

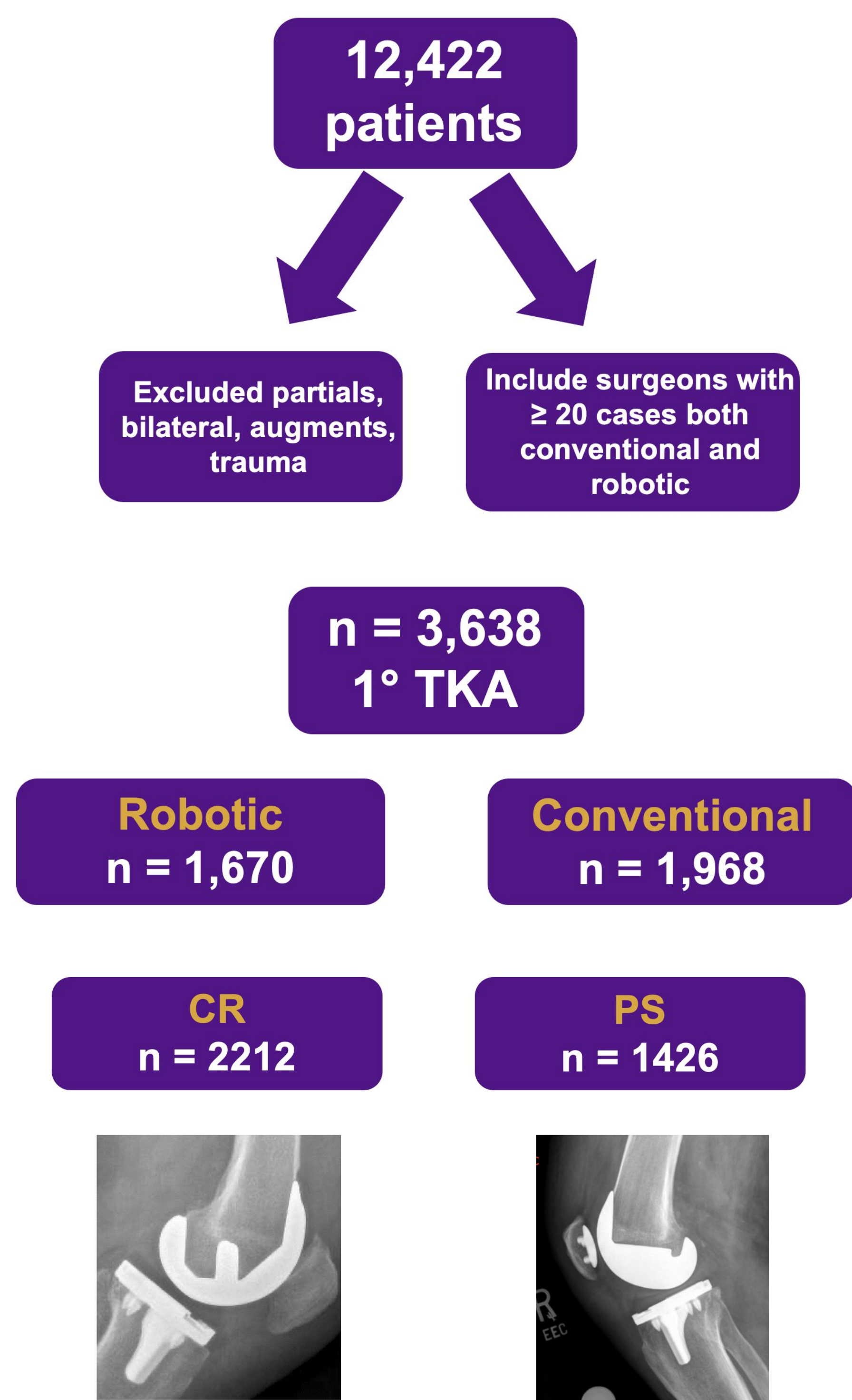
Does Use of Cruciate-retaining Implants Change with Adoption of Robotic Assistance in Total Knee Arthroplasty?

