PROTON THERAPY HAS CHANGED.
The next generation of pencil beam scanning is here. The MEVION S250i Proton Therapy System® with HYPERSCAN® technology is a radically different PBS solution, built to eliminate the shortcomings of first generation PBS systems. HYPERSCAN technology utilizes a unique combination of optimum spot sizes, hyper-fast layer switching and a novel multi-layer proton multi-leaf collimator (pMLC).

**SHARPER SPOT SIZE. SHARPEST DOSE GRADIENT.**
- Adaptive Aperture® pMLC is a compact PBS collimating system designed for multi-layer conformal delivery.
- Up to 3X sharper penumbra minimizing dose uncertainty at the edge of the target (Spot penumbra <2 mm at 230 MeV, <4.5 mm at 70 MeV).

**FAST VOLUMETRIC SCANNING. ROBUST FIELD DELIVERY.**
- Single focus scanning magnet, hyper-fast layer switching, and optimized spot size are designed to minimize sensitivity to motion.
- Treat lung tumors in a single breath hold (4 cm sphere to 2 Gy in 5 seconds).
- With HYPERSCAN’s energy layer switching as low as 50ms, a one-liter volume can be treated to 2Gy in <30 seconds.
- Minimizes motion risk by quickly delivering robust fields.

**IMAGE GUIDED PROTON THERAPY**

Customized and Optimized for You.
This year Mevion is launching new CBCT, CT on Rails, surface tracking, and immobilization options to give customers more choice in IGPT.

Our open-architecture platform allows us to partner with leading IGPT providers, to find the optimal configuration for your proton therapy needs.
Proton therapy is a valuable tool for leading cancer centers, however, it must make economic sense for the hospital and the healthcare system. Mevion has led the way in establishing compact proton therapy as the financially viable choice in proton therapy.

**LOWER COST, LOWER RISK**
- Compact systems enable more hospitals to bring proton therapy to their region and establish local radiotherapy leadership.
- Not all compact systems are the same. Mevion systems are more than 50% smaller, leading to more than 50% reduction in building costs.
- Typical Mevion projects are complete in under 2 years by design.
- Mevion is the proton therapy single-room system leader. Mevion has more clinical systems, more patients treated, more NCI designated centers and no financial failures.

**FLEXIBLE IMPLEMENTATION**
- With the smallest footprint, Mevion systems enable integration into a dense hospital campus.
- Independent units can be added incrementally matching hospital floorplans. Other systems require a fixed layout that cannot be customized.
- Mevion proton vaults can more easily be co-located to cross-utilize existing resources.

**CASE STUDY: ONE PLUS ONE STRATEGY**
On July 29th, 2019 Mevion delivered the accelerator for the 2nd Mevion proton therapy system at Siteman Cancer Center based at Barnes-Jewish Hospital and Washington University School of Medicine. This will be the first cancer center with two Mevion systems. Several other sites are following this approach, having planned a second room at the time of the first to accommodate expansion as needed.

**KEY TAKEAWAYS:**
- Foreword thinking planning
- Enabled patient & program growth to drive financials, not financials driving volume targets
- Minimized technology risk

![Timing Line Chart]
TRANSFORMATIVE PROTON THERAPY

Proton therapy is superior to traditional x-ray radiation because it reduces radiation exposure to nearby healthy tissue, potentially eliminating short and long term treatment complications and providing superior dose delivery to the tumor volume.

PROTON DOSE DELIVERY ADVANTAGES

• 1/3 to 2/3 less dose to normal tissue compared to x-ray therapies\(^1\).
• Sharp radiation dose fall-off to better protect healthy tissue.
• >17% of all radiation therapy patients could benefit from proton therapy. Currently < 1% of radiation therapy patients are treated with proton therapy\(^2\).

PROTON THERAPY CLINIC EXPERIENCE

• Expand treatment capabilities and retain patients in your facility.
• Differentiate your program and attract new patients.
• Extend the reach of other service lines.
• Deliver value based cancer care with precise cost effective treatment.

