X360

Transform surgery.
Advance care.
Change lives.

NUVASIVE

Building on the legacy of XLIF, X360 combines less invasive procedural solutions—XLIF, XALIF and XFixation—with cutting edge technologies to offer the most comprehensive and customizable lateral single-position surgical system in the market.

Transform surgery

The introduction of XLIF and NVM5 transformed the minimally invasive surgery spine market, demonstrating superior and more predictable outcomes than traditional spinal fusion procedures with substantially fewer complications.

Benefits of less invasive surgery

Improved clinical outcomes

- 97% fusion/healing rates with XLIF[1]
- 50% reduction in revision rates[2]
- 50% shorter length of stay[2]

Improved restoration of height and alignment

- 97% achievement of indirect decompression[3]
- 75% greater foraminal height restoration than TLIF and PLIF[4]

Reduced morbidity

- 90% reduction in infection rates than TLIF and PLIF[2]
- 90% reduction in blood loss[5–8]

Advance care

The X360 system is designed to enhance surgical workflow, reduce operative time, and improve patient outcomes through modern, less invasive techniques performed with the patient in lateral decubitus.

Benefits of X360

Reduced operative time

X360 can reduce up to 60 minutes[9] of operative time through the removal of supine or lateral to prone repositioning.

Cost savings

X360 can reduce hospital costs by an average of $5,000 per patient.[10,11] Cost estimated at $80 per minute.

Reduced time under anesthesia

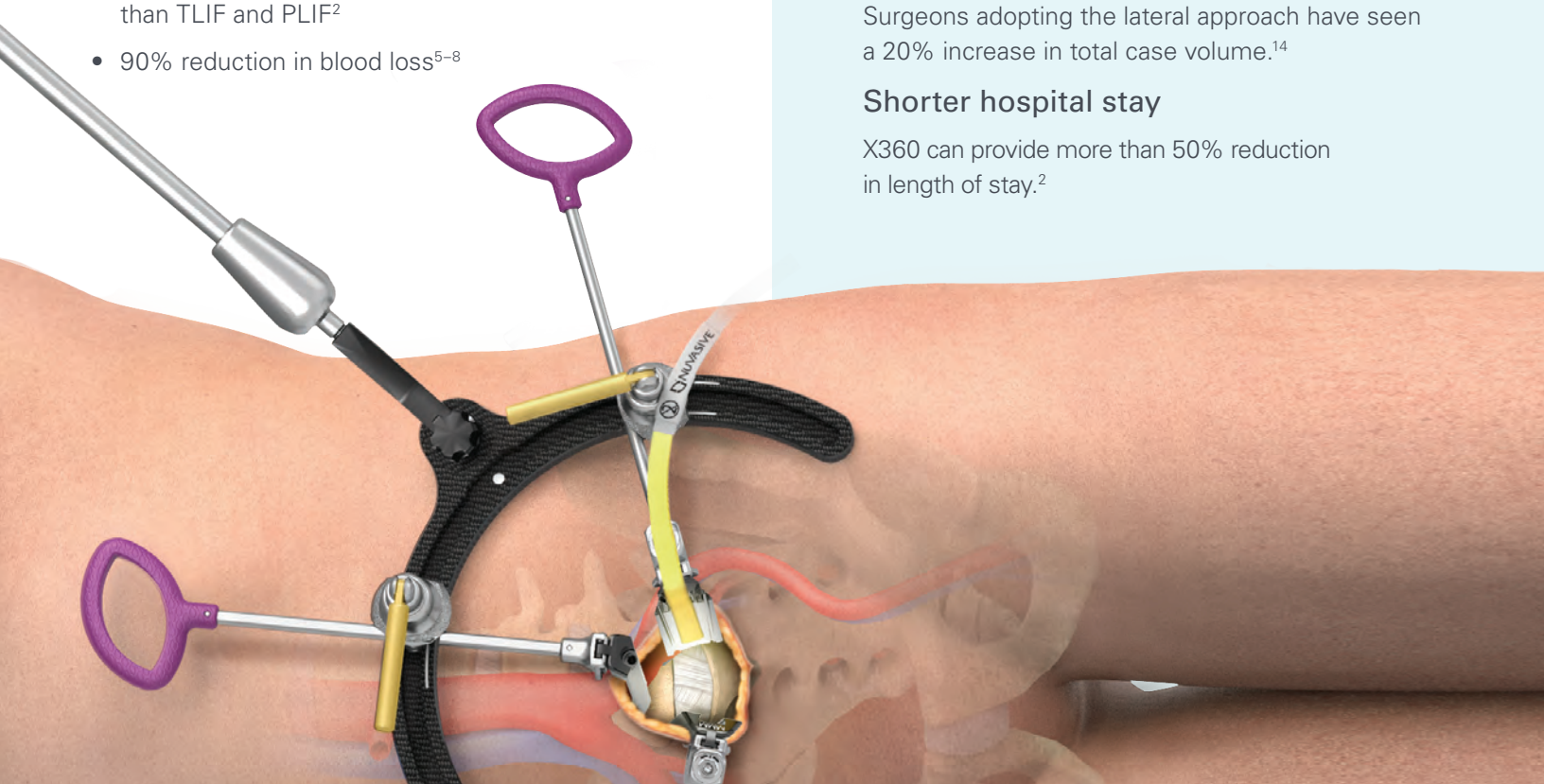
X360 can reduce patient time under anesthesia and lower associated intraoperative risks.[12,13]

Increased case volume

Surgeons adopting the lateral approach have seen a 20% increase in total case volume.[14]

