

# OmniTom Elite

A Point-of-Care Original: Built for the Future



# A Truly Mobile Portfolio



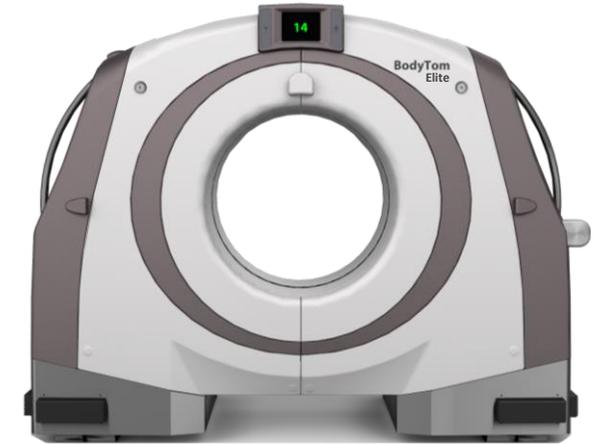
**CereTom® Elite**

Mobile 8-Slice CT



**OmniTom® Elite**

Mobile 16-Slice CT



**BodyTom® Elite**

Mobile Full Body 32-Slice CT



**OmniTom SmartMSU**

Onboard Advanced Imaging



**Mobile CT Clinic**

Truly Mobile Outreach with BodyTom Elite

# Highlights

16 x 0.625 mm Slices

70, 80, 100, 120 kVp

2.5 mA to 45 mA

40 cm Gantry

1, 2 Sec Rotation



50 cm Scan Range

Radiation Protection

Tablet Console

90 min Charge Time

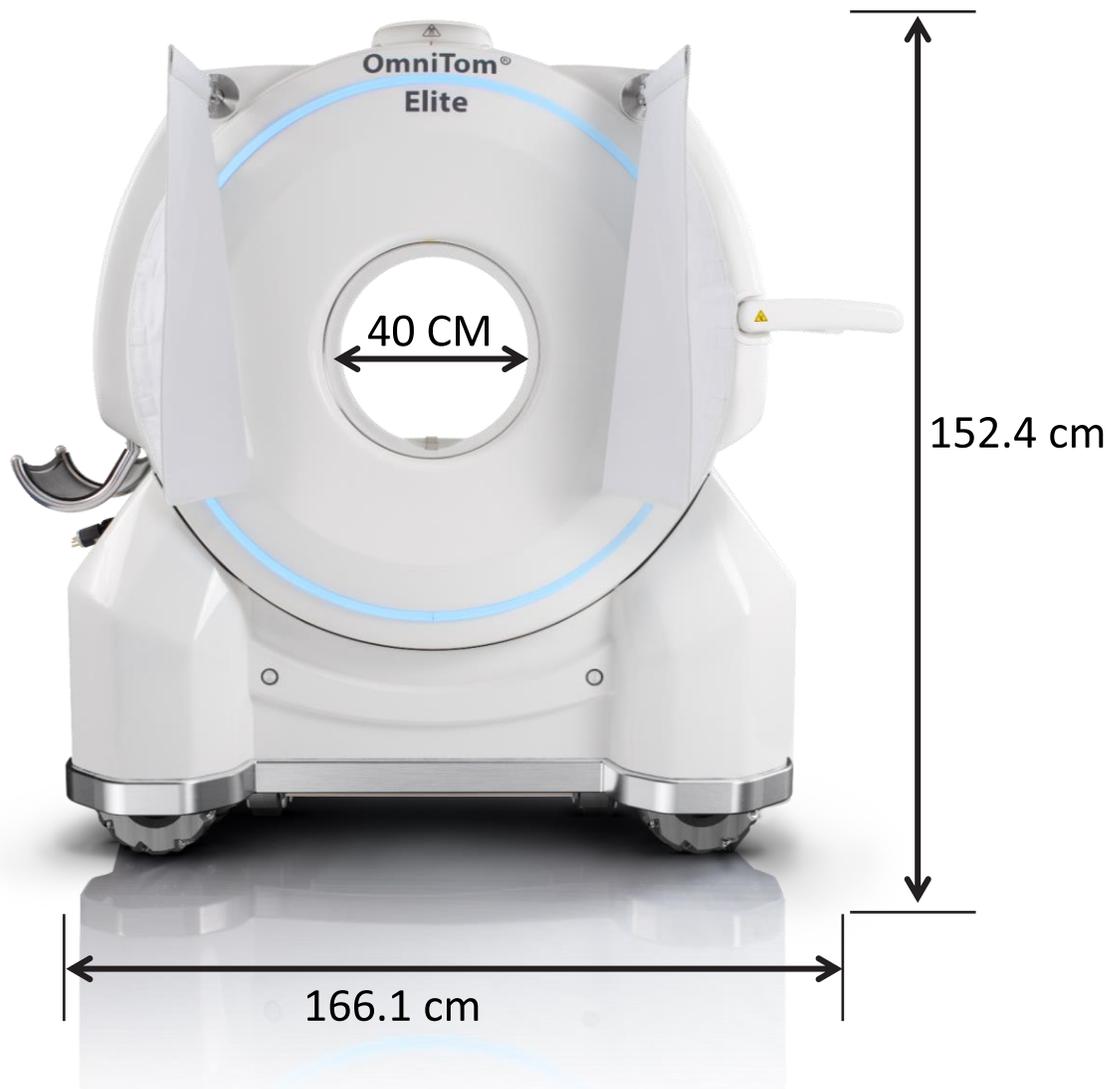
Standard Wall Plug

# Smart Changes... Big Difference



Bore Size		40 cm
Detector Size		0.625 mm (16 Slice) <b>OmniTom Elite</b>
Field of View		30 cm
Power		6 kW (2.5-45 mA)
Reconstruction Speed		16 image/second
Drive System		Internal Drive System
Battery		Lithium

