# Table of Contents

- EXECUTIVE SUMMARY
- BACKGROUND
- METHODOLOGY
- HOW TO READ THIS REPORT
- RESPONDENT CHARACTERISTICS
- CHANGES IN PRACTICE VOLUME
- TREATMENT OF KNEE OSTEOARTHRITIS
- SURGERY SETTING
- BIOLOGIC THERAPIES
- PURCHASING
- EDUCATION AND TRAINING
EXECUTIVE SUMMARY

1) 2582 members of AOSSM were invited to participate in a survey regarding characteristics of and changes in their clinical practices. 658 individuals completed the survey which represents a response rate of 25.5%.

2) Approximately half of respondents indicated that their overall surgical volume had increased during the past three years. Most respondents reported an increase in the number shoulder procedures which was also reported in the 2009 survey.

3) The majority of respondents indicated that the economy and changes in patients’ insurance coverage had a negative effect on their overall surgical volume. Approximately half reported that the Affordable Care Act also had negative impact on surgical volume.

4) The majority of respondents have not changed their use of hyaluronic acid (HA) for knee osteoarthritis (OA) despite the recent AAOS Clinical Practice Guideline that gave a strong recommendation to not use HA for knee OA. Approximately a third of respondents indicated they had used HA more selectively either because of the recommendation or due to insurance reimbursement difficulties attributed to the recommendation.

5) Although there was interest in biologic treatments that are not yet developed, only a minority of respondents anticipated that biologics would play more than a minor role in their practices in the next five years.

6) Most respondents were at least somewhat satisfied with their ability to influence purchasing decisions for their primary OR products but indicated they were under pressure from administrators to reduce costs. The primary ways surgeons were encouraged to use to cut costs were to reduce the variety of items used and to negotiate with vendors to reduce costs.

7) Respondents indicated that industry should play a role in supporting educational and research activities. Most members plan to engage in scientific educational experiences such as attendance at scientific conferences and reading journal articles. A sizeable percentage also expressed interest in continued technique development through surgical skills courses, even those members with many years of experience. Internet-based education is also likely to be used by the majority of members, particular those early in their careers.
BACKGROUND

The 2015 Clinical Practice Characteristics Survey was developed by the American Orthopaedic Society for Sports Medicine (AOSSM) regarding characteristics and changes in clinical practice. The results of this survey will serve as benchmark information for future research.

METHODOLOGY

The web-based 2015 Clinical Practice Characteristics Survey was distributed to 2582 AOSSM members. Six hundred and fifty-eight (658) replied which represents a response rate of 25.5%. Because this is a somewhat low response rate (although it is typical for email surveys), it is unknown whether the results are representative of the AOSSM membership as a whole. Indeed, it is likely that respondents to this survey tend to be those who have stronger concerns related to the topic of the survey compared with non-responders.

Email survey invitations were sent on January 13, 2015. Data collection closed on February 3, 2015. Non-respondents were sent email reminders on January 20 and January 27, 2015 to answer to survey.

Online data were retrieved and tabulated by the AOSSM Department of Research. All responses are depicted in counts, percentages, and means or medians.

Statistical Sampling
The calculated margin of error for 658 responses is ±3.3 percentage points at the 95 percent confidence level. That is, we can be 95 percent certain that the target audience would have answered within 3.3 percentage points of the overall results shown in this report. The industry goal is to achieve ±5.0 percentage points at the 95 percent confidence level.

HOW TO READ THIS REPORT

The body of the report includes text, tables or graphs of the results to each question in the survey. The verbatim responses to the open-ended and “other (please specify)” questions are also included in the body of the report.

The results were cross-tabulated and analyzed by primary practice setting and years in practice. Significant differences among these segments are noted throughout the report. However, segments containing a small number of responses were not included in the written analysis as the results may not be strongly representative of all sports medicine orthopaedic surgeons in those segments.

A survey that contained some of the same questions as the present survey was sent to AOSSM members in 2009. For questions that were identical in each survey, the results from both years are presented together to examine potential trends or changes over time.
The following data portray information regarding the respondents themselves which provides a frame of reference when reviewing the results to this survey.

Fifty-nine percent of respondents are in private practice. One-third of those in private practice also have an academic affiliation. Twenty-one percent (21%) work full-time in a university setting and twenty percent (20%) work for a hospital or health network.

Of those who reported working in a hospital or health network, 40% indicated that their practice had been recently acquired by a hospital or health network. The median time the practice had been acquired was a little over two years (26 months) prior to the survey.