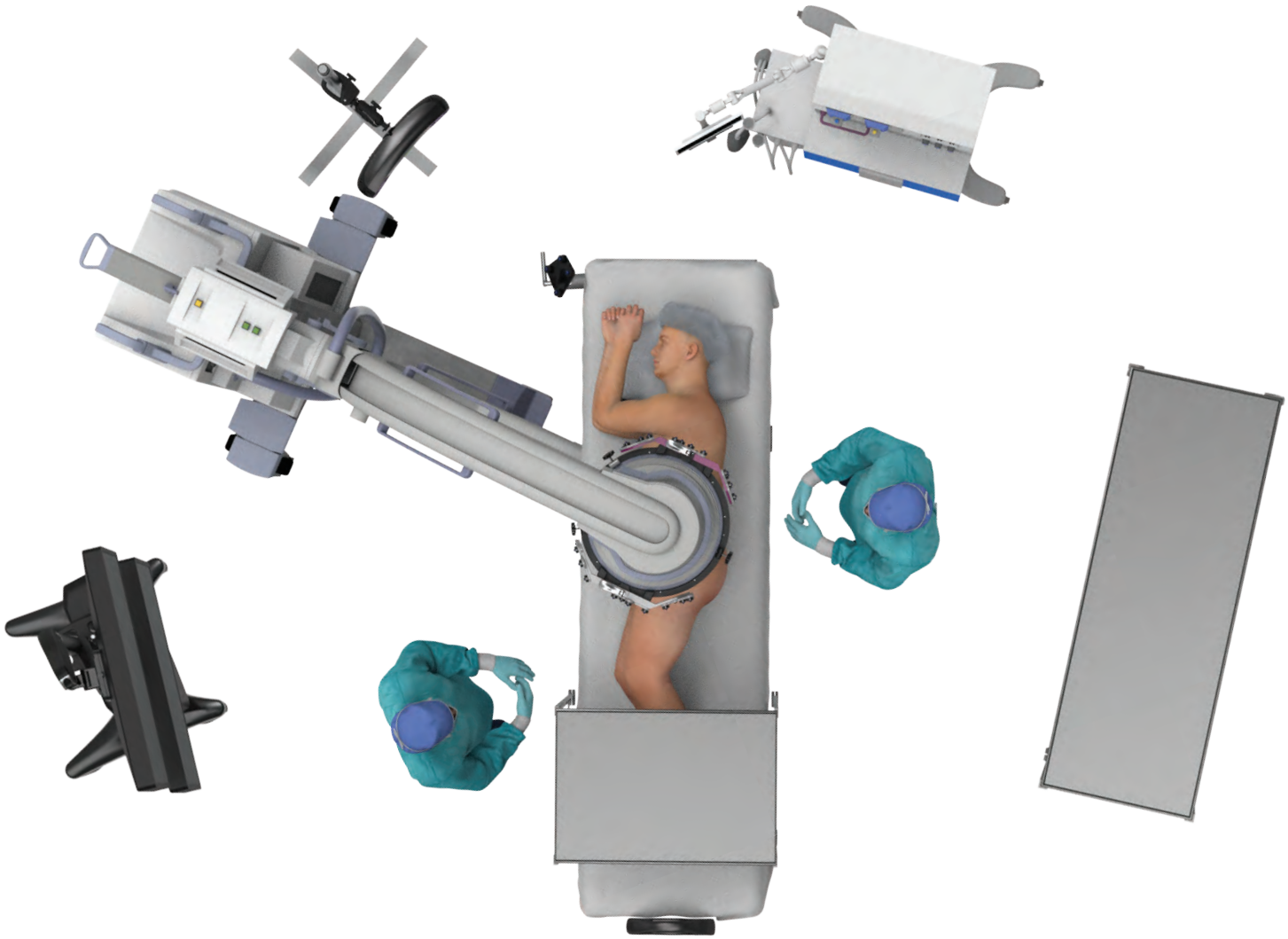
Shorter hospital stay

X360 can provide more than 50% reduction in length of stay.[2]



X360 OR setup and surgical workflow

To take advantage of the time benefits associated with X360, it is important to set the OR up for maximum efficiency prior to the case. X360 provides significant OR time savings[9] by keeping the patient in lateral decubitus throughout the entire surgery. By performing multiple procedures in the lateral position, a surgeon is able to customize their workflow allowing for greater OR efficiency.



1 *Pre-op*

Plan

2 *Intra-op*

XALIF XLIF XFixation

3 *Post-op*

Confirm

- Neuromonitoring
- Global alignment
- Rod bending
- Radiation reduction and imaging
- Navigation

