TRANSFORMING PROTON THERAPY FOR GOOD.

MEVION S250-FIT
PROTON THERAPY SYSTEM

MEVION
medical systems

RE-IMAGINE PROTON THERAPY

Since 2004, Mevion Medical Systems has pioneered proton therapy—improving access and outcomes for patients worldwide. Mevion introduced the first compact proton therapy system, establishing leadership with the MEVION S250® platform.

In 2022, we launched the groundbreaking MEVION S250-FIT™, the first proton system designed to seamlessly integrate into existing LINAC vaults. Mevion isn't just providing technology; we're your dedicated partner, transforming proton therapy—for good.

RIGHT SIZE

Proton Therapy that FITS in a **Linac Vault**

Proton therapy is transforming cancer care, yet traditional proton systems are large, complex, and costly, making implementation challenging.

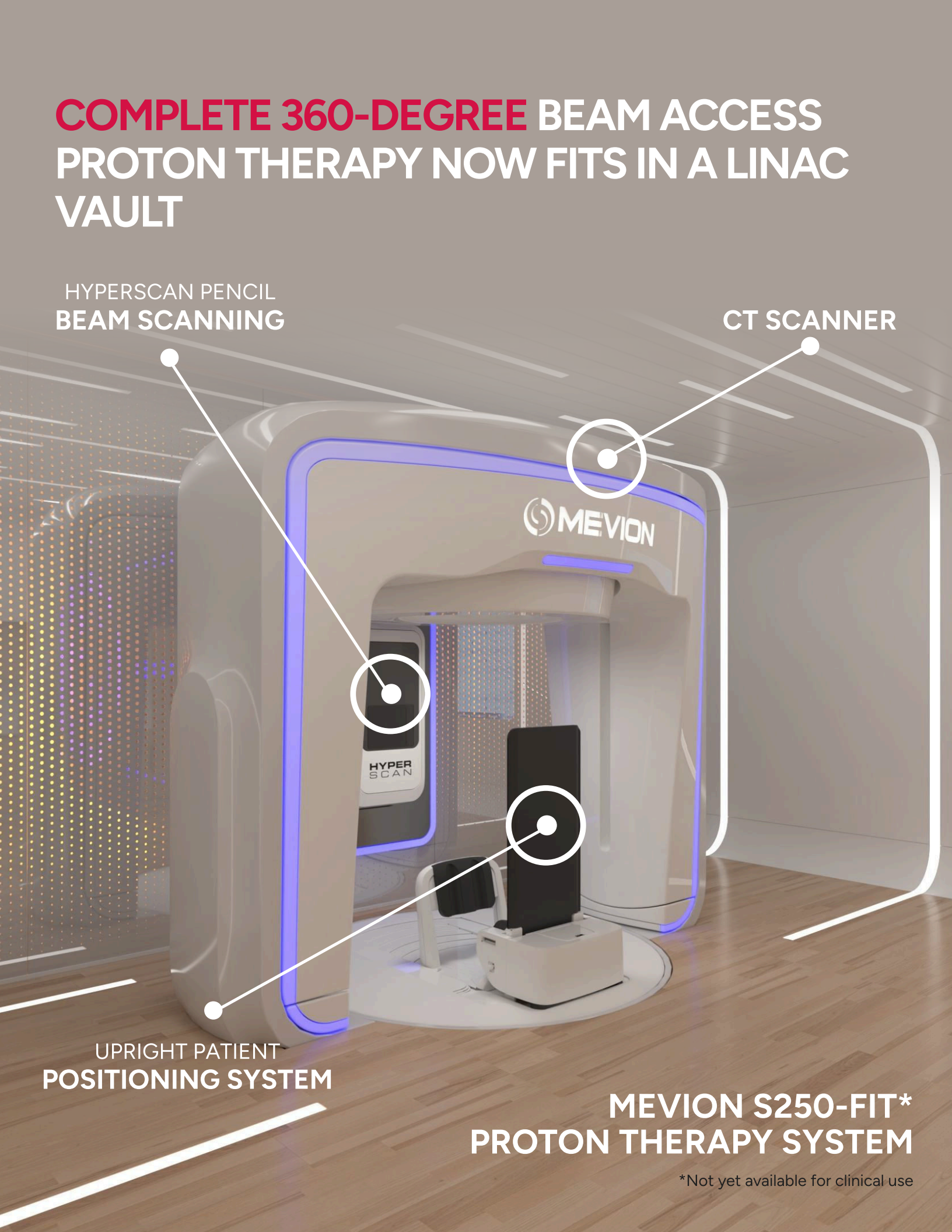
What if proton therapy could easily integrate into your existing facility—with dramatically reduced cost, simpler installation, and faster deployment—empowering your center to meet the growing needs of cancer patients?