# First Impressions



# OmniTom<sup>®</sup> Elite

Built for the Future

NeuroLogica  
A Subsidiary of Samsung Electronics Co., Ltd



**Built From Time-Tested  
Clinical Value**



**Built for Ease  
of Use**



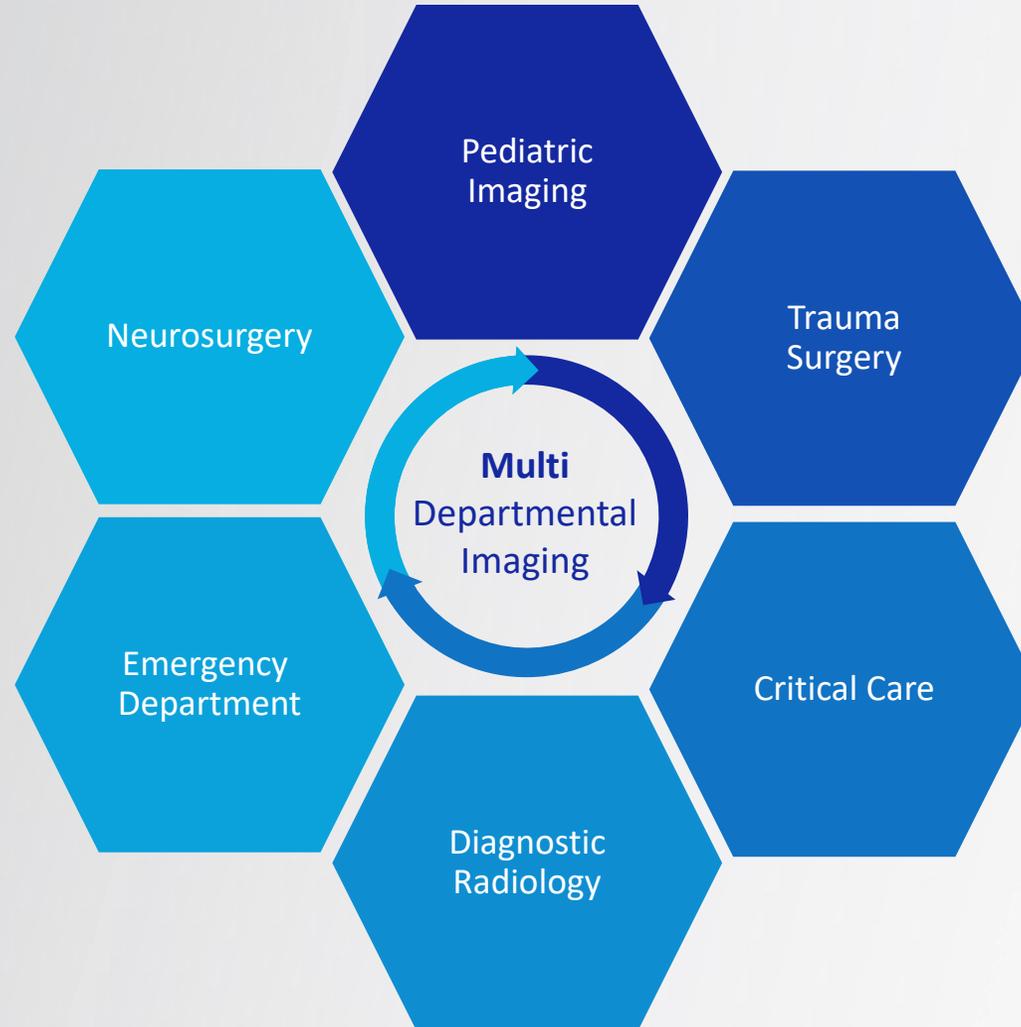
**Built in the US by the Original  
Mobile CT Company**



## Built From Time-Tested Clinical Value

The ability to image patients at their point-of-care in the ICU can facilitate rapid clinical decision-making and reduce the risks associated with transport.

# The Most Versatile Mobile CT



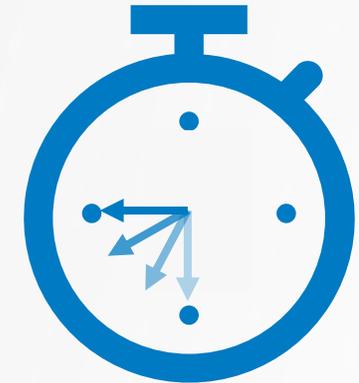
# Challenges for Imaging ICU patients



Patients that are on ventilators, IV drip, pain management, and/or monitoring can require **up to six staff to transport** them to radiology.



The reduction of nursing staff on the ICU floor can mean **less attendance to other patients** or **more pressure placed on the remaining staff**.



Emergency scans coming from the ICU can cause **delay to radiology schedules** and often take longer than outpatient scanning.

