

Evidence Insight Spotlight

MAKO from Stryker

Overview

MAKO from Stryker is a robotic orthopedic surgical system used in joint replacement surgeries to achieve highly accurate implant placement. Using data from a requisite CT scan, the surgeon develops a patient-specific pre-operative plan. During surgery, the surgeon receives haptic feedback to ensure bone is resected according to the pre-operative plan, with the ability to make intraoperative adjustments to the plan if necessary.

Conclusion

MAKO generally results in longer operative times and has not consistently demonstrated substantially improved clinical outcomes compared to manual surgery. In addition, clinical data beyond short-term follow-up has not been published.

While MAKO's improved accuracy for implant placement compared to manual surgery is promising, the extremely high cost and lack of substantial clinical benefit suggest that health systems take a cautious approach to investing in the system.

Is MAKO's cost justified by the clinical outcomes?

MAKO carries a hefty price tag (\$1M+ upfront capital cost plus six-figure service contracts and disposables for every case) and is only compatible with Stryker/MAKO joint implants. In order to justify these costs, improved clinical or operational outcomes need to be demonstrated.

The table below summarizes the clinical evidence.

| Procedure | Mean follow-up* | Implant placement accuracy* | Operational outcomes* | Clinical outcomes* |
|-----------------------|-----------------|-----------------------------|----------------------------------|---|
| Unicompartmental Knee | One year | Increased accuracy | Longer operative time | No difference |
| Total Hip | Two years | Increased accuracy | Similar or longer operative time | Similar or marginally improved hip scores |
| Total Knee | 6 months | Not evaluated | Similar or longer operative time | Lower pain, similar function scores |

*Compared to manual surgery



Potential benefit over manual surgery



No benefit over manual surgery



Not evaluated compared to manual surgery

Note: Information is limited to evidence from peer-reviewed journals.

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