August 21, 2017

Seema Verma, MPH
Administrator,
Centers for Medicare & Medicaid Services
Department of Health and Human Services,
Attention: CMS-5522-P
Baltimore, MD 21244-1850.


Subject: [CMS-5522-P]
Medicare Program; CY 2018 Updates to the Quality Payment Program

Dear Administrator Verma:

On behalf of the more than 18,000 board-certified orthopaedic surgeons who comprise the membership of the American Association of Orthopaedic Surgeons (AAOS) as well as the orthopaedic sub-specialty societies who have signed-on to this letter, we are pleased to provide comments on the Centers for Medicare and Medicaid Services’ (CMS) Medicare Program; CY 2018 Updates to the Quality Payment Program (CMS-5522-P) published in the Federal Register [82 FR 30010] on June 30, 2017.

The AAOS commends the Administration’s efforts to provide new flexibilities, especially for small and rural providers, in the Quality Payment Program (QPP) as well as via the changes announced on the value-based payment models on August 15, 2017 via ‘Cancellation of Advancing Care Coordination through Episode Payment and Cardiac Rehabilitation Incentive Payment Models; Changes to Comprehensive Care for Joint Replacement Payment Model’ (CMS-5524-P). The AAOS will provide comments on the latter through the adequate vehicle. The communication outreach made by CMS officials through various venues and the QPP website have been informative. Overall, we appreciate your aim to reduce the administrative burden on clinicians and to introduce greater flexibility in reporting requirements and eligibility rules. However, as surgical specialists, we would like to offer additional suggestions to improve the current rules to better reflect the needs of our surgeons and their patients. The AAOS thanks CMS for its solicitation and consideration of the following comments and concerns.

Merit-based Incentive Payment System (MIPS)

Low-volume threshold

The AAOS is pleased with the increase in the low-volume threshold to exclude individual MIPS eligible clinicians or groups with ≤ $90,000 in Part B allowed charges or ≤ 200 Part B
beneficiaries. This will give clinicians in solo and small practices more time to prepare and meet the participation requirements. However, for the shift to value-based healthcare to be successful, the MIPS program will have to be more inclusive in the future by introducing flexibilities beyond just these threshold definitions. For example, MIPS program still requires participation via expensive Certified Electronic Health Record Technology (CEHRT), which necessitates practices at the margin with limited resources to hire additional health information technology staff or pay for third-party reporting. Moreover, even where a provider is not required to participate in the MIPS program, there should be more pathways for specialists to participate in the QPP through the Advanced Alternative Payment Model (Advanced APM) track.

CMS has asked for comments on using the number of Part B items and services as an alternative definition of threshold for participation in MIPS. This proposal, if implemented, will not necessarily encourage volume over value. A review of peer-reviewed literature on Medicare reimbursement valuation revealed that volume offsetting (that is, increasing volume of services in response to change in reimbursement) is recently less of a concern in the Medicare program.\(^1\),\(^2\) Moreover, clinicians who provide repeat services or a high number of items or services to a smaller group of patients may be able to participate in the MIPS program based on this third parameter of eligibility, thereby increasing overall participation in the program.

One noteworthy issue is that since this threshold applies only to Medicare Part B measures, there is a potential concern of practices limiting access of Medicare beneficiaries and therefore reducing health care for Medicare recipients. Additionally, we suggested two different low volume thresholds – one for primary care and one for specialist clinicians – and to use percentage of Medicare patients to define the threshold levels. For surgical specialists, the procedure could allow a way to clearly connect the service to the clinician and accurately reflect attribution.

Two-year lag

The AAOS continues to believe that the two-year lag between the performance and payment years is problematic for physicians in terms of tracking their performance and managing that performance at required levels with delayed feedback. Mechanisms to allow more contemporary feedback are essential to any quality control endeavor. The intent of the MACRA statute is to create a change toward value in health care delivery and payment. With that time gap, there is no meaningful feedback: payment changes are either a nice “bonus” related to unclear processes or a “punishment” with little clarity as to how the practice could improve. Our suggestion is to require reporting under MIPS (especially for the active reporting requirement measures) for the first nine months of each performance year, allowing the last three months for reconciliation of

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the data such that the performance and payment feedback are available by January of the following year. CMS can use a full year of administrative claims data for the non-reporting measures for a better sample size. This would meet the goals of CMS by allowing rapid response to physicians and at the same time removing the two-year lag between performance and payment.

