



AdventHealth

Advancing Patient Comfort: Maskless Head & Neck Radiation Therapy with SGRT

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Disclosures

- AdventHealth Celebration maintains a Center of Excellence (COE) agreement with VisionRT.
- AdventHealth Parker maintains a Professional Services Agreement (PSA) with VisionRT
- The content presented reflects independent clinical experience and independent evaluation.
- This presentation was not influenced by financial incentives.

AdventHealth Florida



AdventHealth Florida Cancer Institute:

- 15 Radiation Oncology Centers
- 25 Linear accelerators
- 2 Halcyons, 1 GammaKnife
- 3 HDRs
- 12 AlignRT systems (2 inBore)
- 3 SimRT systems
- 1 MapRT, 1 DoseRT

Why Rethink H&N Immobilization?

Standard of Care

- 5-point closed-face thermoplastic mask
 - Provides rigid, reproducible setup
 - Frequently associated with:
 - Anxiety and claustrophobia
 - Sensation of confinement
 - Inability to use SGRT during treatment



Open-Face Masks

- Improved tolerance
- Enable SGRT
- Still involve facial confinement



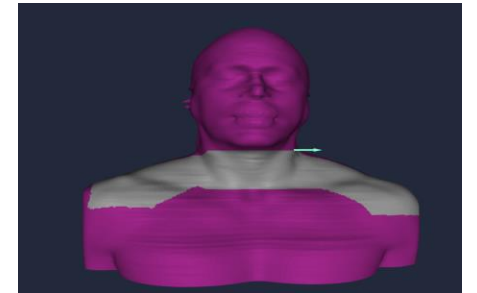
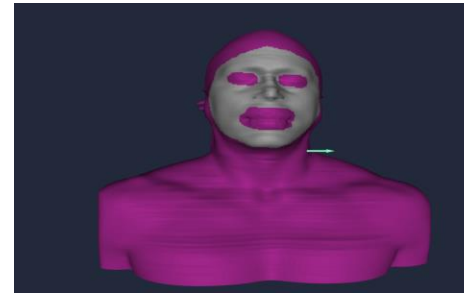
Key Question

Can we eliminate rigid facial immobilization entirely without compromising geometric accuracy or safety?



SGRT Enabling Maskless H&N Treatment

- Provides real-time 6DoF surface tracking during setup and beam-on
- Enhances setup reproducibility and patient safety through continuous monitoring
- Automatic beam-hold when motion exceeds predefined thresholds
- Enables a fully contact-free patient experience