# Usage in the ICU

Over **192 independent academic publications** featuring NeuroLogica scanners showing their effective use and implementation:



## Less daily transports to radiology for the nursing staff

Masaryk, Thomas J, Renee Kolonick, Tracy Painter, and David B Weinreb. "The Economic and Clinical Benefits of Portable Head / Neck CT Imaging in the Intensive Care Unit." *Radiology Management* 30, no. 2 (2008).



## Increase outpatient throughput in radiology

Carlson, Andrew P., and Howard Yonas. "Portable Head Computed Tomography Scanner--Technology and Applications: Experience with 3421 Scans." *Journal of Neuroimaging : Official Journal of the American Society of Neuroimaging* 22, no. 4 (October 2012): 408–15. doi:10.1111/j.1552-6569.2011.00621.x.



## Reduce transport related Incidents and infections

Halperin, John J., Stephen Moran, Doriann Prasek, Ann Richards, Charlene Ruggiero, and Christina Maund. "Reducing Hospital-Acquired Infections Among the Neurologically Critically Ill." *Neurocritical Care*, 2016, 1–8. doi:10.1007/s12028-016-0286-2.

# Reduce Transport Related Incidents and Infections

Using a multi-disciplinary approach and adopting a mobile CT in the ICU helped Overlook Medical Center:



Ventilator-Associated Events

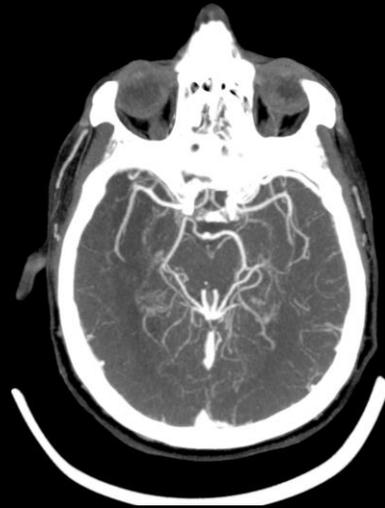
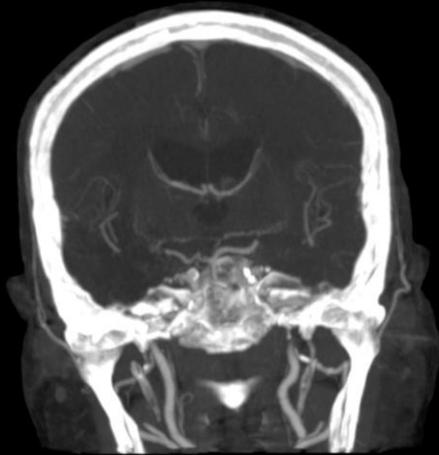
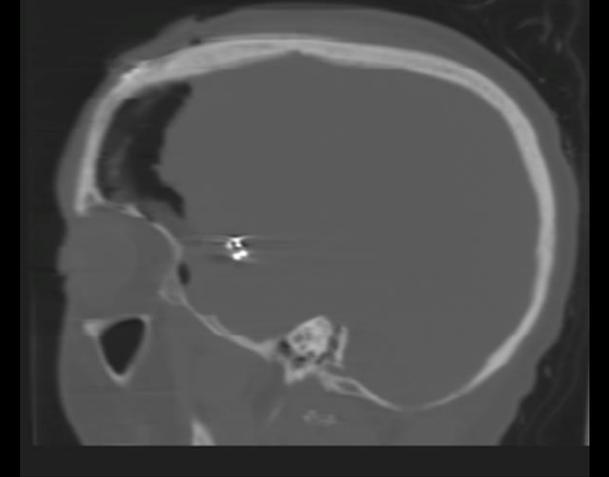


Overall complication rate



ICU Length of Stay

# ICU Clinical Images



# Contrast Studies

- CT Perfusion
- 2 Point Evaluation
- TTP, CBF, CBV maps

- Integrated with

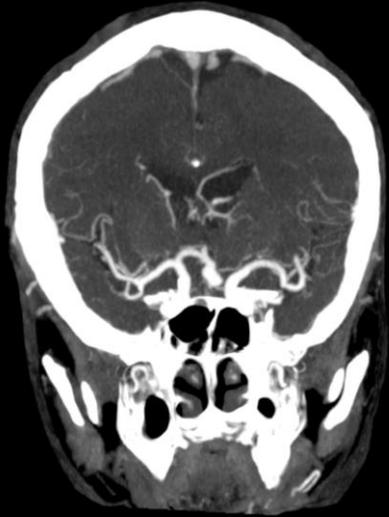
**Guerbet** | 

- Compatible with

**RAPID**AI



# CT Angiography Clinical Images



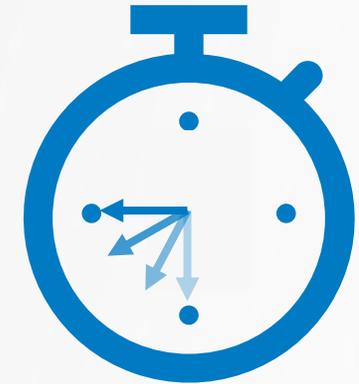
# Challenges for Imaging Pediatric ICU patients



**Transport** of critically ill patients **increases risk** of extubation, ventilator-associated pneumonia, increases to sedation dose, unstable Intracranial pressures.



