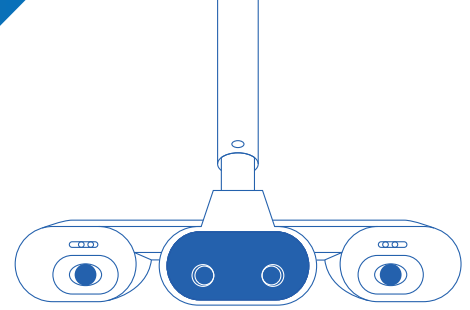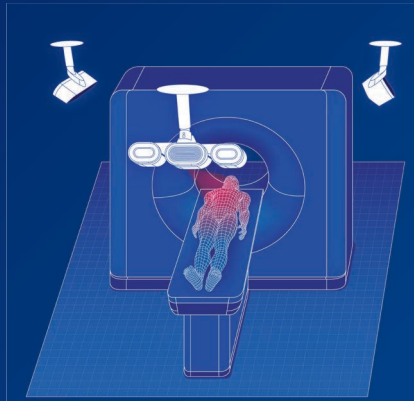# SGRT | Surface Guided Radiation Therapy

Use of surface guidance to help improve the safety, effectiveness and efficiency of the entire radiation therapy workflow.
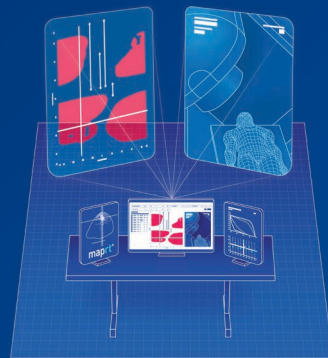
vision rt | Guiding Radiation Therapy™

SIM

4D AND BREATH HOLD CT
simrt™

Non-contact **4D and breath hold CT** with a simple workflow, no hardware setups and no surrogates.
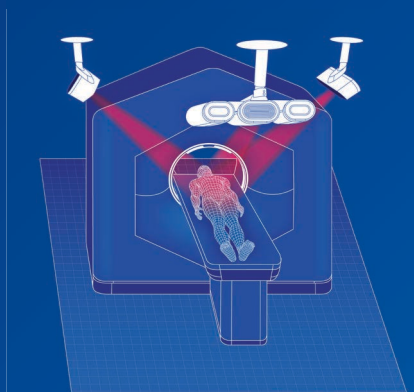
PLAN

CLEARANCE MAPPING
maprt®

Clearance Mapping of entire patient and all equipment to assist planning without fear of collision, eliminating dry runs and replans.
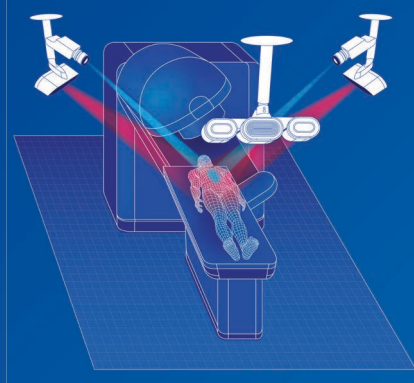
TREAT

MOTION MANAGEMENT
alignrt®

Contactless pre-treatment **patient ID**. Demonstrated rapid tattoo-free **patient setup**. TG302/ESTRO-ACROP compliant **motion monitoring** accuracy at all couch / gantry angle and skin tones.

DOSE

DOSE VISUALIZATION
dosert™
Powered by BeamSite®

Dose visualization to help stop dose delivery errors in real time.

SGRT FOR
4D AND BREATH-HOLD CT

simrt™

SIMPLE WORKFLOW WITH NO HARDWARE SETUPS AND NO SURROGATES

### TRACKING POINT SELECTION FROM CONTROL ROOM:

- Rapid optimization of tracking point, for faster workflow
- Minimal patient distraction pre-scan, so breathing is undisturbed

CEILING-MOUNTED CAMERA:

- No physical marker, block or belt needed - no physical distraction for patients
- No tracking equipment for the user to set up
- Completely non-invasive, non-ionizing motion monitoring

REAL TIME COACH™ DISPLAY:

- Coaches patient on breath-hold level
- No patient contact for minimal infection risk
- Simple and intuitive visual feedback for patients
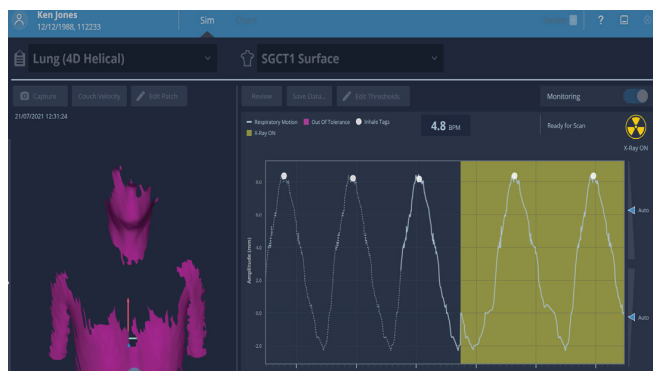

4DCT scan

Breath-Hold scan

SGRT FOR
CLEARANCE MAPPING

maprt®

MapRT is a new tool for clearance mapping during the planning process.