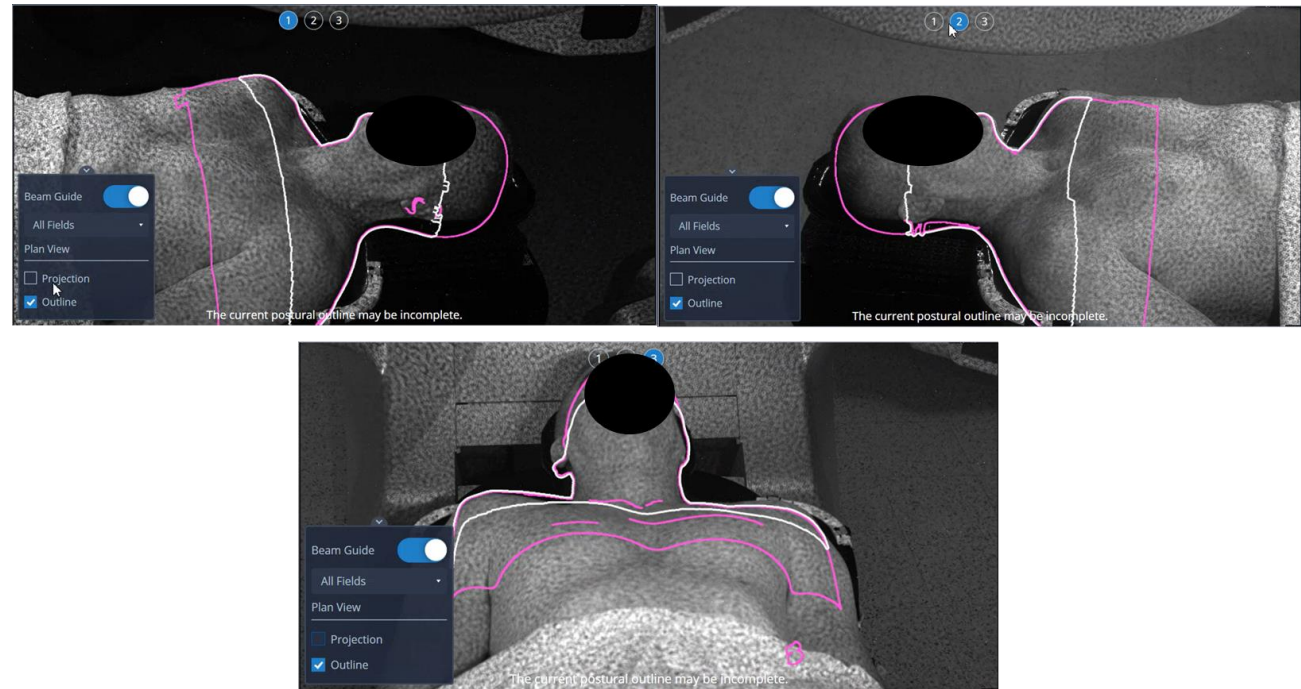


Study Objectives

- Determine whether maskless H&N radiotherapy using SGRT maintains submillimeter intrafraction accuracy
- Validate SGRT measurements against IGRT (CBCT)
- Evaluate workflow efficiency
- Assess patient comfort compared with prior mask-based treatments

Setup & Immobilization Strategy

- Immobilization
 - Macromedics DSPS Prominent dorsal shell
- Setup
 - AlignRT with postural video guidance
 - CBCT-based image guidance
- Monitoring
 - Continuous SGRT 6DoF tracking
 - Automatic beam-hold at ≥ 2 mm / 2°
- Verification
 - Post-treatment CBCT
- Evaluation
 - SGRT Real-Time Deltas (RTDs)
 - Pre- vs post-treatment CBCT comparison



Evaluation Framework

Motion Assessment

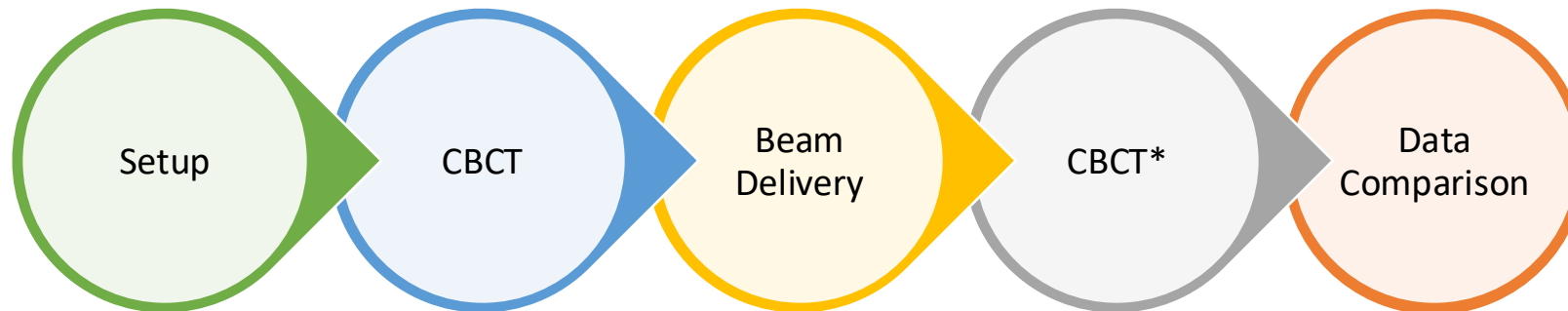
- SGRT Real-Time Deltas (RTDs): continuous intrafraction monitoring.

