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2020 AAHKS Annual Meeting Symposium

# Current Practice Trends in Primary Hip and Knee Arthroplasties Among Members of the American Association of Hip and Knee Surgeons: An Update During the COVID-19 Pandemic

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ABSTRACT

At the hybrid 2020 Annual Meeting of the American Association of Hip and Knee Surgeons, an audience response poll was conducted to determine current practice patterns among its members. The poll was completed via a mobile application (ie, app) due to the COVID-19 pandemic, and allowed both in-person and virtual attendees to provide responses to multiple choice questions related to practice patterns pertaining to primary total hip arthroplasties and primary total knee arthroplasties. Moreover, results were compared to findings from previous polls.



The 2020 Annual Meeting of the American Association of Hip and Knee Surgeons (AAHKS) was executed in a hybrid fashion due to the COVID-19 pandemic, allowing both in-person/live and virtual attendees. As has been performed every other year, the senior author (DJB) performed a poll of AAHKS members about their current practice patterns [1,2]. Participants responded via a mobile-based application (ie, app) whether they attended in-person or virtually.

In this paper, we present the 2020 practice patterns, and analyze trends over the last several years from similar polls [1,2].

## Patient and Methods

The poll was conducted virtually to in-person attendees in Dallas, TX, as well as virtual participants utilizing a mobile-based app by the session moderator (DJB). The audience was shown a series of individual slides via a virtual platform that contained questions with multiple choice responses (Appendix A). The audience was given 5-10 seconds to respond to each question. Thereafter, results were shown to the moderator and audience in real time via the virtual platform. As with previous polls, fractional percentages of 0.5 or greater were rounded to the higher integer. As such, some total percentages slightly exceeded 100%.

Overall, the 30th Annual Meeting of AAHKS had 1471 total attendees at some time during the meeting. Of the 1471 attendees (inclusive of industry representatives and AAHKS staff), 497 were in-person and 974 attended the meeting virtually.

## Results

There were 54 questions in the 2020 Annual Meeting poll. The mean number of responses to each question was 340 (range 243-370). This was a decrease from the mean number of responses in the 2018 poll which was conducted in-person during the AAHKS annual meeting and which included a mean of 596 responses for the questions in the primary total hip arthroplasty (THA) section (43% decline) and a mean of 628 responses for the questions in the primary total knee arthroplasty (TKA) section (46% decline) [1].

Investigation was performed at the Mayo Clinic, Rochester, MN.

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*Primary Total Hip Arthroplasty*

The most commonly utilized operative approaches for primary THAs were posterior (46%) and direct anterior (45%), accounting for over 90% of cases. Anterolateral approach only accounted for 9%, followed by two-incision in 1%. Compared to 2018 [1], the direct anterior approach (DAA) has increased by 5% (40% to 45%), the anterolateral approach has decreased by 3% (12% to 9%), and the posterior approach has decreased by 1% (Fig. 1). In regards to the DAA, 17% stated they have not tried it and do not plan on trying it, 6% have not tried it but are thinking about it, 22% have tried it but discontinued it, and 55% are doing the DAA currently.

Similar to the 2018 poll, uncemented femoral component fixation remains predominant in primary THAs. Thirty-three percent of respondents use an uncemented femoral component in virtually all of their primary THA cases, 60% use uncemented stems in 75%-99% of cases, 4% use uncemented stems in 50%-74% of cases, and 2% use uncemented stems in less than half of their cases. This is very similar to the findings in the 2018 and 2009 polls [1,2]. When using an uncemented stem, dual-tapered wedge stems have increased by 13% to 64% (51% in 2018), tapered parallel-sided stems have decreased by 14% to 26% (40% in 2018), extensively porous-coated stems have decreased from 4% to 2%, and short stems have remained constant at 7% (6% in 2018) [1].

When using cemented femoral component fixation, 65% prefer a collared composite beam design and 35% prefer a polished tapered collarless stem. Compared to 2018 [1], collared composite beam stems have increased by 4% (61% in 2018) while polished tapered collarless stems have decreased by 4% (39% in 2018). When focusing only on patients 80 years of age and older, 18% routinely utilized cemented stem fixation (defined as >90% of the time), 38% used cemented stems some of the time (defined as 10%-90% of the time), and the majority (44%) routinely used uncemented stems (defined as >90% of the time).

Bearing surface use has seen an evolution since our 2 previously published polls [1,2]. The vast majority of respondents (92%) in 2020 utilized exclusively bearings with cross-linked polyethylene (PE) (Fig. 2). This is a stark contrast to the same question being asked in 2009 and 2018 where the number was 18% and 78%, respectively [1,2].

