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Case Report

Cost Calculation Methodology Exacerbates Site-of-Service Differentials by 10- to 18-Fold for Soft Tissue and Joint Injections in Hospital Outpatient Departments

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In recent years, physicians and facilities have faced a multitude of reforms, regulations, and payment models to reduce health care costs, and to improve access and quality. Despite these measures, total health care cost increased to $3.3 trillion in 2016, up 4.3% from 2015. An aging population and an increase in cost are two of the factors that account for most of the increase in costs. Price intensity from physicians and facilities are influenced by Medicare rate-setting methodology with site-of-service differentials.

Site-of-service differentials for payments are increasingly being recognized as a topic that requires discussion. Intraarticular and soft tissue injections are performed in physician offices (90%), ambulatory surgery centers (ASCs) (1%), and hospital outpatient departments (HOPDs) (9%), however, the payment rates differ 10- to 18-fold among these settings with 63% of total payments to HOPDs, 2% to ASCs, and 37% to offices.

In this manuscript, we describe significant payment differentials, based on cost calculation methodology that indicate a potential substantial savings of more than $125 million per year if HOPDs are reimbursed at the same rate as ASCS, utilizing any of the formulas, even if the current ASC rate is doubled. This effort would also save significantly when it comes to copayments, which are 27% by patients, instead of the 20% in offices and ASCs. The addition of Medicare Advantage recipients, which constitutes approximately 30% of the overall Medicare population will increase these estimations by 30%.

In conclusion, utilizing accurate payment rate calculations for intraarticular and soft tissue injections will result in substantial changes in the payment rates. In fact, just the differences in the copay itself would make the copay $66.06 (which is 27% of $244.68). This rate is 3- to 5-fold higher than the current Medicare rates for office payment or even 2-fold higher than the ASC payment.

Key words: Medicare, physician payment schedules, HOPD and ASC payment schedule, site-of-service differentials, soft tissue injections, intraarticular injections

A multitude of reforms, regulations, and ever-increasing payment models in the center of the health care debate, continue to cause heath care spending in the US to rise higher and higher. Despite the enactment of efforts designed to bend the cost curve downward, the Centers for Medicare & Medicaid Services (CMS) projected that the 2016 total health care spending reached nearly 3.3 trillion dollars, up 4.3% from 2015 with per capita spending increasing to $10,348 in 2016 (1-18). The agency attributed the increase, in large part, to the aging population and rising prices for health care services in the United States (1). The Affordable Care Act (ACA), also known as Obamacare, was enacted with 3 primary goals: increasing the number of insured, improving the quality of care, and controlling health care cost. President Obama hailed the Act as a success in all fronts (2-6). However, Manchikanti et al (2) concluded that while

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the ACA gained a net increase in the number of individuals with insurance, primarily through Medicaid expansion; this reduction in costs came without improvement in the quality of care, and indications of access diminution. Dieleman et al (19,20) have shown that the United States has spent $95.9 billion on musculoskeletal disorders and $87.6 billion on back and neck pain, totaling $183.5 billion in 2013, and indicating rapid increase of costs from 1996 thru 2013. They isolated changes in service price and intensity as the factors that were responsible for increasing health care costs as, and contributed to 50% of the increase, or $583.5 billion spending increase. Spending on ambulatory care, which includes outpatient hospital services, also played a role in higher overall costs, with annual spending increasing from $385.1 billion in 1996 to $706.4 billion in 2013. This increase of about $324 billion was higher than any of the 5 other types of care analyzed. The authors described significant procedure payment differentials comparing procedures such as a colonoscopy performed in a hospital setting to one performed in either a physician's office or at an ambulatory surgery center. They also showed that changes in disease prevalence or incidence were associated with spending reductions amounting to 2.4% or $28.2 billion, whereas changes in services utilization were not associated with a statistically significant change in spending.

Service prices are mostly based on Medicare fee schedules, which are then followed by other payers to a great extent. Thus, it is crucial that Medicare payments for various procedures are appropriately calculated since this determines not only the appropriateness of payments for each service, but also mitigates increasing prices leading to a reduction in health care costs and improvement to both quality and access. Through screens, Medicare regularly identifies potentially misvalued codes and requests a reassessment of the appropriateness of codes by the American Medical Association (AMA) Current Procedural Terminology (CPT) and Relative Value Scale Update Committee (RUC) (21-24).

With numerous alternate models of payments, and the escalating issues of opioid use, abuse, and deaths (2-18,21-25), President Trump has declared the opioid issue as a national health care crisis (26), and is promoting non-opioid interventions. Thus, understanding payment methodology and site of service differentials is critical for interventional pain specialists who are at the forefront of this battle.