INNOVATION TO ADVANCED CANCER CARE

Mevion's research team is constantly pursuing new innovations to propel proton therapy to new levels. Both through our technology experts and partnerships with clinical researchers, we are constantly improving the clinical tools for our customers.

Mevion Medical Systems was established in 2004 with a simple goal: to provide superior proton therapy to as many cancer patients as possible.

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IMAGE GUIDED PROTON THERAPY
AND PATIENT POSITIONING SOLUTIONS

FALL 2019
Mevion’s unique open architecture approach to Image Guided Proton Therapy (IGPT) enables our customers access to the greatest customization, flexibility, and the latest in imaging and positioning technology. In 2019, we are launching a suite of new IGPT capabilities through development partnerships with technology leaders throughout the radiation oncology field.

IGPT – CUSTOMIZED, OPTIMIZED FOR YOU

Other companies believe in a “one-size-fits all” IGPT solution. We believe your RT department is unique. We work with every one of our customers to put together the optimal configuration to meet your needs.

TECHNOLOGY OBsolescence

• Proton therapy systems are designed for a >20 year life-span, during which clinical needs and IGPT technologies can advance dramatically.

• Other proton manufacturers provide a locked-in solution built into their system. This can freeze your imaging and positioning capabilities while the industry progresses into the future.

• Mevion is designed with a unique open architecture to keep your imaging and positioning solutions current with the future advancements and evolution in IGPT. With the potential for FLASH therapy, hypofractionation, or adaptive therapy disrupting the industry – a system that keeps you agile and upgradable is critical to your proton therapy decision.

3D IMAGING OPTIONS

Integrated CBCT

• Newly launched this year and in use at Maastro Proton Therapy, the ceiling rail mounted ImagingRing CBCT provides integrated daily 3D volumetric imaging.

• Full 360 rotational imaging is available for highest image quality, or partial scans are possible for faster imaging.

• Ultra-large 70cm field of view is the largest FOV of any integrated proton system to enable fully assess positioning nearby anatomy.

Siemens SOMATOM Definition Edge

• Two of Mevion’s newest facilities will be integrating full diagnostic CT imaging integrated to the proton workflow.

• The Siemens SOMATOM Definition Edge system provides the diagnostic image quality to support adaptive re-planning.

• Barnes-Jewish Hospital will be the first center with this imaging capability and will be treating clinically in 2020.

C-RAD Catalyst PT™

• The Catalyst PT surface tracking is new to Mevion systems this year and is in use at Maastro Proton Therapy in the Netherlands.

• Integration with the Mevion system enables accurate positioning and continuous monitoring of patients during treatment.

• Integrated patient treatment and CBCT workflow for high confidence patient positioning.
PATIENT IMMOBILIZATION

Mevion has been working to expand the options for patient immobilization for our customers. Since Mevion systems are embedded into existing radiation departments, it is our goal to work with hospitals to match their existing immobilization approaches. This year 3 new couches will be available on the Mevion system.

Qfix® kVue One Proton™
- New, thinner couchtop from Qfix enables smaller airgap from posterior beams.
- Uniform homogenous design simplifies treatment planning compared to rail version.
- Interchangeable inserts for full range of proton therapy treatments

Orfit Aerial™
- Orfit has developed a brand new proton couch with a unique approach of fully integrated inserts.
- A gradually tapered support enables a minimal airgap at the distal end of the couch.
- Not available in all markets; requires FDA clearance in the US
- Under validation for compatibility with the Mevion proton therapy systems

CIVCO Universal Couchtop™
- No rails or junctions in the treatment area to help facilitate better dose delivery and target coverage.
- Large treatment area of 64.9” (164.8 cm)
- Utilizes Prodigy™ 2 indexing at 7 cm increments
- Under validation for compatibility with the Mevion proton therapy systems
Mevion Medical Systems was founded in 2004 with a simple goal: to provide superior proton therapy to as many cancer patients as possible.