Virtual groups

The AAOS appreciates the new proposals creating an option for solo and small practices to form virtual groups enabling their participation in the MIPS program and obtaining CEHRT qualification. However, we believe it will be challenging for the target practices to participate. Both the complexity of arranging the virtual groups and a continued need for expensive technology infrastructure may prove a barrier to solo and small practices. There are significant resources needed to set up and run the virtual groups including finding potential group members, drawing up of legal contracts, expensive third party reporting as well as health information technology vendors and administrative staff to support the virtual group functioning to list just a few. Thus, a concern is that virtual groups will only be an alternative for those with greater resources. Since there will not be enough time to prepare for the 2018 performance year, additional flexibilities for virtual group reporting will be helpful in areas such as CEHRT, OSHA, and CDC requirements.

To help address these concerns, we urge CMS to provide extensive and individualized support and learning opportunities for clinicians and their practice management staff on how to create virtual groups or implement changes in these groups. CMS should also provide tools for solo and small practices to determine if forming virtual groups will be beneficial for their patients and their practices. It is essential for CMS to provide adequate information and simple and actionable guidelines to clinicians to make necessary decisions about forming virtual groups. Without simplifying the regulations associated with virtual groups, important resources may potentially be taken away from the care provided to Medicare beneficiaries.

 Provision of data to clinicians

In continuation of the discussion above, AAOS would like to re-emphasize our earlier comment for at least quarterly provision of clinician/practice data instead of the lagged feedback system across all the elements of the QPP. Access to timely data that reflect the performance scoring of clinicians is essential for the success of the QPP. Quality demands timely feedback. While historical data could be provided as a guide to clinicians, provision of real time data on a quarterly basis could better inform clinicians. The AAOS believes that small and even medium sized physician practices will not be able to participate effectively without quarterly feedback on their performance. Further, simplification of the QPP would benefit both the physician, practice, and CMS in providing effective timely feedback. [Please note that there are more comments on this topic in the Qualified Clinical Data Registries (QCDR) section below.]
Flexibilities for solo, small and rural practices

As mentioned above, the AAOS especially appreciates the added flexibilities for solo and small practices, as well as the bonus points for small practices participating in the MIPS program. Further, on the question of bonus for rural providers, we strongly urge CMS to consider performance and financial incentives for these providers since they provide care to Medicare beneficiaries in high shortage areas. The AAOS also appreciates the financial investments in education and technical assistance of small and solo practices and those in rural areas.

Complex patients bonus

It is encouraging to note the new proposal for three bonus points by adding the average Hierarchical Conditions Category (HCC) risk score to the final score. This incentive is likely to provide better care for high need patients and is an effective way to risk adjust for clinical conditions. We also support the inclusion of Medicare-Medicaid dual eligibility as an alternative to risk scoring based on the HCC risk score. The duals are a high cost, at-risk population and several analyses of Medicare and Medicaid data indicate a correlation between the socio-economic factors of dual eligible beneficiaries and the cost of their health care. A bonus based on dual eligibility status will incentivize clinicians to provide care to this vulnerable population. This would also be an important step toward higher value care.

MIPS Performance Categories: Quality

The proposal to increase the data completeness threshold to 60 percent for the 2019 performance year may be too much, too soon, and too optimistic. A gradual buildup of such thresholds will reduce additional burden on MIPS participating clinicians. A system that samples data is more economic and practicable. CMS proposes to identify topped out measures, and after three years will consider removal from the program through rulemaking in the fourth year. Although this applies only to CMS Web Interface measures and there will be enough consideration given before removing topped out measures, this is likely to be a problem for specialties, such as orthopaedics, that lack outcome measures. CMS can use “topped out” measures as controls for new and developing measures. Moreover, if a measure is going to be topped out, CMS should announce the status of the measure with sufficient time lag before it is removed from service to allow clinical processes time to adjust and redirect their resources. The practice of making an announcement at the end of a given year with implementation at the beginning of the next year (a 1-2 month lag) is not optimal. The announcements around the addition of new measures or removal of measures for a given year should be unified by CMS and announced at a consistent

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time each year. CMS needs to work with external measure validators and other stakeholders to streamline the process of development, validation, and adoption of new and meaningful measures.

In addition, the jumping from a minimum 90-day performance period for Quality performance category in the 2017 performance year to a 12-month calendar year performance period in the 2018 performance year should instead be implemented gradually.

