumbar	\$343.23		\$222.07		-2.96%	-2.14%
62290	Discography each level: C/T		\$179.14 \$176.99	\$333.07	\$175.30		
		\$339.65		\$334.50	\$174.22	-1.52%	-1.56%
62350	Tunneled intrathecal or epidural catheter for long-term medication		\$419.19		\$411.41		-1.85%
62355	Removal or previously implanted intrathecal or epidural catheter		\$275.52		\$275.11		-0.15%
62360	Implant or replacement; subcutaneous reservoir		\$327.11		\$318.76		-2.55%
62361	Implantation or replacement of device for epidural drug infu- sion; non-programmable pump		\$377.63		\$439.32		16.34%
62362	Implant spine infusion pump; programmable pump, including preparation of pump, with or without programming		\$405.21		\$396.75		-2.09%
62365	Remove spine infusion device; programmable pump, including preparation of pump, with or without programming		\$310.27		\$306.95		-1.07%
62367	Electronic analysis of programmable pump	\$42.64	\$26.51	\$41.14	\$25.76	-3.50%	-2.85%
62368	Electronic analysis of programmable pump with reprogramming	\$58.40	\$36.54	\$57.24	\$36.49	-1.99%	-0.15%
623X5	Cervical or Thoracic interlaminar epidural injection(s); without fluoro			\$155.98	\$104.82		
623X6	Cervical or Thoracic interlaminar epidural injection(s); with fluoro			\$238.26	\$113.41		
623X7	Lumbar or caudal epidural injection(s); without fluoro			\$145.25	\$90.87		

Table 2. Proposed physician payment schedule for top codes for interventional procedures.

		2016		2017 Prop	osed	% of char from 201	
СРТ	Description	Non- Facility	Facility	Non- Facility	Facility	Non- Facility	Facility
623X8	Lumbar or caudal interlaminar epidural injection(s); with fluoro			\$233.61	\$103.75		
623X9	Cervical or thoracic continuous epidural Injection(s),; without fluoro			\$137.02	\$95.52		
62X10	Cervical or thoracic continuous epidural Injection(s),; with fluoro			\$211.43	\$110.19		
62X11	Lumbar or caudal continuous epidural Injection(s),; Without fluoro			\$143.82	\$94.09		
62X12	Lumbar or caudal continuous epidural Injection(s),; With fluoro			\$214.65	\$99.81		
630X1	Endoscopic decompression of lumbar spine				\$688.31		
63650	Implant neuroelectrodes	\$1,370.42	\$429.93	\$1,325.83	\$422.50	-3.25%	-1.73%
63655	Implant neuroelectrodes		\$859.87		\$858.96		-0.11%
63661	Remove spine eltrd perq aray	\$596.18	\$333.20	\$589.57	\$331.64	-1.11%	-0.47%
63662	Remove spine eltrd plate		\$872.05		\$867.19		-0.56%
63663	Remove spine eltrd perq aray	\$818.31	\$471.85	\$797.07	\$464.00	-2.60%	-1.66%
63664	Remove spine eltrd plate		\$896.41		\$894.74		-0.19%
63685	Implant neuroreceiver		\$381.21		\$376.71		-1.18%
63688	Revise/remove neuroreceiver		\$383.36		\$382.44		-0.24%
64400	Trigeminal nerve, any division or branch block	\$130.77	\$73.45	\$128.79	\$72.98	-1.52%	-0.63%
64402	Facial nerve block	\$133.64	\$81.33	\$135.95	\$83.00	1.73%	2.05%
64405	Greater occipital nerve block	\$103.54	\$65.21	\$102.32	\$65.11	-1.18%	-0.15%
64408	Vagus nerve block	\$107.48	\$78.46	\$121.28	\$89.44	12.83%	13.99%
64410	Phrenic nerve block	\$128.98	\$73.09	\$137.73	\$77.99	6.79%	6.71%
64412	Spinal accessory nerve block						
64413	Cervical plexus block	\$130.41	\$83.84	\$129.51	\$83.71	-0.70%	-0.15%
64415	Brachial plexus block	\$124.68	\$68.07	\$118.06	\$66.54	-5.31%	-2.25%
64417	Axillary nerve block	\$136.50	\$74.52	\$129.15	\$71.91	-5.39%	-3.51%
64418	Suprascapular nerve block	\$149.04	\$79.18	\$146.32	\$77.99	-1.83%	-1.50%
64420	Intercostal, single block	\$115.72	\$70.58	\$111.98	\$69.40	-3.24%	-1.67%
64421	Intercostal, multiple, nerve block	\$155.13	\$95.30	\$151.33	\$93.73	-2.45%	-1.65%
64425	Ilioinguinal, Iliohypogastric nerve block	\$136.50	\$97.09	\$133.80	\$96.24	-1.98%	-0.88%
64430	Pudendal nerve block	\$141.88	\$84.91	\$138.09	\$83.00	-2.67%	-2.25%
64445	Sciatic nerve block	\$140.80	\$75.24	\$137.38	\$74.41	-2.43%	-1.10%
64450	Other peripheral nerve or branch block	\$81.69	\$47.29	\$80.85	\$46.51	-1.02%	-1.66%
64479	Cervical transforaminal epidural injections	\$242.20	\$137.22	\$237.55	\$135.95	-1.92%	-0.93%
64480	Cervical transforaminal epidural injections add-on	\$116.08	\$65.57	\$114.12	\$65.11	-1.69%	-0.69%
64483	Lumbar/sacral transforaminal epidural injections	\$225.36	\$116.80	\$220.37	\$115.91	-2.21%	-0.76%
64484	Lumbar/sacral transforaminal epidural injections add-on	\$90.29	\$54.10	\$88.01	\$52.95	-2.52%	-2.13%
64490	Cervical/thoracic facet joint injections, 1st Level	\$195.62	\$110.71	\$191.40	\$109.47	-2.16%	-1.12%
64491	Cervical/thoracic facet joint injections, 2nd Level	\$96.38	\$62.70	\$94.45	\$61.89	-2.00%	-1.29%
64492	Cervical/thoracic facet joint injections, 3rd Level	\$97.09	\$63.42	\$95.16	\$62.61	-1.99%	-1.28%
64493	Paravertebral facet joint or facet joint nerve; Lumbar/sacral, 1st Level	\$177.71	\$94.94	\$173.15	\$93.02	-2.56%	-2.03%
64494	Paravertebral facet joint or facet joint nerve; Lumbar/sacral, 2nd Level	\$89.21	\$54.10	\$87.65	\$53.66	-1.75%	-0.81%

Table 2 (cont). Proposed physician payment schedule for top codes for interventional procedures.

