

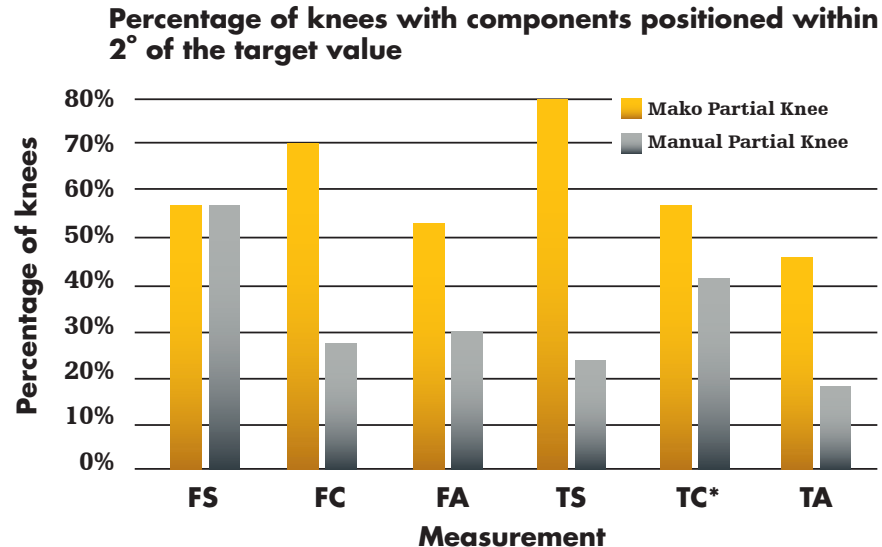
Mako<sup>®</sup> Partial Knee

**clinical highlights**

# Level I RCT demonstrated improved accuracy of component positioning with Mako compared to current manual gold standard<sup>1</sup>

SW Bell, I Anthony, B Jones, A MacLean, P Rowe, M Blyth. Journal of Bone and Joint Surgery, 2016.

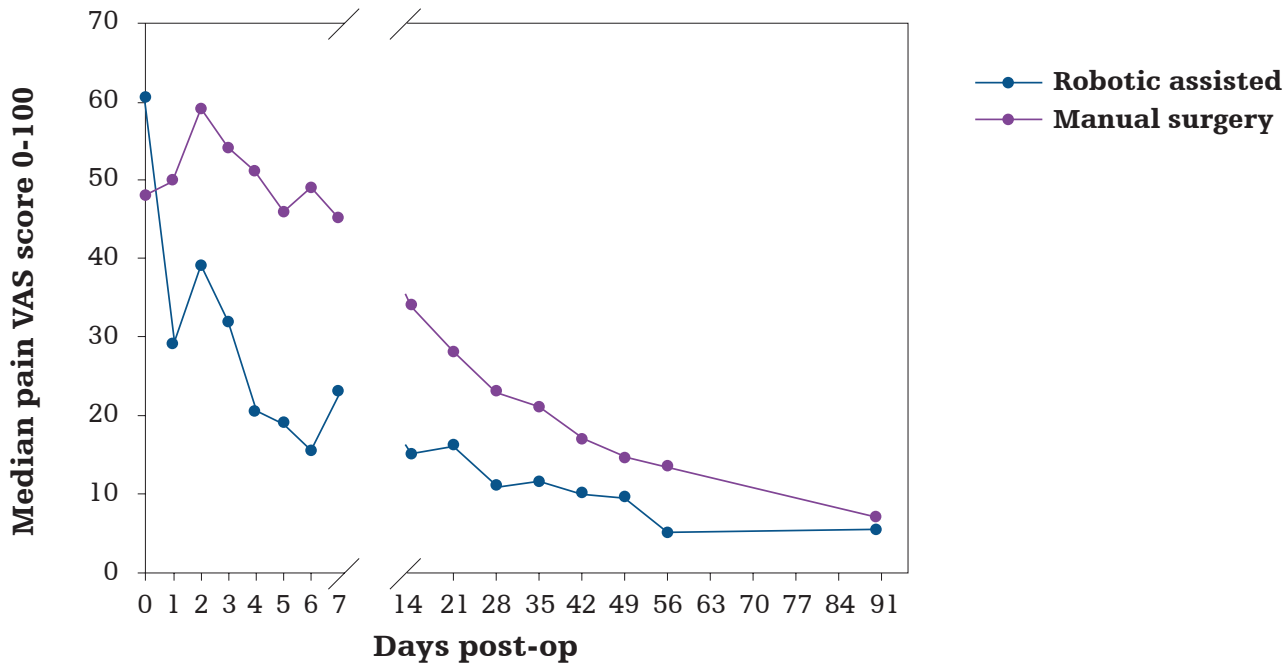
- In a prospective, single center level I, blinded, randomized controlled trial, patients were randomly assigned to treatment with either a robotic-arm assisted Mako Partial Knee or a manual Zimmer Biomet Oxford (n=120)
- At 3 months post-op, Mako Partial Knee showed more accurate delivery of the surgical plan in all alignment measures, compared to the current manual gold standard



Comparison of surgical procedures showing greater percentage of Mako Partial Knee within 2° of planned target value. FS = Femoral Sagittal, FC = Femoral Coronal, FA = Femoral Axial, TS = Tibial Sagittal, TC = Tibial Coronal, TA = Tibial Axial. \* = non-significant parameter.

