GLOBUS MEDICAL

ExcelsiusGPS™

REVOLUTIONARY ROBOTIC NAVIGATION

excelsius-gps.com

Life moves us

ExcelsiusGPS™

ExcelsiusGPS™ is a revolutionary robotic navigation platform that offers a comprehensive approach to spine and cranial procedures, from planning to execution.

Versatile Imaging Workflows

- Compatible with intraoperative CT (3D), preoperative CT (3D), and fluoroscopy (2D) imaging systems

Unique Real-Time Information

- Accuracy surveillance monitoring
- Force sensing technology
- Active navigation tracking

Multifunctional Robotics

- Multiple end effectors for various instruments
- Solutions for spine and cranial applications

REDUCED MIS PROCEDURE TIME[1]

IMPROVED SCREW PLACEMENT ACCURACY[1]

REDUCED RADIATION EXPOSURE[2]

INCREASED SCREW SIZE[3]

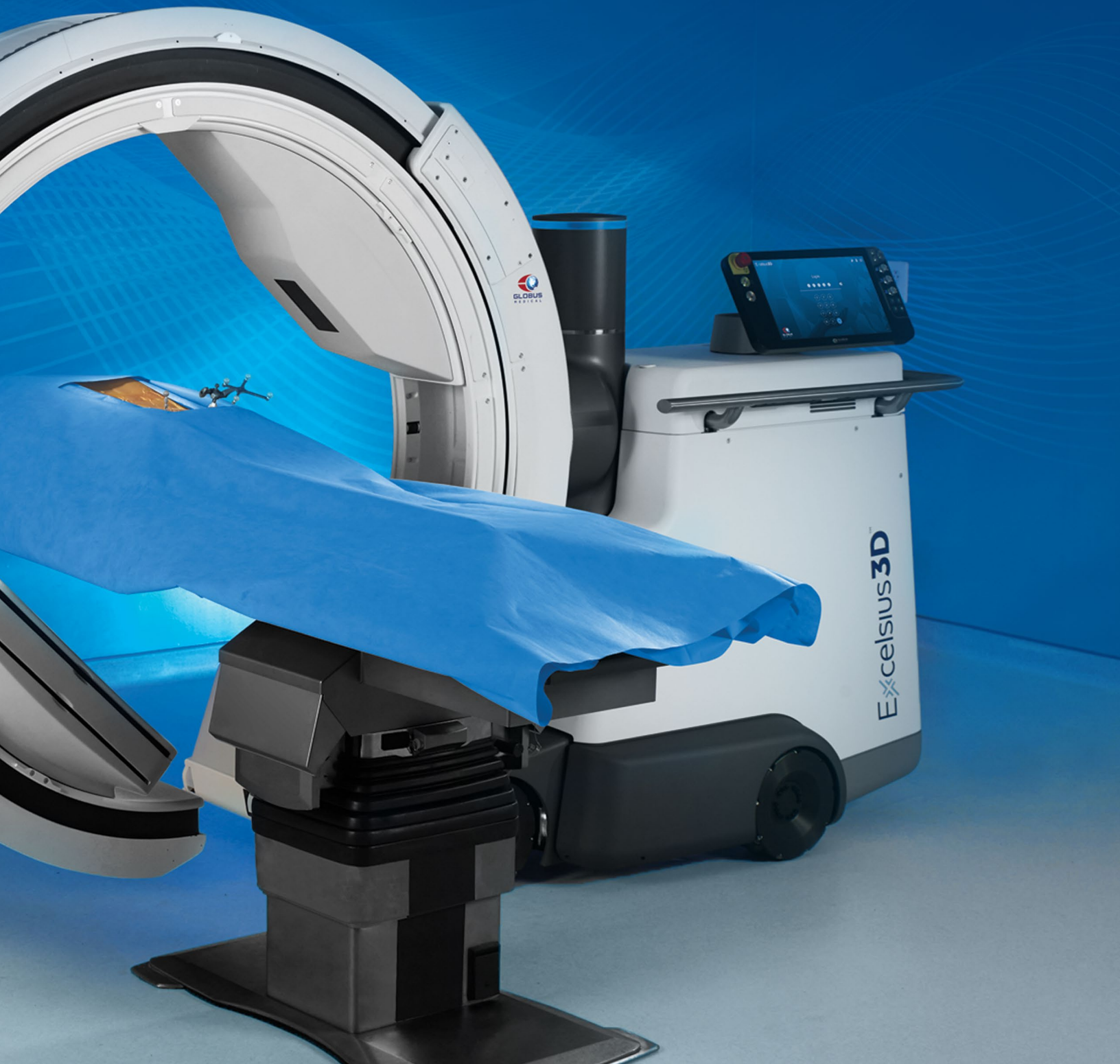
MULTIPLE APPLICATIONS, ONE PLATFORM.