The vast majority of respondents (82%) were ACGME fellowship trained with 9% having completed a non-ACGME fellowship, 8% did not complete a fellowship, and less than 1% was not sure if they actually completed a fellowship.
Respondents represented a wide range of years in practice with roughly equal percentages from each of the categories. Compared with the 2009 survey, those newest to practice made up a significantly larger percentage of respondents (23% in 2014 vs. 9% in 2009).

**CHANGES IN PRACTICE VOLUME**

Respondents were initially asked, “Compared to three years ago, what change, if any, have you experienced in the number of surgeries you perform by type of surgery?” As can be seen in the tables below, 48% of respondents from the 2014 survey indicated that their total number of surgeries had increased whereas about one in five respondents (19%) reported a decrease in total surgical volume. A lower percentage of respondents in the 2014 survey reported decreased volume of specific procedures by anatomic region compared with the 2009 survey. Of the specific surgical procedures listed, the greatest percentage of respondents (55% and 50%) reported an increase in shoulder surgeries in both surveys. Not surprisingly, those earlier in their careers were more likely to report increases in surgical volume as their practices matured compared with respondents with more years in practice.

<table>
<thead>
<tr>
<th>Surgery</th>
<th>Decreased 2009</th>
<th>Decreased 2014</th>
<th>No Change 2009</th>
<th>No Change 2014</th>
<th>Increased 2009</th>
<th>Increased 2014</th>
<th>N/A** 2009</th>
<th>N/A** 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoulder procedures</td>
<td>23%</td>
<td>12%</td>
<td>23%</td>
<td>37%</td>
<td>55%</td>
<td>50%</td>
<td>5%</td>
<td>6%</td>
</tr>
<tr>
<td>Knee ligament reconstruction</td>
<td>30%</td>
<td>17%</td>
<td>33%</td>
<td>45%</td>
<td>37%</td>
<td>37%</td>
<td>4%</td>
<td>5%</td>
</tr>
<tr>
<td>Knee articular cartilage repair or regeneration</td>
<td>31%</td>
<td>17%</td>
<td>39%</td>
<td>55%</td>
<td>30%</td>
<td>29%</td>
<td>7%</td>
<td>10%</td>
</tr>
<tr>
<td>Meniscal surgery</td>
<td>18%</td>
<td>13%</td>
<td>46%</td>
<td>60%</td>
<td>36%</td>
<td>27%</td>
<td>3%</td>
<td>%</td>
</tr>
<tr>
<td>Elbow procedures</td>
<td>29%</td>
<td>25%</td>
<td>55%</td>
<td>59%</td>
<td>16%</td>
<td>15%</td>
<td>16%</td>
<td>22%</td>
</tr>
<tr>
<td>Hip procedures</td>
<td>*</td>
<td>26%</td>
<td>*</td>
<td>39%</td>
<td>*</td>
<td>35%</td>
<td>*</td>
<td>37%</td>
</tr>
<tr>
<td>OVERALL surgical volume</td>
<td>28%</td>
<td>19%</td>
<td>20%</td>
<td>33%</td>
<td>52%</td>
<td>48%</td>
<td>1%</td>
<td>5%</td>
</tr>
</tbody>
</table>

*not asked in 2009 survey; **indicates this type of surgery not performed
Factors Impacting Overall Surgical Volume

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The economy</td>
<td>63%</td>
<td>55%</td>
<td>33%</td>
<td>32%</td>
<td>4%</td>
<td>12%</td>
</tr>
<tr>
<td>Changes in patients’ insurance coverage</td>
<td>66%</td>
<td>57%</td>
<td>31%</td>
<td>36%</td>
<td>3%</td>
<td>8%</td>
</tr>
<tr>
<td>Changes in insurance reimbursements to you</td>
<td>54%</td>
<td>42%</td>
<td>44%</td>
<td>54%</td>
<td>2%</td>
<td>4%</td>
</tr>
<tr>
<td>The Affordable Care Act (ACA)</td>
<td>*</td>
<td>49%</td>
<td>*</td>
<td>39%</td>
<td>*</td>
<td>12%</td>
</tr>
</tbody>
</table>

*not asked in 2009 survey

Despite the improving economy, over half (55%) of respondents to the 2014 survey indicated that the economy continued to have a negative impact on their surgical volume although this percentage was down slightly from 2009. This was also the case for the effect of changes in patients’ insurance coverage. The majority (54%) of respondents indicated that changes in insurance reimbursements had no impact on their surgical volume although 42% indicated that these changes had a negative impact, down from 54% in 2009. Those in private practice were more likely to report negative effects for changes in both patients’ insurance coverage and in insurance reimbursements. Approximately half of respondents indicated the Affordable Care Act had a negative impact on surgical volume whereas 12% indicated that it had a positive impact. There was a trend for those earlier in their careers to report positive effects of these factors compared with those who had been in practice longer.