Another area of great interest surrounds the use of ceramic/ceramicized femoral heads. When combined with a PE bearing in 2020, 56% of respondents use a ceramic/ceramicized femoral head in 100% of cases, 31% of respondents use a ceramic/ceramicized femoral head 50%-99% of the time, 4% use a ceramic/ceramicized femoral head 25%-49% of time, 7% use a ceramic/ceramicized femoral head 1%-25% of the time, and 2% never use a ceramic/ceramicized femoral head. The biggest change from 2018 is the percent of respondents who use a ceramic/ceramicized femoral head in 100% of cases, which increased by 15% from 41% in 2018 to 56% in the current poll (Fig. 3) [1]. Interestingly, much of increase in ceramic/ceramicized femoral head use has occurred in patients over 70 years of age. In that particular cohort, 56% of respondents use a ceramic/ceramicized femoral head 100% of the time, 24% use a ceramic/ceramicized femoral head 50%-99% of the time, 2% use a ceramic/ceramicized femoral head 25%-99% of the time, 8% use a ceramic/ceramicized femoral head 1%-25% of the time, and 9% never use a ceramic/ceramicized femoral head. When compared to 2018 [1], there has been a 21% growth in the use of ceramic/ceramicized femoral heads used in patients over 70 years of age 100% of the time (35% in 2018 to 56% in 2020).

This is now the second contemporary AAHKS poll specifically asking about the use of dual-mobility constructs in primary THAs. In our 2018 poll [1], 27% of respondents never used dual-mobility constructs in the primary setting, 42% used dual-mobility constructs in rare selected cases (less than 2%), 19% used dual-mobility constructs in 3%-10% of cases, 8% used dual-mobility constructs in 11%-50% of cases, and 4% used dual-mobility constructs in greater than 50% of cases. In the updated 2020 poll, the percent of respondents who never use dual-mobility constructs in the primary setting has decreased by 7%, from 27% in 2018 to 20% in 2020 [1]. Moreover, the percent of respondents who use it in 3%-10% of cases has increased by 7% from 19% in 2018 to 26% in 2020 [1].

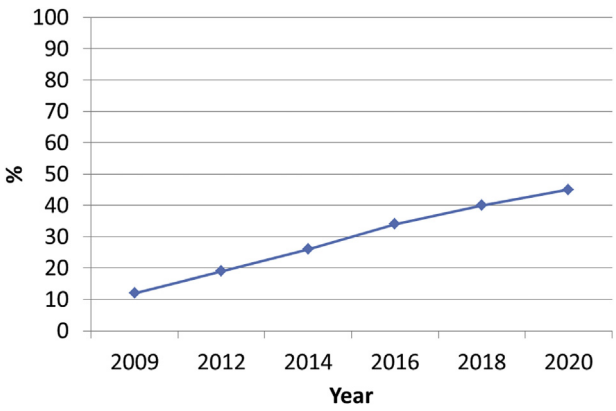


**Fig. 1.** Graph depicting increasing use of direct anterior approach for primary total hip arthroplasty from 12% of respondents in 2009 to 40% of respondents in 2018 to 45% of respondents in 2020.

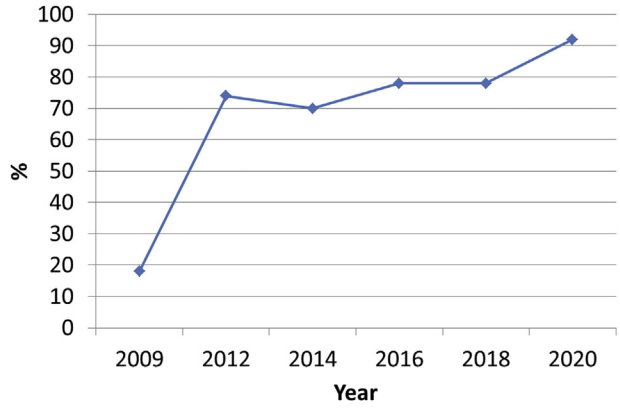


**Fig. 2.** Graph depicting increasing use of polyethylene as the bearing surface of choice in primary total hip arthroplasties from 18% of respondents in 2009 to 78% of respondents in 2018 to 92% of respondents in 2020.

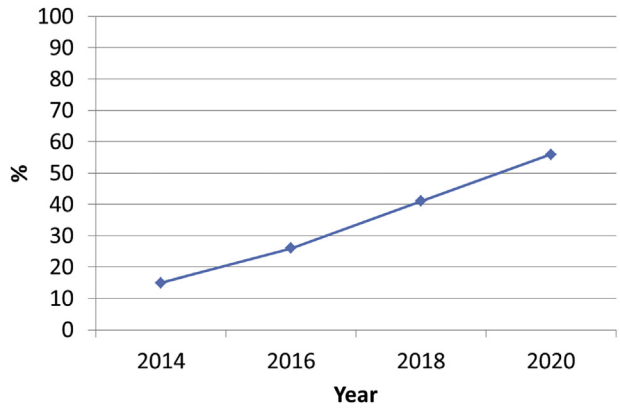


**Fig. 3.** Graph depicting the increasing use of ceramic/ceramicized femoral heads in 100% of the time from 15% in 2014 to 56% in 2020.

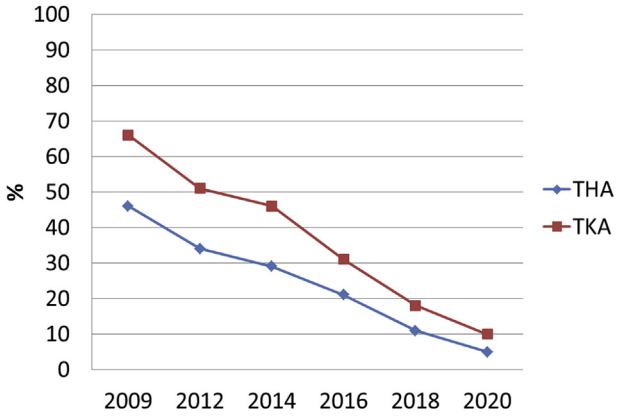


**Fig. 4.** Graph depicting the decreasing use of drains in both primary total hip arthroplasties and primary total knee arthroplasties. THA, total hip arthroplasty; TKA, total knee arthroplasty.

