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The Seventh Annual Report of the AJRR
on Hip and Knee Arthroplasty



ANNUAL REPORT 2020

PEEK INSIDE FOR A PREVIEW OF THE 2020 AJRR ANNUAL REPORT

AJRR is the Official Registry of the American Association of Hip and Knee Surgeons (AAHKS)

About the American Joint Replacement Registry

The American Joint Replacement Registry (AJRR) is the cornerstone of the AAOS Registry Program. AJRR is overseen by the AJRR Steering Committee which reports to the Registry Oversight Committee and ultimately the AAOS Board of Directors with many stakeholders involved. As of July 1, 2020, the Registry now contains information on approximately 2 million procedures representing 9,387 surgeons and 1,347 institutions with data coming from hospitals, ambulatory surgery centers (ASCs), and private practice groups from all 50 states across the United States and the District of Columbia.

Overall Data

This Annual Report represents approximately 2 million hip and knee procedures and over 1,300 enrolled sites with an overall cumulative procedural volume growth of 24.4% compared to the previous year.

Figure 1.1 Cumulative Procedure Volume, 2012-2019 (N=1,897,050)

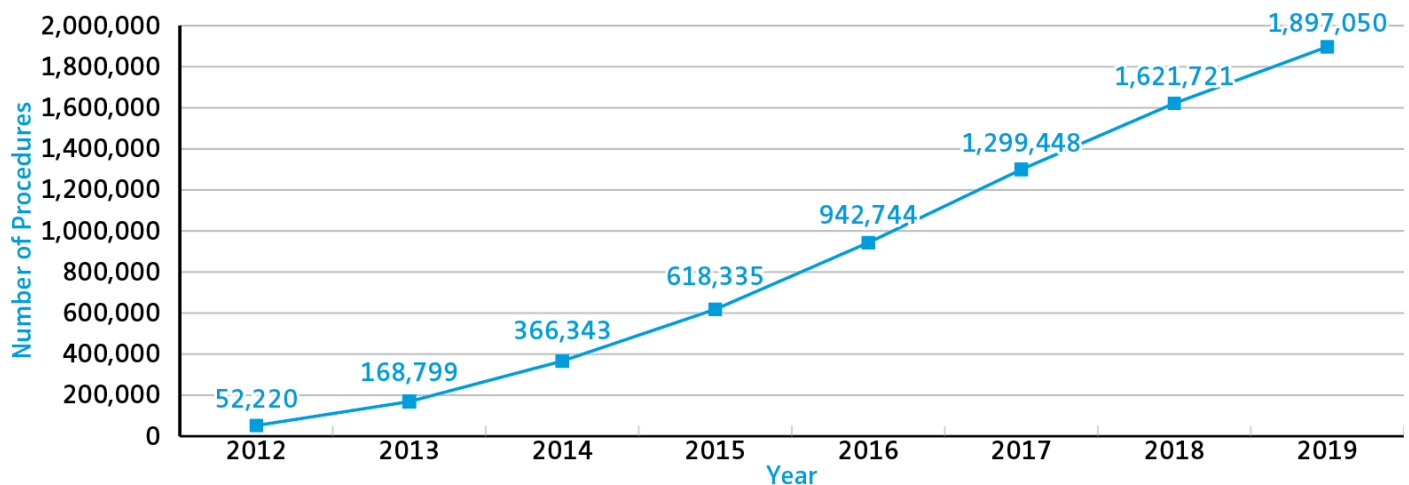
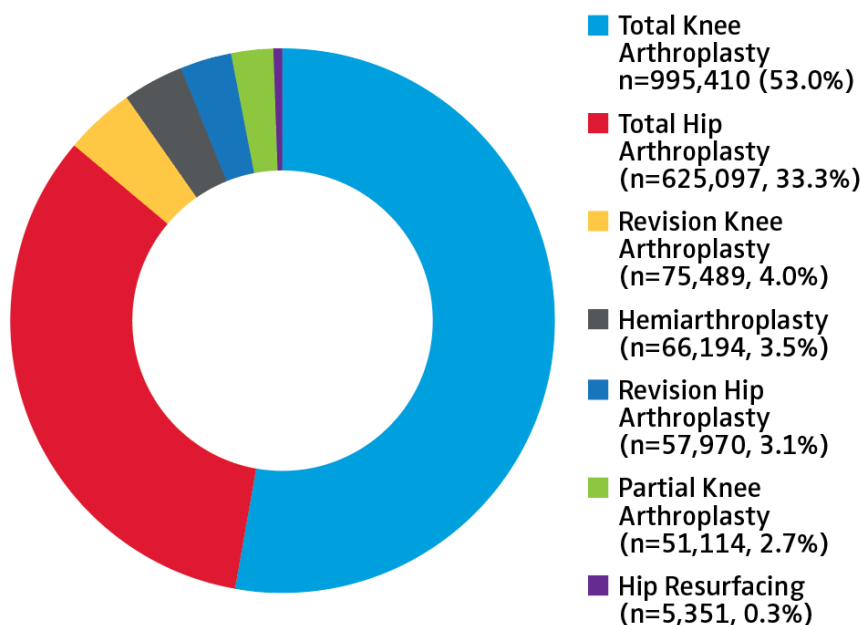