		2016		2017 Prop	osed		% of change from 2016	
СРТ	Description	Non- Facility	Facility	Non- Facility	Facility	Non- Facility	Facility	
64495	Paravertebral facet joint or facet joint nerve; Lumbar/sacral, 3rd Level	\$89.57	\$54.82	\$88.01	\$54.38	-1.75%	-0.80%	
64505	Injection, anesthetic agent; sphenopalatine ganglion	\$107.13	\$89.93	\$107.68	\$90.51	0.52%	0.65%	
64510	Injection, anesthetic agent; Stellate ganglion (cervical sympathetic)	\$131.49	\$76.67	\$128.07	\$75.13	-2.60%	-2.01%	
64520	Injection, anesthetic agent; lumbar or thoracic (paravertebral sympathetic)	\$192.04	\$84.20	\$187.10	\$83.00	-2.57%	-1.42%	
64530	Celiac plexus block, with or without radiologic monitoring	\$196.70	\$96.02	\$190.68	\$93.73	-3.06%	-2.38%	
64600	Destruction by neurolytic agent, trigeminal nerve; supraorbital, infraorbital, mental, or inferior alveolar branch	\$403.78	\$228.58	\$399.25	\$227.17	-1.12%	-0.62%	
64605	Destruction by neurolytic agent, trigeminal nerve; second and third division branches at foramen ovale	\$773.17	\$429.93	\$619.98	\$357.75	-19.81%	-16.79%	
64610	Destruction by neurolytic agent, trigeminal nerve; second and third division branches at foramen ovale under radiologic monitoring	\$769.94	\$512.34	\$758.79	\$507.65	-1.45%	-0.92%	
64612	Chemodenervation of muscle(s); muscle(s) innervated by facial nerve (eg, for blepharospasm, hemifacial spasm)	\$135.07	\$121.10	\$133.08	\$119.49	-1.47%	-1.33%	
64620	Destruction by neurolytic agent, intercostal nerve	\$211.03	\$178.42	\$207.50	\$176.01	-1.67%	-1.35%	
64630	Destruction by neurolytic agent; pudendal nerve	\$238.97	\$199.56	\$235.04	\$196.76	-1.64%	-1.40%	
64633	Paravertebral facet joint nerve; cervical/thoracic, single level - neurolysis	\$434.95	\$235.39	\$422.86	\$231.11	-2.78%	-1.82%	
64634	Paravertebral facet joint nerve; cervical/thoracic, single level - addl	\$195.62	\$71.30	\$189.97	\$70.12	-2.89%	-1.65%	
64635	Paravertebral facet joint nerve; Lumbar/sacral, single level - neurolysis	\$429.93	\$232.16	\$418.57	\$228.25	-2.64%	-1.69%	
64636	Paravertebral facet joint nerve; Lumbar/sacral, single level - addl	\$177.71	\$62.34	\$172.79	\$61.89	-2.76%	-0.72%	
64640	Destruction by neurolytic agent; other peripheral nerve or branch	\$136.15	\$96.02	\$133.80	\$95.16	-1.72%	-0.89%	
64680	Destruction by neurolytic agent, with or without radiologic monitoring; celiac plexus	\$317.79	\$171.97	\$308.74	\$168.50	-2.85%	-2.02%	
72285	Diskography cervical/thoracic radiological supervision and interpretation	\$115.72		\$113.41		-2.00%		
72295	Diskography lumbar radiological supervision and interpretation	\$99.96		\$98.02		-1.94%		
73525	Hip, arthrography, radiological supervision and interpretation	\$102.47		\$101.60		-0.85%		
76000	Fluoroscopic examination	\$47.65		\$47.58		-0.15%		
76942	Ultrasonic guidance for needle placement	\$61.98		\$61.53		-0.72%		
77002	Needle localization by xray	\$93.87		\$85.14		-9.3%		
99201	Office/outpatient visit new	\$44.43	\$27.23	\$43.65	\$26.83	-1.76%	-1.46%	
99202	Office/outpatient visit new	\$75.60	\$50.88	\$75.13	\$50.80	-0.62%	-0.15%	
99203	Office/outpatient visit new	\$109.28	\$77.75	\$109.11	\$77.99	-0.15%	0.31%	
99204	Office/outpatient visit new	\$166.24	\$131.49	\$165.28	\$130.94	-0.58%	-0.42%	
99205	Office/outpatient visit new	\$208.52	\$170.90	\$208.21	\$171.01	-0.15%	0.06%	
99211	Office/outpatient visit established	\$20.06	\$9.32	\$20.03	\$9.30	-0.15%	-0.15%	
99212	Office/outpatient visit established	\$44.07	\$25.80	\$43.65	\$25.76	-0.96%	-0.15%	
99213	Office/outpatient visit established	\$73.45	\$51.59	\$73.34	\$51.52	-0.15%	-0.15%	
99214	Office/outpatient visit established	\$108.20	\$79.18	\$108.40	\$79.42	0.18%	0.30%	
99215	Office/outpatient visit established	\$145.82	\$111.78	\$145.96	\$112.69	0.10%	0.81%	