From a perioperative management standpoint, routine drain usage in primary THA continues to decrease and is now nearly obsolete at 5% (11% in 2018 and 46% in 2009) (Fig. 4) [1,2]. Aspirin and mechanical measures for venous thromboembolism (VTE) prophylaxis in routine primary THA continues to become more common now at 95% (87% in 2018 and 20% in 2009) (Fig. 5) [1,2]. The number of surgeons recommending minimizing high-impact activities after primary THA continues to decrease and is now 77% (82% in 2018 and 88% in 2009) [1,2]. Similar to 2018, 65% of surgeons recommend patients work with physical therapy after dismissal from the hospital [1].

Outpatient THAs has seen a substantial change in utilization since our previous publication [1]. In the 2020 poll, outpatient THA was not performed by 28% respondents, which is a decrease of 25% from the reported number of 53% in the 2018 poll [1]. Moreover, 45% of respondents performed outpatient THAs on 1%-25% of their practice, 15% of respondents performed outpatient THAs on 26%-50% of their practice, 7% performed outpatient THAs on 51%-75% of their practice, and 6% performed outpatient THAs on greater than 76% of their practice.

*Primary Total Knee Arthroplasty*

Unicompartmental knee arthroplasty usage remained consistent with our previous poll of 2018 [1]. In the current poll, 54% of respondents perform the procedure in 1%-9% of their knee arthroplasty patients, 17% perform it in 10%-24% of their patients, 3% perform it in 25%-50% of their patients, and 0% performs it in greater than 50% of their patients.

The number of respondents who never perform bilateral simultaneous TKAs continues to steadily increase: 24% in 2009, 34% in 2018, and now 44% in the current poll (Fig. 6) [1,2]. Of those who do perform bilateral simultaneous TKAs, 50% do the procedure in 1%-9% of their knee arthroplasty cases, 5% in 10%-25% of their cases, and 1% in more than 25% of their cases.

Tourniquets are used by 24% of respondents in all cases (25% in 2018 and 37% in 2009), by 47% of respondents in all cases except those with vascular concerns, by 16% of respondents only during exposure and cementation (14% in 2018 and 5% in 2009), and not at all by 13% of the respondents (12% in 2018) [1,2].

Robotic use continues to increase with 34% of respondents using robotics in some of their primary TKAs. This is an increase of 13% from the 2018 poll in which 21% of respondents used robotics in some of their TKAs [1,2]. In regards to navigation, 14% of respondents always or almost always use computer navigation for their TKAs (19% in 2018 and 14% in 2009), and 29% of respondents use it in selected complex cases (29% in 2018 and 28% in 2009); 57% of respondents never use computer navigation in TKA (53% in 2018 and 58% in 2009) [1,2].

Forty percent of respondents routinely use a posterior cruciate-substituting TKA design, which continues to decrease from 49% in 2018 to 60% in 2009 [1,2]. Similarly, posterior cruciate ligament-retaining designs have decreased to 25% (29% in 2018 and 40% in 2009) [1,2]. However, ultra-congruent designs continue to gain traction and are now used by 24% of respondents (15% in 2018), and 11% of respondents use a medial pivot design (7% in 2018) [1].

The current practice pattern is for 17% of respondents to aim for "kinematic" alignment (10% in 2018), whereas 83% of respondents still target neutral mechanical alignment (90% in 2018) [1].

The primary method of determining femoral implant rotation was from anatomical landmarks by 65% of respondents, which is a decrease of 7% since the 2018 poll [1]. Rather, "gap-balancing" methods have increased to 35% (28% in 2018) [1].

Cementless TKA implant fixation is growing among AAHKS members. The percentage of respondents who always cement all components has decreased from 83% in 2009 to 73% in 2018 to 58% in 2020 (Fig. 7) [1,2]. In the current poll, an additional 18% of respondents cement all components in 90% of their cases, 15% cement all components in 50%-80% of their cases, and 10% cement all components in less than 50% of their cases. When cement is utilized, 38% of respondents always use antibiotic-impregnated

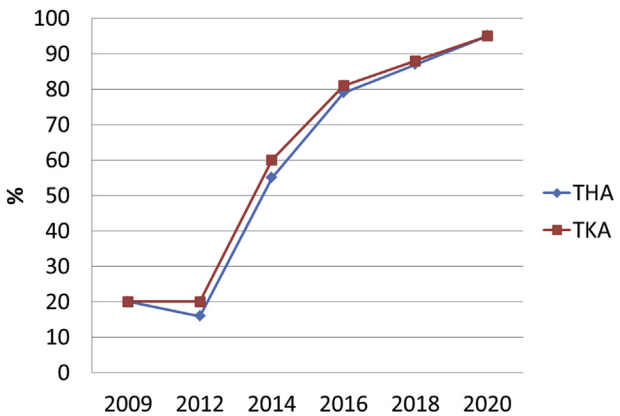


**Fig. 5.** Graph depicting the substantial increase in the use of aspirin and mechanical devices as the preferred form of venous thromboembolism prophylaxis after primary total hip arthroplasties and primary total knee arthroplasties.