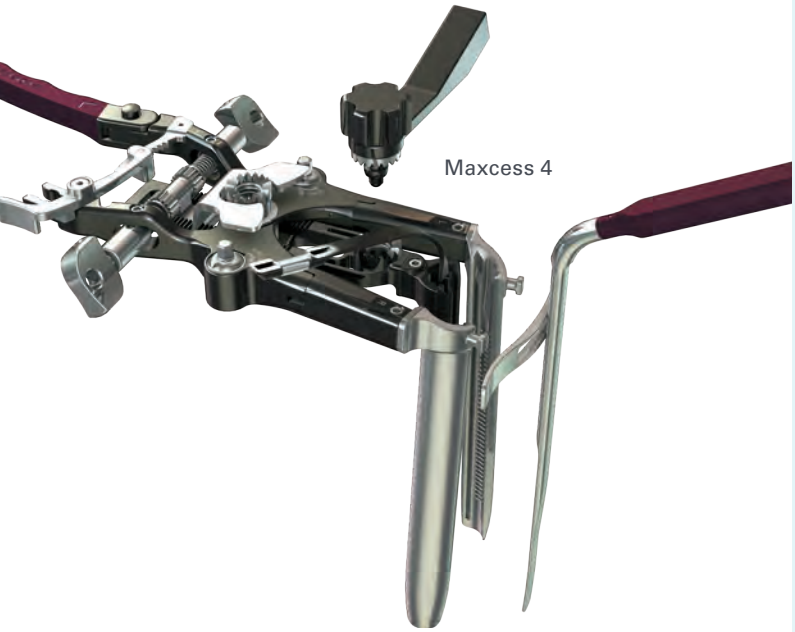
Surgical Intelligence

One position, one comprehensive solution

Access

Maxcess 4 and XALIF access

The X360 system has dependable access systems that are designed to deliver reproducible outcomes by combining strength, precision, fluoro-visibility and integrated neuromonitoring.

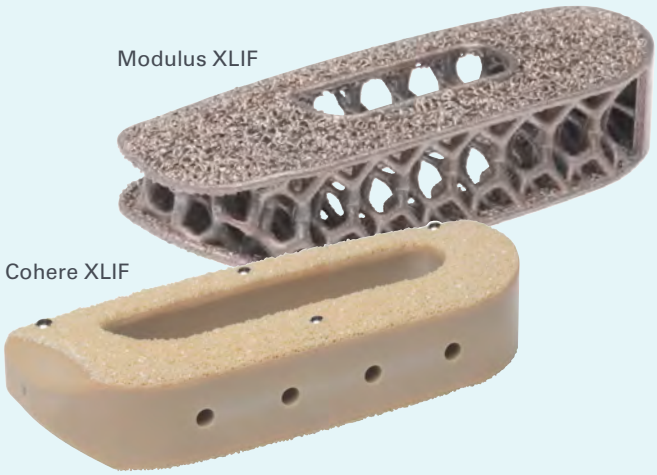

Maxcess 4


XALIF access

Interbody

XLIF: Advanced Materials Science and smooth PEEK portfolios

Adhering to the three core principles of Advanced Materials Science, surface, structure and imaging, NuVasive has pioneered design and manufacturing methods that combine the inherent benefits of porosity with the advantageous material properties of PEEK and titanium, allowing surgeons reliable options for their X360 cases.


Modulus XLIF

Cohere XLIF

XALIF: Base and Brigade portfolios

The XALIF interbody product offerings include Base and Brigade. They are specifically designed to help rebuild spinal foundation at the base of the spine based on the importance of Integrated Global Alignment.


Base


Brigade

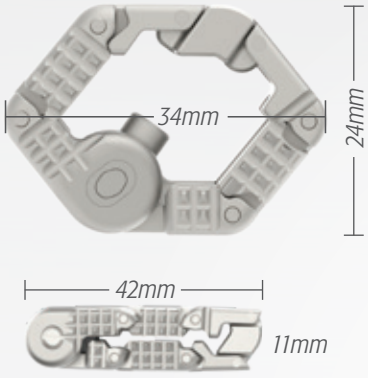
MLX

Expanding Aperture. Increased Stability. Integrated Graft Delivery.

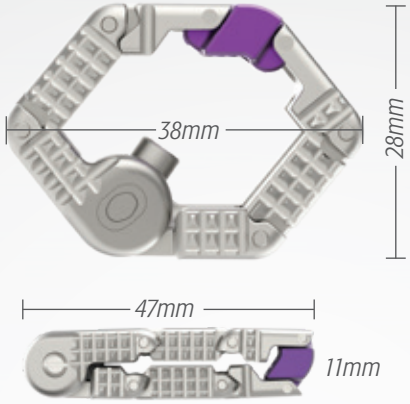
Expandable ALIF-sized footprint from a posterior approach

DUAL FOOTPRINT OPTIONS

LARGE



EXTRA-LARGE



ONE MULTI-FUNCTIONAL INSTRUMENT TO INSERT, EXPAND, AND POST-PACK THE IMPLANT WITHIN THE DISC SPACE UP TO 13cc

BIOMECHANICAL STABILITY

- Optimal stability with unilateral screw fixation, comparable to traditional TLIF cage with bilateral screw fixation and ALIF cage with anterior plate[2]
- Lordotic ALIF-sized footprint facilitates single-position surgery when combined with XLIF at cephalad levels

Estimated Autograft Volumes

Footprint	Lordosis	Posterior Height	Volume
34 x 24mm	4°	8mm	5cc
		10mm	7cc
		12mm	8cc
	8°	8mm	8cc
		10mm	7cc
		12mm	8cc
	12°	8mm	6.5cc
		10mm	7.5cc
38 x 28mm	4°	8mm	8cc
		10mm	10cc
		12mm	13cc
	8°	8mm	9cc
		10mm	10.5cc
		12mm	12cc
	12°	8mm	9.5cc
		10mm	11.5cc

Typically add 3-5cc, as actual autograft volumes may be different, due to varying patient anatomy (such as concavity of the endplates) and graft compression ratio.