RCT demonstrated 55.4% lower median pain scores from day 1 to week 8 post-op for the robotic-arm assisted group compared to the manual surgery group<sup>2</sup>

MJG Blyth, I Anthony, P Rowe, MS Banger, A MacLean, B Jones. Bone and Joint Research, 2017.



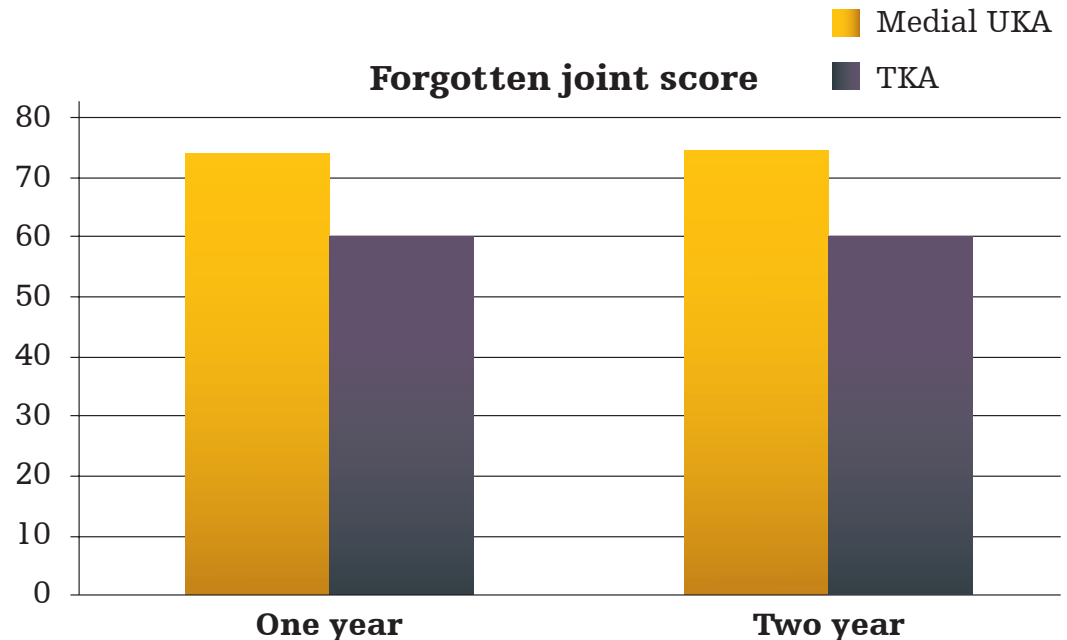
**At 3 months post-op, the robotic-arm assisted group also had better AKSS scores<sup>2</sup>**

Mako Partial Knee patients were more likely to “forget” their artificial joint during daily life compared to those undergoing manual TKA<sup>3</sup>

HA Zuiderbaan, JP van der List, S Khamaisy, DH Nawabi, R Thein, C Ishmael, S Paul, AD Pearle. Knee Surg Sports Traumatol Arthrosc, 2015.

The Forgotten Joint Score (FJS) was administered at one and two years post-operative.

- n=65 medial Mako Partial Knee
- n=65 manually instrumented TKA



## UKA patients return to function earlier than TKA patients<sup>4</sup>

T Borus, D Roberts, P Fairchild, J Christopher, M Conditt, S Branch, J Matthews, K Pirtle, M Baer. Bone & Joint Journal Orthopaedic Proceedings Supplement, 2016.