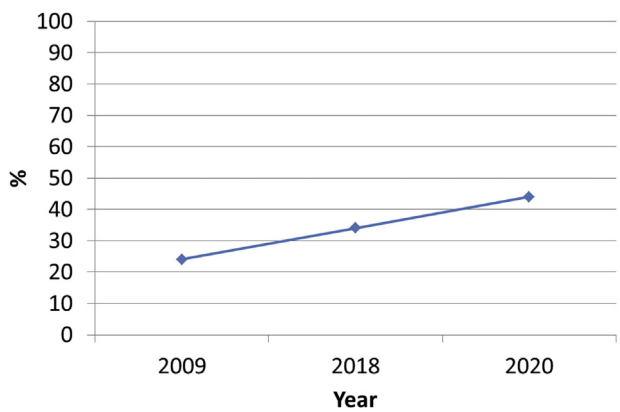


**Fig. 6.** Graph depicting the increasing percentage of respondents who never perform bilateral simultaneous bilateral total knee arthroplasties from 25% in 2009 to 34% in 2018 to 44% in 2020.

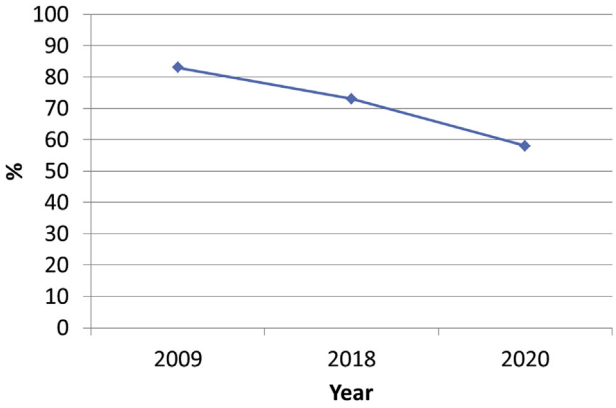


**Fig. 7.** Graph depicting the decreasing percentage of respondents who perform cemented total knee arthroplasties all the time from 83% in 2009 to 73% in 2018 to 58% in 2020.

cement (41% in 2018 and 37% in 2009), 42% use it only in patients at high-risk of infection (43% in 2018 and 45% in 2009), and 21% never use this type of cement (16% in 2018 and 17% in 2009) [1,2].

Once again, the majority of respondents (91%) use a modular, fixed-bearing, metal-backed tibial component in most cases (91% in 2018 and 83% in 2009) [1,2]. For elderly patients, most respondents (88%) still use a modular, fixed-bearing, metal-backed tibial component (89% in 2018) and 5% use an all-PE tibial component (7% in 2018) [1]. In young patients, modular, fixed-bearing, metal-backed tibial components were also most common (86%), and this was similar to the number in 2018 (89%) [1].

A new question in the 2020 poll was in regards to patients with a body mass index (BMI) of greater than 40 kg/m$^2$ and the use of adjuvant fixation. Sixty-two percent of respondents noted that they typically add a short stem to their standard tibial component in this circumstance.

In regards to TKA bearing, cross-linked PE is used by 83% of the respondents always, with 8% of respondents using it sometimes, and 9% of respondents never using it.

Patellar resurfacing is performed in virtually all patients by 55% of respondents, which is a decrease from the 62% in 2018 and 76% in 2009 (Fig. 8) [1,2]. Twenty-three percent of respondents resurface the patella in 90%-99% of cases, 14% of respondents do so in 10%-89% of their cases, 6% do so in 1%-9% of their cases, and 1% never resurface the patella.

From a perioperative management standpoint, routine use of a drain in the primary TKA setting continues to decrease and is now

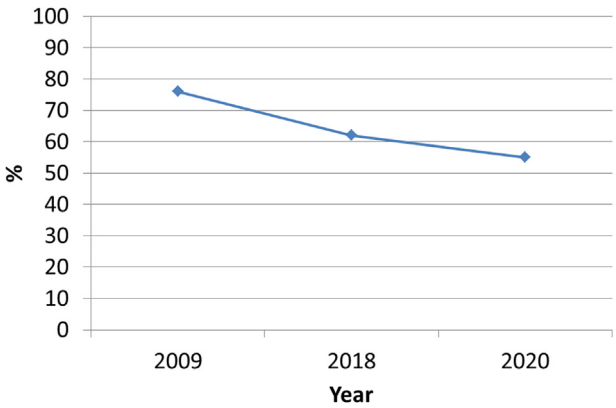


**Fig. 8.** Graph depicting the decreasing percentage of respondents who always resurface the patella from 76% in 2009 to 62% in 2018 to 55% in 2020.

at 10% (down from 18% in 2018 and down substantially from 66% in 2009) (Fig. 4) [1,2]. Aspirin and mechanical measures for VTE prophylaxis is ubiquitous and is used by 97% of respondents (up from 88% in 2018 and substantially up from 20% in 2009) (Fig. 5) [1,2]. Eight-four percent of surgeons recommend minimizing high-impact activities after TKA (down from 86% in 2018 and 95% in 2009) [1,2]. Ninety-six percent of surgeons recommend patients work with physical therapy after dismissal from the hospital for TKA (93% in 2018) [1].

