

# The initial learning curve for the ROSA® Knee System can be achieved in 6 to 11 cases for operative time and has similar 90-day complication rates with improved implant alignment compared to manual instrumentation in total knee arthroplasty

Luc Vanlommel<sup>1</sup>, Enrico Neven<sup>1</sup>, Mike B. Anderson<sup>2</sup>, Liesbeth Bruckers<sup>3</sup> and Jan Truijen<sup>1,3</sup>  
1. Ziekenhuis Oost-Limburg, Strippestraat 20, 3600, Genk, Belgium.  
2. Zimmer Biomet, Warsaw, IN, USA.  
3. Hasselt University, Diepenbeek, Belgium.

In a recent publication Vanlommel et al.<sup>1</sup> sought to evaluate the initial learning curve and accuracy of the ROSA® Knee System using an image-free robotic application compared to conventional instrumentation for total knee arthroplasty (TKA):

1. A change point of 6 to 11 cases for each of three surgeons for operative times suggests a rapid learning curve.
2. The average difference between planned and executed hip-knee-ankle (HKA) angle was  $1.2^\circ \pm 1.1^\circ$ .
3. The proportion of outliers for the HKA angle was 5.2% for ROSA Knee and 24.1% for conventional.

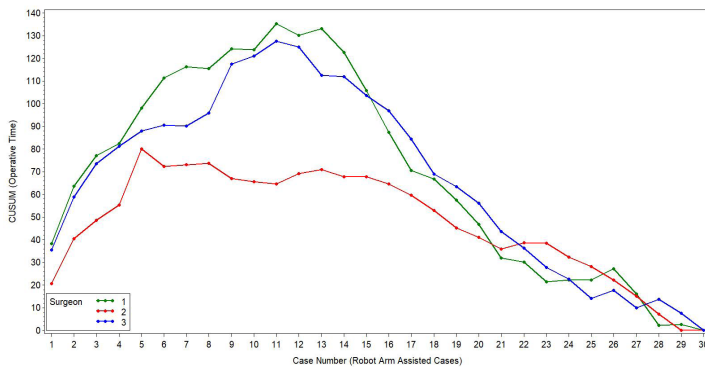
## Methods

A retrospective cohort study on a series of patients (n=180) that underwent raTKA (n=90) using the ROSA Total Knee System or mTKA (n = 90) by one of three high volume (>200 cases per year) orthopedic surgeons between December 2019 and September 2020, with minimum three-month follow-up.

Surgical times (minutes), post-operative complications, and accuracy to plan for raTKA cases were reviewed.

## Results

A change point of 6 to 11 cases for each of three surgeons for operative times suggests a rapid learning curve. Total surgical times continued to decrease with time.



## References

1. Vanlommel L, Neven E, Anderson MB, Bruckers L, Truijen J. The initial learning curve for the ROSA(R) Knee System can be achieved in 6-11 cases for operative time and has similar 90-day complication rates with improved implant alignment compared to manual instrumentation in total knee arthroplasty. J Exp Orthop 2021; 8(1): 119.

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The proportion of outliers for the final hip-knee-ankle angle compared to planned was 5.2% (3/58) for the mastered raTKA compared to 24.1% (19/79) for mTKA (p=0.003).

The absolute mean difference between the validated and planned resections for all angles evaluated was <1 degree for the mastered raTKA cases.

## Conclusion

This cutting guide positioning robotic system can be integrated relatively quickly with a rapid initial learning curve (6-11 cases) for operative times, similar 90-day complication rates, and improved component positioning compared to mTKA.

Proficiency of the system requires additional analysis, but it can be expected to improve over time.

## Significance

**This study demonstrates the ability of the ROSA Knee System to be adopted rather quickly with improvements on accuracy compared to mTKA.**