PROTON LUNG SBRT TREATMENTS AT WASHU

SITEMAN CANCER CENTER

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NRG ONCOLOGY™

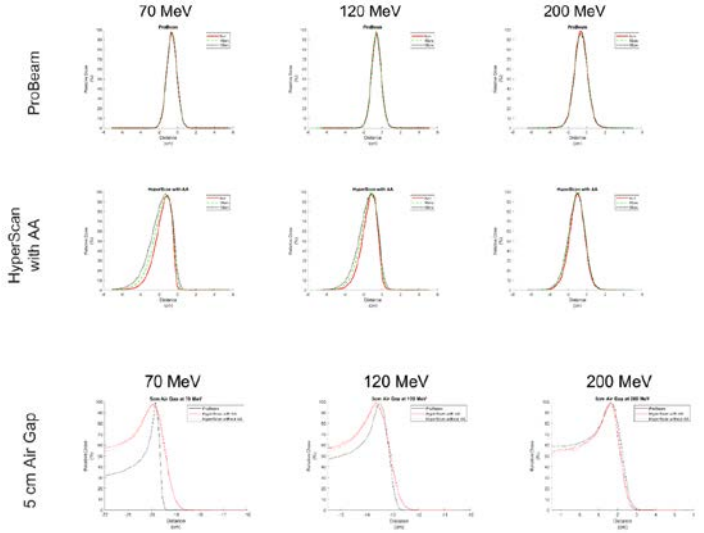
NCCN National Comprehensive Cancer Network®

NCI Comprehensive Cancer Center
A Cancer Center Designated by the National Cancer Institute

MEVION HYPERSCAN SYSTEM WITH IN ROOM CT ON-RAIL

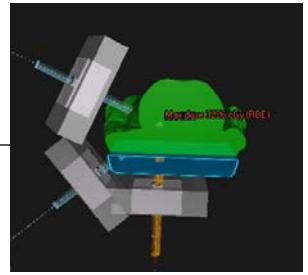
Single room system with adapter aperture

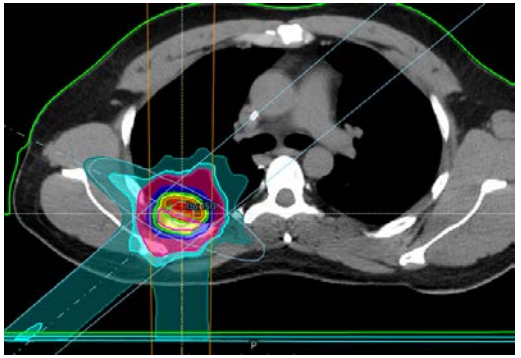
Siemens CT on rail system with 4D capacity



SIMULATION AND TREATMENT PLANNING

- 4D-CT with 1.5 mm slice thickness
- If motion > 1cm, create 40-60% average CT for planning and gating treatment
- If motion < 1cm, create 0-100% average CT for planning and free breathing treatment with volumetric repainting.
- Raystation TPS V11, static aperture, SFO or MFO planning
- 5mm setup uncertainty, 3% range uncertainty. Optimized on average CT with inhale and exhale CT in robustness.
- Increase minimum MU for delivery accuracy
- Most often 3-4 beams
- Robustness evaluation on inhale and exhale CTs.
- Prescription 5x11Gy.





TREATMENT DELIVERY

- Free breathing or gating with volumetric repainting
- Anzai breathing monitoring for 4D CT and treatment
- 4D-CT on-rail scan
- Create the same phase average CT (0-100% or 40-60%) for target registration.
- Adding an imaging session before treatment