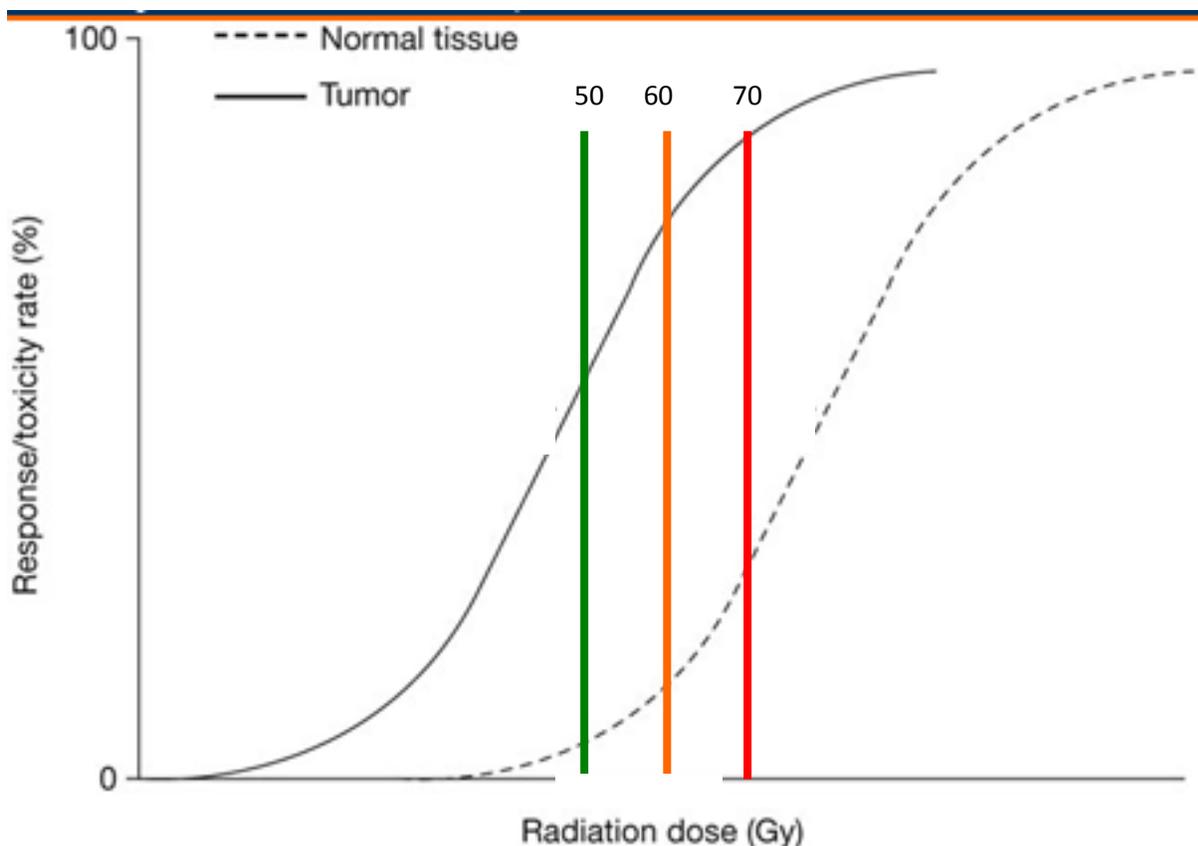


## Correlation of Radiation Dose to Surgical Margin Status in Oropharyngeal CA treated with Transoral Robotic Surgery (TORS).

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The known incidence of HPV related oropharyngeal squamous cell carcinoma has dramatically risen over the last decade. It is well known that the presence of HPV is a good prognostic finding regardless of the treatment modality. The approval of TORS to treat head and neck cancer opened the way to achieve negative margin resections without the morbidity of open surgical approaches.

The traditional treatment of oropharyngeal carcinoma outlined by the GORTEC and other trials has been high dose radiation of over 7200 Gy to the oropharynx. Although this results in excellent cure rates for those with HPV positive tumors it can come with a significant cost to the swallowing function of the patient undergoing treatment. There is an exponential increase in radiation toxicity as linear dose of radiation goes from 6400 to 7200 Gy.