**TREATMENT OF KNEE OSTEOARTHRITIS**

**Hyaluronic Acid**

The 2009 survey revealed that two-thirds of respondents reported seeing an increase in young patients with early knee osteoarthritis (OA) in their practices. Hyaluronic acid is a treatment for younger patients who wish to decrease the knee pain often experienced by those with OA and is frequently employed to delay the need for knee arthroplasty. However, in 2013, the American Academy of Orthopaedic Surgeons revised their Clinical Practice Guideline on the treatment of knee osteoarthritis and recommended that clinician not use hyaluronic acid for knee OA. We were interested in the impact that this recommendation would have on the clinical practice for knee OA by our members. The results shown in the table below indicate that over half of the respondents indicated that the recommendation had no impact on their use of HAs for knee OA. Only 2% reported that they stopped using HAs because of the recommendation and about a third (37%) reported using HAs more selectively following the recommendation. The open-ended comments indicated that some respondents have been experiencing difficulty getting insurance carriers to cover the costs of HA injections.
### Impact of Recommendation
**On Use of HAs for Knee OA**

<table>
<thead>
<tr>
<th>Impact Description</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>I was not aware of this recommendation</td>
<td>5.6%</td>
</tr>
<tr>
<td>The recommendation has not affected my use/prescription of HAs for knee OA</td>
<td>56.4%</td>
</tr>
<tr>
<td>I have stopped using/prescribing HAs for knee OA as a result of the recommendation</td>
<td>2.0%</td>
</tr>
<tr>
<td>I have used/prescribed HAs more selectively than before as a result of the recommendation</td>
<td>28.4%</td>
</tr>
<tr>
<td>I have stopped using/prescribing HAs for knee OA due to reduced reimbursement rates that I attribute to the recommendation</td>
<td>0.3%</td>
</tr>
<tr>
<td>I have used/prescribed HAs more selectively than before due to reduced reimbursement that I attribute to the recommendation</td>
<td>8.3%</td>
</tr>
</tbody>
</table>

**OTHER IMPACTS:**
- Insurance companies do not pay for HA injections in patients who have had a track record of good clinical response
- I continue to recommend it as I have seen its benefit but am concerned about future reimbursements.
- One insurance carrier has stopped paying for it so this has resulted in fewer injections
- I have to petition insurance more often for use
- This recommendation has made it very challenging to have HA approved by insurance companies. Many of my patients have been successfully treated with HA injections and are delaying TKA as a result of this success.
- AAOS has caused new insurance issues
- Much harder to get approval for HA injections
- For a few insurers, the authorization process has become more difficult. Aetna forces patients to have intra-articular steroid injection before considering approval for Visco supplement
- I have used HA less/more selectively because of changes in insurance coverage for the medication
- I believe it is a significant disservice to patients when AAOS came out with this recommendation
- Certain insurers have stopped covering HA's leading patients to choose to pay out of pocket or not when HA is recommended.
- I think insurance issues are the largest reason I use it less, but I was conservative with its use anyway, and I see a lot of knee OA.
- Denial is more frequent. Very frustrating for patients
- Insurance authorization hassles, ordering for patients
- Insurance authorization issues have impacted use
- No longer available to me, organization decision.
- The CPG has been used incorrectly against my practice and insurance companies in Western New York have stopped covering HA injections.
- I continue to use, but it is more difficult to gain approval and now more red tape to get HA injections approved.
- Tougher to get authorized by insurances
I have many patients whose arthritis pain has been well managed with HA injections, but their insurance will no longer cover it so they are having to resort to narcotics and more are having surgery earlier than they would have otherwise.

Insurance companies stopped allowing VS.

Insurance companies may now only cover a particular brand in their formulary.

Screwed up some insurances paying for this treatment!

It has created more work for my staff in obtaining preapproval and some patients cannot get the treatment due to denial by their insurance carrier.

I tried to stop using this medication based on the recommendation but patients request the medication and they have limited additional options.

I stopped using it in my practice then because of patient demand and insurance companies failing to authorize surgery unless we had tried a bunch of stupid injections I really started using it.

Patient/physician request for these services.

Patients still desire to use it even after discussing research on this treatment modality.

Sometimes patients are convinced it will help despite the recommendation.

Patient driven.

Last resort now and usually reserved for those who have had success with it in the past or who ask for this treatment because a friend had success.

The recommendation is based on poorly selected studies/articles and ignores other well done studies which demonstrate a improvement in pain and a benefit for my patients. Therefore I choose to ignore this AAOS clinical guideline recommendation.