For pain management after TKA, 70% of the respondents use some form of a peripheral nerve block plus a periarticular injection (PAI; 60% in 2018), whereas 23% use a PAI only (28% in 2018), 6% use an adductor canal block only (10% in 2018), 1% use a femoral nerve block only (2% in 2018), and 1% use neither peripheral nerve block nor PAI (same in 2018) [1].

Continuous passive motion use has substantially decreased after routine TKA from 58% of respondents in 2009 to 13% of respondents in 2018 to 8% in 2020 [1,2].

Outpatient TKA has seen a substantial increase since our previous publication [1]. In the 2020 poll, outpatient TKA was not performed by 29% respondents, which is a decrease of 24% from the reported number of 53% in the 2018 poll [1]. Moreover, 44% of respondents performed outpatient TKAs on 1%-25% of their practice, 15% of respondents performed outpatient TKAs on 26%-50% of their practice, 6% performed outpatient TKAs on 51%-75% of their practice, and 7% performed outpatient TKAs on greater than 76% of their practice.

### *Primary Total Hip Arthroplasty and Primary Total Knee Arthroplasty Common Practices*

Fifty-seven percent of respondents have a rigid cut-off of 40 kg/m$^2$ for BMI prior to primary THA or TKA (62% in 2018) [1]. The highest BMI patient a TJA was performed on during the prior year was <40 kg/m$^2$ in 11% of respondents, 40-45 kg/m$^2$ in 37% of respondents, 46-50 kg/m$^2$ in 29% of respondents, 51-60 kg/m$^2$ in 16% of respondents, and >60 kg/m$^2$ in 7% of respondents. In regards to smoking, 29% of respondents have a hard stop before surgery and test cotinine levels (23% in 2018), whereas 31% of respondents have a hard stop but do not test (32% in 2018) [1]. Forty percent of respondents do not utilize smoking status to limit the decision to proceed with primary THA or TKA (42% in 2018) [1].

Urinary tract infection screening continues to be a source of debate with 40% of respondents screening and treating if positive (but still proceeding with surgery without delay) which is a decrease from 45% in 2018 [1]. Fifty-two percent of respondents do not screen (42% in 2018), and 8% of respondents screen and cancel surgery until fully treated (13% in 2018) [1].

In regards to tranexamic acid (TXA), 71% of respondents use it in all primary THAs and TKAs regardless of medical issues (11% increase from 60% reported in 2018) [1]. However, 14% of respondents avoid TXA in patients with either arterial vascular disease or VTE history (decrease of 9% from 23% in 2018), 12% of respondents avoid TXA only in patients who are at high risk of VTE (similar to 13% in 2018), and 2% of respondents avoid TXA only in patients with arterial vascular disease (similar to 3% in 2018) [1]. When TXA is utilized, 92% of respondents use intravenous TXA (87% in 2018), 4% of respondents use topical TXA (8% in 2018), and 4% use oral TXA (6% in 2018) [1].

Seventy-six percent of respondents are using some form of dilute povidone-iodine or other antimicrobial solution on all primary procedures (similar to 75% in 2018), whereas 9% of respondents are using such solutions on high-risk patients (similar to 7% in 2018), and 15% of respondents are not using any such type of irrigation (similar to 18% in 2018) [1].

Finally, following routine primary THA or TKA, 50% of respondents recommend antibiotic prophylaxis for life when patients are undergoing dental procedures, whereas the other 50% recommend antibiotic prophylaxis for 1-2 years after the operation for dental procedures, and lifelong for high-risk patients undergoing dental procedures. This is the same as the 2018 findings [1].

## Discussion

Even through unprecedented times secondary to the COVID-19 pandemic, AAHKS was able to continue educating its members through its 2020 Annual Meeting, providing attendees both an in-person and a virtual option. Similarly, the results of this poll continue to provide valuable insights into current practice patterns, and allow us to continue to follow trends over time. One potential limitation of comparisons between this and previous polls is that this poll was conducted virtually while previous polls have been conducted in-person. A mitigating factor to this limitation is that respondents to both polls were AAHKS meeting attendees.

In regards to primary THAs, the DAA is now nearly equivalent to the posterior approach in regards to popularity among those AAHKS members responding to this poll. Between the 2 approaches, they account for >90% of the preferred operative approaches for responding AAHKS members. From a bearing surface perspective, the use of cross-linked PE liners with ceramic or ceramicized femoral heads is by far the most dominant combination, irrespective of age. The use of dual-mobility constructs also appears to be increasing.

From a knee perspective, greater than one-third of surgeons are now using robotics in some of their primary TKAs. Moreover, there continues to be an evolution in the most common knee designs with ultra-congruent and medial pivot designs both gaining popularity. Similarly, there is an increasing trend toward “kinematic” alignment. Finally, greater than one-third of surgeons prefer the gap balancing methods to determine femoral component rotation.