- 18 conventional TKA, 9 RA-UKA (2 surgeons)
- Results showed less physical therapy was required for Mako Partial Knee patients compared with manual TKA patients to reach the same functional goals

| Prosthesis type | Number of PT visits to functional endpoint (range) |             |                 |                 |                   |
|-----------------|--|-------------|-----------------|-----------------|-------------------|
|                 | Stair ascend/descend                               | Gait w/o AD | Flexion of 115° | Extension of 5° | Ext/flex strength |
| TKA             | 10.5± 4.2  | 6.8± 2.8    | 5± 1.7          | 5± 4.1          | 9.8± 3.0          |
| UKA             | 7.1± 16  | 3.8± 1.6    | 3.8± 2.1        | 2.4± 1.4        | 6.4± 1.8          |
| P-value         | 0.0277   | 0.0022      | 0.0004          | 0.0411          | 0.0319            |

## Robotic-assisted UKAs have demonstrated\*<sup>5</sup>:

# 88%

**reduction in revisions  
at 2 years follow up**

(3.5% manual vs.  
0.4% robotic, p=0.004)

# \$14,958

**lower average cost  
per readmission  
within 90 days of  
follow up**

(robotic assistance  
\$10,328 vs. non-robotic  
\$25,286)

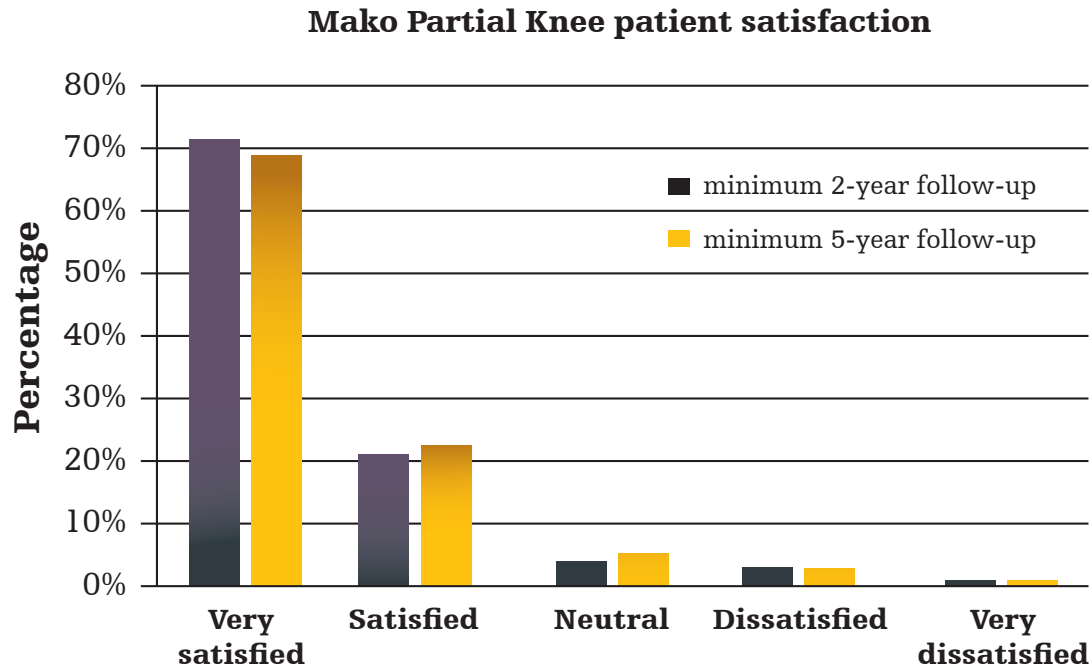
# 33%

**shorter length  
of stay (2.2 days)  
compared to manual  
PKA (3.3 days)**

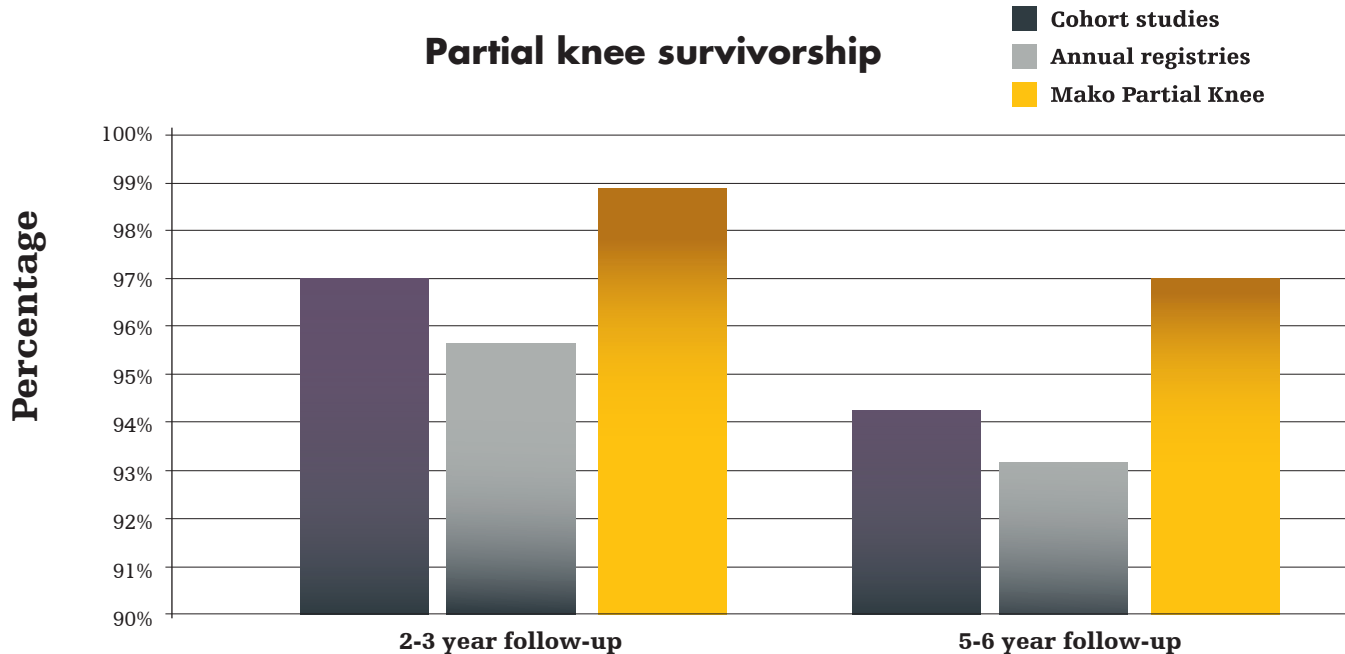
\*Analysis conducted by Baker Tilly, sponsored by Stryker, using a commercial claims database compiled by OptumInsight, Inc. (Eden Prairie, MN) comprising claims generated by a national commercial health plan consisting of approximately 25 million members. Index cases incurred Jan. 2013 – Dec. 2013, revision cases incurred within 24 months of index procedure. This commercial data has not been blended with Medicare or Medicare Advantage data. Results compared to manual partial knee procedures. Economic value and cost savings based on US data and indicative only. Cost savings may differentiate across regions due to different healthcare systems, treatment plans and associated costs.

Mako Partial Knee demonstrated high patient satisfaction at short-term and mid-term follow-up in a multi-center study<sup>6,7,8</sup>

Mako Partial Knee patients reported 92% satisfaction at minimum 2-year follow-up (n=797 patients, 909 knees)<sup>6</sup> and 91% satisfaction at minimum 5-year follow-up (n=384 patients, 432 knees)<sup>7</sup> 83% of patients reported satisfaction with their manual medial PKA at average 6 years follow up (n=7,860) in a similar study based on the Swedish Knee Arthroplasty Registry<sup>8</sup>