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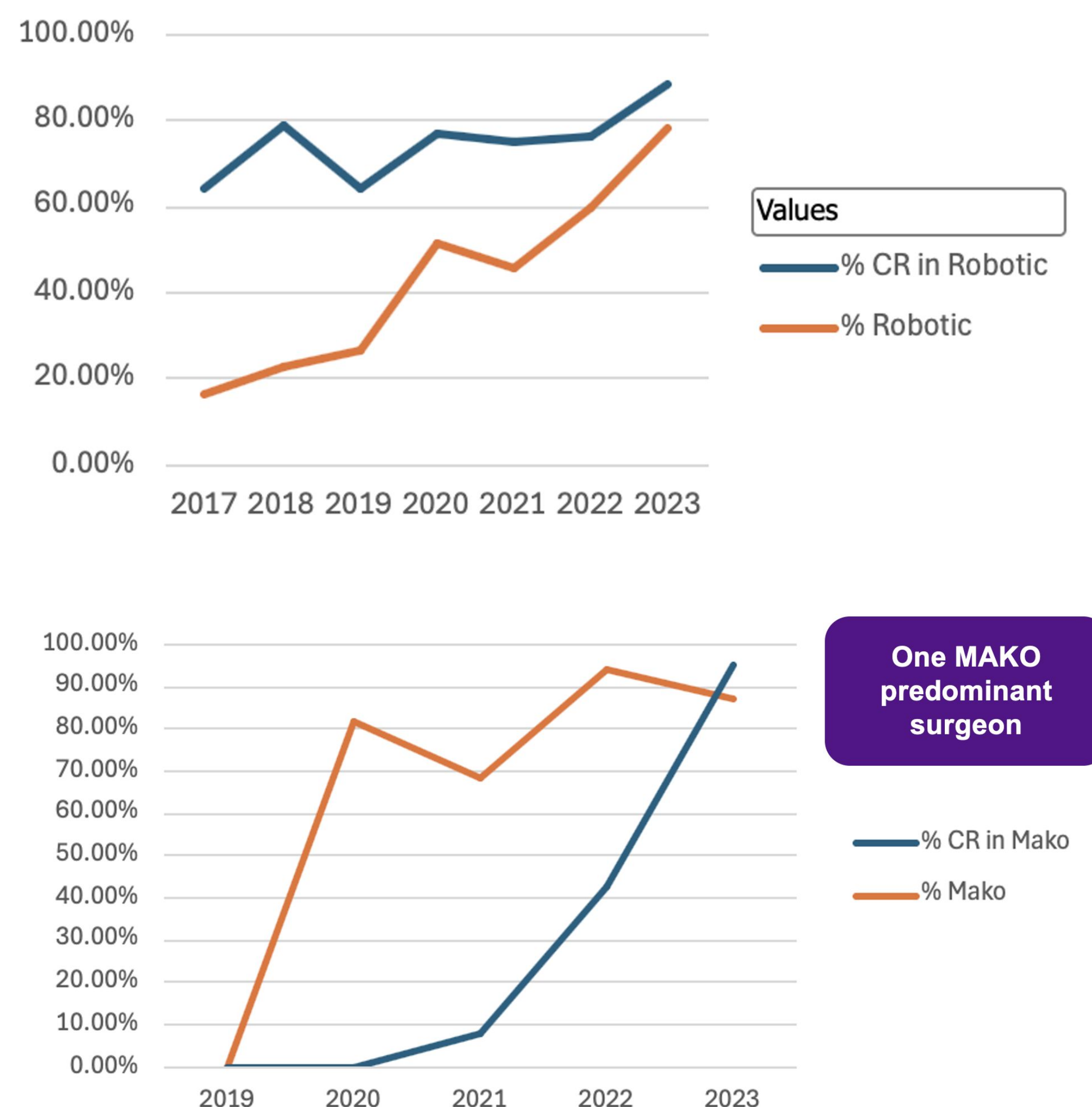
Background

- Robotic-assisted total knee arthroplasty allows for enhanced precision in component placement and alignment with real-time feedback. As it becomes more prevalent in the United States, it's important to consider how robotic assistance changes the technical landscape of total knee arthroplasty.
- It can facilitate balancing and protect the PCL during bone preparation, which may preferentially improve implantation of cruciate retaining implants, as shown above. Despite the increased use of robotic-assisted total knee arthroplasty, there's limited data on how this shift impacts patterns in cruciate retaining or posterior stabilizing implant selection. We sought to address this