**MIPS Performance Categories: Cost**

The AAOS appreciates CMS continuing the implementation of the MACRA mandated patient relationship categories and codes via the technical expert panels (TEPs). However, as noted earlier, resource use and attribution are complex issues and it may take several performance years to mature. Hence, CMS needs to explore all regulatory avenues to prevent the sudden jump to 30 percent weight for the Cost category in 2019 performance year. We believe delaying information on attribution until the ruling for 2019 will create a challenge for practices seeking to monitor and improve their cost components.

**MIPS Performance Categories: Improvement Activities**

It is a step in the right direction to include more activities related to care delivery improvement in the MIPS inventory and the maintenance of simple attestation requirements. The focus should be on developing a balance in primary care and specialty care focused high-weight improvement activities. For example, akin to the expansion of the definition of certified patient-centered medical home to include the CPC+ APM model, specialty medical homes should be included in the medical home definition.

**MIPS Performance Categories: Advancing Care Information**

The AAOS applauds CMS for allowing the use of 2014 CEHRT and a bonus for using only 2015 Edition CEHRT. We would request similar flexibilities in the burdensome requirement to establish good faith effort to get certification in the event of decertification mid-year. There is also a requirement to reapply for hardship annually which should be made less frequent and extended to at least two years.

**Alternative Payment Models (APMs)**

**Modifications to the value-based payment models**

As a physician specialty group involved with a number of demonstrations under Center for Medicare and Medicaid Innovation (CMMI) authority, AAOS would strongly urge CMS to consider the following refinements to orthopaedic bundles.
Stop mandatory demonstrations

First and foremost, AAOS really appreciates CMS’ most recent efforts to respond to our comments on canceling mandatory bundled payment models and redesigning the Comprehensive Care for Joint Replacement Model (CJR) to mostly be a voluntary demonstration. The AAOS is supportive of bundled payment models as long as they are voluntary and have been tested in smaller geographic areas with adequate dissemination of best practices prior to broad implementation. We look forward to the voluntary bundled payment model details that is indicated to launch in 2018 and will qualify as an Advanced APM. We hope that the forthcoming rule on voluntary payment models will provide adequate opportunities for specialists to participate in the Advanced APM track.

We commend CMS for canceling the Surgical Hip/Femur Fracture Treatment (SHFFT) model which was fundamentally flawed: the clinical pathway, population, and mechanisms of injury are markedly disparate for hip fracture (a fragility fracture), shaft fracture (typically a younger patient with major trauma or around a joint prosthesis) or knee fracture (frequently requiring prolonged non-weight-bearing which can mandate extended post-acute care setting for a frail patient). Further, we urge CMS to consider our comments and analyses in the white paper (reference in the footnote) while developing future payment models on these fracture treatments. We will provide detailed comments in response to the proposed rule titled ‘Cancellation of Advancing Care Coordination through Episode Payment and Cardiac Rehabilitation Incentive Payment Models; Changes to Comprehensive Care for Joint Replacement Payment Model’ (CMS-5524-P).

As AAOS has noted in earlier communication with the Innovation Center, we have been working on developing outcome measures for musculoskeletal care. This is vital work given the focus on reporting outcome measures in the QPP and the lack of outcome measures for our specialties. We are currently developing relevant Clinical Practice Guidelines and Appropriate Use Criteria documents for the hip fracture and joint arthroplasty episodes as priorities. Many of these guidelines are Level 1 evidence. The Patient-reported Outcome Measures (PROMs) on hip fracture procedures should be validated soon.

Finalize more specialty physician focused Advanced APMs

The AAOS supports the Agency’s goal to facilitate and reward participation in high value care, and the potential announcement for more voluntary specialty focused models of care akin to the BPCI models. In BPCI, over 3,000 orthopaedic surgeons are managing episodes of care at full

5 Please refer to a white paper titled ‘Proposed Changes to Federal Payment Models and Performance Measures for Proximal Femoral Fracture Treatment in Elderly’ by the Orthopaedic Trauma Association and other orthopaedic groups including AAOS. Available: https://www.ota.org/media/438061/OTA-White-Paper-Hip-Fracture.pdf
risk, are being reimbursed based on quality and are, also, using certified EHR technology – the three statutory criteria required to be considered an “eligible alternative payment entity.” We therefore urge CMS to urgently publish and finalize the “new voluntary bundled care” models as Advanced APMs.

