## Uncemented Total Knee Arthroplasty in the State of Michigan has Higher Rates of Revision Through Five Year Follow Up

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While cemented total knee arthroplasty (TKA) is considered the gold standard, modern uncemented designs have been increasingly utilized across the state of Michigan. These newer technologies, which promote direct biologic ingrowth of host bone into the implant, are appealing for use in patients at higher risk of cemented failure and those with good bone health, such as younger men. The Michigan Arthroplasty Registry Collaborative Quality Initiative (MARCQI) analyzed this trend and compared statewide revision rates between cemented and uncemented TKAs over a five-year period. METHODS:

From 2017-2023, MARCQI data was analyzed to determine survivorship of cemented versus uncemented TKAs. Descriptive statistics, demographics and implant type were collected. Cumulative percent revision (CPR) was calculated based on fixation method, including patellae. The primary endpoint was time to first revision. CPR curves were compared using the log-rank test. Sub-analysis was performed based on age, sex, and implant type. RESULTS:

The registry query yielded 147,838 TKAs. Of these, 18,461 were uncemented (12.4%). Use of uncemented TKA increased yearly 2017-2022 in all groups. Uncemented TKA had higher CPR through five years at all time points vs cemented (3.65 vs. 3.19%, p < 0.0001). Uncemented TKAs performed worse in both men (p < 0.01) and women (p < 0.005). Unexpectedly, men < 55 years had higher CPR at all time points for the four most commonly used implants (p < 0.05).

## DISCUSSION AND CONCLUSION:

The use of uncemented TKA has grown in Michigan across all patient subgroups. Analysis showed uncemented TKAs had overall higher risk of revision compared to cemented TKAs. The poorer outcomes were consistent across sex, age, and implant type. Younger men, often preferred for uncemented fixation, also had notably higher failure rates. When considering fixation method, surgeons should be mindful of uncemented TKA given these data.