Geometric Verification

- Pre-treatment CBCT
- Post-treatment CBCT*
- Initial vs. Final position comparison

Patient Reported Experience

- Qualitative comfort assessment



Results

Results

- 10 patients, 330 fractions delivered.
- Mean SGRT intrafraction motion: 1.0mm/0.9°
- Residual displacement on post-treatment CBCT: 0.5mm/1°

Threshold compliance

- 10% of fractions had ≥ 1 threshold violation.
- In most cases, patients returned to baseline position without intervention

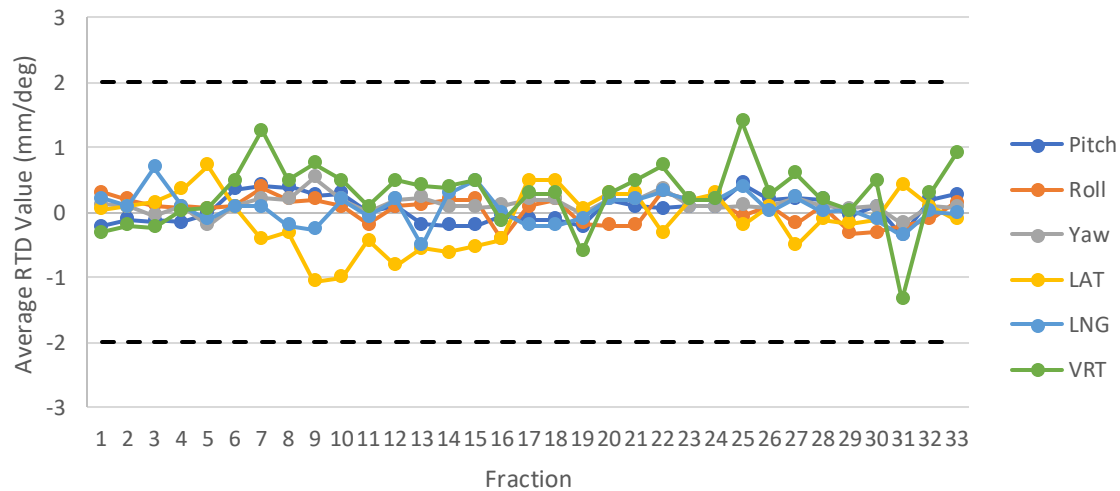
Repositioning

- 4% of fractions required repositioning due to motion exceeding thresholds.

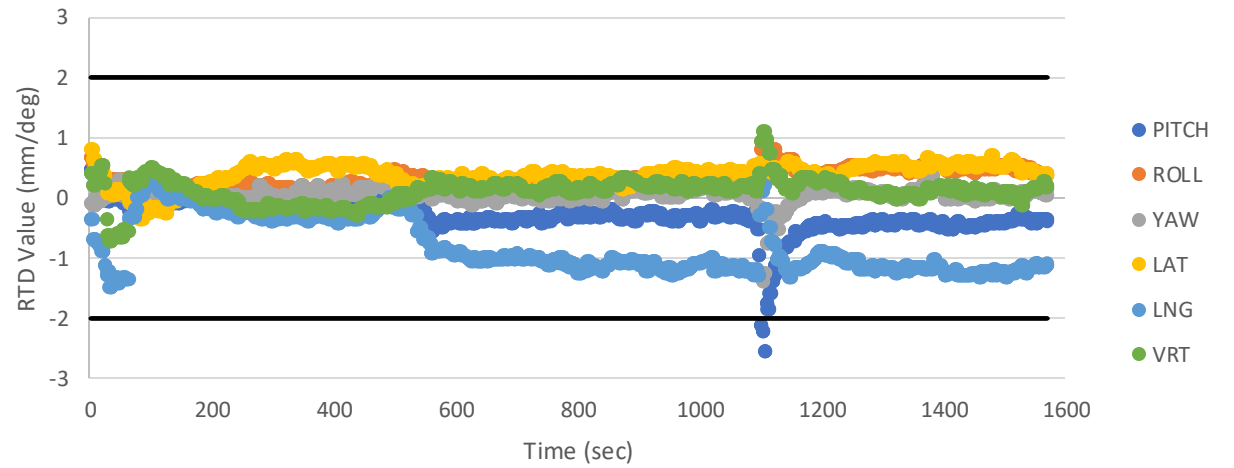
Metric	Maskless Workflow	Masked Workflow
Mean intrafraction motion	1.0mm	2.5mm
Treatment interruption	4%	2%
Threshold violations	10%	5%