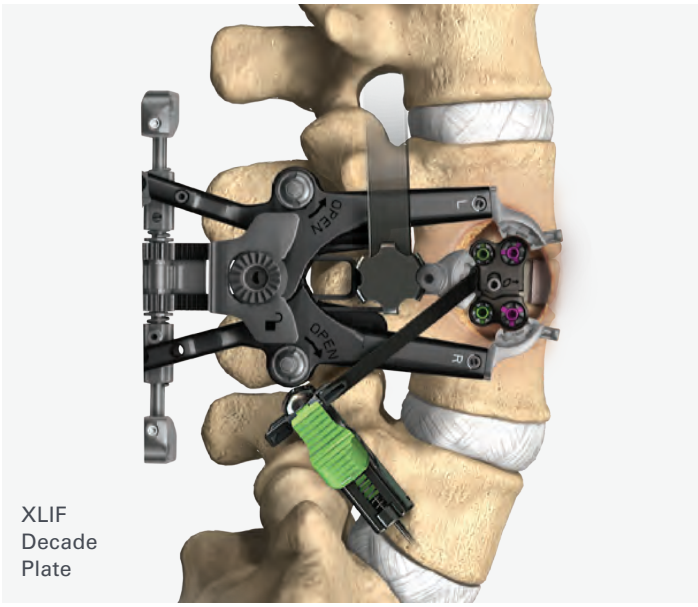
[2]Cannestra AF, Peterson MD, Parker SR, et al. MIS expandable interbody spacers: a literature review and biomechanical comparison of an expandable MIS TLIF with conventional TLIF and ALIF. *Spine* 2016;41(Suppl 8):S44-9.

Fixation

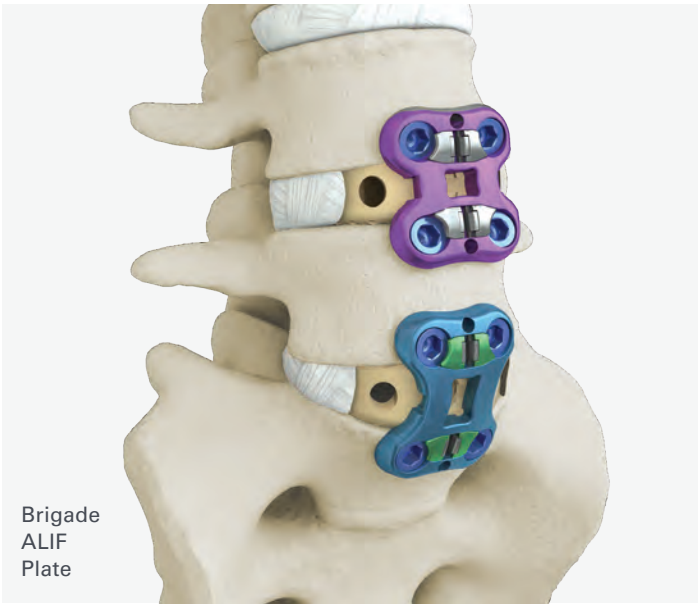
Reline MAS, XLIF Decade Plate and Brigade ALIF Plate fixation systems

The X360 system offers a multitude of fixation options for any patient specific need.

Reline MAS



XLIF Decade Plate



Brigade ALIF Plate

Biologics

Osteocel Pro and Osteocel Plus

Osteocel Pro and Osteocel Plus provide all three essential mechanisms for bone formation—osteoconduction, osteoinduction and osteogenesis.[15] Osteocel, the most studied cellular allograft, is backed by more than 16 years of research and 300,000 patients treated. Its cohesive and moldable handling characteristics make it a preferred biologic.

Osteocel Plus

Osteocel Pro

Surgical Intelligence

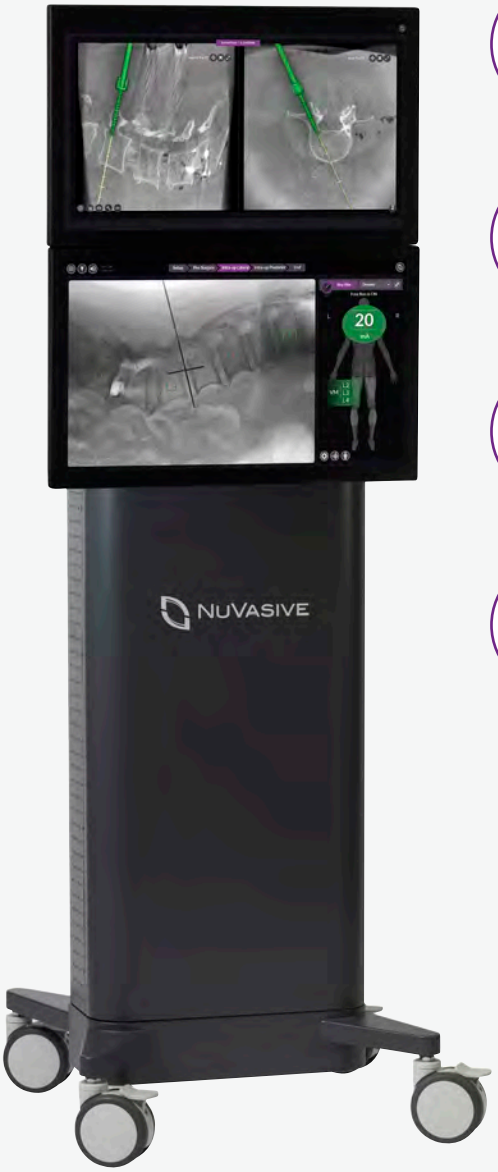
NVM5: one device, multiple enabling technologies

NVM5 combines intraoperative neuromonitoring and other surgical technologies into a single platform, specifically designed to support the unique requirements of spine surgery. These enabling technologies include **neuromonitoring, global alignment and rod bending.**