СРТ	Description	Physician Payment	Office Overhead	ASC Payment	HOPD Payment	HOPD paid more than ASC (%)	HOPD paid more than Office Overhead (%)
20526	Injection, therapeutic, carpal tunnel	\$59.74	\$19.32	\$39.38	\$231.04	486.69%	1095.95%
20550	Tendon sheath, ligament injection	\$40.78	\$13.24	\$23.63	\$231.04	877.74%	1645.44%
20551	Tendon origin/insertion injection	\$43.29	\$17.89	\$31.87	\$231.04	624.95%	1191.63%
20552	Single or multiple trigger point(s), one or two muscle group(s)	\$38.99	\$17.17	\$30.08	\$231.04	668.09%	1245.45%
20553	Single or multiple trigger point(s), three or more muscle groups	\$44.00	\$20.39	\$35.09	\$231.04	558.42%	1033.00%
20600	Small joint injection	\$36.49	\$12.16	\$22.56	\$231.04	924.11%	1799.45%
20605	Intermediate joint injection	\$37.92	\$12.52	\$23.63	\$231.04	877.74%	1745.18%
20610	Major joint injection	\$47.58	\$13.59	\$28.64	\$231.04	706.70%	1599.51%
22510	Vertebroplasty (Cervicothoracic)	\$450.05	\$1,234.60	\$1,213.15	\$2,424.86	99.88%	96.41%
22511	Vertebroplasty (Lumbosacral)	\$422.50	\$1,246.76	\$1,213.15	\$2,424.86	99.88%	94.49%
22513	Kyphoplasty, thoracic	\$539.49	\$6,658.82	\$2,681.86	\$5,199.03	93.86%	-21.92%
22514	Kyphoplasty, lumbar	\$501.21	\$6,658.82	\$2,681.86	\$5,199.03	93.86%	-21.92%
G0260	(27096) Sacroiliac joint, arthrography	\$85.86	\$75.13	\$308.43	\$572.60	85.65%	662.17%
62263	Percutaneous epidural adhesiolysis - 2 or 3 days	\$333.07	\$280.48	\$382.99	\$711.01	85.65%	153.50%
62264	Percutaneous epidural adhesiolysis – 1 day	\$244.70	\$180.66	\$382.99	\$711.01	85.65%	293.55%
62270	Spinal puncture, diagnostic	\$80.49	\$79.42	\$308.43	\$572.60	85.65%	620.97%
62272	Spinal puncture, therapeutic	\$86.58	\$116.63	\$308.43	\$572.60	85.65%	390.97%
62273	Epidural, blood patch	\$116.98	\$57.60	\$308.43	\$572.60	85.65%	894.13%
62287	Disc decompression	\$588.86		\$1,882.09	\$4,104.85	118.10%	
62350	Tunneled intrathecal or epidural catheter for long-term medication	\$411.41		\$1,882.09	\$4,104.85	118.10%	
62355	Removal of previously implanted intrathecal or epidural catheter	\$275.11		\$783.40	\$1,556.99	98.75%	
62360	Implant or replacement, subcutaneous reservoir	\$318.76		\$12,039.46	\$15,507.38	28.80%	
62361	Implantation or replacement of non-program- mable pump	\$439.32		\$12,774.99	\$15,507.38	21.39%	
62362	Implant spine infusion pump, ; programmable pump, including preparation of pump, with or without programming	\$396.75		\$12,829.26	\$15,507.38	20.88%	
62365	Remove spine infusion device; programmable pump, including preparation of pump, with or without programming	\$306.95		\$1,882.09	\$4,104.85	118.10%	
62367	Electronic analysis of programmable pump	\$25.76	\$15.38	\$22.56	\$255.38	1032.00%	1560.11%
62368	Electronic analysis of programmable pump with reprogramming	\$36.49	\$20.75	\$30.79	\$255.38	729.43%	1130.77%
623X5	Cervical or Thoracic interlaminar epidural injection(s); without fluoro	\$104.82	\$51.16	\$308.43	\$572.60	85.65%	1019.27%
623X6	Cervical or Thoracic interlaminar epidural injection(s); with fluoro	\$113.41	\$124.86	\$308.43	\$572.60	85.65%	358.61%
623X7	Lumbar or caudal epidural injection(s); without fluoro	\$90.87	\$54.38	\$308.43	\$572.60	85.65%	953.00%
623X8	Lumbar or caudal interlaminar epidural injection(s); with fluoro	\$103.75	\$129.86	\$308.43	\$572.60	85.65%	340.92%

Table 3. 2017 proposed payment rates in various sites of services for IPM techniques.

CPT	Description	Physician Payment	Office Overhead	ASC Payment	HOPD Payment	HOPD paid more than ASC (%)	HOPD paid more than Office Overhead (%)
623X9	Cervical or thoracic continuous epidural Injection(s),; without fluoro	\$95.52	\$41.50	\$382.99	\$711.01	85.65%	1613.31%
62X10	Cervical or thoracic continuous interlaminar epidural Injection(s),; with fluoro	\$110.19	\$101.24	\$382.99	\$711.01	85.65%	602.28%
62X11	Lumbar or caudal continuous epidural Injection(s); Without fluoro	\$94.09	\$49.73	\$382.99	\$711.01	85.65%	1329.82%
62X12	Lumbar or caudal continuous epidural Injection(s); With fluoro	\$99.81	\$114.84	\$382.99	\$711.01	85.65%	519.14%
630X1	Endoscopic decompression of lumbar spine	\$688.31		\$3,623.63	\$5,199.03	43.48%	
63650	Percutaneous for implantation of neuroelectrodes	\$422.50	\$903.32	\$4,534.35	\$5,839.83	28.79%	546.48%
63655	Laminectomy for implantation of neuroelectrodes	\$858.96		\$14,069.64	\$17,533.66	24.62%	
63661	Remove spine eltrd perq aray	\$331.64	\$257.94	\$783.40	\$1,556.99	98.75%	503.63%
63662	Remove spine eltrd plate	\$867.19		\$1,435.63	\$2,665.24	85.65%	
63663	Remove spine eltrd perq aray	\$464.00	\$333.07	\$4,643.16	\$5,839.83	25.77%	1653.35%
63664	Remove spine eltrd plate	\$894.74		\$12,923.68	\$17,533.66	35.67%	
63685	Implant neuroreceiver	\$376.71		\$21,540.41	\$26,701.46	23.96%	
63688	Revise/remove neuroreceiver	\$382.44		\$1,435.63	\$2,665.24	85.65%	
64400	Injection, Trigeminal nerve block	\$72.98	\$55.81	\$81.28	\$231.04	184.25%	313.98%
64405	Greater occipital nerve block	\$65.11	\$37.21	\$61.58	\$231.04	275.19%	520.97%
64408	Vagus nerve block	\$89.44	\$31.84	\$63.73	\$231.04	262.53%	625.63%
64410	Phrenic nerve block	\$77.99	\$59.74	\$308.43	\$572.60	85.65%	858.42%
64413	Cervical plexus block	\$83.71	\$45.79	\$71.97	\$572.60	695.61%	1150.43%
64415	Brachial plexus block	\$66.54	\$51.52	\$382.99	\$711.01	85.65%	1280.17%
64417	Axillary nerve block	\$71.91	\$57.24	\$308.43	\$572.60	85.65%	900.35%
64418	Suprascapular nerve block	\$77.99	\$68.33	\$94.52	\$572.60	505.80%	737.99%
64420	Intercostal, single block	\$69.40	\$42.57	\$308.43	\$572.60	85.65%	1245.00%
64421	Intercostal, multiple, nerve block	\$93.73	\$57.60	\$308.43	\$572.60	85.65%	894.13%
64425	Ilioinguinal, Iliohypogastric nerve block	\$96.24	\$37.56	\$64.81	\$572.60	783.51%	1424.34%
64430	Pudendal nerve block	\$83.00	\$55.09	\$308.43	\$572.60	85.65%	939.32%
64445	Sciatic nerve block	\$74.41	\$62.96	\$78.77	\$572.60	626.93%	809.41%
64450	Other peripheral nerve or branch block	\$46.51	\$34.34	\$51.56	\$572.60	1010.55%	1567.24%
64479	Cervical transforaminal epidural injections	\$135.95	\$101.60	\$308.43	\$572.60	85.65%	463.58%
64483	Lumbar/sacral transforaminal epidural injections	\$115.91	\$104.46	\$382.99	\$711.01	85.65%	580.63%
64490	Cervical and thoracic facet joint injections, 1st Level	\$109.47	\$81.93	\$382.99	\$711.01	85.65%	767.88%
64493	Paravertebral facet joint or facet joint nerve; lumbar/sacral, 1st Level	\$93.02	\$80.14	\$382.99	\$711.01	85.65%	787.25%
64505	Injection, sphenopalatine ganglion	\$90.51	\$17.17	\$52.63	\$231.04	338.99%	1245.44%
64510	Injection, Stellate ganglion (cervical sympathetic)	\$75.13	\$52.95	\$308.43	\$572.60	85.65%	981.45%
64520	Injection, lumbar or thoracic (paravertebral sympathetic)	\$83.00	\$104.11	\$382.99	\$711.01	85.65%	582.97%