VERSATILE IMAGING WORKFLOWS

ExcelsiusGPS™ is compatible with preoperative CT, intraoperative CT, and fluoroscopy imaging systems, allowing the system to fit any surgical workflow. This compatibility enables planning and navigation in both 2D and 3D.

Comprehensive Excelsius™ Solutions

ExcelsiusGPS™ is compatible with Excelsius3D™ intelligent imaging, which serves as an elegant extension of the Excelsius™ Ecosystem. Automatic registration is available in all three ExcelsiusGPS™ imaging workflows thanks to Excelsius3D™'s integrated navigation arrays, which are actively tracked by the robot's camera.



UNIQUE REAL-TIME INFORMATION

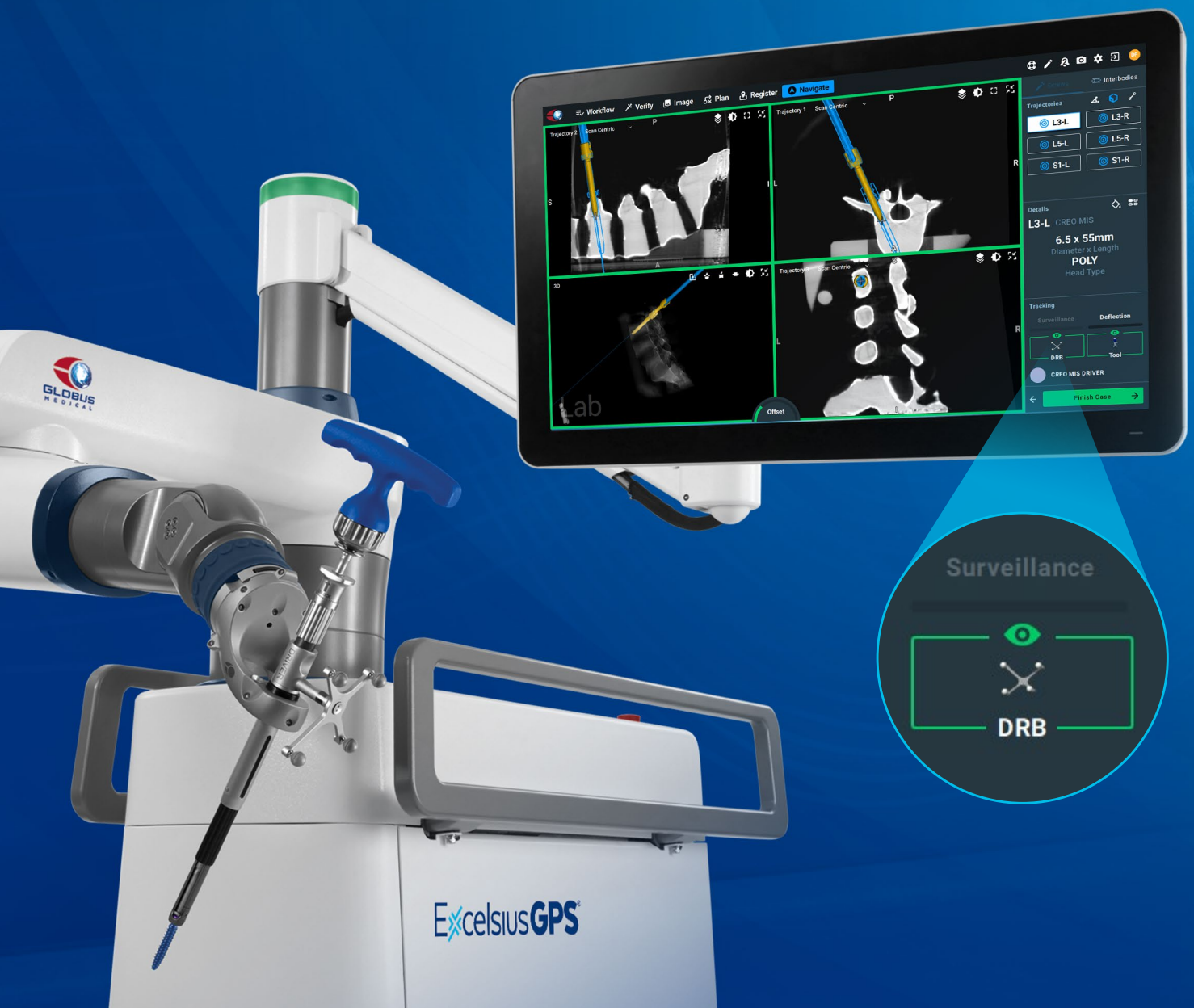
The smart integrated movement monitoring and visualization features are designed to help maintain navigation integrity.