Intraarticular and soft tissue injections are effective modalities for managing soft tissue and joint pain with either trigger point or ligament injections and intraarticular injections (27). CMS sets payment rates for physicians and other practitioner services in the Medicare Physician Fee Schedule, also known as the PFS with input from the AMA CPT coding and the specialty society RUC system (8,9,28). In contrast, payment rates for most hospital outpatient department (HOPD) services are based on the Outpatient Prospective Payment System (OPPS), determined by Medicare (9,29-31). Ambulatory surgery center (ASC) rates are also determined by Medicare based on the prospective payment system as a percentage of OPPS (30-32). Thus, for services provided in HOPDs and ASCs, Medicare makes 2 payments that involve physicians' professional fees and PFS plus a facility fee for the HOPD or ASC under the OPPS or ASC payment system. This applies for all types of surgical and non-surgical services. In addition, an outpatient or office facility owned by a hospital is eligible for provider-based status with certain restrictions (28). In general, the non-facility rate is higher than the facility rate in the PFS because physicians' practice costs are higher when physicians provide care in their offices due to direct costs such as equipment, supplies, and staff. Thus, when a physician provides a service in an office setting, Medicare makes a single, global, payment for all the services provided in an office, including the facility or overhead expenses and physician fee (9).

Medicare payments vary for the same ambulatory services provided to similar patients in different settings, such as physicians' offices, HOPDs, and ASCs (9,33-36). In 2012, the Medicare Payment Advisory Commission (MedPAC) recommended that if the same services can be safely provided in different settings, a prudent purchaser should not pay more for that service in one setting than in another, unless the settings are different, such as office versus an operating room (34,35). MedPAC was also concerned about encouraging arrangements among providers that would result in care being provided in high paid settings, increasing national health care expenditures, as well as beneficiary cost-sharing. Similar to MedPAC's recommendations, the Office of Inspector

General (OIG) of Health and Human Services (HHS) made similar recommendations as MedPAC (34,36). In fact, it has been shown that the patient copay is higher for HOPDs at 27%, in contrast to physician offices or ASCs at 20% (37).

The current philosophy of paying higher percentage payments to hospitals is driving many physicians to hospital employment (9). Further, it has been shown that physician employment by hospitals grew by about 49% from 2012 to 2015 (37). Trends from July 2014 to July 2015 also showed that physician employment by hospitals is rapidly accelerating with almost 27,000 physicians shifting to a hospital employment model, representing a 24% increase in just a year's time (37). Similar to physician employment, hospital ownership is also accelerating, between 2014 and 2015 over 18,000 physician practices merged with a hospital, accounting for an increase of 37% (37). It was shown that Medicare spends $3.1 billion more on hospital-employed physicians, and hospital consolidation, which drove up the increase in Medicare spending on 4 common services. In this limited analysis, the 4 services included were intraarticular injections by orthopedic surgeons and other services such as echocardiograms, colonoscopies, and diagnostic cardiac catheterizations (37).

Payments are based on several types of Ambulatory Payment Classifications (APCs). Medicare provides the calculations based on traditional accounting of claims behind the cost calculation, and behind the budget neutrality, outlier, and impact calculation (28). In this calculation, CMS has calculated extremely high payments for certain procedures for HOPDs and compensated for those costs for budget neutrality by making reductions of 16% to 25% from other extensive procedures performed in ASCs (38,39). These calculations have reduced payments for ASCs for most commonly performed interventional pain management procedures beginning in 2017 and carrying forward to 2018 (31,38-40). However, at the same time, CMS has increased payments substantially for intraarticular and soft tissue injections in a hospital setting. These procedures are the same whether performed in hospital-owned offices and in physician-owned offices, but published reimbursement rates vary substantially, even compared to ambulatory surgery center payments (Table 1). As shown in Table 1, office overhead or facility payments equivalent to HOPD or office payments for all soft tissue and intraarticular injections is 10- to 18-fold higher in a hospital outpatient department.

The soft tissue and intraarticular injections performed in a HOPD with a reimbursement of $244.68 is close to the payment of $283.10 for multiple procedures in ASCs with fluoroscopic utilization, contrast injection, and extensive monitoring in a sterile operating room The difference amounts to $34.82. Additionally, multiple procedures performed in an office setting, either in a hospital owned office or private office requiring extensive preparation, personnel, and care along with fluoroscopy which is not performed in an operating room in a hospital setting are reimbursed at 10- to 20-fold higher in an HOPD setting as shown in Table 2.