Table 3 (cont). 2017 proposed payment rates in various sites of services for IPM techniques.

CPT	Description	Physician Payment	Office Overhead	ASC Payment	HOPD Payment	HOPD paid more than ASC (%)	HOPD paid more than Office Overhead (%)
64530	Celiac plexus block, with or without radiologic monitoring	\$93.73	\$96.95	\$382.99	\$711.01	85.65%	633.37%
64600	Destruction by neurolytic agent, trigeminal nerve	\$227.17	\$172.08	\$382.99	\$711.01	85.65%	313.19%
64605	Destruction by neurolytic agent, trigeminal nerve; second and third division branches at foramen ovale	\$357.75	\$262.23	\$783.40	\$1,556.99	98.75%	493.75%
64610	Destruction by neurolytic agent, trigeminal nerve; second and third division branches at foramen ovale under radiologic monitoring	\$507.65	\$251.14	\$783.40	\$1,556.99	98.75%	519.97%
64620	Intercostal nerve - neurolysis	\$176.01	\$31.48	\$382.99	\$711.01	85.65%	2158.46%
64630	Pudendal nerve - neurolysis	\$196.76	\$38.28	\$382.99	\$711.01	85.65%	1757.43%
64633	Paravertebral facet joint nerve; C/T, single level - neurolysis	\$231.11	\$191.75	\$783.40	\$1,556.99	98.75%	711.97%
64635	Paravertebral facet joint nerve; L/S, single level neurolysis	\$228.25	\$190.32	\$783.40	\$1,556.99	98.75%	718.08%
64640	Other peripheral nerve or branch neurolysis	\$95.16	\$38.64	\$86.29	\$711.01	723.98%	1740.23%
64680	Celiac plexus neurolysis	\$168.50	\$140.24	\$382.99	\$711.01	85.65%	407.00%
G0260	(27096) Sacroiliac joint, arthrography	\$0.00		\$308.43	\$572.60	85.65%	

Table 3 (cont). 2017 proposed payment rates in various sites of services for IPM techniques.

related to microdiscectomy RVUs and recommended values by the Relative Value Update Committee (RUC). The current valuation for lumbar microdisectomy is 13.18 RVU's for physician services; whereas, for lumbar endoscopic microdiscectomy the recommended RVUs were 10.47 which has been reduced to 9.09 by CMS. We believe that endoscopic discectomy is a more complex procedure for physicians to perform. Consequently, we believe that RVUs should be at least the same as micro-disectomy (i.e., 13.18 RVUs rather than proposed 9.09 RVUs). In addition, certain Medicare jurisdictions have in the past reimbursed the same as microdisectomy which essentially means a significant reduction in reimbursement for those who were performing the procedure in the past.

There is also significant variation in reimbursement for peripheral nerve blocks and neurolytic blocks of peripheral nerves. This is extremely important as CMS no longer reimburses for multiple procedures or peripheral nerves. In addition there are also multiple developments with genicular nerve blocks, as well as nerve supply of the hip showing moderate evidence of effectiveness to value these procedures appropriately to maintain access to the patient care. CPT 64450 is reimbursed in an in-office setting at \$80.85, \$46.51 for the physician payment and \$34.34 for office overhead. However, in a hospital setting it is reimbursed at \$572.60, a 1,567% increase from the prior year and 1,567% higher than the office procedure. Unfortunately, this may limit access since ASCs are reimbursed at \$51.56, 1,010% lower than HOPDs.

ASIPP requested that CMS look at this issue and revise it adequately to reimburse for these procedures. Once again multiple procedures are considered as only one procedure when performed on a single patient in a single setting. The same principle is applied to multiple other nerve block codes that are considered peripheral nerve blocks (CPT 64400-64445).