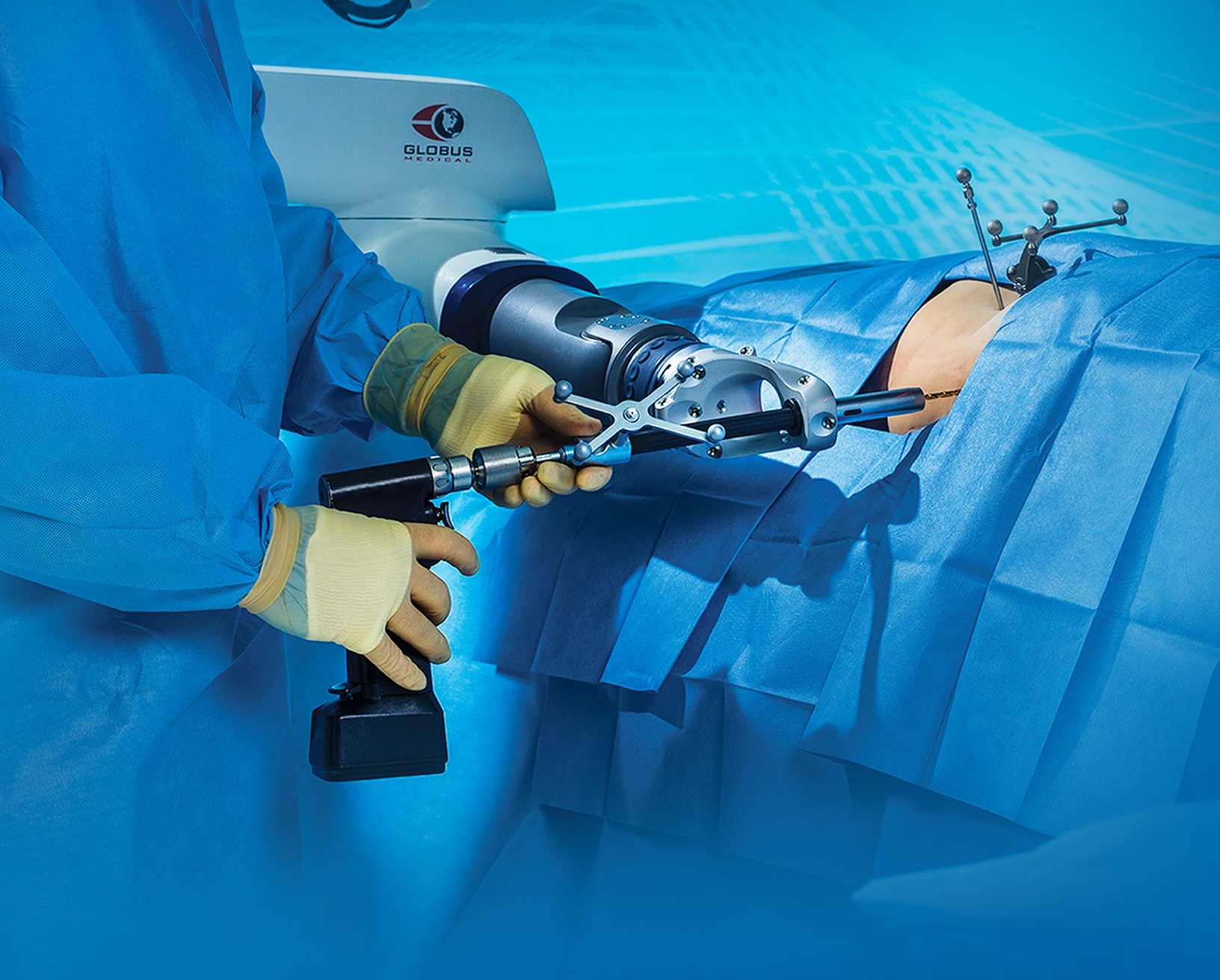
FORCE DETECTION

SURVEILLANCE MARKER

PATIENT MONITORING

TRAJECTORY ALIGNMENT





Force Detection

The rigid robotic arm houses fully integrated force-sensing technology, which provides surgeons with live feedback on skiving and any deflection off trajectory during navigation.