**Cerebral infarction and hemorrhage** are of great concern **during ECMO** therapy in children.



**Time sensitivity** for intervention is essential to **patient outcome**.

# Usage in the PICU

Mobile CT technology provides a better way to assess critical care patient population in PICUs:



**29% increase in the identification of infarct** versus head ultrasound for children on **ECMO**.

LaRovere, K. L., Vonberg, F. W., Prabhu, S. P., Kapur, K., Harini, C., Garcia-Jacques, R., Chao, J. H., Akhondi-Asl, A., Thiagarajan, R., & Tasker, R. C. (2017). Patterns of Head Computed Tomography Abnormalities During Pediatric Extracorporeal Membrane Oxygenation and Association With Outcomes. *Pediatric Neurology*. <https://doi.org/10.1016/j.pediatrneurol.2017.05.006>



**mobile CT can dramatically change decision making and time of response** for pediatric TBI PICU Care

R. Saini, D. Agrawal "Bedside Computed Tomography In Pediatric Traumatic Brain Injury: Experience At A Level 1 Trauma Centre In India"  
*Pediatric Critical Care Journal* (March 2021): Vol. 22 Num. 3 Suppl



**"None of the patients** undergoing mCT **had untoward events and staff resources were far less impacted."**

Agrawal, S., Hulme, S. L., Hayward, R., & Brierley, J. (2010). A Portable CT Scanner in the Pediatric Intensive Care Unit Decreases Transfer-Associated Adverse Events and Staff Disruption. *European Journal of Trauma and Emergency Surgery*, 36(4), 346–352. <https://doi.org/10.1007/s00068-009-9127-8>

# Mobile CT Can Change Decision Making in PICU Care

A study looking at 225 PICU mobile CT cases:

**56.8 min**

Mean time to scan for patients shifted to conventional CT suite.

**14.6 min**

Mean time for Mobile CT

“Mobile CT has **considerably changed the management response time** in Neonatal ICU setup and decreased patient transfer and associated complications.”

# Clinical Images ECMO



# Neonatal and Pediatric Scanning



Neonatal Platform for infants up to 7.7 kg.



Pediatric Platform for children up to 24.9 kg.

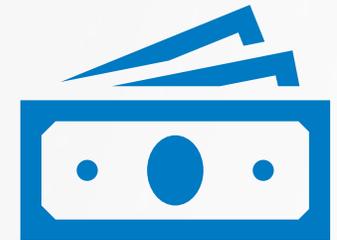
# Challenges for Neurosurgery



**Post surgical** imaging for **verification** often occurs **days** after a surgery.

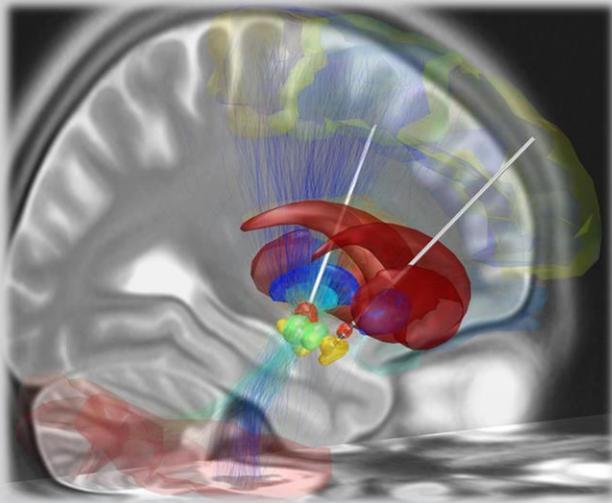


**Revision surgery** can be **costly** to the hospital and **poses additional risk** for the patient.



OR Time = **\$\$\$\$**

# Clinical Uses – Neurosurgery



## Typical DBS case

- 8-10 hours
- 2 Procedures
- Requires MER
- Long Patient Sedation Times

### The Evolution of Deep Brain Stimulation Surgery

**Case Study**

**Dr. David Vansickle**  
Neurosurgeon  
South Denver Neurosurgery  
Littleton Adventist Hospital

Deep brain stimulation, also known as DBS, is a surgical procedure that is far from new. It's been around for nearly 40 years, however, the technique has remained primarily the same for much of its existence.

As technology continues to evolve, it is crucial that we as surgeons continue to enhance our techniques in order to make surgeries such as DBS more efficient, affordable, and accessible to those who need it most. Our current healthcare environment demands it.

**An evolving procedure**

DBS is a neurologically procedure primarily used to treat those with Parkinson's disease. The surgery has the ability to remind symptoms roughly every year by reducing the motor symptoms of Parkinson's such as slowness, tremors and shuffling, while simultaneously improving facial expression, rigidity, and fine and coarse motor skills. On average, only 2 to 10 percent of those who need DBS have the opportunity to receive it. One of the major reasons for that is if a hospital is outside of an academic institution it is simply unfeasible for both the hospital and the patient. With today's healthcare system, the reimbursement rates from insurance companies are lower, limiting the ability to hospital to provide care.

For more than 30 years, surgeons performed DBS the same way. The process, known as microelectrode mapping, requires the surgeon to place a head frame, acquire MRI and CT images, and then line up to the target. From there, the surgeon creates a burr hole and passes fine wire microelectrodes through the brain multiple times, recording cell firings to create a map of the brain from a physiologic point of view.