SGRT Intrafraction Stability

Average SGRT Motion



Patient 2 Fraction 7: SGRT RTDs



Patient Experience

- Reduced sensation of confinement
- Reported as “much more comfortable”
- Decreased anxiety compared with prior mask-based treatments
- Strong preference for maskless approach
- 100% of patients preferred the maskless workflow

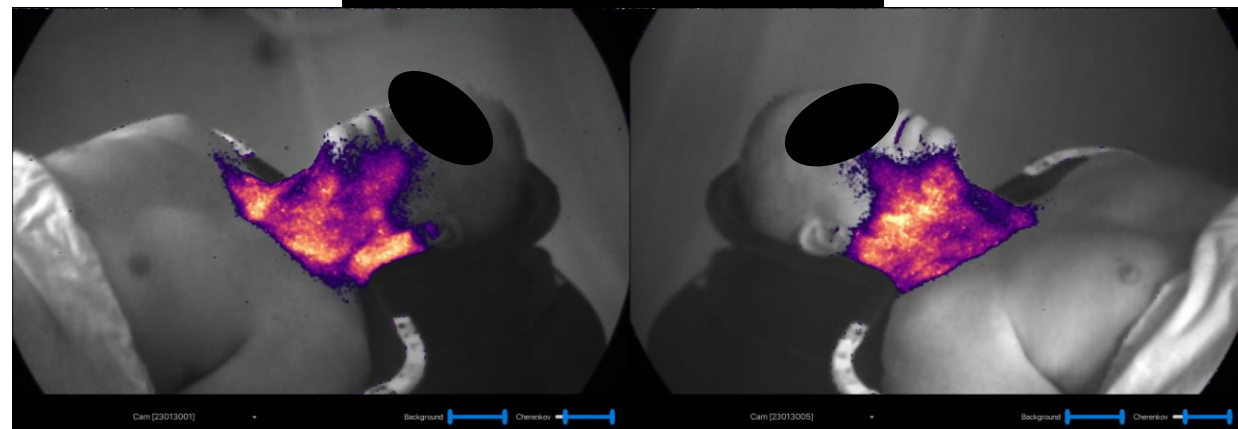
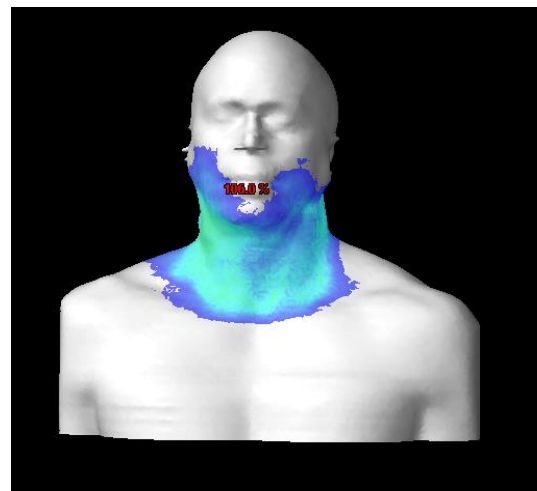


Translating Results into Practice

For Patients: Mask anxiety affects many head and neck patients and can lead to interruptions or even treatment abandonment. A maskless pathway can improve comfort and overall treatment compliance.

For RTTs: An SGRT-guided setup with a dorsal shell fits naturally into the existing workflow. The main operational shift is using real-time surface monitoring instead of rigid mechanical immobilization.:

For the Physics Team: The dorsal shell + SGRT approach requires careful configuration, ROI selection, and intrafraction monitoring. This is not a “set and forget” system—physics must own the monitoring parameters and define clear protocols for when repositioning is needed.



Conclusions & Next Steps

- Maskless H&N radiotherapy using SGRT and dorsal shell support is feasible.
- Achieves submillimeter geometric stability equivalent to conventional immobilization.
- Provides meaningful psychological and comfort benefits.
- SGRT enables safe delivery without rigid facial confinement.

Questions?

Thank you to the AdventHealth Physics team but mostly Mike Tallhamer...