Surveillance Marker

The addition of the surveillance marker provides a high degree of confidence and safety redundancies should the patient array shift during the procedure.

Patient Monitoring

The offset meter tracks movement of the patient relative to the End Effector. The system provides an alert when the arm trajectory becomes misaligned due to patient or bed shift.

Trajectory Alignment

The accurate alignment of the robotic arm's trajectory when placing spine and cranial instruments is made possible by actively tracking the End Effector through 12 LEDs.

MULTIFUNCTIONAL ROBOTICS

The rigid robotic arm enables automated repeatable trajectory alignment. The rigidity maintains stability during instrument and implant placement, enabling surgeons to achieve complex trajectories and potentially reducing their cognitive load.

Navigation of integrated instruments along with the actively navigated robotic arm delivers a solution for minimally invasive surgery while decreasing radiation exposure and increasing implant placement accuracy.[2]

2-in-1 Robotic Navigation

ExcelsiusGPS™ easily adapts across spine and cranial applications with the simple switch of the adaptable End Effector.

ACTIVE END EFFECTOR

Efficiently place screws with ExcelsiusGPS™

MOTION LOCK END EFFECTOR

Secure your retractor with the robotic arm during Interbody Solutions for added stability

INTERCHANGEABLE GUIDE END EFFECTOR

Leverage ExcelsiusGPS™ for accurate and efficient functional neurosurgery during Cranial Solutions.

Enhance Surgeon Experience

REDUCED RADIATION EXPOSURE

ExcelsiusGPS™ has been shown in cadaveric studies to reduce radiation exposure.[2, 4]

No fluoroscopic images were taken during robotic-assisted navigated MIS placement of pedicle screws, compared to 108 fluoroscopic images during conventional MIS techniques in a cadaveric lab study.[2]

An 85% decrease in radiation was demonstrated in a cadaveric study during a single position lateral procedure with ExcelsiusGPS™ compared to a conventional multi-position procedure.[4]

INCREASED SCREW SIZE

In a study of 151 consecutive patients who underwent instrumented spinal fusion surgery, the surgeon preoperatively planned and subsequently placed larger pedicle screws for the group that underwent robot-assisted surgery.[3]

- **7.7% increase in pedicle screw width, on average (7 + 0.7 vs. 6.5 + 0.3 mm; p < 0.001)**
- **4.6% increase in pedicle screw length, on average (47.8 + 6.4 vs. 45.7 + 4.3 mm; p <0.001)**

Drive Hospital Efficiencies

SUBSTANTIAL TIME REDUCTION

A 52% decrease in pedicle screw placement time and a 9% decrease in overall procedure time was demonstrated in a cadaveric study comparing ExcelsiusGPS™ robotic-assisted minimally invasive surgery (MIS) procedures to conventional MIS.[2]

INCREASED IMPLANT PLACEMENT ACCURACY

Multiple clinical and surgical settings report 96% to 100% screw placement accuracy or successful placement by surgeons around the world with varying experience levels.[5-11]