Table 3 shows the number of services utilized and estimated payment differentials for each of the soft tissue and intraarticular injection codes in all 3 sites of service. As shown in 2016, a highly variable number of services were provided in 3 settings with 90% of services being provided in free-standing office settings outside the HOPD, whereas ASCs constituted

Table 1. Schedule of facility payments for soft tissue and intraarticular injections in multiple settings.

CPT	Description	Office Overhead	ASC	HOPD	% of HOPD Over Office overhead
20600	Small joint injection	$12.60	$23.04	$244.68	1842%
20605	Intermediate joint injection	$12.96	$24.48	$244.68	1788%
20550	Tendon sheath, ligament injection	$13.68	$24.12	$244.68	1689%
20610	Major joint injection	$14.04	$29.16	$244.68	1643%
20552	Trigger point(s), one or 2 muscle group(s)	$17.28	$30.24	$244.68	1316%
20551	Tendon origin/insertion	$18.00	$32.40	$244.68	1259%
20526	Injection, therapeutic, carpal tunnel	$19.80	$39.96	$244.68	1136%
20553	Trigger point(s), three or more muscle groups	$20.52	$35.28	$244.68	1092%

Table 2. Schedule of facility payments for additional procedures with 10- to 20-fold difference.

CPT	Description	Office Overhead	HOPD	% of HOPD Over Office overhead
64620	Destruction by neurolytic agent, intercostal nerve	$32.40	$672.13	1974%
64630	Destruction by neurolytic agent; pudendal nerve	$38.52	$672.13	1645%
64450	Other peripheral nerve or branch	$35.28	$543.34	1440%
64425	Ilioinguinal, Iliohypogastric	$40.68	$543.34	1236%
64505	Sphenopalatine ganglion Injection	$18.72	$244.68	1207%
64415	Brachial plexus	$54.00	$672.13	1145%
64510	Cervical sympathetic blocks	$54.36	$672.13	1136%
64420	Intercostal, single	$45.00	$543.34	1107%
64413	Cervical plexus	$46.44	$543.34	1070%
64421	Intercostal, multiple, regional block	$59.76	$672.13	1025%
64417	Axillary nerve	$60.12	$672.13	1018%

Table 3. 2018 Estimated facility payments for Medicare for soft tissue and intraarticular injections based on 2016 Services.

Setting	CPT	Services	2018 Rate	All the Services with 100% Payments	75% of Services with 100% Payment Rate and 25% of Services 50% of Payment Rate
HOPD	20526	6,622	$244.68	$1,620,271	$1,417,737
HOPD	20550	38,708	$244.68	$9,471,073	$8,287,189
HOPD	20551	5,778	$244.68	$1,413,761	$1,237,041
HOPD	20552	41,223	$244.68	$10,086,444	$8,825,638
HOPD	20553	35,529	$244.68	$8,693,236	$7,606,581
HOPD	20600	25,794	$244.68	$6,311,276	$5,522,366
HOPD	20605	39,203	$244.68	$9,592,190	$8,393,166
HOPD	20610	571,129	$244.68	$139,743,844	$122,275,863
TOTAL - HOPD		**763,986**		**$186,932,094**	**$163,565,583**
% to Grand Total		9%		63%	63%
ASC	20526	888	$39.96	$35,484	$31,049
ASC	20550	4,331	$24.12	$104,464	$91,406
ASC	20551	471	$32.40	$15,260	$13,353
ASC	20552	5,711	$30.24	$172,701	$151,113
ASC	20553	3,941	$35.28	$139,038	$121,659
ASC	20600	4,176	$23.04	$96,215	$84,188
ASC	20605	3,549	$24.48	$86,880	$76,020
ASC	20610	36,764	$29.16	$1,072,038	$938,033
TOTAL ASC		**59,831**		**$1,722,081**	**$1,506,820**
% to Grand Total		1%		2%	2%
Office	20526	65,132	$19.80	$1,289,614	$1,128,412
Office	20550	764,743	$13.68	$10,461,684	$9,153,974
Office	20551	197,322	$18.00	$3,551,796	$3,107,822
Office	20552	319,113	$17.28	$5,514,273	$4,824,989
Office	20553	287,409	$20.52	$5,897,633	$5,160,429
Office	20600	368,451	$12.60	$4,642,483	$4,062,172
Office	20605	418,082	$12.96	$5,418,343	$4,741,050
Office	20610	5,198,060	$14.04	$72,980,762	$63,858,167
TOTAL - Office		**7,618,312**		**$109,756,587**	**$96,037,014**
% to Grand Total		90%		37%	37%
GRAND TOTAL		**8,442,129**		**$298,410,762**	**$261,109,417**

only 1% , and the remaining 9% were performed in a HOPD office setting. Paradoxically, 63% of the cost, which was approximately $164 million to $187 million, would have been paid to hospitals, and that is just 9% of cases. The other 90% of services provided were in an office setting and would have received 37% of the total revenue with $96 million to $110 million. These estimates are based on the reimbursement rates of 100% or 75% of services at 100% payment and 25% of services at 50% payment rate. Thus, HOPDs performed one-tenth of the procedures and received 63% of the reimbursement. In contrast, ASCs performed only 1% of the procedures and would have received 2% of reimbursements.