MapRT uses two lateral wide-field cameras in simulation to deliver a full 3D model of patients and accessories. This model is then used to calculate a clearance map for every couch (x-axis) and gantry (y-axis) angle.

Plans can be imported from all the main planning systems to check beams, arcs, and transition clearance.
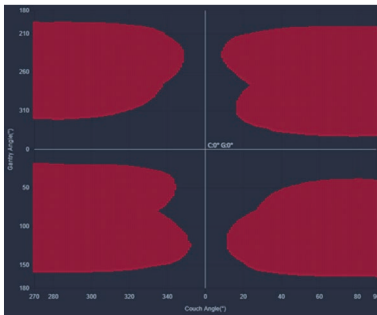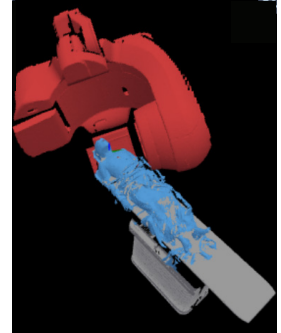
Better Plans Made Easy.

Check treatment clearances before sim.
Improve dose plan using clearance map beam options.
Avoid dry runs and replans for non-deliverable plans.

Recent studies show that non-coplanar treatments can deliver clinically relevant improvements to treatment plans[1], specifically in lung cancer[2,3,4,5], breast cancer[6,7,8,9], head and neck cancer[10-15] and lymphoma[16,17].

Traditionally, non-coplanar treatments require extra planning and machine time, both for dry runs and treatments. MapRT can help avoid this by simplifying the planning process and reducing the need for dry runs.

Calculated Outcome Probabilities[12]:
Head and neck cancer retreatments

VMAT coplanar
Noncoplanar

-67%
-25%

Normal tissue complication   Local recurrence
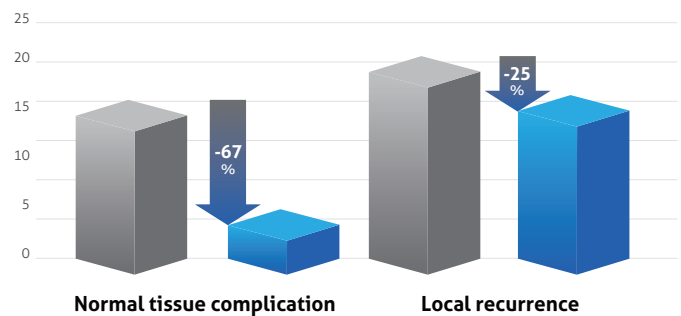
Improved assessment of deliverability
A five-center planning study[18] recently showed improved assessment of deliverability using MapRT:

Non-Deliverable Fields (n = 66)

Collisions identified   Collisions identified

STANDARD TECHNIQUE → MapRT

Collisions identified: 89%   Collisions identified: 100%
Collisions missed: 11%   Collisions missed: 0%

Using additional information from MapRT:
Planners accepted 3% of non-deliverable fields as small patient position changes would be feasible.

Deliverable Fields (n = 284)

Clear beams identified   Clear beams identified

STANDARD TECHNIQUE → MapRT

Clear beams / arcs identified: 64%   Clear beams / arcs identified: 100%
Clear beams / arcs missed: 36%   Clear beams / arcs missed: 0%

Using additional information from MapRT:
Planners rejected 12% of clear beams to improve patient comfort, citing proximity between the gantry and patient's face.

References as per visionrt.com/maprt

SGRT FOR
MOTION MANAGEMENT

alignrt®

The market-leading SGRT system for tracking a patient's position before and during radiation therapy, to help ensure a streamlined workflow for accurate treatment delivery.