Excelsius™ Cranial

Designed for a Broad Spectrum

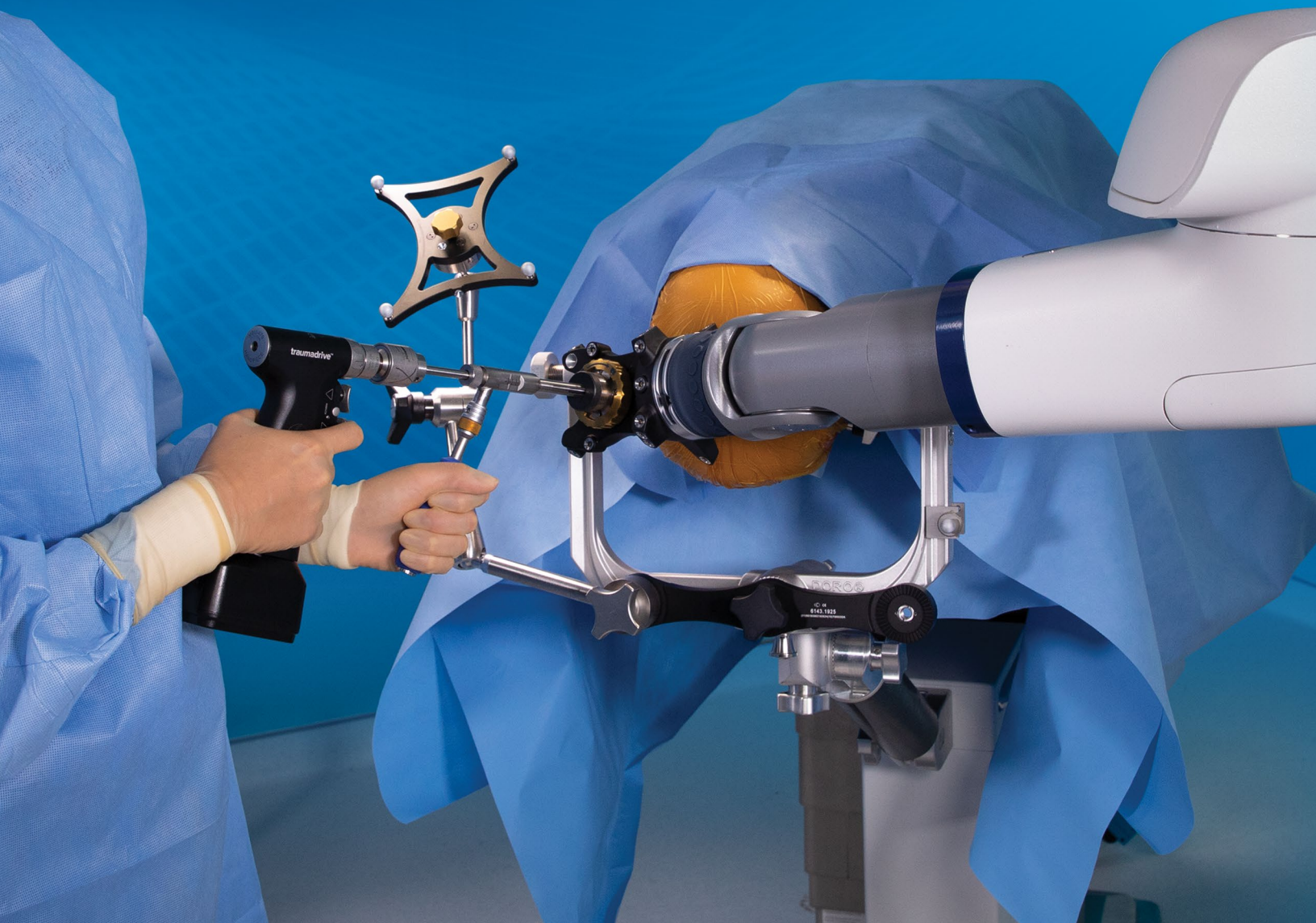
From common biopsies to complex deep brain stimulation (DBS) procedures.

Increased Automation

Eliminates the stereotactic arc through integrated planning, navigation, and trajectory alignment.

Accuracy Without Sacrifice

Fluoroscopy-based registration is designed for navigation accuracy, low radiation exposure, and fast procedure time.



COMPLEX SURGERY SIMPLIFIED

DESIGNED FOR A BROAD SPECTRUM

INCREASED AUTOMATION

ACCURACY WITHOUT SACRIFICE

Drive Hospital Efficiencies

SUBSTANTIAL TIME REDUCTION

In a cadaveric study, there was a 50% reduced time per lead insertion for DBS targets and a 48% reduction in total procedure time with ExcelsiusGPS™ Cranial Solutions than with the traditional head frame (ARC) technique.[12]

INCREASED IMPLANT ACCURACY PLACEMENT

In a cadaveric white paper study, data suggest that ExcelsiusGPS™ Cranial Solutions reduced DBS target and trajectory errors by 31% and 33%, respectively, compared to the ARC technique.[12]

REDUCED RADIATION EXPOSURE

A simulated lab study demonstrated 98% less radiation emitted for ExcelsiusGPS™ Cranial Solutions registration than for the ARC technique.[12]

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