- Neuromonitoring
- Global alignment
- Rod bending

Pulse: an integrated technology platform to enable better spine surgery

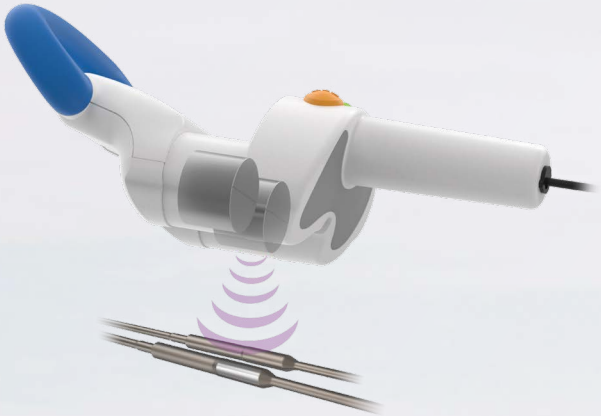
In addition to the NVM5 platform, NuVasive has developed a single integrated technology platform in Pulse. Pulse integrates multiple enabling technologies to improve workflow, reduce variability and increase the reproducibility of surgical outcomes. These technologies include **neuromonitoring, global alignment, rod bending, radiation reduction,[16] imaging, navigation, robotics, smart tools and other applications.***



- Radiation reduction and imaging
- Navigation
- Robotics
- Smart tools and other applications

THE MAGEC® SYSTEM features magnetically controlled growing rods designed to eliminate planned distraction surgeries from the treatment for early-onset scoliosis (EOS). This innovative technology gives surgeons noninvasive control of the implant, making tailored growth strategies possible for individual patients. MAGEC simplifies care for EOS by helping to reduce the anxiety[1] and complication risks associated with repetitive growing-rod surgeries[2].

EXTERNAL REMOTE CONTROLLER
Provides noninvasive control of implant



470MM TI RODS
4.5, 5.5, and 6.0mm diameters

STANDARD OR OFFSET DESIGN

TWO ACTUATOR PROFILES
Accommodate varying anatomical requirements

+ **70MM ACTUATOR**
28mm of distraction capability

+ **90MM ACTUATOR**
48mm of distraction capability

Pulse

Introducing Advanced Navigation

Navigation in spine surgery offers the potential for more surgeons to adopt MIS techniques while improving implant accuracy and minimizing radiation. However, the complexity and time requirements of existing solutions has impeded adoption of navigation into the majority of spine surgeries.

In a single expandable platform, Pulse integrates multiple enabling technologies to improve workflow, reduce variability, and increase the reproducibility of surgical outcomes. Pulse introduces a procedurally integrated navigation technology that features state-of-the-art camera, array and workflow technologies to improve line of sight, ease-of-use, and surgical efficiency in the OR.

NuVasive

LessRay

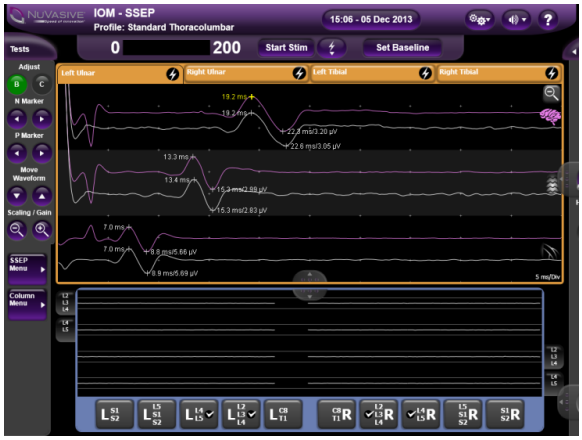
An unmatched OR technology decreasing radiation up to **80%** and saving time in surgery

Surgeons, OR staff and patients have been benefiting from significant reductions in radiation exposure, while increasing efficiency during surgical procedures.

Experience the benefits of this award-winning technology voted a gold winner in the advanced surgical instruments category at the 2019 Edison Awards.™

NUVASIVE

The NVM5 Approach to SSEPs



SIMPLE, EFFICIENT SETUP

Opportunity for time savings and increased reproducibility with a scripted approach to patient preparation and system setup

INNOVATIVE USER INTERFACE

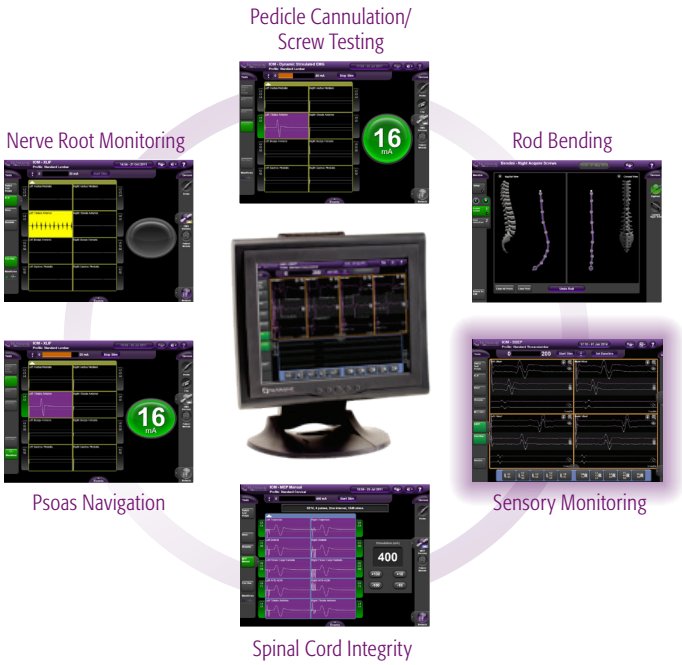
Efficient screen navigation and data display focused on delivering timely intraoperative data