I did not believe in its efficacy. Still do some for patients that want to try and have failed everything. Seeing more arthritis over the last few years.

Had already had very limited use.

I have always been somewhat skeptical of this product and I make patients aware of the controversy as there is a heavy marketing component of this product from industry and non-orthopedic practitioners.

Use PRP frequently in place of HA due to recent literature.

I inform patients it is temporary relief.

Less likely to attempt with severe OA.

I was surprised the Academy made such a recommendation.

My use was already very selective (young patients only) and this reaffirmed my belief that visco is not overly beneficial for older patients with OA.

My use/prescription has decreased slightly, but the availability for patients has decreased as well.

I discourage HA most of the time.

I continue to use at the same rate and tell patients about how I think selectivity affects outcome. My patients are VERY happy with the injections.

More difficult to get approval for the product.

I think it is crap.

The recommendation had ZERO impact on my use of HA.

I continue to use but inform patients of the Academy's "flawed" position on the subject.

I don’t use in knee that hasn't undergone arthroscopy in more than a year.
• More extensive discussion of available data, patient education when utilizing viscosupplements
• I have observed my patients responses and disagree with the recommendations
• personal experience drives practice patterns, not just AAOS guidelines
• I think it was great, it supported my interpretation of the science and my experience of patient results who go the injections by me and/or others.
• I tell the patient about the recommendation
• I still feel HA is a viable and effective treatment in selected patients. I do not agree with conclusion to be against HA injection. At worst it should have been neither for nor against just like cortisone injections.
• I tell patients about this recommendation but it is still an option that may provide them relief and delay/prevent at TKA
• I tell patients that the AAOS does not recommend them
• I leave the final decision up to the patient

The results from the question, “How much do you use/prescribe hyaluronic injections for patients with painful knee OA who meet the indications for HA use?” are shown below. Over half of respondents use HA for knee OA often or very often. Respondents in private practice were more likely to report using HA often or very often compared with those in other practice settings.

| I don’t treat patients with knee OA | 2.3% |
| Never                             | 3.1% |
| Rarely                            | 10.7%|
| Sometimes                         | 31.3%|
| Often                             | 37.3%|
| Very Often                        | 15.3%|

Unicompartmental Arthroplasty
An alternative to total knee replacement (TKR) for select patients with OA on only one side of the knee is unicompartmental arthroplasty. Overall, 27% of respondents reported that they had performed one or more unicompartmental knee replacements in the last 12 months. Of those who had performed at least one, the median number performed was 5 with a maximum of 70. There were no differences in the percent of respondents who performed a unicompartmental knee replacement by years in practice. Respondents who work in a university setting were less likely to report having performed a unicompartmental knee replacement (16%) compared with those in private practice only (34%) or those in private practice with an academic appointment (30%).

**SURGERY SETTING**

Three-quarters of respondents reported performing surgeries in both hospitals and ambulatory surgical centers in the past three years whereas 22% performed surgeries only in a hospital setting. These percentages were unchanged from the last survey. Respondents who work in a hospital or health network were much more likely to report performing surgeries only in a hospital setting. In 2014, 48% of all surgeries were performed in a hospital setting and 61%
were performed in an ambulatory surgical center. Again, these percentages are virtually identical to those reported in the 2009 survey. As was the case in the 2009 survey, over a third of respondents reported a decrease in the number of surgeries they perform in hospitals and over 40% indicated an increase in the number performed in ambulatory surgical centers compared to three years ago.

**Facilities Where Surgeries Were Performed in the Last 3 Years**

There was a slight drop between the 2009 and 2014 surveys in the percentage of respondents who have ownership in surgical centers, imaging centers, and physical therapy centers. It is possible that the larger percentage of early career respondents in the 2014 survey may have partially accounted for this difference. In 2014, 46% of respondents had ownership in at least one of these centers and almost a third (32%) had ownership in two or more of these centers (the raw data from 2009 was not available to compare).

**Facility Ownership**
BIOLOGIC THERAPIES

Biologic therapies such as stem cells, platelet-rich plasma, and growth factors have created much excitement within orthopaedics as methods to enhance the healing process in biologically compromised and injured tissues. Biologics have a special appeal in sports medicine because of their potential to accelerate healing in patients for whom quick return to activity is of great importance. Moreover, biologics may improve the biomechanical quality of healing beyond that achieved by surgery which can meet the unique demands athletes place on their tissues. Despite the potential of these therapies, only a quarter of respondents to the present survey anticipated they would use different biologics more than a little.

