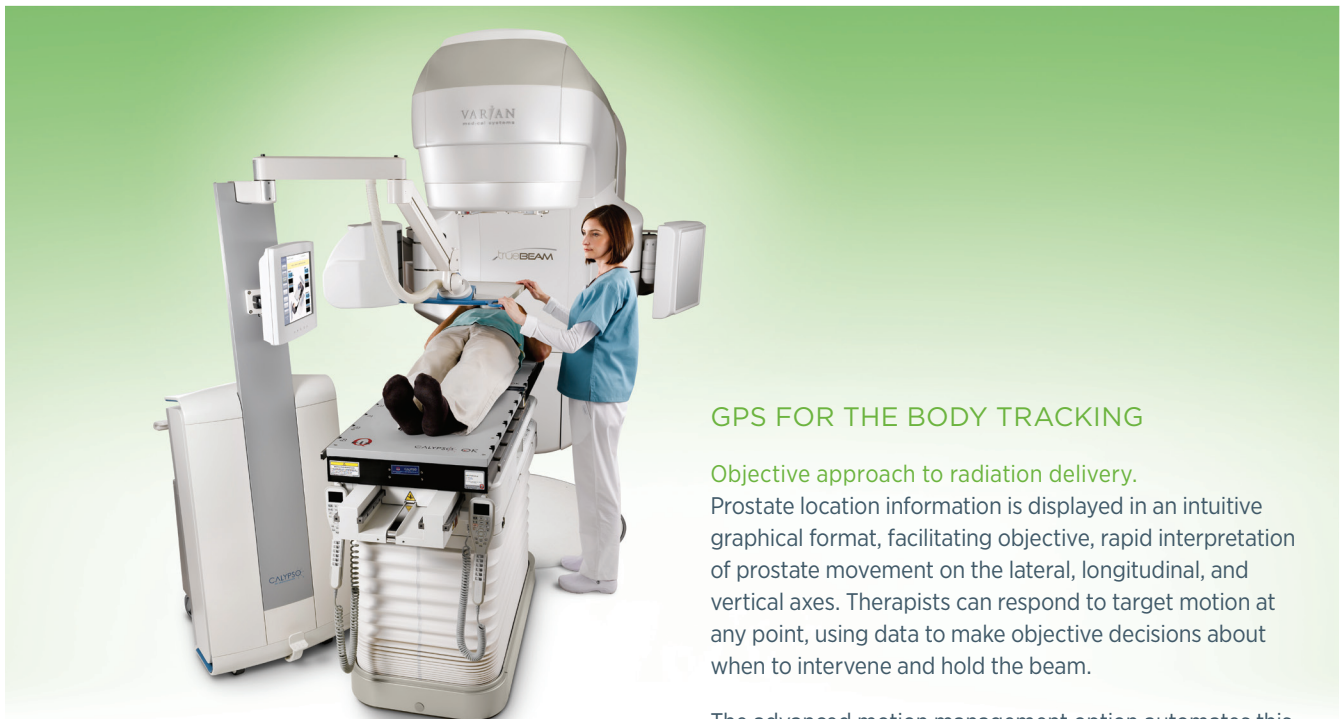


## REAL-TIME MOTION TRACKING FOR REAL-LIFE RESULTS THE CALYPSO SYSTEM



Prostate motion is variable and unpredictable, posing challenges while delivering external beam radiation therapy to treat prostate cancer. As a clinician, if you could see and track target motion in real time during treatment delivery, you could confidently reduce the margins between the clinical target volume (CTV) and the planning target volume (PTV). The Calypso® System by Varian provides that capability.

Using GPS for the Body® Technology, Calypso detects even slight movement of the target, so you can keep it in the path of Varian's precise radiation beam. Tighter treatment margins can help you reduce potential side effects and improve the quality of life for your patients, escalate dose to improve disease control, or accelerate treatments with SBRT.