**Introduce physician leadership**

The current version of the CJR model exclusively allow the hospitals to choose to enter arrangements with other providers and facilities to share potential savings and risk. Physician practices realize only 15 percent of the income from a target price yet control 85 percent of the costs inherent in the care of the patient. In contrast, our recommendation to place a surgeon as head, or co-head, of episodes would significantly reduce barriers to achieving high quality patient outcomes. If the primary goal of these innovative demonstrations is to manage resources while improving the quality of care, physicians should be incentivized to lead the episodes to improve efficiency and effectiveness. CMS has repeatedly asked for feedback from stakeholders (most recently via Regulation No. CMS-1656-P; Title: Hospital Outpatient Prospective Payment - Proposed Rule 2017) on how to redesign the Medicare orthopaedic bundles such that they qualify as Advanced APMs. In response, AAOS has requested for greater risk sharing with orthopaedic surgeons in these models and have also asked for greater clarity on the risk percentage criteria required for qualifying APM participants (QP). Again, we will provide more detailed comments, in this regard, in response to ‘Cancellation of Advancing Care Coordination through Episode Payment and Cardiac Rehabilitation Incentive Payment Models; Changes to Comprehensive Care for Joint Replacement Payment Model’ (CMS-5524-P).

Moreover, physician leadership becomes imperative as the QPP gets implemented and attribution algorithms become significant for accurate reimbursement. In response to the CMS request for information on the MACRA Patient Relationship Categories (https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/MACRA-MIPS-and-APMs/Patient-Relationship-Categories-and-Codes.pdf), AAOS commented that the relationships and roles of physician (and non-physician) team members should be defined by the physician coordinating a particular bundle/episode of care. This is because physician-patient relationships are not linear nor do they always exist within a defined timeline, but are oftentimes built on commonality of focus on reaching and maintaining health care goals and positive patient outcomes. Thus, specialists may move between acute and continuing relationships with the same patient depending on the clinical nature of the particular episode of care. Having the hospital in charge of the bundle gives the hospital inappropriate leverage over surgeons and other participants and could allow some hospitals to exclude surgeons and other care providers if those parties don’t wish to meet the hospital’s terms.

**Absence of Risk-adjustment**
A recent analysis of Medicare claims for patients in Michigan who underwent lower extremity joint replacement in the 2011-13 period, concluded that hospitals treating medically complex patients may be unintentionally penalized without proper risk adjustment. Reconciliation payments were found to be reduced by $827 per episode for each standard-deviation increase in a hospital’s patient complexity. This study also estimated that risk adjustment could increase reconciliation payments to some hospitals up to $114,184 annually. Thus, the CJR and SHFFT models need financial, clinical and socio-economic risk adjustment. Another important point raised by this study, referenced above, is that these models are unique in that the target price is calculated as a blend of a particular hospital’s historical episode spending and the average spending of other hospitals in the same region with the weight of the regional benchmark increasing over time. Such a blending methodology is going to increase the financial disparity for hospitals treating more medically complex patients.

Further, we recommend that CMS publish implementation proposals based on the HHS-ASPE report titled ‘Social Risk Factors and Performance Under Medicare’s Value-Based Purchasing Programs.” The AAOS urges CMS to include important patient characteristics such as age, socio-economic status (SES), marital status, clinical co-morbidities, functional status, etc. apart from the target price stratification in both the CJR and SHFFT models. For a complete list of recommended risk variables, please see below. [Note: The same list was part of our comments on the CJR Proposed Rule in 2015 available online at: http://www.aaos.org/uploadedFiles/PreProduction/Advocacy/Federal/Issues/medicare/AAOS_CY2016_CMS_%20CCJR.pdf]

Priority List of Risk Variables

- Body Mass Index – The actual height and weight should be recorded. The BMI should not be captured from the administrative data. The height and weight are currently being recorded in many electronic health records (EHR).
- Race/Ethnicity – Race/ethnicity should be a patient-reported variable and may be recorded in the EHR.
- Smoking Status – Smoking status may be reported through administrative data but additional information may be provided from the EHR.
- Age – Age is reported in administrative data.
- Sex – Sex is reported in administrative data.
- Back Pain – Back pain would be a patient-reported variable and recorded in the EHR. It has been noted to influence outcomes of joint replacement patients.
- Pain in Non-operative Lower Extremity Joint – Pain in a non-operative lower extremity

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joint would be patient-reported variable and recorded in the EHR. It has been noted that pain in other extremities can influence the outcome of a total joint replacement.