### Anticipated Use of Biologics in the Next Five Years

<table>
<thead>
<tr>
<th>Biologic Therapy</th>
<th>Not at all</th>
<th>A little</th>
<th>Moderately</th>
<th>A lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platelet-rich plasma (PRP)</td>
<td>24%</td>
<td>52%</td>
<td>20%</td>
<td>5%</td>
</tr>
<tr>
<td>Novel articular cartilage regeneration therapies</td>
<td>25%</td>
<td>51%</td>
<td>20%</td>
<td>4%</td>
</tr>
<tr>
<td>Stem cells/cell therapy</td>
<td>39%</td>
<td>44%</td>
<td>13%</td>
<td>4%</td>
</tr>
<tr>
<td>Scaffolds (e.g., rotator cuff, meniscus)</td>
<td>41%</td>
<td>47%</td>
<td>12%</td>
<td>1%</td>
</tr>
</tbody>
</table>

**COMMENTs:**

- None--expensive, unproven
- Unless we develop something efficacious
- I await Evidence
- If DeNovo data comes forth
- Insurance reimbursements will determine my use
- Designer drugs for chronic pain
- I would use the latter two if some products currently under development, or approved outside the US, become available here
- I will likely increase the use of stem cells and novel cartilage regeneration but not PRP which will stay the same
- Autologous chondrocytes
- Chondrofix
- OCD treatment
- ACI

When given a free response opportunity to indicate desired biologic treatments for the future, respondents frequently mentioned articular cartilage regeneration/restoration products, meniscal products (e.g., scaffolds), biologics to augment rotator cuff repair, and stem cells.

**“What biologic therapy and for what specific condition/application would you most want that is not currently available?”**