The surgeon then places the lead, and, while the patient is awake, fine-tunes the

location and passes an electrode down to test it. While testing the electrode, the surgeon uses physiologic maps to improve their symptoms. Once stable is, the electrode stays in place permanently. The process can take 8 to 10 hours and is typically done over the course of two days and sometimes separated by months or even years.

In 2001, Dr. Kim Burchiel of the Oregon Health & Science University wanted to develop a new technique that would allow surgeons to perform DBS under anesthesia. In order to do this, he needed to find the leads in their proper locations, which he solved by using a CT system. Dr. Burchiel was the first surgeon to use the CereSpan, a portable 8-slice CT scanner, in an operating room in order to place a lead. He realized that this technique, which focused on anatomy rather than physiology, worked just as well. He used live images fused with a preoperative MRI in order to check where the lead was. By following this technique, he was able to eliminate the physiological testing completely and rely on the accuracy of the CereSpan images.

In 2015, our team adopted Dr. Burchiel's technique here in Colorado. Then in 2014, we revised his technique by adopting the

## OmniTom Elite Assisted – **2 hours**

**Savings of \$22,320<sup>1</sup>**

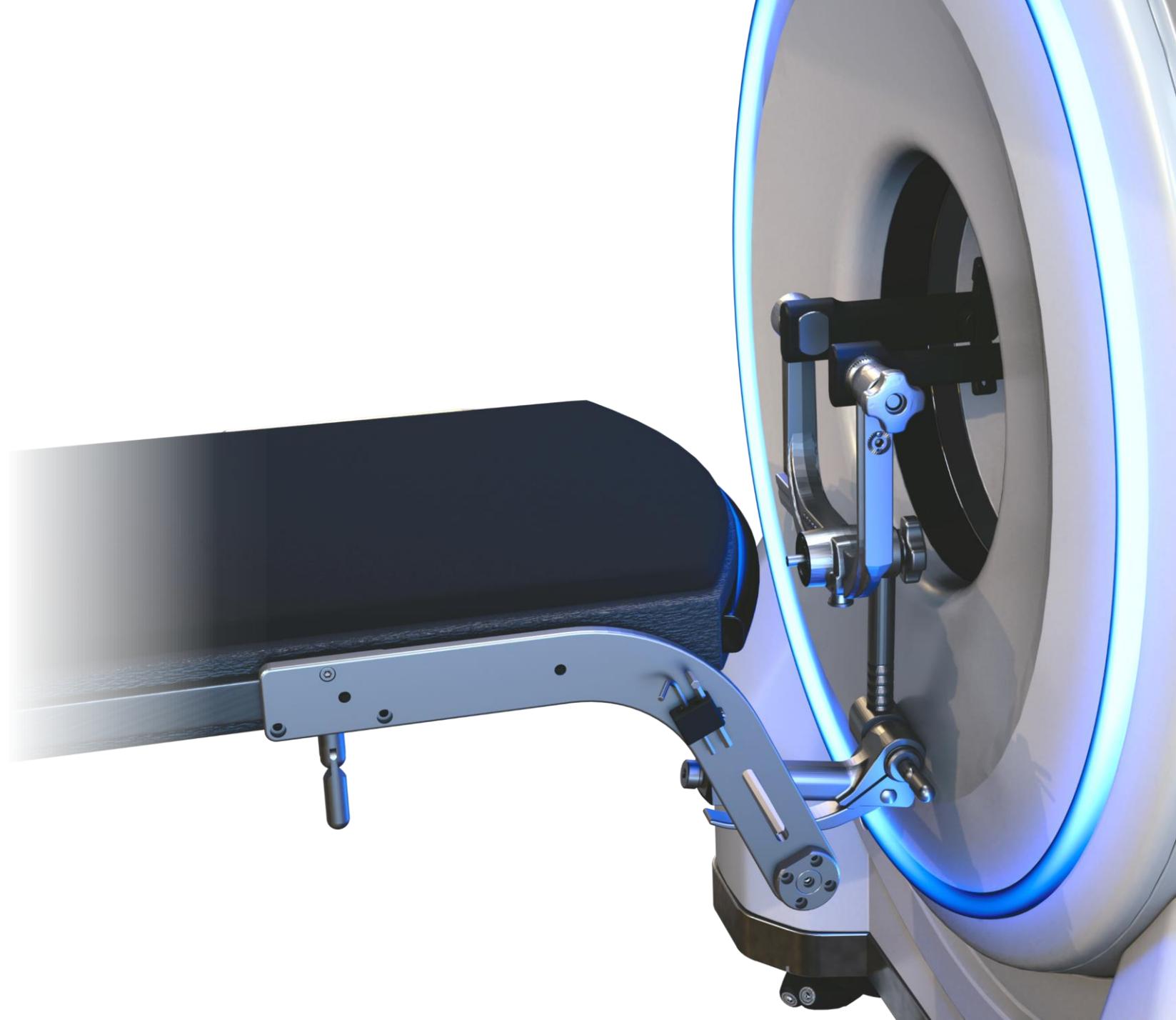
- Decreased amount of intercranial hemorrhage
- Lower infection rates
- Fewer readmissions
- Drop in reposition rate from 15% to 1%

1. Cost of \$62 per minute according to *The Journal of Anesthesia*

# Black Forest Medical

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Newly designed cranial  
stabilization clamp for  
neurosurgical use with OmniTom  
Elite





# Built for Ease of Use

The mobile configuration allows for increased versatility and cost-effectiveness compared to fixed systems.