Outpatient primary THAs and TKAs both increased in the current poll. Although this is partially attributed to the COVID-19 pandemic and inpatient only rulings, innovations in the surgical, medical, and anesthetic delivery of primary THAs and TKAs have also substantially improved. For both primary THAs and TKAs, the use of aspirin and mechanical devices for VTE prophylaxis is the preference by the majority of surgeons (95%). Similarly, the routine use of drains continues to decrease and is only used by 10% of surgeons for primary TKAs and 5% of surgeons for primary THAs.

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## Appendix

**Appendix 1**
2020 RESULTS Symposium IV - Membership Poll.

| Poll Question | Poll Option | Count | Results | Total Votes |
|---|---|---|---|---|
| Warm-Up Question | A. February 2021 | 27 | 11% | 243 |
| I believe the COVID-19 crisis will mainly be over by: | B. May 2021 | 54 | 22% | |
| | C. September 2021 | 64 | 26% | |
| | D. January 2022 | 98 | 40% | |
| Warm-Up Question | A. Roughly the same as usual for this time of year. | 94 | 29% | 324 |
| Currently (November 2020) with COVID my TJA practice volumes are: | B. Down 1%-20% compared to usual. | 139 | 43% | |
| | C. Down 21%-40% compared to usual. | 50 | 15% | |
| | D. Down more than 40% compared to usual. | 15 | 5% | |
| | E. Up compared to usual. | 26 | 8% | |
| My preop THA radiographs include: | A. Standard hip films, nothing more. | 208 | 62% | 338 |
| | B. Additional sitting/standing lateral spine films in selected patients. | 93 | 28% | |
| | C. Additional sitting/standing lateral spine films in all patients. | 37 | 11% | |
| Favored Operative Approach | A. Posterior | 164 | 46% | 360 |
| | B. Anterolateral | 31 | 9% | |
| | C. Direct Anterior | 162 | 45% | |
| | D. Two Incision of Some Type | 3 | 1% | |
| Direct Anterior Approach | A. I have not tried it and don't plan to | 58 | 17% | 351 |
| | B. I have not tried it but am thinking about it. | 22 | 6% | |
| | C. I tried it but have not continued to do it. | 78 | 22% | |
| | D. I am doing DA in some of my patients now. | 193 | 55% | |
| Stem Fixation: Percent Uncemented | A. 100% uncemented | 116 | 33% | 351 |
| | B. 75%-99% uncemented | 212 | 60% | |
| | C. 50%-74% uncemented | 15 | 4% | |
| | D. 1%-49% uncemented | 4 | 1% | |
| | E. Never, I always cement. | 4 | 1% | |
| Uncemented Stem Fixation | A. Dual tapered wedge | 225 | 64% | 349 |
| | B. Tapered parallel sided blade type | 92 | 26% | |
| | C. Extensively coated | 7 | 2% | |
| | D. Short stem | 25 | 7% | |
| Cemented Stem Fixation | A. Collared composite beam | 216 | 65% | 330 |
| | B. Polished tapered collarless | 114 | 35% | |
| Cemented Stem Fixation - In a patient over 80: | A. Routinely use cemented stems (>90%) | 67 | 18% | 363 |
| | B. Use cemented stems some of the time (10-90%) | 138 | 38% | |
| | C. Routinely use uncemented stem (>90%) | 158 | 44% | |
| Bearings I Use | A. Crosslinked PE only | 338 | 92% | 368 |
| | B. Crosslinked PE or Ceramic-on-Ceramic | 30 | 8% | |
| Ceramic Femoral Heads - With a PE bearing, how often do you use a ceramic/ceramicized femoral head? | A. 100% of the time | 207 | 56% | 367 |
| | B. 50%-99% of the time | 114 | 31% | |
| | C. 25%-49% of the time | 14 | 4% | |
| | D. 1%-25% of the time | 25 | 7% | |
| | E. Never | 7 | 2% | |
| Ceramic Femoral Heads - In a patient over 70, how often do you use a ceramic/ceramicized femoral head? | A. 100% of the time | 203 | 56% | 360 |
| | B. 50%-99% of the time | 87 | 24% | |
| | C. 25%-49% of the time | 8 | 2% | |
| | D. 1%-24% of the time | 30 | 8% | |
| | E. Never | 32 | 9% | |
| Dual Mobility - Are you using a dual mobility construct in any primary cases? | A. Never | 72 | 20% | 359 |
| | B. Rare, selected problem cases, less than 2% | 150 | 42% | |
| | C. 3%-10% | 92 | 26% | |
| | D. 11%-50% | 29 | 8% | |
| | E. Greater than 50% | 16 | 4% | |
| Drain - I routinely use drain after THA: | A. Yes | 17 | 5% | 361 |
| | B. No | 344 | 95% | |
| Wound Closure - My standard wound closure for primary THA is: | A. Subcuticular alone/dry dressing. | 28 | 8% | 357 |
| | B. Subcuticular plus staples/dry dressing. | 61 | 17% | |
| | C. Subcuticular plus glue/dry dressing. | 36 | 10% | |
| | D. Subcuticular plus glue/occlusive dressing. | 228 | 64% | |
| | E. Subcuticular plus incisional vac. | 4 | 1% | |
| DVT Prophylaxis for THA | A. Mechanical alone | 0 | 0% | 366 |
| | B. Aspirin ± mechanical | 346 | 95% | |
| | C. LMWH ± mechanical | 10 | 3% | |
| | D. Coumadin ± mechanical | 1 | 0% | |
| | E. Oral Factor Xa inhibitor ± mechanical | 9 | 2% | |
| Outpatient THA - If you do outpatient THA, what % of THA practice? | A. 0% - don't do them | 102 | 28% | 361 |
| | B. 1%-25% | 161 | 45% | |