- **Health Risk Status** – The actual comorbidities that should be included need further investigation. Both the Charlson morbidity index and the Elixhauser morbidity measure may identify appropriate comorbid conditions. In order to identify the patient’s comorbid conditions, it is recommended that all inpatient and outpatient diagnosis codes for the prior year be evaluated.

- **Depression/Mental Health Status** – The PROMIS Global or VR-12 will collect this variable, as well as the administrative data.

- **Chronic Narcotic or Pre-operative Narcotic Use** – These variables affect patient outcomes and requires additional consideration. The information should be available in the EHR.

- **Socioeconomic Status** – This variable affects patient outcomes and requires additional consideration. Further evaluation is required regarding how the data could be collected.

**Future Desired List of Risk Variables**

- Literacy
- Marital Status
- Live-in Home Support
- Family Support Structure
- Home Health Resources

**Risk Variables to Not Include**

- ASA Score
- Range of Motion (ROM)
- Mode of PROM Collection

**Publish peer-reviewed data on the demos**

The AAOS would like to reiterate the request for access to peer-reviewed demonstration data on BPCI and CJR. While the second year BPCI evaluation report has been published, there are several concerns with the study design and data validity. For example, there was no explanation for the cost deflation in the non BPCI-participant hospital groups if no specific programs were in place in those hospitals to reduce lower extremity joint replacement costs. There was no discussion of the ways in which this evaluation controlled for potential data contamination. If the control group data lacked experimental rigor, this raises a more vexing problem within the BPCI initiative and that is the issue related to the National Trend Factor (NTF) and its impact on pricing changes. The impact of the NTF on physician group practices and hospitals in the BPCI initiative has resulted in financial penalties for numerous participants. There are other known issues in the CMS/BPCI data which has led to thousands of errors related to the inappropriate
attribution of patients and physicians within the BPCI model. The recent publication does not discuss how the evaluation study controlled for this issue. It is not clear why the study only reviewed hospital participation in BPCI, without discussion of the rationale for not examining results of physician group practice-led BPCI bundles given that their number of episodes was at least equivalent to, if not greater than, those performed by the hospital participants. Access to raw demonstration data is essential for participants to gauge their own performance and strategic direction as well as to keep their focus on high quality patient care. We hope that CMS will consider these comments while developing the new voluntary bundled payment models.

**All-payer Combination APMs & Advanced APMs**

While the new regulations provide new avenues for participation in Advanced APMs, this option is limited to CMS programs such as Medicaid and Medicare Advantage. Consolidation with private payer APMs will truly hasten the movement to value based payment and will increase the breadth of patients provided high quality care. In fact, the Health Care Payment Learning & Action Network (LAN) was established as a collaborative network of public and private stakeholders, including health plans, providers, patients, employers, etc. and the recommendations of their technical expert panels and working groups should be taken into consideration to accelerate specialty-focused APMs.

**Qualified Clinical Data Registries (QCDR)**

**Self-nomination process**

AAOS appreciates the changes CMS has made to streamline the self-nomination process. The implementation of a web-based tool for future program years will simplify and considerably improve the process. The ability to attest that elements of the previous year’s application remain the same, rather than complete each item anew, will also help shorten the process. Additionally, CMS should consider that the new self-nomination forms are self-populating from the previous application.

Nevertheless, there have been further frustrations with the QCDR self-nomination process. AAOS urges CMS to extend the QCDR renewal period from one year to two years. Although many of the self-nomination improvements will alleviate some of the burden, an annual self-nomination cycle taxes QCDR resources.

**Use of another QCDR’s measure**

QCDR vendors may seek permission from another QCDR to use an existing measure that is

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owned by the second entity. However, the QCDR application currently does not ask about the ownership and licensing of non-MIPS measures. Hence, AAOS urges CMS to develop a process such that the intellectual property of measure developers is respected.

Per the proposed rule, a QCDR using another entity’s measure must have that permission by the time of self-nomination in order to include proof of permission for CMS review and approval for a given performance period. CMS should clarify what form proof of permission must take to satisfy the requirements of the self-nomination application process.

