

## LAS VEGAS CYBERKNIFE® EXPERIENCE WITH CYBERKNIFE VOLO™ OPTIMIZATION: INCREASE IN PATIENT THROUGHPUT & DAILY VOLUMES

*“Over ten years working with CyberKnife, I’ve been involved in several upgrades. The Precision VOLO upgrade by far has been the easiest and biggest bang for the buck. In three days, with minimal physics work, we decreased planning times by hours and almost literally doubled patient throughput by cutting beam on times by up to 65%.”*

- Oz Ozeroglu, CyberKnife Physicist

### WHO/WHERE

Las Vegas CyberKnife at Summerlin, Las Vegas, NV

### ABOUT THE CANCER CENTER

Dedicated SRS, SBRT and SABR center serving Southern Nevada, Southern Utah and Northern Arizona.

### UPGRADE TECHNOLOGY SOLUTIONS

Accuray Precision® Treatment planning with CyberKnife® VOLO™

### PATIENT THROUGHPUT

7 patients per day prior to upgrade. With new optimized treatment technologies, now capable of treating 13 patients within regular clinic hours.

### CASE MIX

Lung, liver, pancreas, kidney, thoracic, abdominal and pelvic lymph nodes, prostate, malignant brain tumors, spine, and various intracranial benign conditions.

### ASSESSING OPTIONS

Las Vegas CyberKnife® began assessing upgrade options for their dedicated radiosurgery platform. Because existing delivery accuracy and treatment outcomes were optimal, the key objective was increased patient throughput.

Las Vegas CyberKnife worked with Accuray to upgrade their CyberKnife G4 version 9.6 and MultiPlan® version 4.5 to decrease treatment planning times significantly with new planning hardware and optimized software in the first release of Accuray Precision 1.0 and treatment delivery version 11.0.

Further treatment planning and treatment delivery optimization with the upgrade to CyberKnife v11.1 and Accuray Precision 2.0.1 with CyberKnife VOLO optimizer resulted in almost doubling patient throughput with a cost effective and minimally invasive upgrade.

### CYBERKNIFE VOLO UPGRADE RESULTS

Ultimately, the upgrades allowed Las Vegas CyberKnife to reach their efficiency goals, increasing patient throughput by almost 50 percent with minimal time and expense invested.

### NEW UPGRADE CAPABILITIES ADDED

- CyberKnife VOLO Planning – offers speed, efficiency and optimization for treatment planning and delivery
- PreciseRTX Re-treatment – accelerates and automates the re-planning process to make re-treatment more efficient for practices and more effective for patients
- In addition to Deformable Registration and Auto Segmentation – offers unlimited volume of interest (VOIs) structures and 4 active sessions per workstation

**Why and How We Upgraded**

In order to increase patient throughput with optimized planning, we upgraded to CyberKnife® VOLO™. The upgrade lasted 3 days involving treatment planning computers with minimal physics preparation work; however QA was required to validate the upgrade. Minimal physics prep work and QA was required to validate the upgrade. Because it was an in-flight upgrade, patients who were currently under treatment did not require replanning.

**Positive Outcomes/Conclusion**

For Oz Ozeroglu and his team, the ability to complete Monte Carlo lung plans 33%–50% more efficiently has had a significant impact for both patients and the department. The faster planning combined with decreased treatment times has almost doubled daily treatment capacity within regular clinic hours.

- Ability to treat almost twice the patients within same time window
- Planning time reduced to 20–30 minutes from hours
- Planning accuracy increased with deformable fusion
- Retreatment planning efficiency increased by PreciseRTX®

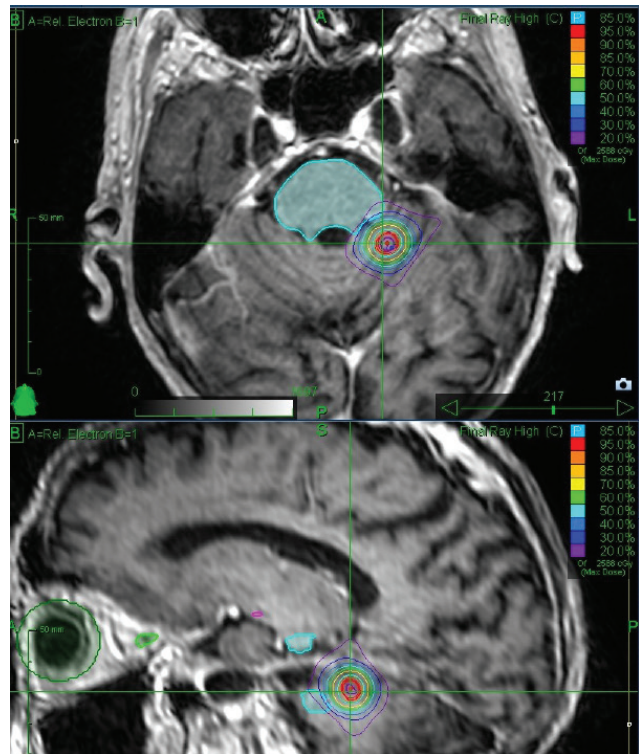
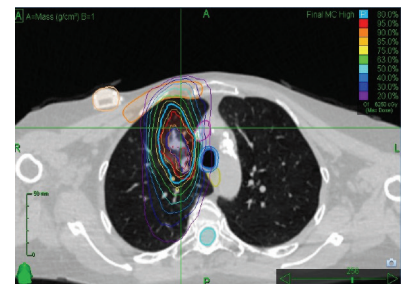
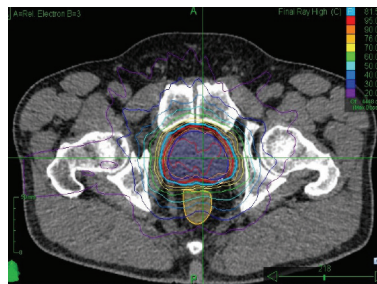
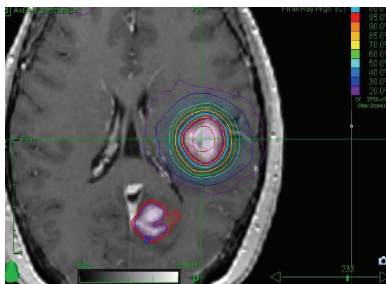


Chart Showing Case Mix and Time Saved Because of Upgrade

PATIENT CASE	AVERAGE TREATMENT TIME (MIN) CYBERKNIFE V9.6 AND MULTIPLAN	AVERAGE TREATMENT TIME (MIN) CYBERKNIFE V10.1 AND ACCURAY PRECISION V1.0	AVERAGE TREATMENT TIME (MIN) CYBERKNIFE V11.1 AND ACCURAY PRECISION V2.0 (CyberKnife VOLO)
Single Brain Met	37	28	15
Lung	50	32	17
Prostate	52	30	24
Benign Brain	43	32	14



**Important Safety Information**

Most side effects of radiotherapy, including radiotherapy delivered with Accuray systems, are mild and temporary, often involving fatigue, nausea, and skin irritation. Side effects can be severe, however, leading to pain, alterations in normal body functions (for example, urinary or salivary function), deterioration of quality of life, permanent injury, and even death. Side effects can occur during or shortly after radiation treatment or in the months and years following radiation. The nature and severity of side effects depend on many factors, including the size and location of the treated tumor, the treatment technique (for example, the radiation dose), and the patient's general medical condition, to name a few. For more details about the side effects of your radiation therapy, and to see if treatment with an Accuray product is right for you, ask your doctor.

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