COMPLETE, SPINE-FOCUSED TECHNOLOGY

Designed to support the complex needs of spine surgery with multimodality neuromonitoring and Bendini Rod Bending capabilities

NVM5 Platform Capabilities

SSEPs complement the suite of neuromonitoring and computer-assisted surgery capabilities of the NVM5 platform



Procedural Value of SSEPs

	ACDF	PCF	THORACIC	XLIF	PLIF/TLIF	ALIF
Spinal cord function[1,2]	✓	✓	✓			
Positioning-related deficit[3]	✓	✓	✓	✓	✓	✓
Blood supply obstructed by retraction[1,4]	✓					✓

[1]Kombos T, Suess O, Da Silva C, Ciklatekerlio O, Nobis V, Brock M: Impact of somatosensory evoked potential monitoring on cervical surgery. *Journal of Clinical Neurophysiology* 2003; 20(2):122-128.
[2]More RC, Nuwer MR, Dawson EG: Cortical evoked potential monitoring during spinal surgery: sensitivity, specificity, reliability, and criteria for alarm. *Journal of Spinal Disorders & Techniques* 1988; 1(1):75-80.
[3]Kamel IR, Drum ED, et al.: The use of somatosensory evoked potentials to determine the relationship between patient positioning and impending upper extremity nerve injury during spine surgery: a retrospective analysis. *Anesthesia & Analgesia* 2006; 102:1538-1542.
[4]Brau SA, Spoonamore MJ, Snyder L, Gillbert C, Rhonda G, Williams LA, Watkins RG: Nerve monitoring changes related to iliac artery compression during anterior lumbar spine surgery. *The Spine Journal* 2003; 3(5):351-355.

NuVasive

To order, please contact your NuVasive Sales Consultant or Customer Service Representative today at:

NuVasive, Inc. 7475 Lusk Blvd., San Diego, CA 92121 USA • phone: 800-475-9131

EC REP **NuVasive Netherlands B.V.** Jachthavenweg 109A, 1081 KM Amsterdam, The Netherlands • phone: +31 20 72 33 000

9501235 B

nuvasive.com

CE 2797

iGA Integrated Global Alignment

BENDINI

The Bendini spinal rod bending system expedites manual rod manipulation via computer-assisted bend instructions. This system benefits both you and your patients with:

DECREASED O.R. TIME

Predictable, reproducible rod bending helps surgeons create rods, often requiring a single pass.[4]

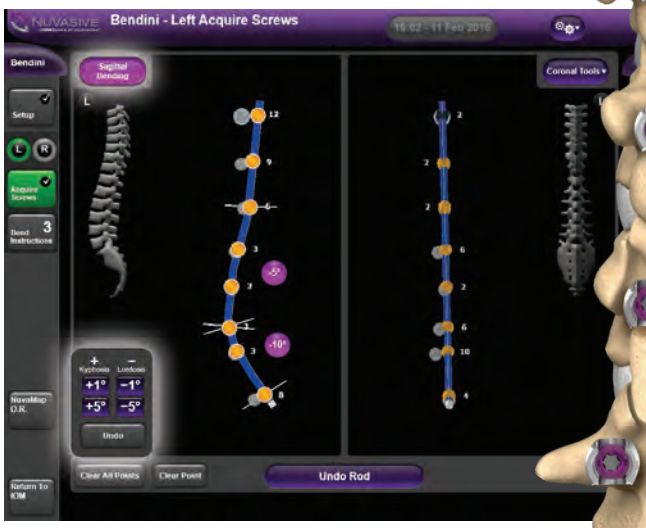
RESTORED ALIGNMENT

Surgeon-driven menus enable rapid intraoperative alignment assessment and rod customization. Coronal and sagittal design tools help guide surgeons to achieve alignment goals prior to exiting the O.R.

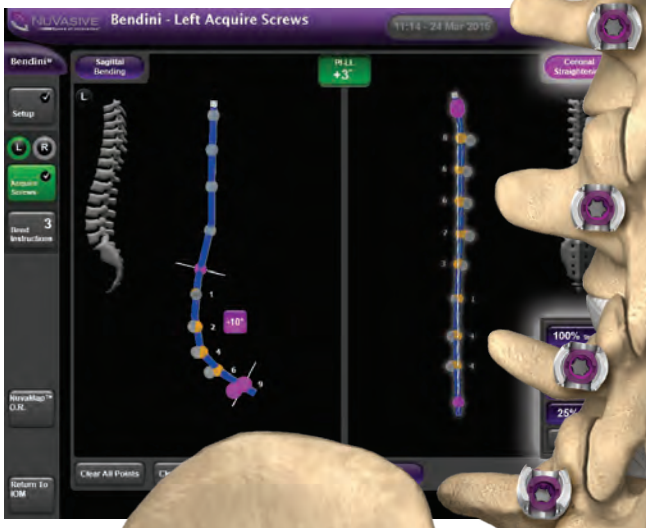
MINIMIZED SCREW PULLOUT

Patient-specific rods are designed to minimize forces on the screw bone interface and prevent unnecessary preloading of the construct.[5]

SAGITTAL BENDING



CORONAL STRAIGHTENING



[4] Wupperman RM, Isaacs RE, Taylor WR. The Bendini spinal rod bending system for long percutaneous pedicle screw constructs: cadaveric utility study and early clinical experience. Society of Lateral Access Surgery (SOLAS) 2013 Annual Meeting. San Diego, CA, USA.

[5] Tohmeh AG, Isaacs RE, Dooley ZA, et al. Long construct pedicle screw reduction and residual forces are decreased using a computer-assisted rod bending system. *J Spine Neurosurg* 2014;S2(5):9-14.