Powered by

- The world's smallest self-shielded accelerator
- Precision HYPERSCAN® IMPT delivery
- Patient-centric upright positioning and CT imaging from Leo Cancer Care

This isn't just another proton system—it's a smarter, adaptive solution designed for the realities of today's healthcare.

COMPLETE 360-DEGREE BEAM ACCESS PROTON THERAPY NOW FITS IN A LINAC VAULT



MEVION S250-FIT*
PROTON THERAPY SYSTEM

*Not yet available for clinical use

HYPERSCAN PENCIL BEAM SCANNING

Next-generation pencil beam scanning system delivering sharp, fast, and robust IMPT treatments. Featuring hyper-fast layer switching, optimized spot size, and Adaptive Aperture® proton MLC (pMLC), powered by RayStation.

UPRIGHT PATIENT POSITIONING SYSTEM

Precision alignment for greater comfort and clinical accuracy.

Isocentre Accuracy: <1 mm
X Translation: ±13.5 cm Travel
Y Translation: +15 cm/-35cm Travel
Z Translation: 70 cm Travel
Pitch & Roll: ±3 Degrees
Backrest Angle: ±15 Degrees
Rotation: Continuous 360 Degrees

CT SCANNER

Diagnostic-quality CT imaging at treatment position.

Bore Size: 84 cm
Field of View: 62.3 cm
Imaging Energies: 120 kV
Gantry Tilt Angle: ±15 Degrees
Slice Thickness: 0.625, 1, 2, 4, 5 mm

READY FOR THE FUTURE

SmartARC™ Delivery
The MEVION S250-FIT powers SmartARC — an advanced arc-based technique that delivers VMAT-like speed and efficiency in proton therapy with conformal dose coverage with faster and simplified workflows.

FLASH Ready
FLASH* ready with ultra-high dose rates (up to 200 Gy/sec).

Online Adaptive
With a diagnostic-quality upright fan beam CT at isocenter, the S250-FIT enables daily imaging and online adaptation, allowing real-time plan adjustments to match patient anatomy.

The First Truly Future-Ready Proton Platform
The MEVION S250-FIT is engineered to support the next generation of advanced proton therapy capabilities — including MR-guided imaging, proton imaging, and shoot-through beams. Clinically, this future-ready platform enables adaptive treatment, motion management, and high-precision dose delivery — all powered by enhanced soft tissue imaging and integrated workflows designed for continuous innovation.

