

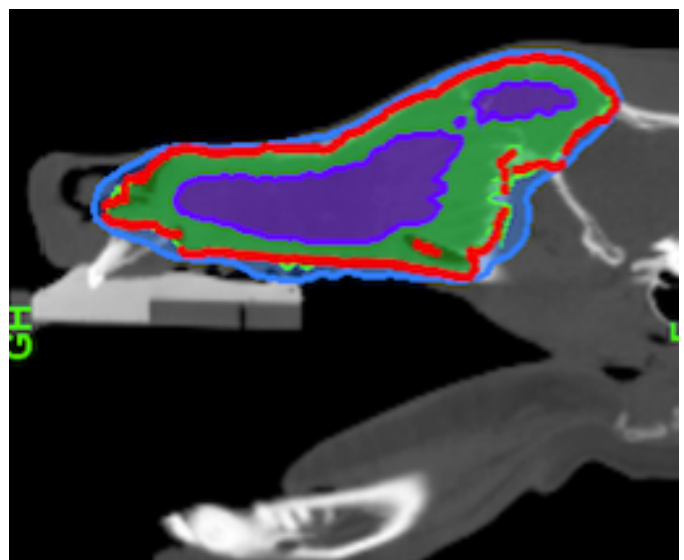
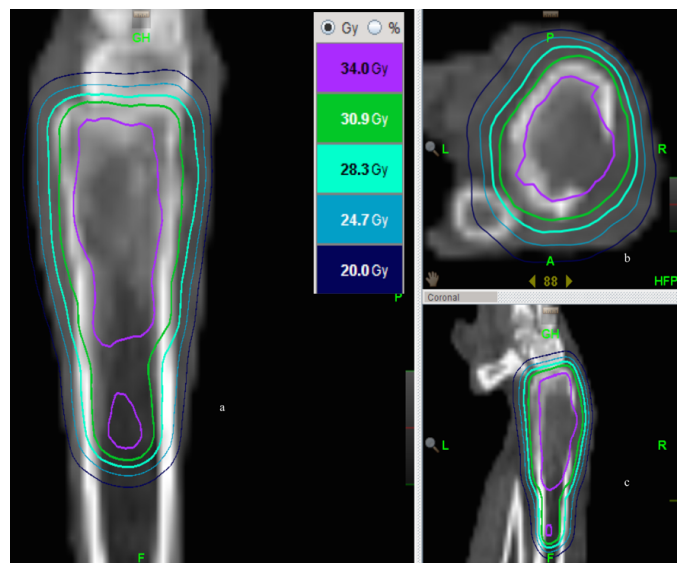
# What are the Goals of Radiation Therapy?

## *Definitive Radiation Therapy*

Definitive intent radiation therapy aims to minimize the long-term adverse effects of radiation therapy and to enhance the long-term control of the cancer. Definitive intent radiation therapy generally means that small dosages of radiation are administered daily over 2 to 4 weeks. By giving many small treatments of radiation we can ensure a large total dose of radiation is safely administered. This increases the likelihood of long term tumor control and minimizes the chance of long term complications. There are some tumor types that are treated with definitive intent, however they respond better to less frequent dosing (i.e. melanoma).

## *Palliative Radiation Therapy*

Palliative radiation therapy aims to relieve cancer related pain and improve quality of life in patients rather than provide long-term tumor control. This type of treatment may be used for any patient with tumor-related clinical signs such as discomfort or bleeding. It is particularly effective in alleviating pain in cases of bone cancer. The treatment schedules are less intense and less expensive.



### *Stereotactic Radiation Therapy (SRT or SBRT)*

Stereotactic radiation therapy is a highly specialized technique that delivers a single or few highly conformal doses of radiation to a tumor with submillimeter accuracy. It has also been called stereotactic radiosurgery (SRS) as the high degree of accuracy is similar to what can be achieved with a surgical scalpel blade. Due to the high doses administered per treatment, it is essential to accurately localize and immobilize the tumor. Localization is achieved by imaging at the time the radiation is delivered and with positioning devices (mouth molds and body mattresses). The TomoTherapy unit performs a CT scan of the region to be treated before every treatment to ensure precise set-up of the patient for accurate radiation delivery.

The tumor must be well circumscribed making treatment of some tumor types (e.g. those which are very invasive or large) less appropriate. For some types of tumors the intent of stereotactic radiation can be curative (e.g. brain tumors) whilst for others it can be viewed as palliative.

There is intense interest in stereotactic radiation therapy in veterinary medicine as it generally involves fewer treatments and therefore fewer anesthetic events and visits to the hospital.

TomoTherapy is specifically designed to deliver stereotactic radiation therapy.

Images. The first image indicates the exquisite dose conformity achieved with TomoTherapy in a bone tumor. The second image is a cross section of a nasal tumor in a dog showing avoidance of the brain. The third image is a vertebral tumor showing avoidance of the spinal cord, lungs and heart. The final image is a nasal tumor showing avoidance of both eyes. All cases were treated with SRT