- 3D scaffold printing
- ACI, chondral defects
- ACI/MACI
- Advanced generation ACI for treatment of articular cartilage defects in the knee, shoulder, ankle and hip
- ACL graft
- ACL healing
- ACL Ligament injuries
- ACL repair
- Cytonics APIC plasma poor protein injection
- Articular cartilage
- Articular cartilage
- Articular cartilage defects
- Articular cartilage for localized defects
- Articular cartilage regeneration
- A proven articular cartilage regeneration
- Articular cartilage regeneration and healing for rotator cuff and ACL
- Articular cartilage repair tissue - for global issue like arthritis, not just focal lesion
- Articular cartilage restoration
- Articular cartilage restoration products/procedures
- Articular cartilage scaffolds
- Articular cartilage scaffolds
- Articular cartilage scaffolds that are not available in the US
- Articular restoration
- Articulate cartilage
- Articulate cartilage and/or meniscus regeneration
- Therapy for Articular Cartilage Injuries
- Articular cartilage regrowth arthroscopically
- Benninghoff Arcades
- Better ability to culture cells ex vivo and re-implant subsequently.
- Better cartilage regeneration therapies
- Better cartilage therapy
- Better cheaper cartilage regrowth in the knee
- Biologic therapy for OA / Chondropenia
- Cartilage regeneration
- Cartilage regeneration
- Cartilage regeneration
- Cartilage regeneration
- Cartilage Regeneration
- Cartilage regeneration
- Cartilage repair
- Cartilage repair
- Cartilage repair
- Cartilage restoration
- Cartilage restoration
- Cartilage restoration
- Cartilage restoration
- Cartilage restoration not available in Canada
- Cartilage scaffolds for articular defects.
- Regeneration of articular cartilage
- Effective ability to regenerate hyaline cartilage
- Injectable cartilage regeneration
- Regeneration of hyaline cartilage for OA
- DeNovo
- DeNovo ET, MACI
- DeNovo for tibia and patella If data can support its use
- MACI
- MACI
- MACI
- MACI
- MACI
- MACI
- MACI
- MACI
- MACI
- MACI
- MACI (matrix applied carticel implantation)
- MACI for articular cartilage defects
- MACI for focal chondral lesions
- MACI for knee OA
- MACI scaffold for ACI
- MACI, knee cartilage
- Advanced MACI technology that is currently available in Europe.
- Matrix embedded chondrocytes
- Matrix ACI
- Matrix assisted autologous chondrocyte implantation
- 1 stage articular cartilage implant that works
- Single stage ACI
- One step autograft articular cartilage implantation
- Single stage treatment of full thickness chondral defects
- Chondral defects
- Chondral Repair
- Chondralacia
- Chondrosis
- DJD
- DJD knee
- Effective biological therapy for DJD, meniscal tears, and cuff tears.
- Easier/better treatment options for knee and ankle cartilage defects
- Enhancement of tendon, ligament and meniscal healing
- Foam spray ACI
- Fracture and musculotendinous and ligament healing
- Growth factors for tendon healing
- Hip ensenopsthy PRP
- Hyaluronic acid
- Hylagraft - OCD knee
- I would PRP and Stem more if they were reimbursable
- Improved and more reliable cartilage restoration therapy
- Improved osteochondral
- Injectable bone healing stimulant
- Injectable for knee OA
- Injectable immunomodulator to reduce risk of post-traumatic arthritis after shoulder instability, ACL injury etc.
- Insurance coverage for PRP to the arthritic joint (knee, shoulder, ankle)
- Knee cartilage OCD and fractures
- Knee cartilage
- Knee OA
- Level 1 proven
- Magic with Level 1 EBM
- Make ACL primary repair a reality
- Meniscal
- Meniscal replacement
- Artificial meniscus
- Meniscal scaffold
- Meniscal scaffold
- Meniscal scaffold
- Meniscal scaffold (Actifit), MACI
- Meniscal scaffold after partial menisectomy
- Meniscal scaffold/stem cells
- Meniscal scaffolds
- Meniscal scaffolds
- Meniscal scaffolds
- Meniscal scaffolds as used in Europe
- Meniscal scaffolds for radial tears
- Meniscus scaffold
- Meniscus scaffold
- Meniscus scaffolds that are available off the shelf
- Viable meniscus scaffold
- Meniscal scaffold
- "White" zone meniscus repair
- Meniscus
- Meniscus
- Meniscus
- Meniscus
- Meniscus
- Meniscus and articular cartilage
- Meniscus replacement
- Meniscus replacement
- Meniscus replacement
- Meniscus replacement or cartilage replacement
- Molecule to alter progression of PTOA following acute injury
- More alternatives for cartilage and meniscal repair
- Near total meniscectomy in young patients
- New biologic injectable therapy for knee and other joint osteoarthritis
- One that actually works
- One that has evidence of working
- Patella femoral cartilage loss
- Patella osteochondral allograft
- Predictable injections for tendinopathies or OA
- Proven stem cell therapies for soft tissue repairs
- PRP
- PRP
- PRP for DJD
- PRP for Knees - reimbursement from insurance
- PRP for lateral epicondylosis, patella tendinosis, and hamstring tendinosis
- PRP Knee OA
- Optimal PRP (be able to select the cell breakdown based on injury and patient specific factors
- PRP reimbursement for OA of the knee, hip, shoulder
- PRP rotator cuff
- Putty matrix for cartilage
- RC cuff bioscaffold
- RCR stim therapy
- Regenerative paste to fix rotator cuff defects without stitches
- Reginekine
- Repair unrepairable rotator cuff tears.
- Rotator cuff
- Rot cuff patch
- Rotator cuff
- Rotator cuff augments that work
- Rotator cuff biologic that worked(i.e. reliable effective and predictable and met reasonable standards of evidence based medicine)
- Rotator cuff biologics
- Rotator cuff growth factors to promote healing
- Rotator cuff healing
- Rotator cuff healing (needs to be affordable to use in our surgery center)
- Rotator cuff repair
- Rotator cuff repair
• Rotator cuff tears
• Rotator cuff. current options with poor real data
• Cuff healing
• Cuff repair
• Cuff repair, MACI
• Cuff repairs, shoulder arthritis
• Cuff tears
• Option for patients with massive RTC tear
• Improve/accelerate rotator cuff healing
• Improved rotator cuff healing
• Improved rotator cuff scaffold
• Improving healing rates for RC repair
• Gene-based therapy for rotator cuff disease
• Biological rotator cuff augment
• Bridge for irreparable rotator cuff tears
• Bridging rotator cuff
• Augment cuff repair
• Successful cuff repair augmentation
• RTC Augmentation
• Tissue regeneration (not repair) on the rotator cuff
• Scaffold for RTC repair; meniscal replacement
• Scaffolds for rotator cuff repair; articular cartilage therapies
• Scaffolds for rotator cuff tears
• Better scaffold for RC
• A "perfect" rotator cuff scaffold
• Tendon bone scaffold for RCR
• Scaffold ACI for chondral lesions
• Scaffold for ACI
• Scaffold for stem cells
• Scaffolds
• Scaffolds and stem cells for articular cartilage.
• Scaffolds for ACL grafts
• Scaffolds for cartilage reconstruction
• Scaphoid for attic cartilage and for lig recon
• Soft tissue repair
• Something better for knee articulate cartilage
• Something that could help restore cartilage/meniscus structurally and functionally
• Adipose derived stem cells
• Adipose stem cells
• Stem
• Stem cell
• Stem cell
• Stem cell
Despite the appeal of innovative treatments, a large percentage (61%) of respondents indicated they had difficulty getting reimbursed for experimental procedures in the past year. This result was very similar to that reported in the 2009 survey.
Responses to the question, “How influential are the following factors in your decision to purchase a product?” revealed that purchasing decisions are driven by the scientific literature for the vast majority of respondents. Ninety-six percent of those who completed the survey reported that a product’s ability to improve outcomes based on published research is moderately to extremely influential in their decision to purchase a product. A product’s ability to improve efficiency also was endorsed as being an important factor in purchasing decisions. Familiarity and comfort with a product and company, price, and recommendation by a colleague was cited as moderately important by most (modal) respondents. Knowledge and competence of sales associate, regional and national contracts, and a company’s training program are relatively unimportant in the decision to purchase a product for the majority of respondents. Two-thirds of respondents indicated that journal ads have no influence in their purchase decisions.