READY WHEN YOU ARE

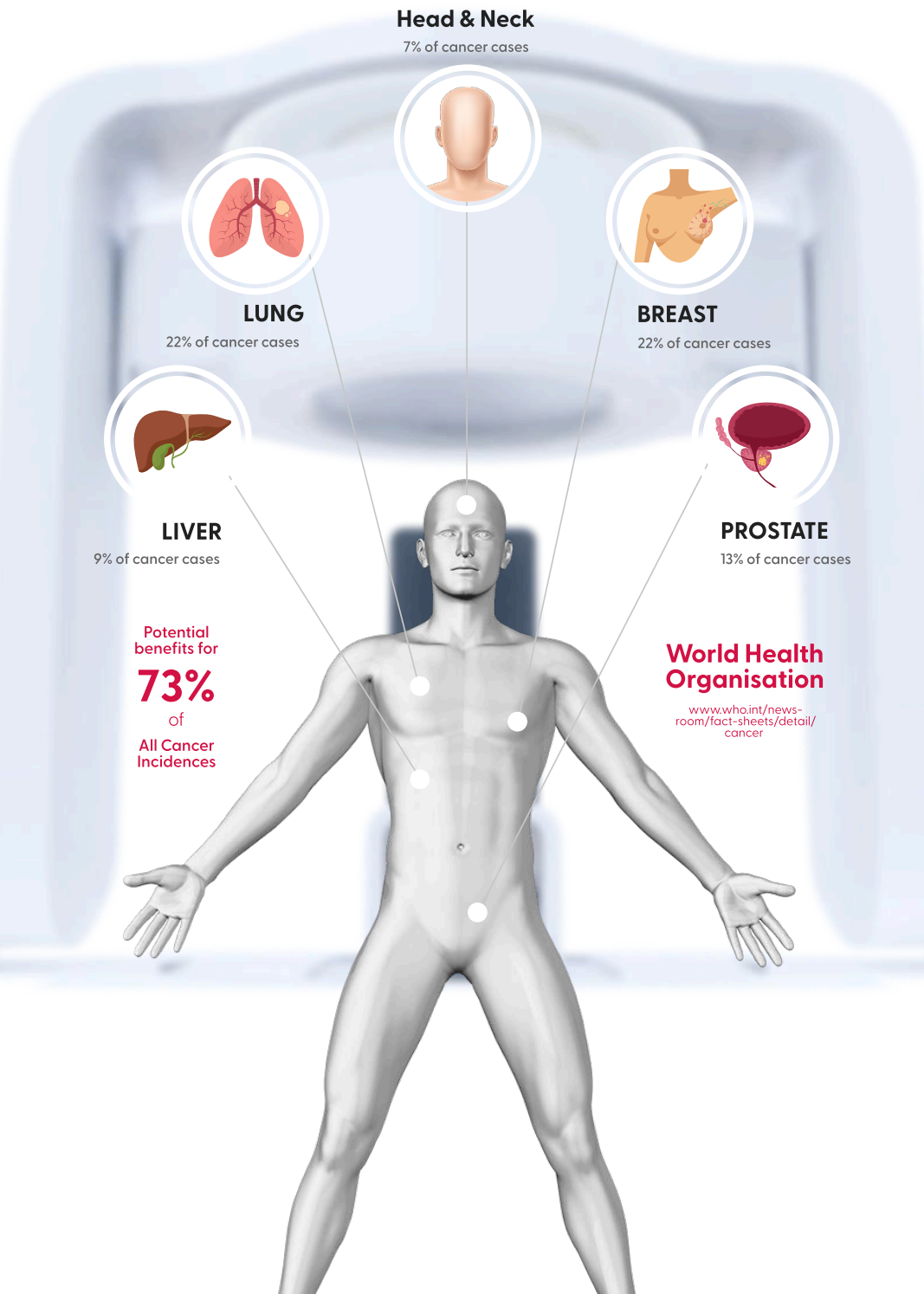
FAST Construction and Installation
Turnkey installation completed in as little as 12 months with minimal construction requirements, ensuring rapid and cost-effective deployment.

24/7 Beam Availability
Proven reliability providing uninterrupted clinical operation around the clock.

*Not yet available for clinical use

WHY UPRIGHT?

POTENTIAL BENEFITS FOR



HIGHEST POTENTIAL INDICATIONS FOR UPRIGHT

Lung

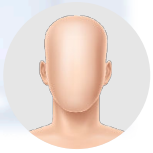
A study by a team at MD Anderson suggested that in the upright orientation, lung volume was on average 25% larger but in some cases up to 50% larger. [5] This increased lung volume suggested a reduction in breathing motion, allowing clinicians to challenge current treatment margins for thoracic tumours.

Liver

A research paper by the Paul Scherrer Institute identified that when a patient lies down the liver can drift and deform in position up to 20mm over 35 minutes, [2] This could affect tumour location and accuracy during treatment when patients are in the supine position.

Prostate

Recent data indicated that when upright, the prostate has been shown to move less. Its position is unaffected by changes in bladder fill, the seminal vesicles are pushed down by the bladder allowing them to be included in treatment volumes without compromising on healthy tissue, the space between sacrum and anterior bladder wall is also significantly smaller. [4]



Head and Neck

A study by Alghadir et al found that difficulty swallowing was 6 times greater when a patient is lying down with their neck extended compared to upright. [3] Suggesting that being treated in an upright position will help patients better manage thick oral secretions and reduce the risk of aspiration and patient anxiety.

