

## Stomach / Pancreatic Cancers (Upper GI)

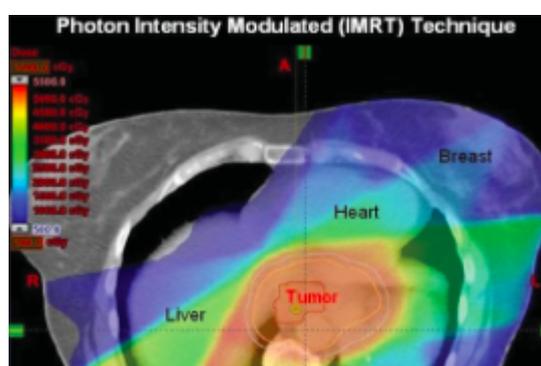
A wide variety of upper GI tumors are treated with radiation therapy, notably cancers of the stomach and pancreas. At many of these tumor sites, radiation is used in conjunction with chemotherapy either prior to surgery (preoperative radiotherapy) or following surgery (postoperative radiotherapy). Preoperative chemoradiotherapy is also commonly used prior to surgery in patients with esophageal carcinoma.

While surgery is the mainstay of treatment for most GI tumors, it is intentionally avoided in anal cancer in favor of concurrent chemoradiotherapy. Such an approach avoids the need for a permanent colostomy, improving patient quality of life.

### Treatment Techniques

A variety of radiation therapy techniques are used in the treatment of patients with GI tumors. The most common approach is three-dimensional conformal radiation therapy (3DCRT) [1]. The 3DCRT technique uses multiple shaped beams which help reduce the dose to the surrounding normal tissues.

Depending on the tumor site treated, two, three or even four radiation beams are used. The tumor site also determines how the beams are configured. In pancreatic cancer patients, three beams are used, entering anteriorly and from the right and left sides (lateral fields). This technique helps reduce dose to the posteriorly located kidneys. In rectal cancer patients, while three beams are also used, two lateral beams and a posterior beam are selected. This configuration reduces the dose to the anteriorly located small bowel.



## **IMRT <sup>[2]</sup> for stomach cancer**

### **Intensity Modulated Radiation Therapy (IMRT)**

In recent years, a sophisticated form of 3DCRT known as intensity-modulated radiation therapy <sup>[2]</sup> (IMRT) has been increasingly used in GI tumor patients. Unlike conventional approaches, IMRT uses highly modulated beams designed using sophisticated computerized optimization planning. Such beams conform the radiation dose to the shape of the tumor in 3D, reducing the volume of normal surrounding tissues receiving high doses.

Multiple investigators have reported promising results using IMRT in GI tumor patients.

IMRT is particularly helpful for patients with anal cancer. In such patients, conventional approaches result in the irradiation of large volumes of normal tissues, exposing patients to a wide range of toxicities. IMRT helps minimize the dose to these structures reducing the risk of treatment toxicities.

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**Source URL:** <https://radonc.ucsf.edu/stomach-pancreatic-cancers-upper-gi>

#### **Links**

[1] <https://radonc.ucsf.edu/three-dimensional-conformal-radiation-therapy-3dcrt>

[2] <https://radonc.ucsf.edu/intensity-modulated-radiation-therapy-imrt>