Figure 1.2 Distribution of Arthroplasty Procedures, 2012-2019 (N=1,825,551)



2020 Annual Report Highlights

The past year has been marked by a multitude of successes and growth for AJRR. This Annual Report represents approximately 2 million hip and knee procedures and over 1,300 enrolled sites with an overall cumulative procedural volume growth of 24.4% compared to the previous year.

Hip Arthroplasty

New in 2020: Expanded analysis of revision indications and device-specific statistics including utilization trends and cumulative percent revision curves.

Figure 2.25 Elective Primary Total Hip Arthroplasty Stem/Shell Component Combinations by Year, 2012-2019 (N=482,808)

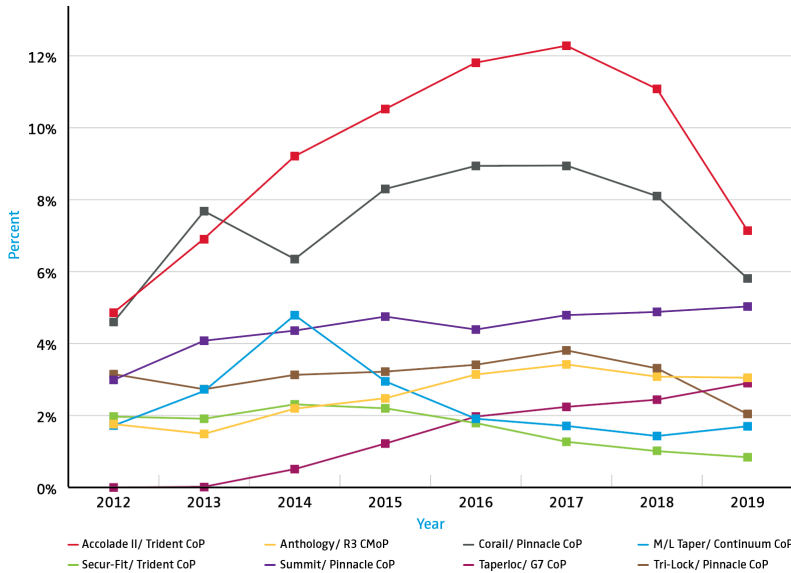


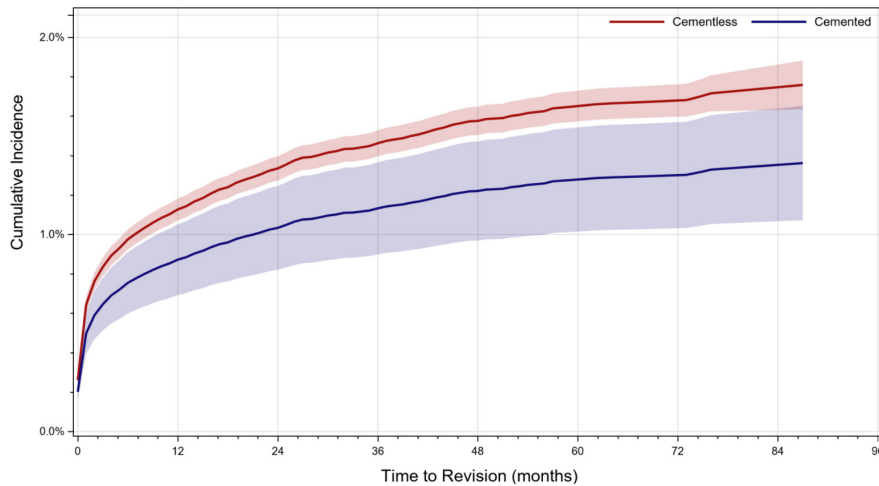
Figure 2.25 tabulates the most implanted stem, cup, and bearing surface combinations for the most frequent stems by year. The Accolade II stem and a Trident cup with a ceramic and polyethylene bearing surface has been the most frequently implanted combination since 2014.

The 2020 Annual Report is Available Now!

To download your 2020 Annual Report at no cost, visit our website at aaos.org/AJRRAnnualreport

Are you interested in joining AJRR and contributing data to the 2021 Annual Report? If so, please contact the Registry Engagement team at RegistryEngagement@aaos.org