Access to Medicare claims data

AAOS appreciates CMS’ efforts to facilitate QCDR access to Medicare claims data. QCDRs and qualified registries are designed to collect and analyze data on patients, providers and medical devices for the purpose of improving patient safety and health outcomes and physician and medical device performance. Longitudinal device and patient tracking is nearly impossible without validation of patient encounters over time, location and health services. Surveillance of the outcomes of patients and devices requires the ability to follow both the patient and device through time and changes in health care provider. Unless registries can validate their data with real-time Medicare and non-Medicare claims data, their findings exist in a virtual vacuum and are of little benefit. With validation, registries can provide CMS with information that saves lives, improves physician and medical device performance which can provide significant cost savings to the Medicare program.

AAOS continues to urge CMS to implement Section 105(b) of the MACRA statute. The law included a provision, Section 105, “Expanding the Availability of Medicare Data,” which directs CMS to grant QCDRs access to real-time Medicare claims data for quality improvement and patient safety purposes. CMS is resisting implementation of Section 105(b) and instead directing registries to apply to the CMS Research Data Assistance Center (ResDAC) to obtain Medicare claims data. The ResDAC program was established to respond to requests from the research community and may not be appropriate to meet the continuous and comprehensive access to Medicare claims data required by QCDRs. AAOS held meetings with CMS and has been reassured that changes to the ResDAC application and data provision processes will prove satisfactory to meeting QCDR data needs. AAOS will continue to work with CMS to determine if the ResDAC program can meet the robust data validation needs of a QCDR.

Measure approval process

During the 2017 QCDR measure review period, QCDRs experienced a disorganized process with contradictions in the responses received from CMS staff and contractors. CMS has frequently set unreasonable deadlines for QCDRs to make changes to certain measures or replace other measures. Moreover, CMS has rejected measures without providing any rationale. Timely and consistent feedback is essential to improve on the quality program.
Additionally, QCDRs have concerns over topped-out measure determinations made by CMS. Under certain circumstances, a sub-specialty may not be able to maintain a QCDR due to lack of measures if their most relevant measures are topped out. The removal of the topped out measures will harm the ability of QCDRs to strengthen new measures, as well. CMS can view “topped out” measures as controls for new and developing measures by which true statistical validity and reliability can be assessed.

As CMS considers whether QCDRs that develop and report on their own measures must fully develop and test their measures by the time of submission (that is, conduct reliability and validity testing, one needs to view these terms carefully as present measure development does not require meeting the statistical definition of validity and reliability). AAOS would ask CMS to consider the burdens extensive pre-submission testing may put on many smaller, sub-specialty, or nascent QCDRs.

In conclusion, AAOS and our co-signing orthopaedic specialty societies appreciate your efforts to reduce administrative burden on clinicians and to introduce greater flexibility in reporting requirements in the QPP. We look forward to engaging with CMS, especially on developing outcome based measures for musculoskeletal care as well as on redesigning Medicare value-based payment models such that they are voluntary, physician-led, have accurate price setting, and provide access to data for all participants. Further, we would like to reemphasize that the guiding principle for CMS should be improving patient care. Thus, the QPP should be simplified not made more complex with each passing year. We are thankful for the opportunity to comment on this proposed rule and if you have any additional questions on our comments, please do not hesitate to contact AAOS Medical Director, William O. Shaffer, MD at shaffer@aaos.org.

Sincerely,

William J. Maloney, MD
President, AAOS

CC: David A. Halsey, MD, First Vice-President, AAOS
Kristy L. Weber, MD, Second Vice-President, AAOS
Thomas E. Arend, Jr., Esq., CAE, CEO, AAOS
William O. Shaffer, MD, AAOS Medical Director

This letter has received sign-on from the following orthopaedic specialty societies:

- American Association for Hand Surgery (AAHS)
- American Orthopaedic Society for Sports Medicine (AOSSM)
- American Shoulder and Elbow Surgeons (ASES)
- American Spinal Injury Association (ASIA)
- Arthroscopy Association of North America (AANA)
  - Cervical Spine Research Society (CSRS)
  - Musculoskeletal Infection Society (MSIS)
  - Musculoskeletal Tumor Society (MSTS)
- Orthopaedic Trauma Association (OTA)
- Ruth Jackson Orthopaedic Society (RJOS)
  - The Knee Society (KNEE)
  - The OrthoForum
- American Alliance of Orthopaedic Executives (AAOE)