### Influential Factors in Purchase Decisions

<table>
<thead>
<tr>
<th>Factor</th>
<th>No Influence</th>
<th>Slight Influence</th>
<th>Moderate Influence</th>
<th>Extreme Influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product’s ability to improve outcomes based on published research</td>
<td>0%</td>
<td>3%</td>
<td>27%</td>
<td>69%</td>
</tr>
<tr>
<td>Product’s ability to improve efficiency</td>
<td>1%</td>
<td>15%</td>
<td>54%</td>
<td>30%</td>
</tr>
<tr>
<td>Familiarity and comfort with product and company</td>
<td>2%</td>
<td>15%</td>
<td>54%</td>
<td>30%</td>
</tr>
<tr>
<td>Price</td>
<td>5%</td>
<td>31%</td>
<td>50%</td>
<td>15%</td>
</tr>
<tr>
<td>Recommendation of colleague(s)</td>
<td>1%</td>
<td>31%</td>
<td>57%</td>
<td>11%</td>
</tr>
<tr>
<td>Reimbursement</td>
<td>22%</td>
<td>41%</td>
<td>30%</td>
<td>7%</td>
</tr>
<tr>
<td>Knowledge and competence of sales associate</td>
<td>16%</td>
<td>52%</td>
<td>29%</td>
<td>3%</td>
</tr>
<tr>
<td>Regional and national contracts</td>
<td>36%</td>
<td>41%</td>
<td>20%</td>
<td>4%</td>
</tr>
<tr>
<td>Company’s training program</td>
<td>31%</td>
<td>48%</td>
<td>20%</td>
<td>1%</td>
</tr>
<tr>
<td>Journal ads</td>
<td>67%</td>
<td>30%</td>
<td>3%</td>
<td>0%</td>
</tr>
</tbody>
</table>

When asked, “Overall, how satisfied are you with your ability to influence purchasing decisions made for your primary OR products?” just over half (52%) of the respondents are satisfied whereas over a quarter (27%) reported some degree of dissatisfaction. The findings are relatively unchanged from 2009 although the percentage of dissatisfaction was slightly lower in 2014 (35% vs. 27%).

When asked how much pressure they have experienced from their facility to reduce costs during the last year, over half (57%) of respondents reported receiving at least moderate pressure and a quarter reported significant to extreme pressure. The percentage of respondents who reported no
or only slight pressure increased slightly from 36% in 2009 to 44% in 2014. The most prevalent recommendation made by administrators for reducing costs was to reduce the variety of surgical items available from which to choose followed by requesting vendors reduce prices. The results were virtually identical to those reported in the 2009 survey.

Level of Pressure Received from Facility to Reduce Costs

Recommendations by Administrators for Reducing Costs

Other:
- Reprocessing
- Re-use disposables
- Reuse items
• Reusing some equipment
• Recycle shavers
• Recycle
• Reprocess and use generic saws and drill bits
• Work w administration and other MD's to use volume and outcomes to choose products and reduce costs
• Substitute less expensive items
• Choose cheaper products, or use contracted equipment and supplies, unannounced changes of disposables/suppliers
• Contract bidding
• Purchasing group
• Have multiple surgeons agree to one product for a specific procedure to get volume discounts
• Cost comparison
• Use lower cost items that aren't specific surgeon requests - drapes, gloves, etc.
• Less anchors
• Don't allow new products
• Delay upgrades and new products
• Trying to have all orthopods use the same dressings, injection, etc.
• Regional purchasing group decides on a vendor and signs a contract over a certain number of years. Once contract in place, difficult to use products from other vendors.
• Disapprove any item no insurance pre-authorized
• Use older antiquated equipment purchased by the hospital at a decreased cost
• Establish co-management programs or enlist physician help
• Change systems
• Switch vendors for disposables used without input. Had meeting with select surgeons to push vendors to lower prices
• Delay updating/purchasing equipment
• Use the companies and implants that cost less
• Compromise care
• Limit vendors to two or fewer hospital-wide for orthopedic procedures
• Limit number of vendors
• Standardization to a single company
• Change vendors and/or implants and devices
• MD's are part owners of specialty hospital so we are self-induced to control costs
• We own our ASC and therefore are very cognizant of price and usage
• Some reduction in personnel, more inpatient procedures being moved to observation status or outpatient.
• One time use of a new product
• Co Management Agreement
• Just go without
• We are physician led we make decisions
• Agree with a contract that a hospital/surgery center approves
- Continue to limit patients that can be seen at non hospital based facility, although much of this is likely in response to insurance restrictions and due to pressure on legislators or insurance from hospital lobbyists
- Demand matching for joint implants
- Reduce number of procedures performed (MILITARY)
- Operate somewhere else
- Cut staff
- Co-management agreements
- Better sterile processing use
- I have been more proactive about understanding costs than my facility
- Don't admit patients for observation, shorten OR time