Mako Partial Knee demonstrated higher survivorship at minimum 2-year and 5-year follow-up in a multi-center study, compared to manual units in both cohort studies and annual registries<sup>6,7</sup>





Mako Partial Knee showed the lowest revision rate in the Australian registry at 1 year, compared to other manual unis<sup>9</sup>

| <b>Construct</b>            | <b>Number performed</b> | <b>Number revised</b> | <b>Cumulative % revision rate @ 1 year</b> |
|-----------------------------|-------------------------|-----------------------|--|
| <b>Restoris MCK</b>         | <b>752</b>              | <b>5</b>              | <b>0.8 (0.3, 1.9)</b>                      |
| <b>ZUK</b>                  | <b>5921</b>             | <b>275</b>            | <b>1.4 (1.1, 1.7)</b>                      |
| <b>Oxford (cemented)</b>    | <b>12811</b>            | <b>1807</b>           | <b>2.2 (1.9, 2.4)</b>                      |
| <b>Oxford (cementless)</b>  | <b>4209</b>             | <b>236</b>            | <b>3.1 (2.6, 3.7)</b>                      |
| <b>Cumulative (all uni)</b> | <b>48661</b>            | <b>5894</b>           | <b>2.2 (2.1, 2.4)</b>                      |

# References

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2. MJG Blyth, I Anthony, P Rowe, MS Banger, A MacLean, B Jones. Robotic arm-assisted versus conventional Unicompartmental knee arthroplasty: exploratory secondary analysis of a randomized controlled trial. *Bone and Joint Research*, 2017.
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4. Borus T; Roberts D; Fairchild P; Christopher J; Conditt M; Branch S; Matthews J; Pirtle K; Baer M. UKA patients return to function earlier than TKA patients. *Bone & Joint Journal Orthopaedic Proceedings Supplement* 2016;98(SUPP 1): 50-50.
5. Analysis conducted by Baker Tilly using a database compiled by OptumInsight, Inc. (Eden Prairie, MN) comprising claims generated by a national commercial health plan consisting of approximately 25 million members. Index cases incurred Jan. 2013 – Dec. 2013, revision cases incurred within 24 months of index procedure. This commercial data has not been blended with Medicare or Medicare Advantage data. 14 \*Results compared to manual partial knee procedures.
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9. Australian Registry data, 2017.



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