(*continued on next page*)

**Appendix 1** (*continued*)

| Poll Question | Poll Option | Count | Results | Total Votes |
|---|---|---|---|---|
| | C. 26%-50% | 53 | 15% | |
| | D. 51%-75% | 24 | 7% | |
| | E. >76% | 21 | 6% | |
| Physical Therapy - When your patients get home after THA do you have them work with PT? | A. Yes | 236 | 65% | 361 |
| | B. No | 125 | 35% | |
| Postop Activity Restrictions - After THA: | A. None whatsoever | 81 | 23% | 359 |
| | B. Avoid high impact activities (running, jumping, etc.) | 278 | 77% | |
| Unicompartmental Arthroplasty - Percent of Knees in My Own Personal Practice Getting Unis is: | A. Zero | 91 | 25% | 363 |
| | B. 1%-9% | 197 | 54% | |
| | C. 10%-24% | 62 | 17% | |
| | D. 25%-50% | 12 | 3% | |
| | E. >50% | 1 | 0% | |
| Bilateral Simultaneous TKA | A. Never | 163 | 44% | 370 |
| | B. 1%-9% | 184 | 50% | |
| | C. 10%-25% | 20 | 5% | |
| | D. >25% | 3 | 1% | |
| Tourniquet | A. Always | 88 | 24% | 365 |
| | B. Always except vascular concerns | 170 | 47% | |
| | C. Only during exposure/cementation | 58 | 16% | |
| | D. Not at all | 49 | 13% | |
| Robotics - I use robotics in some of my TKAs: | A. Yes | 126 | 34% | 367 |
| | B. No | 241 | 66% | |
| Navigation - I use navigation for TKA: | A. Always or almost always | 51 | 14% | 364 |
| | B. Selected complex cases | 105 | 29% | |
| | C. Never | 208 | 57% | |
| PS or CR - In most primary TKA cases I use: | A. CR | 92 | 25% | 364 |
| | B. PS with post | 144 | 40% | |
| | C. Ultra congruent | 87 | 24% | |
| | D. Medial stabilized | 41 | 11% | |
| Limb Alignment - For most TKA I aim for: | A. Neutral mechanical alignment | 284 | 83% | 342 |
| | B. “Kinematic” alignment | 58 | 17% | |
| Implant Rotation - I choose femoral implant rotation: | A. Mostly from anatomic landmarks | 228 | 65% | 351 |
| | B. Mostly by gap balancing | 123 | 35% | |
| Implant Fixation - All Components Cemented | A. Always | 205 | 58% | 356 |
| | B. ≥90% | 63 | 18% | |
| | C. 50%-89% | 52 | 15% | |
| | D. <50% | 36 | 10% | |
| Tibial Implant - Most cases: | A. Modular, fixed bearing, metal-backed | 322 | 91% | 355 |
| | B. Mobile bearing | 30 | 8% | |
| | C. Monoblock tibia | 1 | 0% | |
| | D. All PE tibia | 2 | 1% | |
| Obese Patient - In a TKA patient with BMI >40 I use: | A. My standard tibial component | 123 | 38% | 320 |
| | B. I add a short stem to my standard tibial component | 197 | 62% | |
| Young Patients - In a young patient my favored tibial component is: | A. All PE | 1 | 0% | 340 |
| | B. Modular metal-backedfixed bearing | 294 | 86% | |
| | C. Mobile bearing tibia | 39 | 11% | |
| | D. Monoblock metal-backed tibia | 6 | 2% | |
| Elderly Patients - In an elderly patient my favored tibial component is: | A. All PE | 16 | 5% | 310 |
| | B. Modular metal-backed fixed bearing | 274 | 88% | |
| | C. Mobile bearing tibia | 20 | 6% | |
| | D. Monoblock metal-backed tibia | 0 | 0% | |
| Bearing Surface | A. Conventional PE: always | 30 | 9% | 342 |
| | B. Crosslinked PE: some of the time | 26 | 8% | |
| | C. Crosslinked PE: always | 286 | 84% | |
| Patella Resurfacing | A. Always resurface | 194 | 55% | 350 |
| | B. Resurface 90%-99% | 79 | 23% | |
| | C. Resurface 10%-89% | 50 | 14% | |
| | D. Resurface 1%-9% | 22 | 6% | |
| | E. Never resurface | 5 | 1% | |
| Antibiotics in Cement - For primary TKA: | A. Always | 132 | 38% | 350 |
| | B. High risk patients only | 146 | 42% | |
| | C. Never | 72 | 21% | |
| CPM - I routinely use CPM post-op: | A. Yes | 29 | 8% | 353 |
| | B. No | 324 | 92% | |
| Drain - I routinely use drains after TKA: | A. Yes | 34 | 10% | 340 |
| | B. No | 306 | 90% | |
| Wound Closure - My standard wound closure for primary TKA is: | A. Subcuticular alone/dry dressing | 14 | 4% | 346 |
| | B. Subcuticular plus staples/dry dressing | 92 | 27% | |
| | C. Subcuticular plus glue/dry dressing | 31 | 9% | |
| | D. Subcuticular plus glue/occlusive dressing | 205 | 59% | |
| | E. Subcuticular plus incisional vac | 4 | 1% | |
| Pain Management: TKA | A. Femoral nerve block | 3 | 1% | 341 |
| | B. Adductor canal block | 20 | 6% | |
| | C. Periarticular injection | 77 | 23% | |