Breast

Increased lung volumes upright suggest that improved cardiac and lung sparing could be achievable for breast radiotherapy. A recent study concluded that, upright body positioning for breast radiotherapy appears to be comfortable and feasible. [1]

Reproducibility and Motion Upright

In Lyon, France a study carried out Centre Léon Bérard measured Inter-fractional and Intra-fractional motion in the pelvic region when upright.

Our upright positioning system allowed for an accurate repositioning within the three set-ups tested. 90% of right/left shifts, 95% of anterior/posterior and 90% of cranio-caudal shifts were within 3 mm. [1]

The Intra-fraction motion was within 1mm for 80% of patients in a 20-minute time frame. This was evaluated as acceptable and, in some cases, better than supine. [1]

Reference

1. Boisbouvier, S., et al. Upright patient positioning for gantry-free breast radiotherapy: feasibility tests using a robotic chair and specialised bras.
2. Siebenthal, M., et al. (2007) Systematic errors in respiratory gating due to intrafraction deformations of the liver
3. Alghadir, A., Zafar, H., Al-Eisa, E., Iqbal, Z. (2017) Effects of posture on swallowing.
4. Schreuder, N., et al (2023) Anatomical changes in the male pelvis between the supine and upright position
5. Yang J, Chu D, Dong L, Court LE. Advantages of simulating thoracic cancer patients in an upright position. 6. Hannia, A., et al. (2020) Prevalance of Musculoskeletal Work-

PATIENT AND CLINICIAN BENEFITS

Patient & Clinician Eye-to-eye

Studies have highlighted how important non-verbal communication is to reducing patient anxiety while increasing comfort and confidence. Face-to-face interaction including eye contact, facial expressions as well as body language can make verbal conversation more expressive and meaningful. It can help to convey warmth, reassurance, empathy and support. It also allows clinicians to detect emotional distress from their patients all of which help to strengthen patient-clinician rapport.

Reducing Manual Handling

Almost 80% of all radiation therapists will report musculoskeletal disorders during their career which can require an absence from work or long term adjustment of duties [6]. Injuries are concentrated to the neck, wrists, and lower back due to the clinician having to twist and stretch repeatedly while situating a patient lying in a supine position.

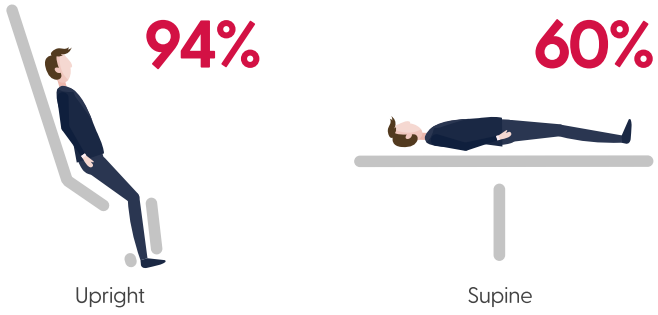
In most cases, the upright treatment position allows for the patient to walk into the system and position themselves without the need for extensive radiographer input and manual handling.

RESEARCH INTO PATIENT COMFORT

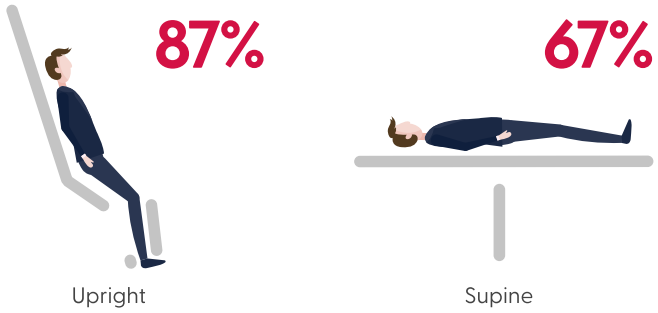
6. Boisbouvier S, Boucaud A, Tanguy R, Grégoire V. Upright patient positioning for pelvic radiotherapy treatments. Tech Innov Patient Support Radiat Oncol. 2022 Nov

Patients found it comfortable to breathe

Patients felt it easy to get out of the system



Patients felt stable



MEVION medical systems

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"With the MEVION S250-FIT, we're expanding access to advanced radiation therapy in our region—bringing future-ready, patient-focused care into our cancer center today."

Dr. Charles Enke

Chairman of Radiation Oncology at the University of **Nebraska Medical Center**

SCAN QR CODE TO LEARN MORE

LPT250411