CPT 64640 which describes neurolytic block of a peripheral nerve or branch also has been associated with under-reimbursement. These blocks are performed on multiple nerves, yet they are considered as one. The reimbursement for this in an in-office setting is \$133.80, \$95.16 for the physician payment and \$38.64 for office expenses. This is an expensive procedure similar to radiofrequency neurotomy of facet joints (CPT 64633, 64634, 64636, 64637). Also it is performed very frequently because of emerging evidence supporting multiple issues related to knee and hip pain (95-102). These procedures involve utilization of fluoroscopy, radiofrequency needles, and contrast injection. These are time consuming, labor intensive procedures requiring extension supplies with approximate costs of over \$100 in a sterile setting. Thus, offices are reimbursed at one-third of the cost of supplies. In contrast, HOPDs are reimbursed \$711 for the same procedure, a 13.5% reduction from 2016, but an increase of 102% from 2007. Unfortunately these procedures are also not feasible in an ambulatory surgery setting since surgery centers are proposed to be reimbursed at \$86.29 which is way below the expenses incurred.

Another code with similar issues is neurolytic block of the pudendal nerves (CPT 64630) reimbursed at \$235.04, \$191.75 for the physician payment and \$38.28 for office overhead. Once again, the equipment, personnel, and supplies way exceed this reimbursement level. Ironically, hospitals are reimbursed for the same at \$711, providing a 1,757% higher payment to hospitals. Further, ambulatory surgical centers are reimbursed at \$382.99, a decrease of 16.7% from the previous year and only a 9% increase since 2007.

ASIPP requested CMS reassess multiple nerve blocks for CPT 64400 to 64450 and neurolytic blocks CPT 64640 and 64630 to provide appropriate reimbursement.

Facet joint interventions, which include nerve blocks, and radiofrequency neurotomy (CPT 64490-

64495 and CPT 64622, 64623, 64626, 64627) also have seen decreases for in-office procedures and physician payment which can be cumulative over the years.

Finally, evaluation and management services are one of the major sources of discrepancies and siteof-service differentials. Hospitals are reimbursed \$98 which is \$80 higher than in-office visits for Level 1 follow-up visits and \$60 to \$70 higher than in-office visits for complex visits.

# CONCLUSION

Interventional pain management continues to face multiple challenges in the present regulatory environment and with reimbursement changes. It is important to understand various changes in the regulations, including implementation of MIPS and fee schedule changes which will have substantial impact on practice patterns into the future.

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# References

- Department of Health and Human Services, Centers for Medicare & Medicaid Services Proposed Policy, Payment, and Quality Provisions Changes to the Medicare Physician Fee Schedule for Calendar Year (CY) 2017 (CMS-1654-P). Proposed Rule. July 7, 2016.
- Obama B. United States health care reform: Progress to date and next steps. JAMA 2016; 316:525-532.
- Bauchner H. The Affordable Care Act and the future of US heath care. JAMA 2016; 316:492-493.
- Orszag PR. US health care reform: Cost containment and improvement in quality. JAMA 2016; 316:493-495.
- Butler SM. The future of the Affordable Care Act: Reassessment and revision. JAMA 2016; 316:495-497.

- Skinner J, Chandra A. The past and future of the Affordable Care Act. JAMA 2016; 316:497-499.
- Department of Health and Human Services, Centers for Medicare & Medicaid Services. 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. Proposed Rule. Federal Register, April 27, 2016.
- Hirsch JA, Leslie-Mazwi TM, Patel AB, Rabinov JD, Gonzalex RG, Barr RM, Nicola GN, Klucznik RP, Prestigiacomo CJ, Manchikanti L. MACRA: Background, opportunities and challenges for the neurointerventional specialist. J

Neurointerv Surg 2016; 8:868-874.

- Hirsch JA, Harvey HB, Barr RM, Donovan WD, Duszak R Jr, Nicola GN, Schaefer PW, Manchikanti L. Sustainable growth rate repealed, MACRA revealed: Historical context and analysis of recent changes in medicare physician payment methodologies. *AJNR Am J Neuroradiol* 2016; 37:210-214.
- 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-E292.
- Hirsch JA, Leslie-Mazwi TM, Barr RM, McGinty G, Nicola GN, Patel AB, Manchikanti L. The Burwell roadmap. J Neurointerv Surg 2016; 8:544-546.

- Manchikanti L, Helm II S, Benyamin RM, Hirsch JA. Merit-based incentive payment system (MIPS): Harsh choices for interventional pain management physicians. Pain Physician 2016; 16:E917-E934.
- Clough JD, McClellan M. Implementing MACRA: Implications for physicians and for physician leadership. JAMA 2016; 315:2397-2398.
- Gostin LO, Garcia KK. Affordable Care Act litigation: the Supreme Court and the future of health care reform. JAMA 2012; 307:369-370.
- Haugen J, Rosenfeld J. Obamacare receives a big, fat 'F' from physicians. Medical Economics, July 25, 2016. http://medicaleconomics.modernmedicine.com/medical-economics/ news/obamacare-receives-big-fat-fphysicians?page=0,0
- Laszewski R. Obamacare's 2017 California rates to increase an average of 13% with the biggest players going up to 17.2% and 19.9%. Health Care Policy and Marketplace Review, July 19, 2016. http://healthpolicyandmarket. blogspot.com/2016/07/obamacares-2017-california-rates-to.html
- 17. Kocher B. How I was wrong about ObamaCare. Wall Street Journal, July 21, 2016.

http://www.wsj.com/articles/i-waswrong-about-obamacare-1469997311

- Rosenfeld S. Progressive critics of Obamacare still not happy: Is glass half empty or half full? *Alternet*, July 1, 2015.
- Furchtgott-Roth D, Meyer J. Higher premiums, impenetrable bureaucracy – where's the upside? National Review, May 19, 2015. http://www.nationalreview.com/arti-

cle/418322/

- Manchikanti L, Benyamin RM, Falco FJE, Hirsch JA. Metamorphosis of medicine in the United States: A carrot and stick policy of electronic medical records. Pain Physician 2014; 17:E671-E680.
- 21. Manchikanti L, Hirsch JA. A case for restraint of explosive growth of health information technology: First, do no harm. *Pain Physician* 2015; 18:E293-E298.
- 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-E32.