(*continued on next page*)

**Appendix 1** (*continued*)

| Poll Question | Poll Option | Count | Results | Total Votes |
|---|---|---|---|---|
| | D. Nerve block + periarticular injection | 239 | 70% | |
| | E. None of the above | 2 | 1% | |
| DVT Prophylaxis for TKA | A. Mechanical alone | 0 | 0% | 303 |
| | B. Aspirin ± mechanical | 294 | 97% | |
| | C. LMWH ± mechanical | 3 | 1% | |
| | D. Coumadin ± mechanical | 0 | 0% | |
| | E. Oral Factor Xa inhibitor ± mechanical | 6 | 2% | |
| Outpatient TKA - If you do outpatient TKA, what % of TKA practice? | A. 0% - don't do them | 98 | 29% | 343 |
| | B. 1%-25% | 152 | 44% | |
| | C 26%-50% | 50 | 15% | |
| | D. 51%-75% | 19 | 6% | |
| | E. >76% | 24 | 7% | |
| Physical Therapy - When your patients get home after TKA do you have them work with PT? | A. Yes | 320 | 96% | 332 |
| | B. No | 12 | 4% | |
| Postop Activity Restrictions - After TKA: | A. None whatsoever | 56 | 16% | 342 |
| | B. Avoid high impact activities (running, jumping) | 286 | 84% | |
| COVID has changed my same day/outpatient surgery practice: | A. No change | 146 | 46% | 319 |
| | B. More same day/outpatient surgery | 167 | 52% | |
| | C. Less same day/outpatient surgery | 6 | 2% | |
| Are patients asking about robotic surgery? Do you think you are losing market share if you don't offer it? | A. I get asked but it hasn't effected my volumes much | 140 | 49% | 283 |
| | B. Some effect but not enough to sway my approach | 45 | 16% | |
| | C. Big effect but I am not changing | 2 | 1% | |
| | D. Big effect and I may add robotics | 11 | 4% | |
| | E. I am already doing robotics | 85 | 30% | |
| For patients with BMI >40: | A. Do the arthroplasty if sufficient indications | 124 | 43% | 286 |
| | B. Usually don't do it until lose weight (rigid cut-off) | 162 | 57% | |
| Regardless of BMI "limit" in your practice, what is the highest BMI patient you have done TJA on in the last year? | A. <40 BMI | 37 | 11% | 339 |
| | B. 40-45 BMI | 126 | 37% | |
| | C. 46-50 BMI | 98 | 29% | |
| | D. 51-60 BMI | 55 | 16% | |
| | E. >60 BMI | 23 | 7% | |
| Do you have a hard stop for smoking? | A. Hard stop and I test with Cotinine | 94 | 29% | 329 |
| | B. Hard stop but I don't test | 103 | 31% | |
| | C. No hard stop | 132 | 40% | |
| Preop UTI Screening: | A. I don't routinely screen anymore | 156 | 52% | 300 |
| | B. I screen, treat if positive but go ahead without delay | 120 | 40% | |
| | C. I screen, and if positive cancel until fully treated | 24 | 8% | |
| Irrigation in Primary THA/TKA: | A. I use dilute betadyne or some other antimicrobial irrigant on all | 243 | 76% | 321 |
| | B. I use selectively for high risk | 30 | 9% | |
| | C. I don't use it | 48 | 15% | |
| Antibiotics - If using Vanco or Clinda in non allergic patient: | A. I add a second antibiotic to provide gm negative coverage (Cefazolin or aminoglycoside) | 184 | 71% | 259 |
| | B. I do not add another antibiotic | 75 | 29% | |
| My usual route of tranexamic acid administration is: | A. IV | 283 | 92% | 306 |
| | B. Topical | 11 | 4% | |
| | C. Oral | 12 | 4% | |
| Tranexamic acid exclusions? | A. No one. I give it to all primaries. | 236 | 71% | 332 |
| | B. Patients with arterial vascular disease | 8 | 2% | |
| | C. Patients with high VTE risk. | 41 | 12% | |
| | D. Patients with arterial disease or VTE hx (ie B and C) | 47 | 14% | |
| Antibiotic Prophylaxis: Routine Patients - Dental Prophylaxis? | A. Abs for life for dental procedures | 174 | 50% | 351 |
| | B. Abs for 1-2 y for dental procedures and indefinitely in high risk patients | 177 | 50% | |