

## Daily Image Guidance

Each day – just before treatment – images are taken to confirm the exact tumor location.

IGRT images are obtained by the treatment machine itself (port films), electronic portal imaging devices (EPID images) real-time low-energy systems (kV x-rays) or computed radiography.



EPID Imaging

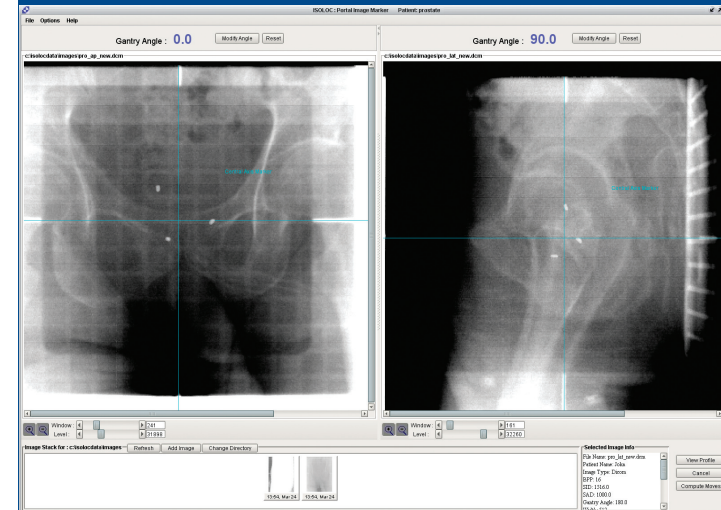
Implanted markers show up clearly on all image types, providing internal landmarks for tumor position.

Using ACCULOC® localization software, the radiation therapist registers the markers on the pretreatment images and calculates the exact couch moves for high-accuracy tumor alignment.

## Summary

IGRT uses implanted markers, pre-treatment images and localization software to provide advanced tumor targeting accuracy for radiotherapy. IGRT increases radiation to the tumor and spares normal surrounding tissue.

Please contact your physician or nurse to discuss your treatment and review any questions you might have about your care.



## Prostate Cancer Treatment

*Image-Guided Radiation Therapy (IGRT)  
using implanted prostate markers*

**Patient Education Brochure**



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This brochure is not intended as a substitute for professional medical care.  
Only a doctor can diagnose and treat a medical problem.

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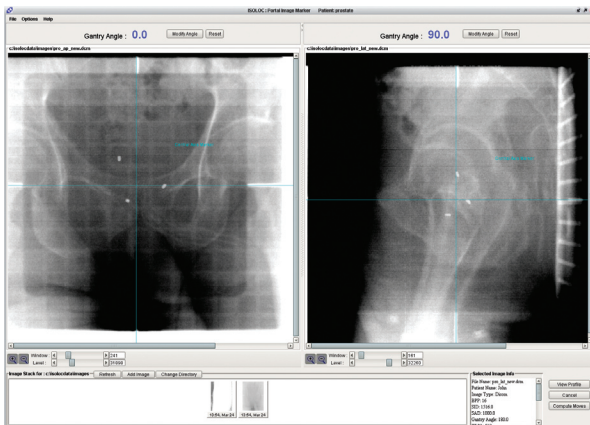


## What is IGRT?

IGRT is Image-Guided Radiation Therapy – a method of using images taken immediately before treatment to use extreme accuracy to target a tumor. Accurate targeting is essential to resolve daily tumor location changes due to internal organ motion and body position variation on the treatment couch. IGRT increases radiation to the tumor and spares normal surrounding tissue.

## Why use implanted markers?

To assist with IGRT, three tiny implanted markers become visible landmarks for tumor location on pre-treatment images. They provide a permanent method for quick and accurate daily tumor alignment.



The small white dots in these images represent implanted marker locations.

## Implanted Markers

Implanted markers are typically, pure gold rods – crosscut to prevent movement - that permanently remain in the prostate. Markers constructed of carbon are also utilized on occasion.



Size of the markers in comparison with a dime.

Note: Gold markers do not contain iron and do not set off metal detectors.

## Implant Procedure

The 10-minute outpatient procedure under ultrasound guidance is very similar to a prostate biopsy or other image-guided techniques, and only slightly uncomfortable. Typically, three markers are placed in the prostate.

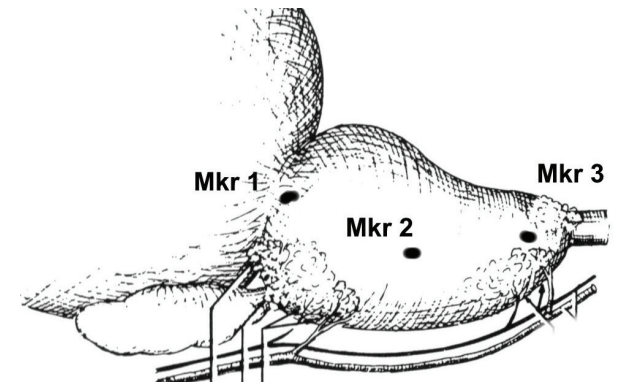


Diagram of marker placement within the prostate.

## CT Scan

After marker implantation, the radiation oncologist and planning team obtain a CT scan and create the unique treatment plan.