Figure 2.23 Cumulative Percent Revision for Femoral Stem Fixation for Elective Primary Total Hip Arthroplasty ≥65 Years of Age with Primary Osteoarthritis Age Adjusted for Females, 2012-2019



The usage of cement for femoral component fixation continues to slowly increase. For females 65 years of age or older, cemented fixation is associated with a reduced incidence of revision (HR=0.774, 95% CI, 0.626-0.957, p=0.018).

Table 2.5 Change Between Preoperative and 1-year Postoperative Patient-Reported Outcome Measure (PROM) Scores after Primary Elective Hip Arthroplasty by PROM, 2012-2019*

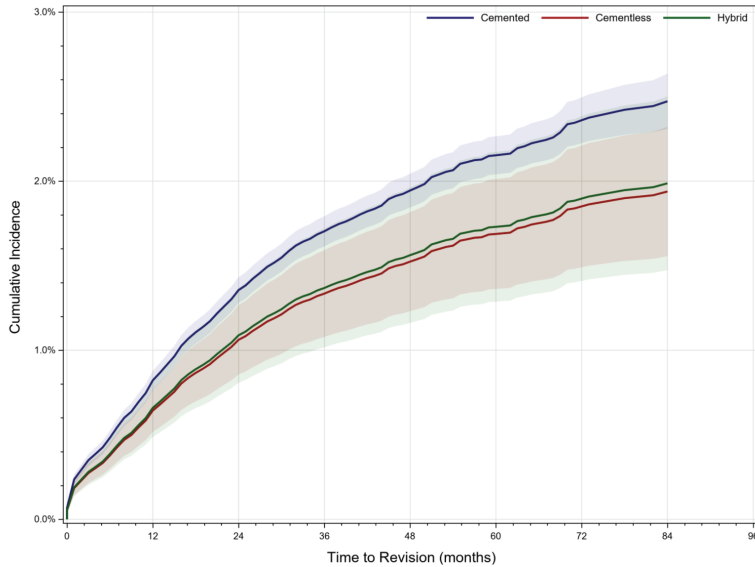
Patient-Reported Outcome Measure (PROM)	PROM Component	Patients with Preoperative Score	Patients with Linked Postoperative Score	Response Rate, Percentage of Patients Who Completed a Preoperative and 1-year Score	Patients with Meaningful Improvement*
HOOS, JR. (Hip disability and Osteoarthritis Outcome Score)	Score	24,749	5,769	23.3%	92.5%
PROMIS-10 (Patient-Reported Outcomes Measurement Information System 10)	Mental T	16,525	3,978	24.1%	38.6%
	Physical T	16,525	3,978	24.1%	67.5%
VR-12 (The Veterans RAND 12 Item Health Survey)	Mental Health Component	11,898	3,265	27.4%	40.0%
	Physical Health Component	11,754	3,271	27.8%	80.5%

*Meaningful improvement was calculated by minimal clinical important difference (MCID). MCID was determined to be a positive change score of half the pooled standard deviation.