Using a hypothetical methodology based largely on what we believe to be common sense, the authors have calculated a fee payment schedule for hospital outpatient procedures paid at twice the ASC reimbursement rate. Such changes would reduce payments for hospital office injections and soft tissue procedures and result in almost $125 million per year (Table 4). The formula utilized in calculation of these is that 75% of the procedures are paid at 100% fee schedule and 25% are paid at 50% of the fee schedule, which is likely an underestimation rather than overestimation.

In addition, as shown in Table 4, payments for HOPDs at the same rate as the office rate will save CMS $153,890,043. Paying the same rate as the ASC rate, would save CMS $144,233,673. This table also shows calculations at 200% of the office rate which results in savings of $144,214,503.

Further, a high fee schedule for procedures in an HOPD, will result in a high copayment of approximately 27% by the patient (33), which is essentially $44,162,707 (27% of $163,565,583) for intraarticular and soft tissue injection procedures. The reduction of the payment to a standard rate equivalent to 200% of ASC to $38,663,819 will reduce patient copayment to $10,439,231 (27% of $38,663,819), a reduction of $33,737,745. However, even better would be if HOPD procedures are performed in a physician's office or ASC, as the patient copayment is 20% at a cost of $1,936,108 (20% of $9,675,540) (37). The addition of Medicare Advantage recipients, which constitutes approximately 30% of the overall Medicare population will increase these estimations by 30%.

Finally, we posit that the copayment of a procedure for soft tissue or intraarticular injection at 27% is $66.06 (27% of $244.68) is higher than entire payment of any of these procedures performed either in an office setting of $12.60 to $20.52 which continues to be 3- to 5-fold or ASC setting of $23.04 to $39.96 with 2-fold reimbursement rate.

CONCLUSION

We conclude that the CMS calculation of soft tissue and intraarticular injections results in 10- to 18-fold site-of-service differentials. Correcting these extraordinary differentials and redistributing the savings could be an important step in supporting Medicare beneficiaries access to various interventional techniques.

Table 4. Estimated payments soft tissue and intraarticular injections in HOPD setting based on 2016 services based various scenarios. (75% of the services with 100% payment rate and 25% of the services with 50% of payment rate)

CPT	Services 2016	HOPD		Same as Office rate		200% of Office rate		Same as ASC rate		200% of ASC rate	
		Rate	Payments*	Rate	Payments*	Rate	Payments*	Rate	Payments*	Rate	Payments*
20526	6,622	$244.68	$ 1,417,737	$19.80	$ 114,726	$39.60	$ 229,452	$39.96	$ 231,538	$79.92	$ 463,076
20550	38,708	$244.68	$ 8,287,189	$13.68	$ 463,335	$27.36	$ 926,670	$24.12	$ 816,932	$48.24	$ 1,633,865
20551	5,778	$244.68	$ 1,237,041	$18.00	$ 91,004	$36.00	$ 182,007	$32.40	$ 163,806	$64.80	$ 327,613
20552	41,223	$244.68	$ 8,825,638	$17.28	$ 623,292	$34.56	$ 1,246,584	$30.24	$ 1,090,761	$60.48	$ 2,181,521
20553	35,529	$244.68	$ 7,606,581	$20.52	$ 637,923	$41.04	$ 1,275,846	$35.28	$ 1,096,780	$70.56	$ 2,193,560
20600	25,794	$244.68	$ 5,522,366	$12.60	$ 284,379	$25.20	$ 568,758	$23.04	$ 520,007	$46.08	$ 1,040,014
20605	39,203	$244.68	$ 8,393,166	$12.96	$ 444,562	$25.92	$ 889,124	$24.48	$ 839,728	$48.96	$ 1,679,457
20610	571,129	$244.68	$122,275,863	$14.04	$ 7,016,320	$28.08	$ 14,032,640	$29.16	$ 14,572,356	$58.32	$ 29,144,713
	763,986		$163,565,583		$9,675,540		$19,351,080		$19,331,909		$38,663,819
Total Savings over HOPD Payment rates					$153,890,043		$144,214,503		$144,233,673		$124,901,764

Services: Number of Services performed in HOPD setting in 2016
* Estimated payments

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