**EDUCATION AND TRAINING**

From responses to the question, “Which of the following methods are you likely to use in the near future for meeting your annual CME requirements?” it is apparent that the vast majority of respondents (93%) plan to attend scientific conferences this year. Over half of respondents (53%) report they are likely to read educational material and then complete a post-test to obtain CME credit this year. Many respondents (51%) also plan on attending an onsite surgical skills course. This interest was more commonly endorsed by those in practice for 0 to 5 years compared with those who have been in practice longer. A majority of respondents reported some likelihood of using web-based educational resources although this interest was also associated with years in practice. Interest in topic-specific didactic conferences and podcasts appears to be relatively low.

<table>
<thead>
<tr>
<th>Method</th>
<th>Likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-site attendance at a scientific conference (e.g., Annual Meeting)</td>
<td>93.4%</td>
</tr>
<tr>
<td>Reading journal articles and completing a post-test</td>
<td>53.0%</td>
</tr>
<tr>
<td>On-site attendance at a surgical skills course</td>
<td>50.6%</td>
</tr>
<tr>
<td>VuMedi or other online surgical videos</td>
<td>50.6%</td>
</tr>
<tr>
<td>Webinars or on-line courses</td>
<td>50.1%</td>
</tr>
<tr>
<td>On-site attendance at a didactic course such as Advanced Team Physician, Hockey, etc.</td>
<td>34.1%</td>
</tr>
<tr>
<td>Podcasts</td>
<td>15.2%</td>
</tr>
</tbody>
</table>

Industry support for education was uncontroversial for most respondents. Seventy-eight percent of respondents to the 2014 survey agreed that industry should support AOSSM CME courses with only 4% disagreeing. There was slightly more disagreement about the role of industry in supporting the education of residents and fellows but most agreed that this was appropriate (67% agree, 12% disagree). The results were similar for the item regarding industry support for education programs for Board-certified physicians. The survey results indicate that most respondents believe that industry should play a role in supporting AOSSM research however the percentage was somewhat less than in the 2009 survey.
| Industry should play a role in the education of residents and fellows | Disagree 2009: 14% | Neutral 2009: 19% | Agree 2009: 67% | Disagree 2014: 12% | Neutral 2014: 24% | Agree 2014: 63% |
| Industry should play a role in providing medical education programs to Board-certified physicians | * | 7% | * | 26% | * | 67% |
| Industry should play a role in financially supporting AOSSM CME programs | 6% | 10% | 18% | 85% | 78% |
| Industry should play a role in financially supporting independent AOSSM research projects | 2% | 8% | 23% | 90% | 68% |

*question not asked in the 2009 survey

When asked, “How important is it that AOSSM be actively involved in the following areas [see below]?” the vast majority of respondents believed AOSSM should play a role in lobbying/advocacy, in educating members regarding health policy issues, and in practice management training. Over half thought it is very important for AOSSM to be involved in coding activities.

**Importance of AOSSM’s Active Involvement in the Following Activities**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Not important</th>
<th>Somewhat important</th>
<th>Very important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lobbying/advocacy</td>
<td>3%</td>
<td>27%</td>
<td>70%</td>
</tr>
<tr>
<td>Educational activities for members regarding health policy issues</td>
<td>2%</td>
<td>31%</td>
<td>67%</td>
</tr>
<tr>
<td>Practice management training and updates</td>
<td>3%</td>
<td>35%</td>
<td>62%</td>
</tr>
<tr>
<td>Coding</td>
<td>4%</td>
<td>40%</td>
<td>56%</td>
</tr>
</tbody>
</table>