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The Zap-X: Enabling Radiosurgery for ALL Humanity

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Abstract

Radiosurgery is the most precise form of therapeutic radiation, which by virtue of accuracy can often replace surgical resection. Over the past few decades, radiosurgical procedures have become a well-established tool for managing a broad array of human pathologies, especially tumors of the brain. Today radiosurgery is the single most common operation for brain tumor in many advanced countries. Although more than 150,000 brain tumor patients worldwide are treated with radiosurgery every year it is estimated that more than 2 million patients worldwide would be best treated with radiosurgery if it were available. The fact that so many patients are not getting access to state-of-the-art brain treatments represents an important public health concern for the world. One of the principle reasons there are not more radiosurgery facilities in the world is the complexity and cost of radiation therapy vaults. With the goal of overcoming this barrier, the Zap-X was created. This novel device provides a best in class and easier to use technology, and accomplishes all of this at the lowest price in the medical market place, thereby enabling less wealthy healthcare systems to afford for the first time world-class radiosurgery. Moreover the Zap-X is the first ever self-shielded therapeutic radiation device, designed to avoid the cost and complexity of building customized cement and lead vaults, which have been traditionally needed for the radiation protection of the system operators. The basic design principles embodied by the Zap-X as well as the results of radiation leakage testing will be presented.

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