Using real-time tracking and real-time treatments, Calypso can reduce treatment margins resulting in reduced side effects<sup>1</sup>, even with increased dose.

### GPS FOR THE BODY TRACKING

#### Objective approach to radiation delivery.

Prostate location information is displayed in an intuitive graphical format, facilitating objective, rapid interpretation of prostate movement on the lateral, longitudinal, and vertical axes. Therapists can respond to target motion at any point, using data to make objective decisions about when to intervene and hold the beam.

The advanced motion management option automates this response to organ motion with a continuous, real-time signal. Radiation delivery pauses when the target moves outside the clinician-defined threshold. Radiation delivery resumes when the target is back within the threshold.

**No additional ionizing radiation.** Calypso tracks the target using radiofrequency waves, an innovation referred to as GPS for the Body technology. Three electromagnetic transponders implanted during a simple outpatient procedure, transmit location information about the target. The tracking system locks onto the signal during patient setup and tracks it throughout the treatment.

<sup>1</sup> Sandler, Howard, et al. "Reduction in Patient-reported Acute Morbidity in Prostate Cancer Patients Treated With 81 Gy Intensity-modulated Radiotherapy Using Reduced Planning Target Volume Margins and Electromagnetic Tracking: Assessing the Impact of Margin Reduction Study." *Urology* 75 no. 5, (2010): 1004-1008.

## PROSTATE SBRT

Hypofractionated, high-dose prostate treatments have shown promising results for some patients<sup>2</sup>. When escalating dose, you need the confidence that real-time motion tracking provides.

The Calypso system enables your clinic to offer SBRT prostate treatment, with its advantages.

- Accelerated treatment
- More concentrated dose
- Reduced CTV-to-PTV margins
- Reduced treatment-related side effects



### CALYPSO PROSTATE BEACON TRANSPONDER

THE CALYPSO SYSTEM HAS BEEN THE TOPIC OF MORE THAN 30 PUBLISHED MEDICAL JOURNAL ARTICLES AND OVER 170 ABSTRACTS AT MAJOR MEDICAL MEETINGS. THERE ARE MORE THAN 100 LEADING CANCER CENTERS WORLDWIDE USING THE SYSTEM, AND MORE THAN 15,000 PATIENTS HAVE RECEIVED RADIATION THERAPY TRACKED BY THE TECHNOLOGY SINCE IT WAS CLEARED BY THE FDA IN 2006.

## SOLUTION COMPONENTS

### Calypso System

- Electromagnetic Beacon® transponder implants
- 4D electromagnetic array
- Optical system with 3 infrared cameras
- 4D tracking station
- 4D Console

### Qfix™ kVue™ Couchtop

- Non-conductive design. Cantilevered portion of couchtop is completely metal free
- Meets IEC deflection standards
- Maximum load rated to 440 lbs (200 kg)
- OneTouch™ locking mechanism for sub-millimeter accuracy when repositioning the insert
- Visual cue that insert is properly secured

### Training

- **Clinical training for transponder placement**
  - Training for one clinician and staff member
  - Hands-on learning onsite at your facility
- **Calypso System training**
  - Training for four radiation therapists and one physician, physicist, and dosimetrist at your facility

<sup>2</sup> Mantz, C.A., Fernandez E., Zucker I., Harrison S. "A Phase II Trial of Real-time Target Tracking SBRT for Low-Risk Prostate Cancer Utilizing the Calypso 4D Localization System: Patient Reported Health-related Quality of Life and Toxicity Outcomes." 21st Century Oncology, Fort Myers FL. Oral Presentation 121. ASTRO 2010.

## RADIATION SAFETY

All radiosurgery and radiotherapy potentially may cause side effects, varying with the area of the body being treated. Systemic side effects can include fatigue, nausea, or low blood counts. Localized side effects can include skin erythema, hair loss, mucositis, shortness of breath, irritation of bowel and bladder function, or diminished sexual function. Radiation treatment is not appropriate for all cancers. Treatment sessions may vary in complexity and time.

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