# Omni-Directional Movement

All-new Omni-wheels allow for smooth and quiet movement.

The system can move forward, sideways, diagonal, and rotates around the center point of the machine.



# SmartDrive

## Hallway and Mobility Safety

- Collision Sensors
  - Sensors on
    - Audible alert
      - Sounds when within 4 feet
      - System slows 1 foot from objects
- Drive Camera

# Hand-Held Console

Intuitive workflow

Touchscreen controls

- Easily change scanning order

Over 35 preloaded protocols

Simple protocol creation



# Cyber Security

## Data Protection

- Dynamic Connection with Workstation Tablet
  - If lost deletes all patient information and images (HIPAA Compliant)
- All data on system stored in encrypted format

## Intrusion Detection

- Antimalware
- Secure operating system
  - Windows
  - Ubuntu

## Access Control

- Account Management
  - Complex password settings
  - Account lock outs
  - Password Expiration
- Audit Trail
  - User login
  - Creation & modification of patient information



# Patient and Staff Safety



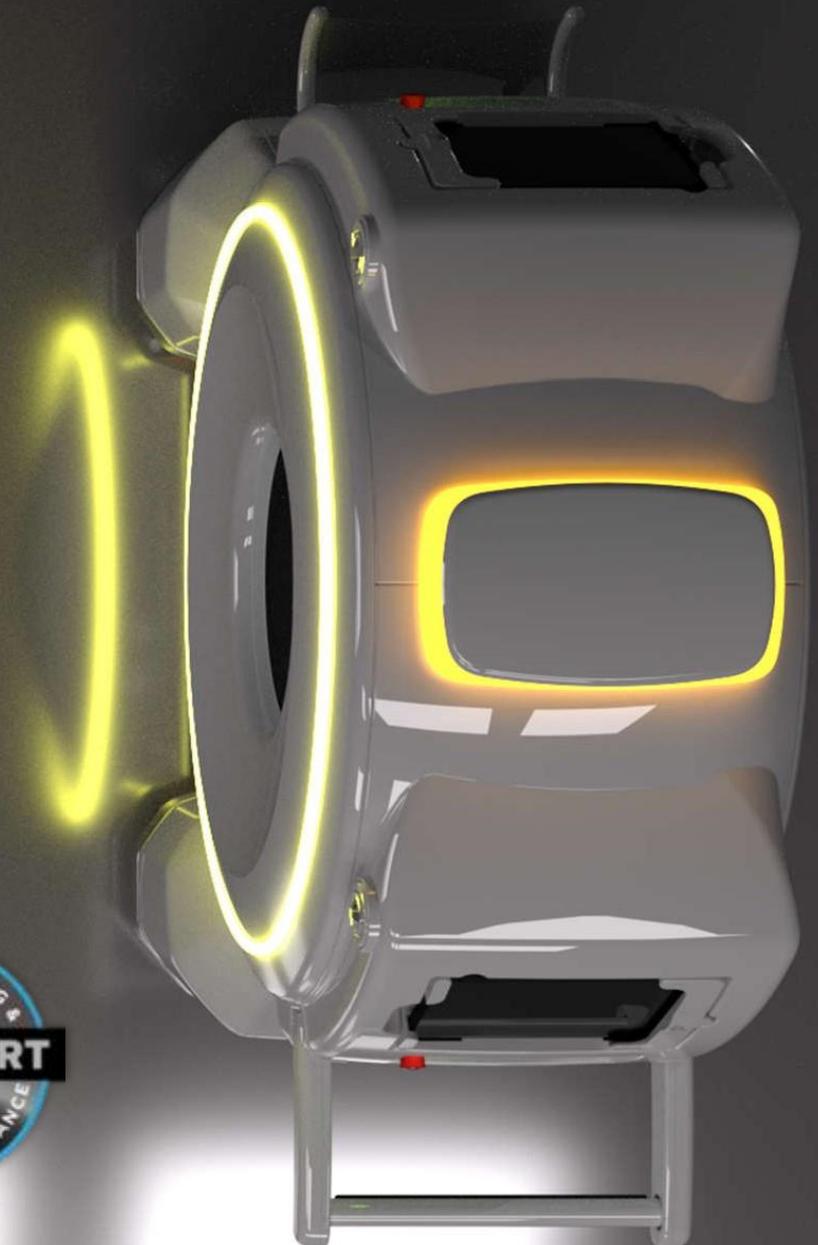
## Staff Safety

- System is internally lead shielded
- 0.5 mm Id/equ Starlite curtains
- Visual & audible indicators during scanning
- Emergency stop button



## Patient Safety

- NEMA XR-29 / MITA Smart Dose Compliant
  - DICOM radiation dose structured reporting
  - Pediatric & adult reference protocols
  - CT dose check
  - Automatic Exposure Control (AEC)