RELINE POSTERIOR FIXATION PORTFOLIO

The Reline portfolio is the evolution of posterior fixation technology within the iGA platform, providing integrated Open and MAS procedural solutions. Whether preserving or restoring spinal alignment, the seamless and versatile design of Reline provides one system to address even the most difficult pathologies.

SURGICAL EFFICIENCY

Universal Open and MAS solutions delivering an enhanced surgical experience:

- Seamless instrument compatibility
- Integrated NuVasive Power and NVM5
- Streamlined rod insertion facilitated by the Bendini Rod Bending system

PROCEDURAL VERSATILITY

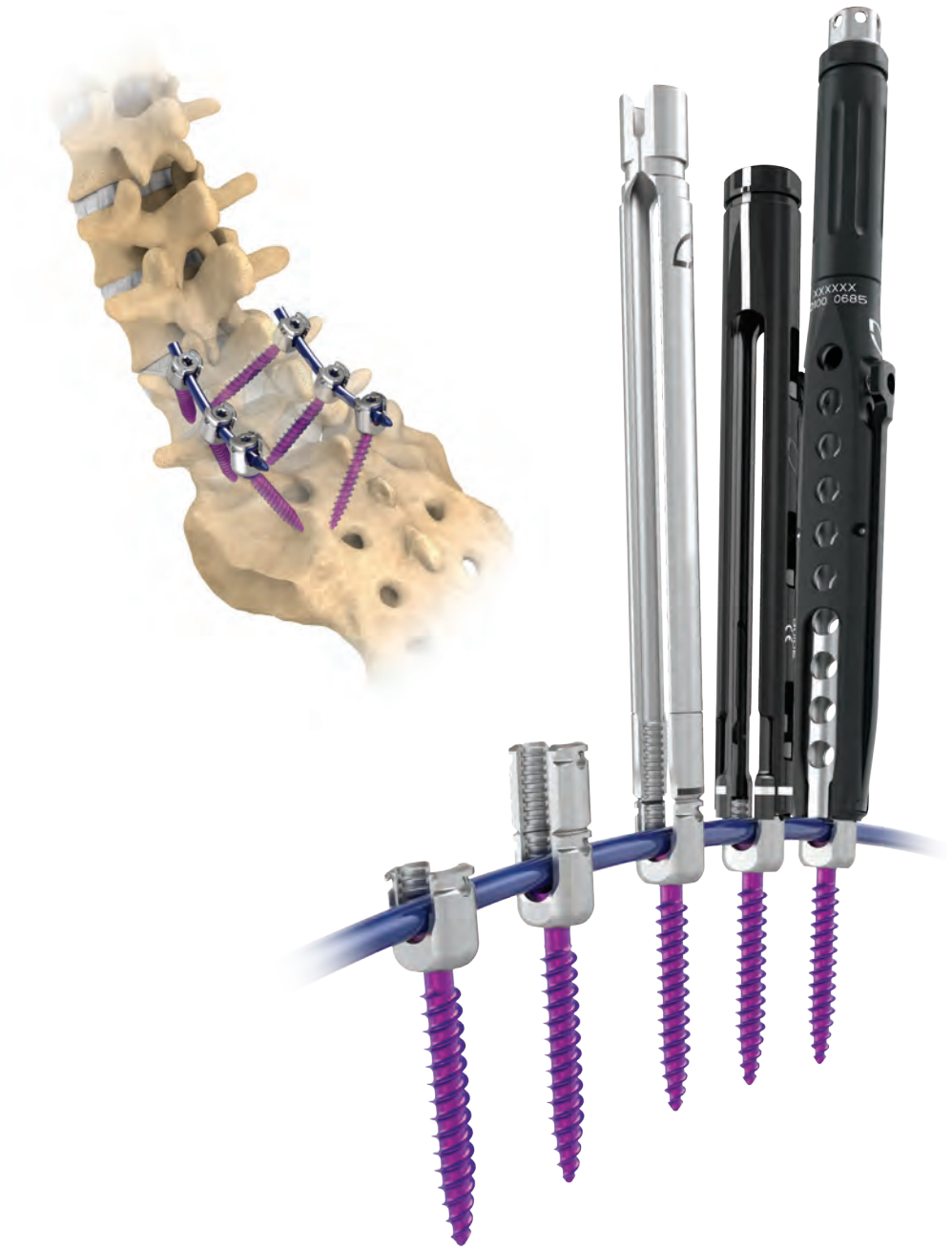
Pathology-based instrumentation to approach a variety of surgical techniques:

- Implants accommodate multiple rod diameters and materials
- Anatomically designed kyphotic, lordotic, and tapered diameter rods

INTRAOPERATIVE RELIABILITY

Multiple surgical options created to provide dependable strength:

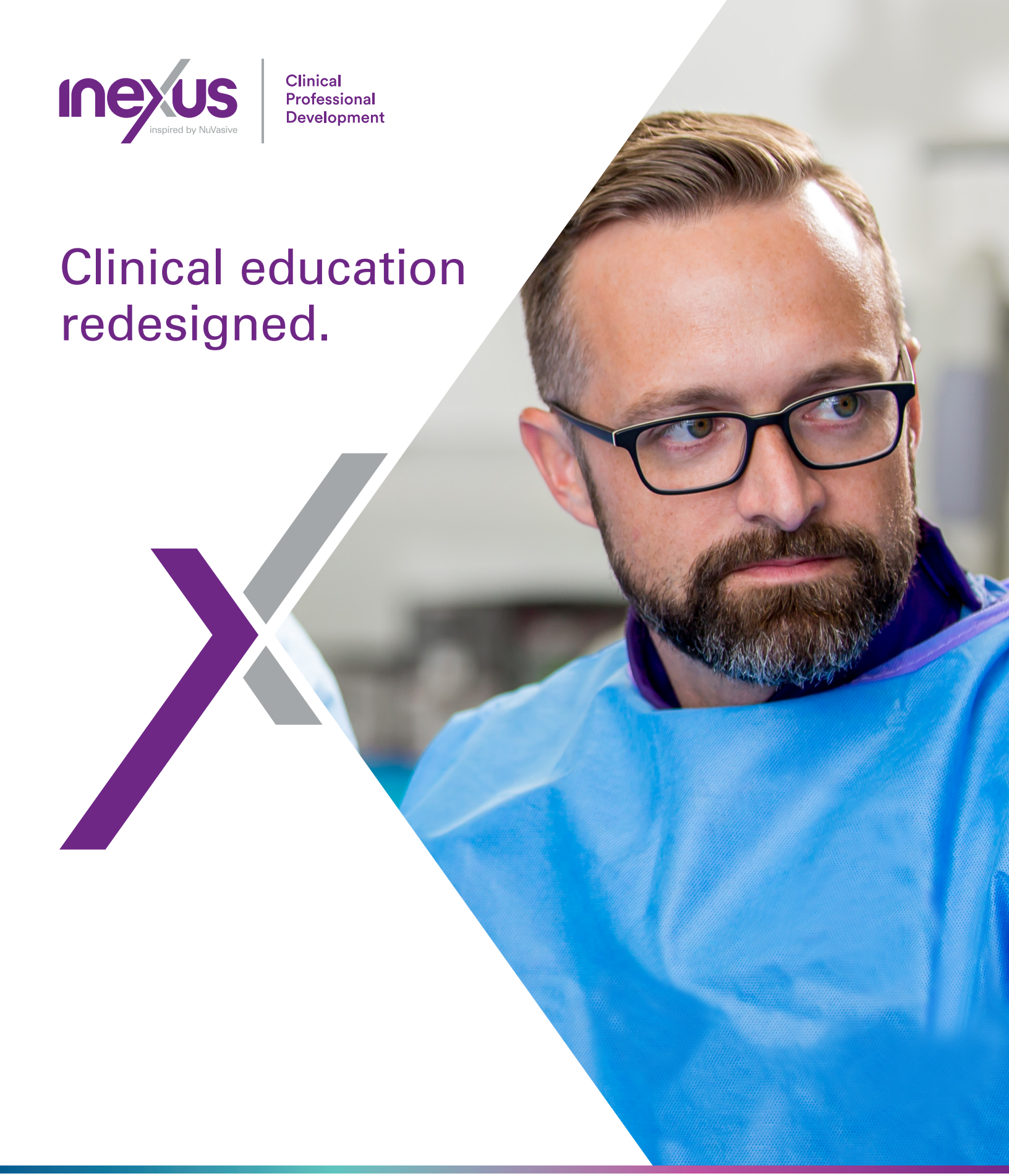
- Patented Helical Flange locking technology providing reliable performance
- Rigid instrument engagement delivering intraoperative dependability
- Multi-functional instruments offer a flexible approach to even the most complex procedures



inexus
inspired by NuVasive

Clinical
Professional
Development

Clinical education redesigned.



Our journey together.

Introducing Inexus Clinical Professional Development

NuVasive has redesigned the clinical education experience.

By using modern medical education principles to elevate training programs of the past, Inexus Clinical Professional Development (CPD) is able to support clinical education and practice development for participating surgeons.

Our competency-based courses provide peer-to-peer training, while obtaining valuable insights from real world scenarios, delivered by dedicated faculty members who are committed to providing an immersive education experience.

Delta

Two-day surgical training course

Delta is an intensive, focused learning experience with individual faculty access and a customized personal education program.

Our Delta Faculty receive special training to better facilitate adult learning prior to teaching. The team tailors methodologies to your individual needs and works with Inexus CPD to create a unique learning experience.

This is a comprehensive, competency-based training program following a blended-learning approach focused on a defined pathology and procedure, which include:

- specially trained faculty,
- gap analysis,
- interactive pre- and post-course online modules with assessments,
- 1:2 faculty to learner ratio, and
- Communities of Practice—extended learning through a web-based, peer-to-peer platform.

During this unique, two-day learning experience, you can expect:

Day 1

- 1:1 faculty and learner sessions to discuss and personalize learning objectives
- Faculty-lead, problem-based case presentations
- Flipped classroom
- Learner-lead case discussions

Day 2

- Multiple cadaveric sessions
- Facilitated self-evaluation and reflection

Inexus

Innovation is what we do daily to drive change within the medical device sector.

Experience is how our team connects with surgeons to help deliver outstanding care to patients.

Us—Together is our why. Our lifelong commitment to caring, learning and growing are meant to be experienced together. Our community is centered around surgeons and patients, building a better future for all. It's life's journey together.

Protos

One-day surgical training course

Protos is the classic experience from Inexus CPD, enabling you to build clinical and technical skills in an adult learning environment.

The training is a one-day, competency-based training program focused on a defined pathology and procedure, which includes:

- faculty case review and instruction,
- 1:3 faculty to learner ratio,
- cadaveric sessions, and
- access to relevant web-based materials.

"CPD provides an educational experience that fosters career and personal development in the faculty and learners alike."

Ivan Cheng, M.D.
Delta Faculty
Stanford University
Palo Alto, CA