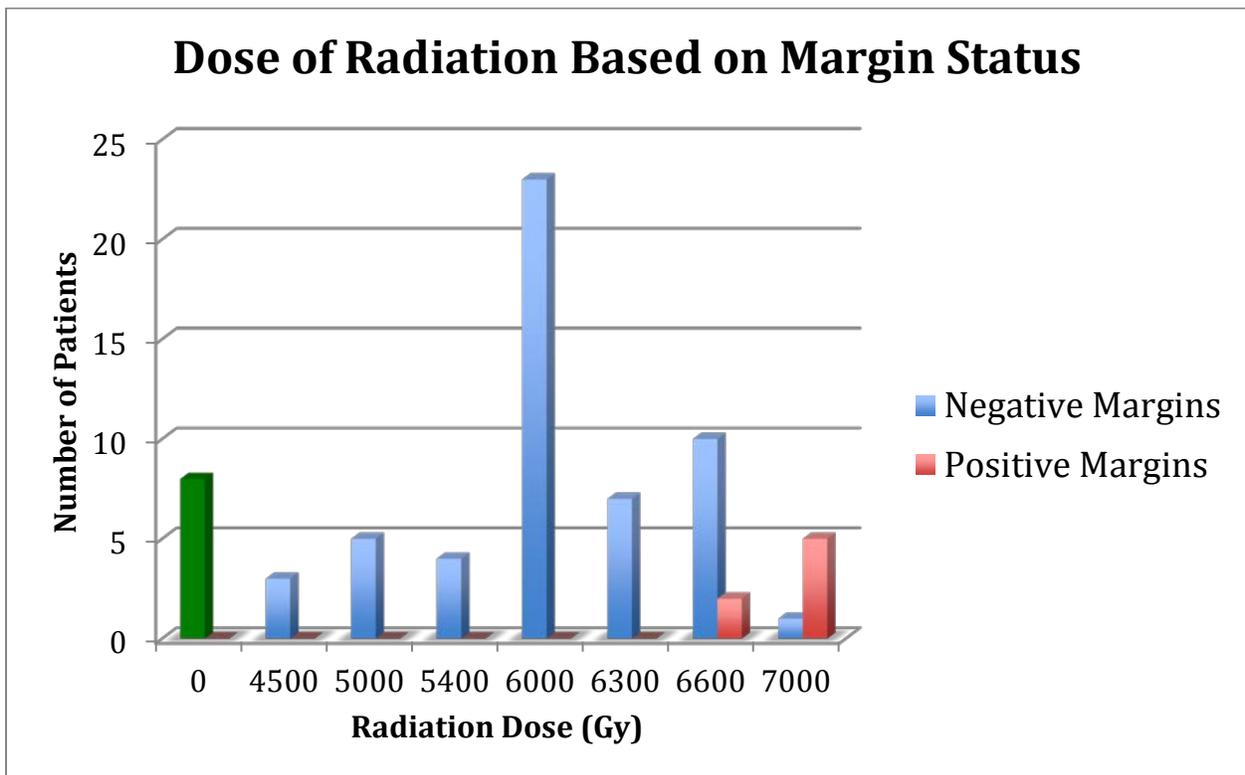


Source: Nat Clin Pract Oncol © 2007 Nature Publishing Group

At Jefferson, our Head and Neck team of radiation oncologist, surgeons and medical oncologists work collaboratively to maximize oncologic outcomes while limiting treatment side effects. In our patients that we obtain negative margins, the approach has been to deescalate the dose of radiation. Although we meet on a weekly basis for tumor board the question remains if there is a disparity between patients treated at Jefferson verses at outlying centers. Our practice is to communicate our tumor board findings to all outside treating physicians.

There are 69 patients in the cancer center registry from 2010 through 2013 with HPV positive oropharyngeal squamous cell carcinomas treated with up front TORS. Eight of these patients had complete resection of their cancer and further adjuvant treatment was not recommended and avoided radiation all together. The remaining 61 patients underwent adjuvant radiation therapy with 27 (44%) undergoing treatment at TJUH and 34 (56%) undergoing adjuvant radiation at outside radiation centers.

| Stage on Path | Number of Patients. |
|---------------|---------------------|
| Stage I       | 4                   |
| Stage II      | 8                   |
| Stage III     | 7                   |
| Stage IVa     | 50                  |
| Stage IVb     | 3                   |



The green bar represents patients that underwent TORS resection with negative margins whom didn't require any further adjuvant treatment.

**Conclusion:**

For patient who underwent TORS resection of oropharyngeal cancer the above graph demonstrates that radiation dose has deescalated both at TJUH and at outside treating center. It also demonstrates the consistency by which a sound oncologic resection can be achieved with TORS that was previously not achievable.