- Manchikanti L, Hammer M, Boswell MV, Kaye AD, Hirsch JA. A seamless navigation to ICD-10-CM for interventional pain physicians: Is a rude awakening avoidable? *Pain Physician* 2016; 19:E1-E14.
- 24. Medicare Payment Advisory Commission. Report to the Congress. Medicare Payment Policy. Washington, DC: Med-PAC. March 2016.

http://www.medpac.gov/documents/ reports/march-2016-report-to-thecongress-medicare-payment-policy. pdf

- Glied S. Where the money goes: The evolving expenses of the US health care system. *Health Aff (Millwood)* 2016; 35:1197-1203.
- Goldsmith J, Kaufman N, Burns L. The tangled hospital-physician relationship. *Health Aff Blog*, May 9, 2016. http://thehealthcareblog.com/ blog/2016/05/11/the-tangled-hospitalphysician-relationship/
- 27. Worth T. Hospital facility fees: Why cost may give independent physicians an edge. *Medical Economics*, August 6, 2014.

http://medicaleconomics.modernmedicine.com/medical-economics/content/tags/facility-fees/hospital-facilityfees-why-cost-may-give-independentph?page=full

 Baltic S. Hospital consolidation trend leads to rise in facility fees. Medical Economics, February 24, 2014. http://medicaleconomics.modernmedicine.com/medical-economics/con-

tent/tags/facility-fees/hospital-consolidation-trend-leads-rise-facilityfees?page=full

- Liaw WR, Jetty A, Petterson SM, Peterson LE, Bazemore AW. Solo and Small Practices: A Vital, Diverse Part of Primary Care. Ann Fam Med 2016; 14:8-15.
- Kocher R, Sahni NR. Hospitals' race to employ physicians – the logic behind a money-losing proposition. N Engl J Med 2011; 364:1790-1793.
- Pofeldt E. How to survive in independent practice. *Medical Economics*, August 7, 2014.

http://medicaleconomics.modernmedicine.com/medical-economics/content/tags/fighting-back/how-surviveindependent-practice?page=full

 Snyder C, Anderson G. Do quality improvement organizations improve the quality of hospital care for Medicare beneficiaries? JAMA 2005; 293:29002907.

- Tseng EK, Hicks LK. Value based care and patient-centered care: divergent or complementary? Curr Hematol Malig Rep 2016; 11:303-310.
- Hofler RA, Ortiz J. Costs of accountable care organization participation for primary care providers: Early stage results. BMC Health Serv Res 2016; 16:315.
- Kocher R, Chigurupati A. The coming battle over shared savings--primary care physicians versus specialists. N Engl J Med 2016; 375:104-106.
- McWilliams JM, Hatfield LA, Chernew ME, Landon BE, Schwartz AL. Early performance of accountable care organizations in Medicare. N Engl J Med 2016; 374:2357-2366.
- Manos D. ACOs doomed to fail? Heathcare IT News, March 25, 2013.
  www.healthcareitnews.com/news/acosare-doomed-fail-without-systemicchange-consultant-says
- Numerof RE. Why accountable care organizations won't deliver better health care – and market innovation will. Backgrounder, April 18, 2011.

www.heritage.org/research/reports/2011/04/why-accountable-careorganizations-wont-deliver-betterhealth-care-and-market-innovationwill

 Centers for Medicare & Medicaid Services, National Health Expenditures 2014 Highlights.

> www.cms.gov/research-statistics-dataand-systems/statistics-trends-and-reports/nationalhealthexpenddata/downloads/highlights.pdf

40. Davis K, Stremikis K, Squires D, Schoen C. Mirror, mirror on the wall. How the performance of the U.S. health care system compares internationally. The Commonwealth Fund, June 2014.

www.commonwealthfund.org/~/ media/files/publications/fund-report/2014/jun/1755\_davis\_mirror\_mirror\_2014.pdf

- Perna G. The docs have already tuned out on MACRA. *Physicians Practice*, May 11, 2016.
- www.physicianspractice.com/blog/docshave-already-tuned-out-macra
- 42. Rice S. Medicare's new quality program targets measurement fatigue. *Modern Healthcare*, April 30, 2016.
- www.modernhealthcare.com/article/20160430/MAGAZINE/304309989
- 43. The Physicians Foundation. 2014 Sur-

vey of America's Physicians. Practice Patterns & Perspectives. September 2014.

- www.physiciansfoundation.org/uploads/default/2014\_Physicians\_Foundation\_Biennial\_Physician\_Survey\_Report.pdf
- 44. Kroll HR, Macaulay T, Jesse M. A preliminary survey examining predictors of burnout in pain medicine physicians in the United States. *Pain Physician* 2016; 19:E689-E696.
- 45. Manchikanti L, Pampati V, Hirsch JA. Utilization of interventional techniques in managing chronic pain in Medicare population from 2000 to 2014: An analysis of patterns of utilization. Pain Physician 2016; 19:E531-E546.
- Specialty Utilization data files from Centers for Medicare and Medicaid Services. http://www.cms.hhs.gov/
- 47. Centers for Medicare and Medicaid Services Press Release. CMS Proposes Hospital Outpatient Prospective Payment System Changes to Better Support Physicians and Improve Patient Care, July 6, 2016.

www.cms.gov/Newsroom/MediaReleaseDatabase/Press-releases/2016-Press-releases-items/2016-07-06.html? DLPage=1&DLEntries=10&DLFilter=ph ysician&DLSort=0&DLSortDir=descen ding

- 48. Health Care Cost Institute. Out-of-Pocket Spending Trends (2013), Issue Brief #9. October 2014. www.healthcostinstitute.org/files/ IB%209%2010-28-14.pdf
- Keehan SP, Cuckler GA, Sisko AM, Madison AJ, Smith SD, Stone DA, Poisal JA, Wolfe CJ, Lizonitz JM. National health expenditure projections, 2014-24: spending growth faster than recent trends. *Health Aff (Millwood)* 2015; 34:1407-1417.
- Song Z, Fisher ES. The ACO experiment in infancy--looking back and looking forward. JAMA 2016; 316:705-706.
- McWilliams JM, Chernew ME, Landon BE, Schwartz AL. Performance differences in year 1 of pioneer accountable care organizations. N Engl J Med 2015; 372:1927-1936.
- 52. Nyweide DJ, Lee W, Cuerdon TT, Pham HH, Cox M, Rajkumar R, Conway PH. Association of pioneer accountable care organizations vs traditional Medicare fee for service with spending, utilization, and patient experience. JAMA 2015; 313:2152-2161.