Knee Arthroplasty

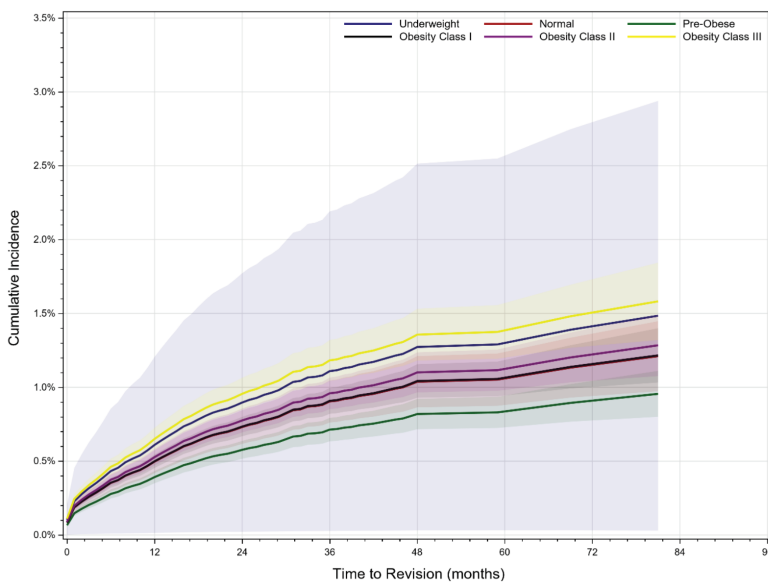
New in 2020: Expanded analysis of revision indications and device-specific statistics including utilization trends and cumulative percent revision curves.

Figure 3.12 Cumulative Percent Revision for Cemented versus Cementless Fixation for a Primary Total Knee Arthroplasty for Males <65 Years of Age Diagnosed with Primary Osteoarthritis as Submitted Only to AJRR, 2012- 2019



In the United States, the use of polymethylmethacrylate (bone cement) for the fixation of primary total knee arthroplasty components is typical. However, the use of cementless fixation is increasing. Use of cementless fixation in males <65 years of age was associated with a decreased incidence of revision (HR=0.782, 95% CI, 0.641-0.954, p=0.0152).

Figure 3.13 Cumulative Percent Revision for Body Mass Index (BMI) for Primary Total Knee Arthroplasty with Primary Osteoarthritis Age and Sex Adjusted, 2012-2019



The association between body mass index and revision rates for primary total knee arthroplasty was examined in this year's annual report. After adjusting for age and sex, an association was seen between class III obesity and increased revision rates when compared to normal weight patients (HR=1.311, 95% CI, 1.082-1.589, p=0.0058).

Table 3.6 Change Between Preoperative and 1-year Postoperative Patient-Reported Outcome Measure (PROM) Scores after Primary Elective Knee Arthroplasty by PROM, 2012-2019*

Patient-Reported Outcome Measure (PROM)	PROM Component	Patients with Preoperative Score	Patients with Linked Postoperative Score	Response Rate, Percentage of Patients Who Completed a Preoperative and 1-year Score	Patients with Meaningful Improvement*
KOOS, JR. (Knee Injury and Osteoarthritis Outcome Score, Junior)	Score	41,976	10,290	24.5%	88.0%
PROMIS-10 (Patient-Reported Outcomes Measurement Information System 10)	Mental T	29,164	7,421	25.5%	32.7%
	Physical T	29,164	7,421	25.5%	67.5%
VR-12 (The Veterans RAND 12 Item Health Survey)	Mental Health Component	18,219	5,058	27.8%	33.9%
	Physical Health Component	18,016	5,065	28.1%	75.0%

*Meaningful improvement was calculated by minimal clinical important difference (MCID). MCID was determined to be a positive change score of half the pooled standard deviation.