The most rigorous of the ESTRO-ACROP/AAPM-TG302 SGRT guidelines for SRS require a tracking accuracy of ≤0.5mm / ≤0.5° in phantoms, including potential camera occlusions. AlignRT delivers a tracking accuracy of ≤0.5mm / ≤0.2° at all couch and gantry angles. AlignRT's accuracy is not affected by skin tone.
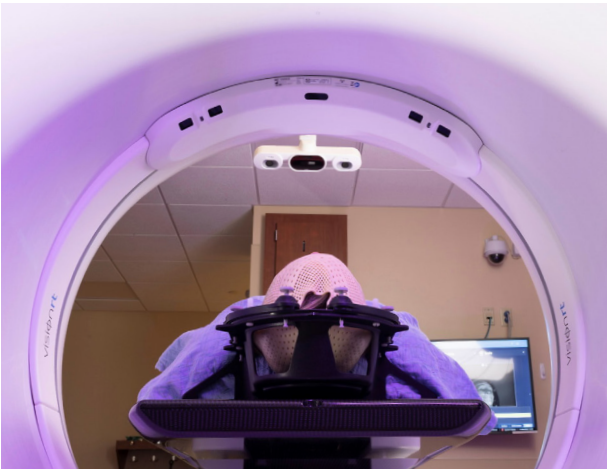
alignrt® *InBore*™

For Halcyon® and Ethos™ linacs. +140 systems in routine, regulatory cleared, clinical use for cranial, H&N, DIBH, pelvis, abdomen, thorax / lung, breast.
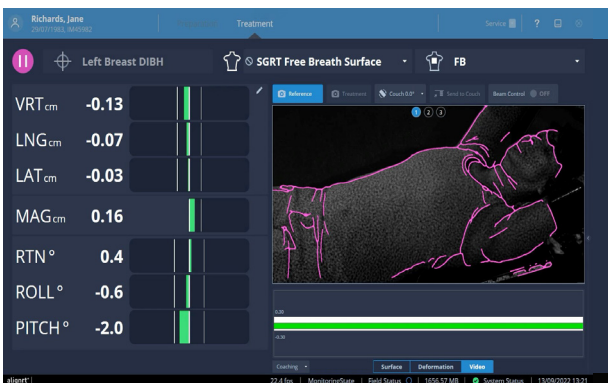
Postural Video™
Gain clear positional guidance from multiple angles during setup and monitoring.
In an independent head-to-head trial, Postural Video further reduced the setup time by 29% vs. standard SGRT, increasing the linac capacity by one patient per 36 patients treated.[1]

Halcyon® and Ethos™ are registered trademarks of Varian Medical Systems. The use of Halcyon® and Ethos™ here in is for identification purposes only. Use of these marks does not indicate sponsorship, affiliation, endorsement, or approval by Varian.

1.　"Efficiency, Standardisation and Clinical Excellence: One Goal Across a Large Network" SGRT Community Meeting 2022 Presentation by Kira-Lee Oliver, Genesis Care Florida, June 2022.

SGRT FOR
DOSE VISUALIZATION

dose rt™
Powered by BeamSite®

Visualize Dose Delivery & Monitor Patient Positioning in Real Time

DoseRT is a treatment verification tool that provides real time in vivo images of dose delivery while monitoring patient positioning to ensure treatment quality.

DoseRT brings together Cherenkov imaging with AlignRT and Horizon cameras.

Dose Visualization
Can help prevent treatment errors in real time.

Published data suggests approximately **10%** of patients received sub-optimal treatment that can be detected by Cherenkov imaging.[1]

- **Stray Radiation to the Contralateral Breast**
  Clinical evidence suggests that **2.6%** of breast cancer patients had secondary contralateral cancer attributable to radiation.[2]

- **Bolus Misplacement**
  Currently no real-time verification tool exists.

- **Radiation to unintended areas**
  Due to treatment plan errors, exit dose radiation, or patient positioning.

Dose Visualization + SGRT
Can help improve treatment quality.

21% of Preventable Reported Events could be prevented with SGRT.[3]
- **43%** due to wrong isocenter
- **34%** due to wrong accessory

What is Cherenkov Imaging?

During radiation therapy, Cherenkov light is emitted from the patient's skin where the radiation beam enters or exits the body.

Cherenkov Imaging uses highly sensitive cameras, synchronized with both the linac and SGRT, to visualize this light from the patient's skin.

DoseRT not currently available for sale in the US. SimRT, MapRT, AlignRT and DoseRT are Trademarks of Vision RT. BeamSite is a trademark of DoseOptics LLC.

1. Jarvis LA et al. Initial Clinical Experience of Cherenkov Imaging in External Beam Radiation Therapy Identifies Opportunities to Improve Treatment Delivery. Int J Radiat Oncol Biol Phys. 2021 Apr 1;109(5):1627-1637

2. Burt, Lindsay M.; Ying, Jian; Poppe, Matthew M.; Suneja, Gita; Gaffney, David K. (2017): Risk of secondary malignancies after radiation therapy for breast cancer: Comprehensive results. In Breast (Edinburgh, Scotland) 35, pp. 122–129. DOI: 10.1016/j.breast.2017.07.004.

3. Hania Al-Hallaq et al. The role of surace-guided radiation therapy improving patient safety. Radiotherapy and Oncology. 2021 August 26: 163(2021) 229-236.

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Guiding Radiation Therapy

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ALL THE FEATURED PRODUCTS