- Song Z, Rose S, Safran DG, Landon BE, Day MP, Chernew ME. Changes in health care spending and quality 4 years into global payment. N Engl J Med 2014; 371:1704-1714.
- 54. Schulman KA, Richman BD. Reassessing ACOs and health care reform. JAMA 2016; 316:707-708.
- 55. Richman BD, Schulman KA. A cautious path forward on accountable care organizations. JAMA 2011; 305:602-603.
- 56. Centers for Medicare and Medicaid Services Fact Sheets. Medicare ACOs Provide improved care while slowing cost growth in 2014, August 25, 2015.
- www.cms.gov/Newsroom/MediaReleaseDatabase/Fact-sheets/2015-Fact-sheetsitems/2015-08-25.html
- 57. Perna G. Improving EHR usability is a possibility for physicians. *Physicians Practice*, June 13, 2016.
- www.physicianspractice.com/ehr/improving-ehr-usability-possibility-physicians
- 58. Department of Health and Human Services, Centers for Medicare & Medicaid Services. Hospital Outpatient Prospective Payment - Proposed Rule and Proposed CY2017 Payment Rates. Medicare Program: Hospital Outpatient Prospective Payment and Ambulatory Surgical Center Payment Systems and Quality Reporting Programs; Organ Procurement Organization Reporting and Communication; Transplant Outcome Measures and Documentation Requirements; Electronic Health Record (EHR) Incentive Programs; Payment to Certain Off-Campus Outpatient Departments of a Provider; Hospital Value-Based Purchasing (VBP) Program, July 14, 2016.
- Hirsch JA, Leslie-Mazwi TM, Nicola GN, Barr RM, Bello JA, Donovan WD, Tu R, Alson MD, Manchikanti L. Current procedural terminology: A primer. J NeuroIntervent Surg 2015; 7:309-312.
- Hirsch JA, Silva E 3rd, Nicola GN, Barr RM, Bello JA, Manchikanti L, Donovan WD. The RUC: A primer for neurointerventionalists. J Neurointerv Surg 2014; 6:61-64.
- 61. H.R.2 Medicare Access and CHIP Reauthorization Act of 2015. April 16, 2015.
- 62. Department of Health and Human Services, Centers for Medicare & Medicaid Services. 42 CFR Parts 405, 410, 411, 414, 425, and 495. Medicare Program; Revisions to Payment Policies under the Physician Fee Schedule and Other Revisions to Part B for CY 2016

(CMS-1631-FC). Final Rule. November 16, 2015.

- 63. H.R. 4302 (113th): Protecting Access to Medicare Act of 2014. April 2, 2014.
- Manchikanti L, Pampati V, Falco FJE, Hirsch JA. An updated assessment of utilization of interventional pain management techniques in the Medicare population: 2000 – 2013. Pain Physician 2015; 18:E115-E127.
- 65. Manchikanti L, Pampati V, Falco FJE, Hirsch JA. Growth of spinal interventional pain management techniques: Analysis of utilization trends and Medicare expenditures 2000 to 2008. Spine (Phila Pa 1976) 2013; 38:157-168.
- 66. Medicare Payment Advisory Commission. Report to the Congress. Medicare and the Health Care Delivery System. Washington, DC: MedPAC. June 2013. www.medpac.gov/documents/Jun13\_EntireReport.pdf 7
- Manchikanti L, Benyamin RM, Falco FJE, Hirsch JA. Recommendations of the Medicare Payment Advisory Commission (MedPAC) on the health care delivery system: The impact of interventional pain management in 2014 and beyond. Pain Physician 2013; 16:419-440.
- 68. Department of Health and Human Services, Office of Inspector General. Incorrect Place-of-Service Claims Resulted in Potential Medicare Overpayment Costing Millions. May 2015.

https://oig.hhs.gov/oas/reports/region1/11300506.pdf

- 69. Manchikanti L, Helm II S, Pampati V, Racz GB. Percutaneous adhesiolysis procedures in the medicare population: Analysis of utilization and growth patterns from 2000 to 2011. Pain Physician 2014; 17:E129-E139.
- 70. Helm II S, Racz GB, Gerdesmeyer L, Justiz L, Hayek SM, Kaplan ED, El Terany MA, Knezevic NN. Percutaneous and endoscopic adhesiolysis in managing low back and lower extremity pain: A systematic review and meta-analysis. *Pain Physician* 2016; 19:E245-E282.
- Manchikanti L, Manchikanti KN, Gharibo CG, Kaye AD. Efficacy of percutaneous adhesiolysis in the treatment of lumbar post surgery syndrome. Anesth Pain Med 2016; 6:e26172.
- 72. Manchikanti L, Cash KA, McManus CD, Pampati V. Assessment of effectiveness of percutaneous adhesiolysis in managing chronic low back pain secondary to lumbar central spinal canal stenosis.

Int J Med Sci 2013; 10:50-59.

- 73. Manchikanti L, Singh V, Cash KA, Pampati V, Datta S. Assessment of effectiveness of percutaneous adhesiolysis and caudal epidural injections in managing lumbar post surgery syndrome: A 2-year follow-up of randomized, controlled trial. J Pain Res 2012; 5:597-608.
- 74. Gerdesmeyer L, Wagenpfeil S, Birkenmaier C, Veihelmann A, Hauschild M, Wagner K, Al Muderis M, Gollwitzer H, Diehl P, Toepfer A. Percutaneous epidural lysis of adhesions in chronic lumbar radicular pain: A randomized double-blind placebo controlled trial. Pain Physician 2013; 16:185-196.
- 75. Manchikanti L, Helm S 2nd, Pampati V, Racz GB. Cost utility analysis of percutaneous adhesiolysis in managing pain of post-lumbar surgery syndrome and lumbar central spinal stenosis. Pain Pract 2015; 15:414-422.
- 76. U.S. Food and Drug Administration. Drug Safety Communications. FDA Drug Safety Communication: FDA requires label changes to warn of rare but serious neurologic problems after epidural corticosteroid injections for pain, April 23, 2014.

www.fda.gov/downloads/Drugs/Drug-Safety/UCM394286.pdf

77. Food and Drug Administration. Anesthetic and Analgesic Drug Products Advisory Committee Meeting. November 24,-25, 2014. Epidural steroid injections (ESI) and the risk of serious neurologic adverse reactions.

