Mazor™ Core Technology
for Robotic-Guided Spine Surgery
Pedicle screw placement is a common spinal surgical procedure but it remains technically demanding. The anatomical proximity to the central nervous system and main blood vessel structures means that inaccuracy of pedicle screws may result in serious morbidity, complications, and revision surgery. Mazor X Stealth Edition™ delivers predictability of planning, precision of robotics-guidance, and the visibility of navigation in open, minimally invasive, or percutaneous procedures. Mazor Core Technology delivers high rates of pedicle screw accuracy and enables a minimally invasive approach to spine surgery, which has well-established benefits including less tissue trauma, blood loss, postoperative pain, and convalescence.

MIS and Mazor Core Technology Benefits

**SURGEON**
- Improved Patient Outcomes
- Optimized Screw Placement Accuracy
- Predictability and Consistency of Spinal Surgery Through Planning

**HOSPITALS**
- Improved Outcomes, Including Length of Stay and a Lower Rate of Infection
- Patients Report High Levels of Satisfaction with the Procedure

**PATIENTS**
- Promotes Faster Recovery
- Reduces Postoperative Pain
- Significant Improvement from Preoperative Status

**ROBOTIC WORKFLOW**

**PLAN**

**PRECISION OF ROBOTIC TECHNOLOGY**

**VISIBILITY OF NAVIGATION**

**ROBOTIC-GUIDED SPINAL INSTRUMENTATION HAS A HIGH LEVEL OF ACCURACY WITH ENHANCED REPRODUCIBILITY AND PREDICTABILITY.**

A significant reduction in deviation from preoperative planning was seen with Mazor Core Technology as compared to fluoroscopy.

**Achieving Accurate Screw Placement**

Up to 100% screw placement accuracy.

**LESS FACET JOINT VIOLATION**

0/74 screws violated the proximal facet joint in PLIF with Renaissance™ Guidance System vs. 13/82 in open PLIF.

**Length of Stay**

Shorter length of stay for MIS enabled by Mazor Core Technology than open freehand procedures enabled by fluoroscopy.

**MINIMALLY INVASIVE PLIF PATIENT-REPORTED OUTCOMES WITH MAZOR CORE TECHNOLOGY**

- Significant improvement of leg and back pain at the final follow-up
- Mean ODI improved from severe to minimal disability after surgery
- 89.1% of patients would choose to undergo the same treatment again
- 78.2% of patients reported the ability to work at the final follow-up

**ROBOTIC-FACED RANDOMIZED STUDIES**

<table>
<thead>
<tr>
<th>Study</th>
<th>Procedure</th>
<th>Results</th>
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<tr>
<td>Lieberman 2012</td>
<td>Open Fluoroscopy vs. MIS SpineAssist Study on Cadavers</td>
<td>Average precision relative to plan: 2.6 ± 0.7 Mazar Core Technology, 3.5 ± 0.7 Fluoroscopy, P=0.0001</td>
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<tr>
<td>Hyun 2017</td>
<td>Spine Assist MIS vs. Fluoroscopy</td>
<td>Precision of screw placement: 6.8 ± 2.4 Fluoroscopy, 8.9 ± 1.8 Spine Assist, P=0.020</td>
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<tr>
<td>Khan 2019</td>
<td>Renaissance MIS vs. Fluoroscopy</td>
<td>Average precision relative to plan: 9.4 ± 5.4 Renaissance MIS, 8.4 ± 4.6 Fluoroscopy, P=0.001</td>
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**Time to place screws**

Time to place screws was significantly reduced from a mean of 6.7 ± 0.9 minutes in navigated procedures to 3.7 ± 1.8 minutes with Mazor X System.
REFERENCES


The evidence reported here refers to various Mazor robot generations that share Mazor Core Technology.