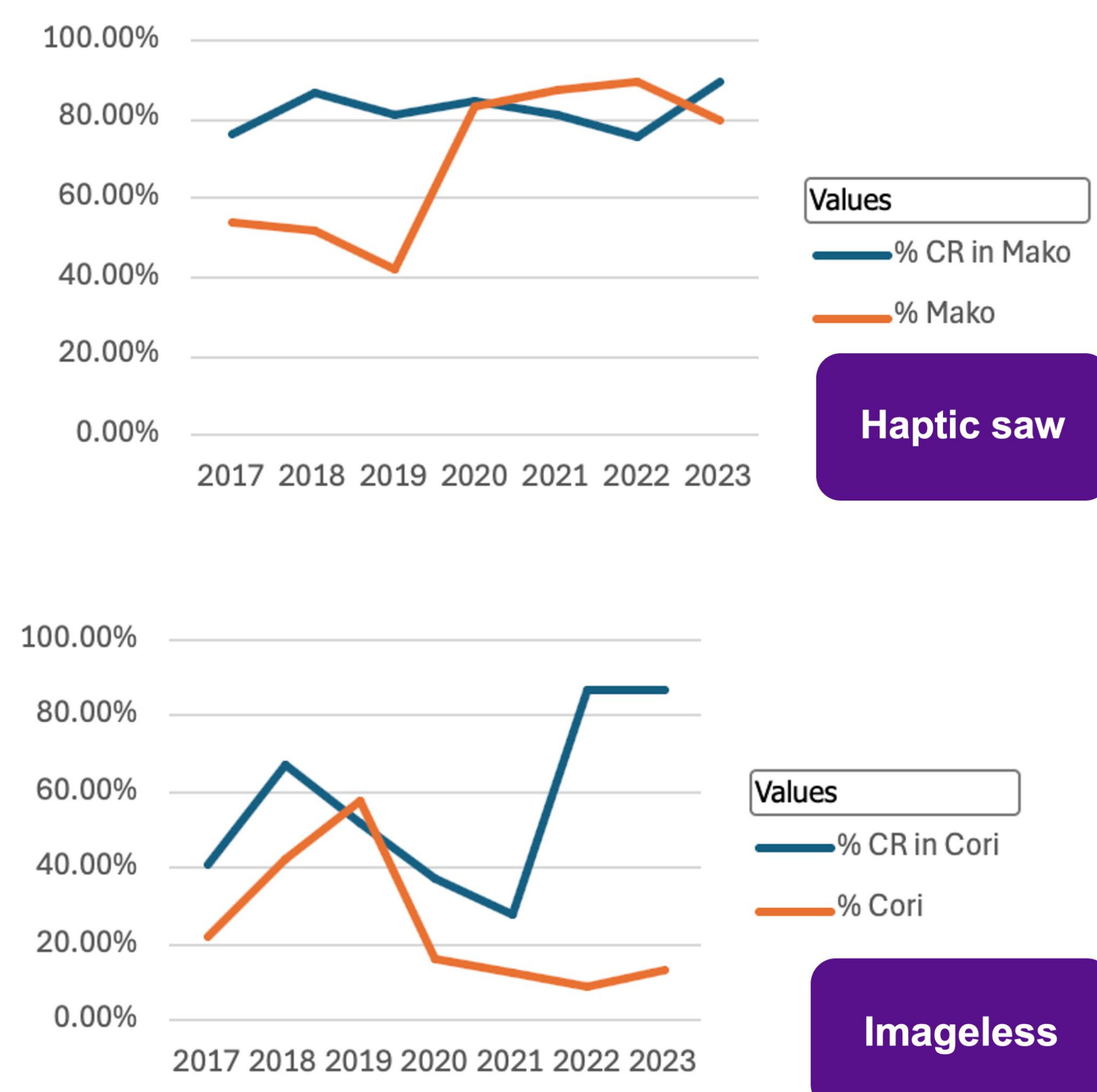
Methods



Results



Percent Implant by Procedure Type			
	Robotic	Conventional	P-Value
%CR	79.4	45.9	<0.001
%PS	20.6	54.1	<0.001



Results

- 79.4% of robotic surgeries used CR implants, compared to 45.9% of conventional surgeries. The correlation and regression analysis indicated that as surgeons increase their use of robotic technology, there is a significant, though moderate, increase in percent usage of CR implants. We also found that the percent of PS implants were significantly more utilized in conventional TKA as compared to robotic
- We then performed a sub-analysis within robotic technologies that were with the use of pivot tables. We identified patterns by surgeon, %CR within various robotic categories, and by year. We found that as surgeons employed more robotic-assistance in their TKAs, their use of CR implants increased.
- We then further analyzed by robot type to see if there was a difference between haptic and non haptic guided technologies. As the percent of Mako-assisted cases increased, we see a similar trend in % of CR implants specifically within Mako cases.
- With the Cori, we found that although there was a closer tracking of increasing CR use in Cori cases as there was more experience with the Cori, this trend has not continued in recent years. This indicated increased comfort with the CR implant as experience with the robot continued and now CR implants predominate within Cori usage, which as a whole has decreased in our cohort.
- This trend was particularly clear to see with one Mako predominant surgeon. As the surgeon increased Mako use over several years, the increase in percent of CR usage followed.

Conclusion

- The adoption of robotics has yielded a high utilization of CR implants, and the analyzed data reveals a correlation between the percentage of robotic cases and CR implants used.
- We found significant but moderate increases in the implants, and found that there was not a specifically high correlation with any particular robot type in our data set.