> www.fda.gov/downloads/Advisory-Committees/CommitteesMeetingMaterials/Drugs/AnestheticAndAnalgesicDrugProductsAdvisoryCommittee/ UCM422692.pdf

- Manchikanti L, Hirsch JA. Neurological complications associated with epidural steroid injections. Curr Pain Headache Rep 2015; 19:482.
- 79. Manchikanti L, Falco FJE. Safeguards to prevent neurologic complications after epidural steroid injections: Analysis of evidence and lack of applicability of controversial policies. *Pain Physician* 2015; 18: E129-E138.
- Benzon HT, Huntoon MA, Rathmell JP. Improving the safety of epidural steroid injections. JAMA 2015; 313:1713-1714.
- Racoosin JA, Seymour SM, Cascio L, Gill R. Serious neurologic events after epidural glucocorticoid injection--the FDA's risk assessment. N Engl J Med

2015; 373:2299-2301.

- 82. Letter to Margaret Hamburg, MD, Commissioner, and Salma Lemtouni, MD, MPH, Office of the Center Director, Center for Drug Evaluation and Research, U.S. Food and Drug Administration (FDA), RE: FDA Safe Use Initiative of Epidural Steroids Evaluation with Assignment of Responsibility to Multisociety Pain Workgroup (MPW) from American Society of Interventional Pain Physicians (ASIPP) and 1,040 interventional pain physicians, June 26, 2014.
- 83. Letter to Laxmaiah Manchikanti, MD and Ramsin Benyamin, MD in response to FDA Safe Use Initiative of Epidural Steroids Evaluation with Assignment of Responsibility to Multisociety Pain Workgroup (MPW) from American Society of Interventional Pain Physicians (ASIPP) and 1,040 interventional pain physicians, from Janet Woodcock, MD, Director, Center for Drug Evaluation and Research, Food and Drug Administration (FDA) Docket No. FDA-2014-P-1343, October 5, 2015.
- 84. Manchikanti L, Falco FJE, Benyamin RM, Gharibo CG, Candido KD, Hirsch JA. Epidural steroid injections safety recommendations by the Multi-Society Pain Workgroup (MPW): More regulations without evidence or clarification. Pain Physician 2014; 17:E575-E588.
- Candido KD, Knezevic NN, Chang-Chien GC, Deer TR. The Food and Drug Administration's recent action on April 23, 2014 failed to appropriately address safety concerns about epidural steroid use. Pain Physician 2014; 17:E549-E552.
- 86. Rathmell JP, Benzon HT, Dreyfuss P, Huntoon M, Wallace M, Baker R, Riew KD, Rosenquist RW, Aprill C, Rost NS, Buvanendran A, Kreiner DS, Bogduk N, Fourney DR, Fraifeld E, Horn S, Stone J, Vorenkamp K, Lawler G, Summers J, Kloth D, O'Brien D Jr, Tutton S. Safeguards to prevent neurologic complications after epidural steroid injections: Consensus opinions from a multidisciplinary working group and national organizations. Anesthesiology 2015; 122:974-984.
- Manchikanti L, Benyamin RM, Falco FJ, Kaye AD, Hirsch JA. Do epidural injections provide short- and long-term relief for lumbar disc herniation? A systematic review. *Clin Orthop Relat Res* 2015; 473:1940-1956.
- Manchikanti L, Nampiaparampil DE, Manchikanti KN, Falco FJE, Singh V,

Benyamin RM, Kaye AD, Sehgal N, Soin A, Simopoulos TT, Bakshi S, Gharibo CG, Gilligan CJ, Hirsch JA. Comparison of the efficacy of saline, local anesthetics, and steroids in epidural and facet joint injections for the management of spinal pain: A systematic review of randomized controlled trials. *Surg Neurol Int* 2015; 6:S194-S235.

- 89. Manchikanti L, Singh V, Pampati V, Falco FJE, Hirsch JA. Comparison of the efficacy of caudal, interlaminar, and transforaminal epidural injections in managing lumbar disc herniation: Is one method superior to the other? Korean J Pain 2015; 28:11-21.
- 90. Manchikanti L, Nampiaparampil DE, Candido KD, Bakshi S, Grider JS, Falco FJE, Sehgal N, Hirsch JA. Do cervical epidural injections provide longterm relief in neck and upper extremity pain? A systematic review. Pain Physician 2015; 18:39-60.
- Manchikanti L, Kaye AD, Manchikanti KN, Boswell MV, Pampati V, Hirsch JA. Efficacy of epidural injections in the treatment of lumbar central spinal stenosis: A systematic review. Anesth Pain Med 2015; 5:e23139.
- 92. Chou R, Hashimoto R, Friedly J, Fu R, Bougatsos C, Dana T, Sullivan SD, Jarvik J. Epidural corticosteroid injections for radiculopathy and spinal stenosis: A systematic review and meta-analysis. Ann Intern Med 2015; 163:373-381.
- 93. Kim SY, Le PU, Kosharskyy B, Kaye AD, Shaparin N, Downie SA. Is genicular nerve radiofrequency ablation safe? A literature review and anatomical study. *Pain Physician* 2016; 19:E697-E705.
- Yasar E, Kesikburun S, Kılıç C, Güzelküçük Ü, Yazar F, Tan AK. Accuracy of ultrasound-guided genicular nerve block: A cadaveric study. *Pain Physician* 2015; 18:E899-E904.
- 95. Kesikburun S, Ya ar E, Uran A, Adigüzel E, Yilmaz B. Ultrasound-guided genicular nerve pulsed radiofrequency treatment for painful knee osteoarthritis: A preliminary report. *Pain Physician* 2016; 19:E751-E759.
- Choi WJ, Hwang SJ, Song JG, Leem JG, Kang YU, Park PH, Shin JW. Radiofrequency treatment relieves chronic knee osteoarthritis pain: a double-blind randomized controlled trial. *Pain* 2011; 152:481-487.
- 97. Sarı S, Aydın ON, Turan Y, Özlülerden P, Efe U, Kurt Ömürlü . Which one is more effective for the clinical treatment of chronic pain in knee osteoar-

thritis: radiofrequency neurotomy of the genicular nerves or intra-articular injection? *Int J Rheum Dis* 2016 Aug 12.

[Epub ahead of print]98. Protzman NM, Gyi J, Malhotra AD, Kooch JE. Examining the feasibility of radiofrequency treatment for chronic knee pain after total knee arthroplasty. *PM R* 2014; 6:373-376.