# Sinogram Based Noise Reduction



**36 mGy without Noise Reduction**



**36 mGy with Noise Reduction (Medium)**

## Settings:

- 36 CTDI
- 1 Second Rotation
- Axial Acquisition
- 5mm AVG
- Noise Reduction

# Scatter Reduction

## OmniTom Elite Protection

- Internally Lead Lined .3mm
- Starlite® Antimony (Sb) Lead Equivalent Curtains

## Rad Tech

- 1 mSv per week

## No additional shielding required

- Facility protocols should always take precedent

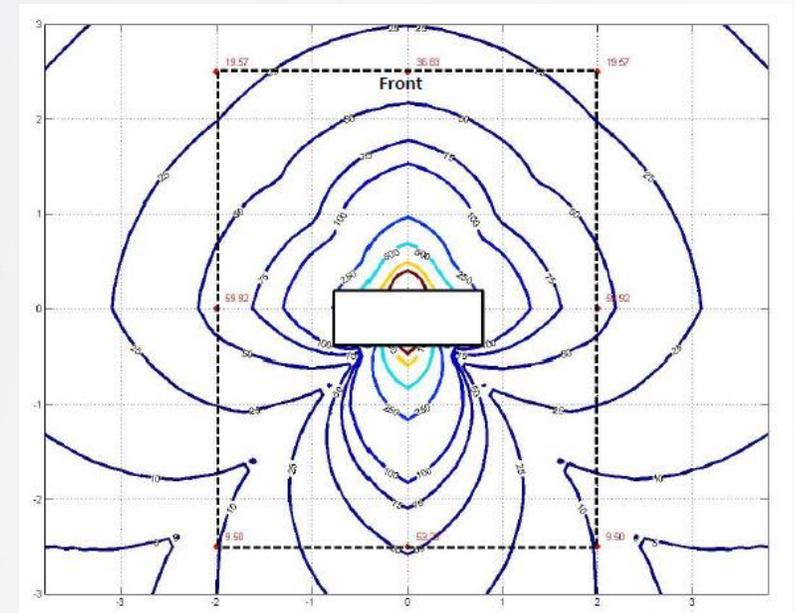


Figure 1: The scatter plot using the wholebody phantom, the exposure is  $\mu\text{R}$  (micro-Roentgen) and distances are in meters.

Head protocol is 120kV, 25 mA, 20 cm coverage, 2 seconds axial scan  
\*\*Dotted line is 12'x15'

# Single User Design



Quality Assurance  
Phantom can be stored  
within the gantry



Compartments for Ethernet  
Cables, Hand-held Console,  
and a Retractable Power Cable



Easy access storage for the  
Radiolucent Scan Board  
and ICU Bed Adapter

# Bed Adapter Workflow

**ICU bed extension** attaches to the headboard posts allowing for imaging of the head while **keeping patient body weight** securely on **the bed**.



# Patient Safety During Scanning



The system independent scan platform provides the ability for the **bed to be quickly moved** away from the scanner if **patient instability occurs**.

# SmartAlign

## Automatic Bed Alignment

- Vision camera identifies and aligns the system to markers on the scan board
- Provides isometric alignment of the scan board which can help **reduce artifacts** and **improve image quality** during scanning.



# Scanning with Real-Time Reconstruction

OmniTom Elite scans away from the patient providing **real-time image reconstruction** on the hand-held console.





# The Original Point-of-Care CT Company

- Established in 2004, we've dedicated our entire business to point-of-care computed tomography.
- We conceive, design, engineer, prototype, manufacture, sell, and service all from Danvers, Massachusetts USA

# About Us – R&D

- All mobile CT machines are made the USA
- 95% of parts sourced and 100% of service parts come from US partners
- Over 100 years of combined years of experience in building CT
- All R&D driven by clinical partners
- We strive to innovate with each product



# Global Footprint



~1000 Global Installations

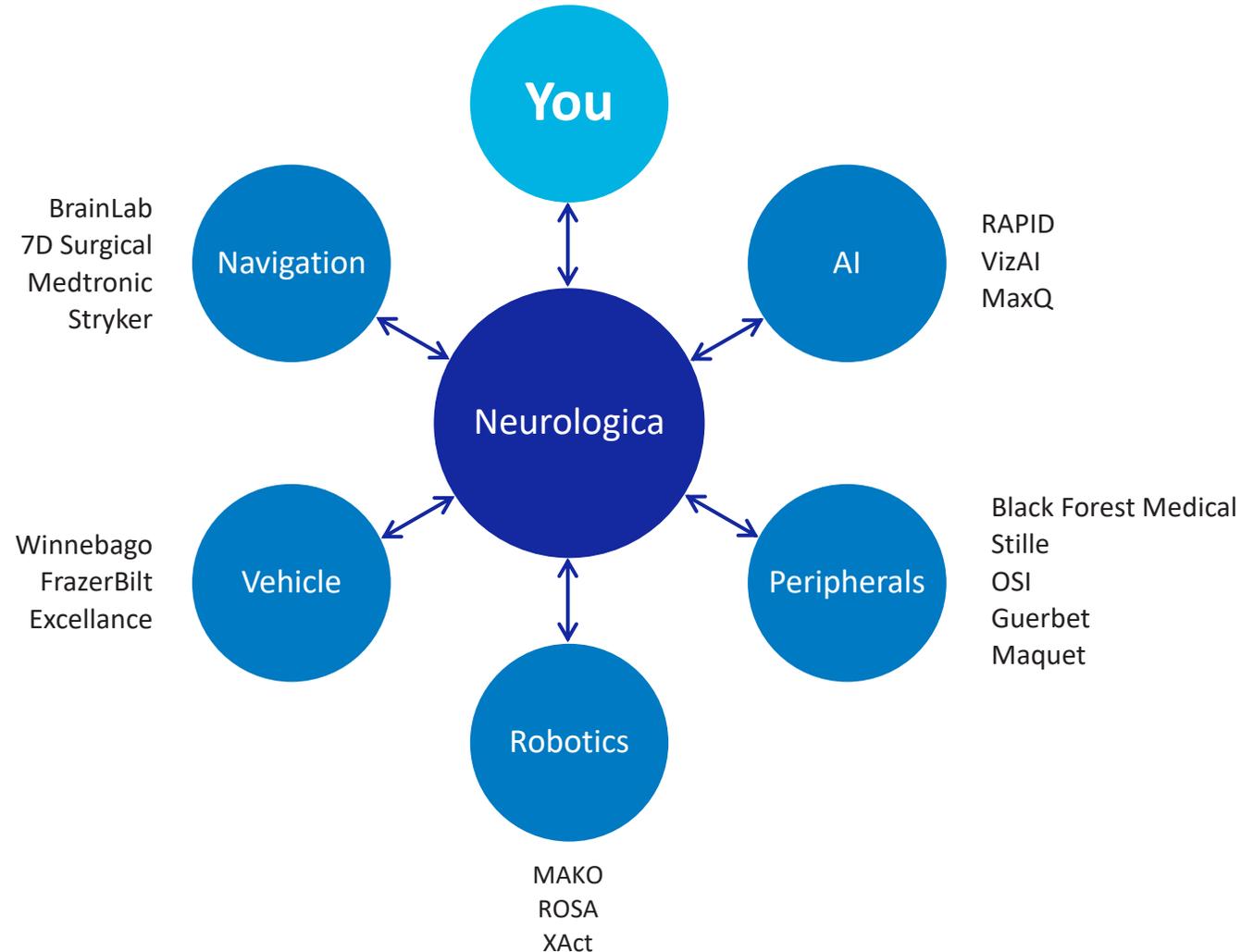


40 Regulatory Cleared Countries



Global Customer Service

# About Us – Collaborations



**“Collaborations with hospital networks and other companies to help maximize versatility has been part of our DNA since day one.”**

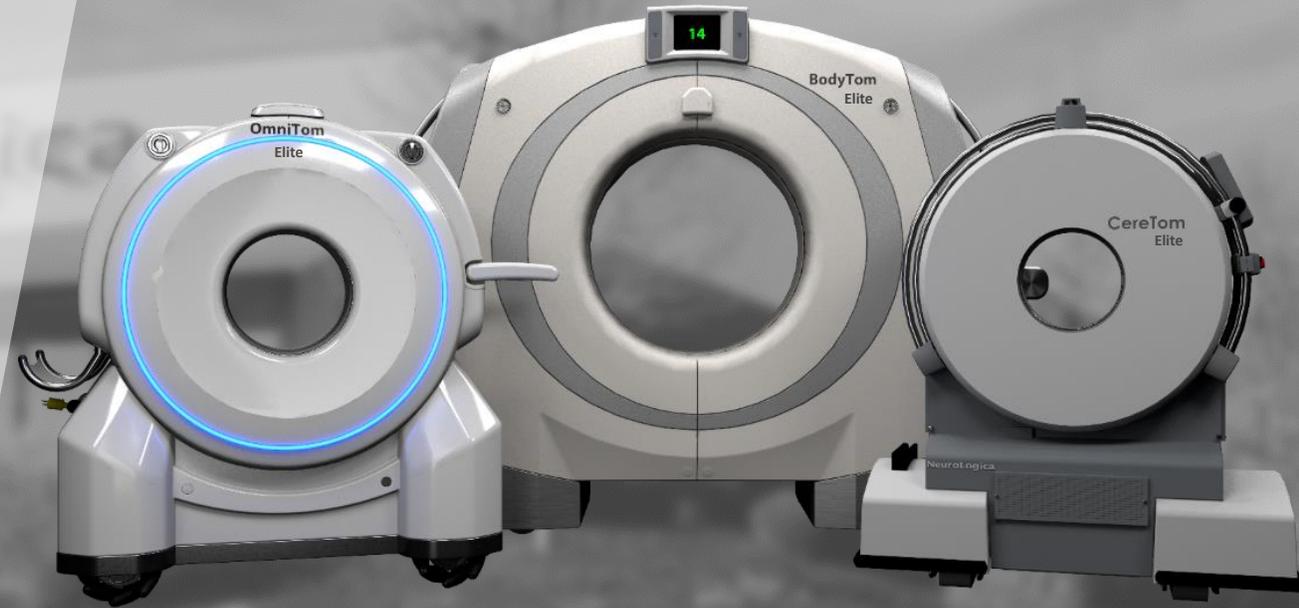
# Customer Success - Customer Care

- Call Center
  - 24x7
  - USA Based Live Person Answers the Call
  - Routed to specialist on call
  - Remote Access to systems capable

## Customer Relationship



# Thank You



## NeuroLogica Corp

- A U.S. based engineering and manufacturing company of high-quality medical imaging devices.
- Located outside of Boston, MA
- Founded in 2004