REACHING NEW HEIGHTS WITH SGRT

SURFACE GUIDED RADIATION THERAPY
SGRT COMMUNITY

# Clinical Experiences with InBore SGRT

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Inova Health

# Clinical Experience with In-Bore SGRT

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Radiation Physicist
Inova Health

# Outline

- Our Department at Inova Health
- In-Bore SGRT System
- Workflow from Sim to Treatment
- Patient Examples

# Inova Health System

- Department of Radiation Oncology
  - Schar Cancer Institute
  - Five hospital locations
  - 10 Linacs
    - CyberKnife
    - Proton
    - Brachytherapy
  - AlignRT systems
    - 8 C-arm
    - 2 in-bore


1. Loudoun Hospital
2. Ashburn HealthPlex
3. Reston/Herndon
4. Fair Oaks Hospital
5. Fairfax Hospital
6. Fairfax City
7. Alexandria Hospital
8. Oakville at Potomac Yard
9. Mount Vernon Hospital
10. Springfield Hospital
11. Lorton HealthPlex

# Ethos

- Fairfax Medical Campus
- December 2024
- Treatment sites
  - Abdomen
  - Pelvis
  - CNS
  - Extremities
- Pending sites
  - H&N
  - Lung
- >40 patients/day


# In-Bore SGRT System

- Two sets of cameras
  - Ceiling-mounted
  - In-bore

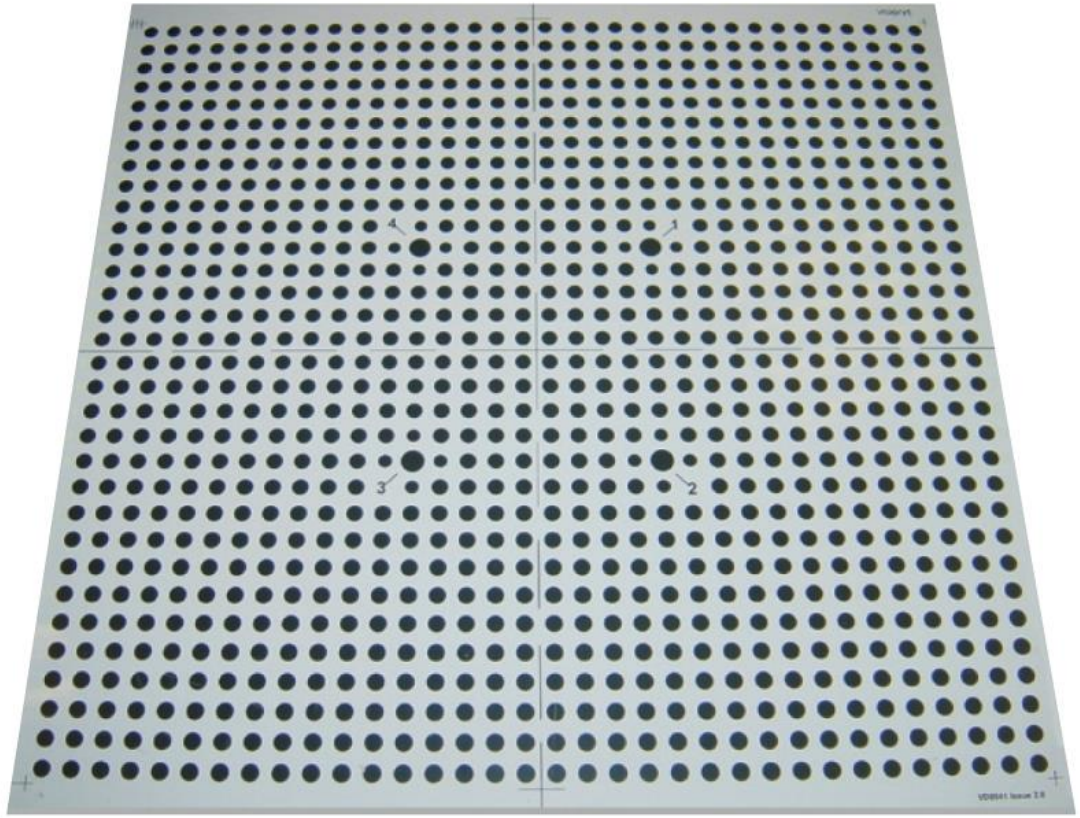
# External Cameras

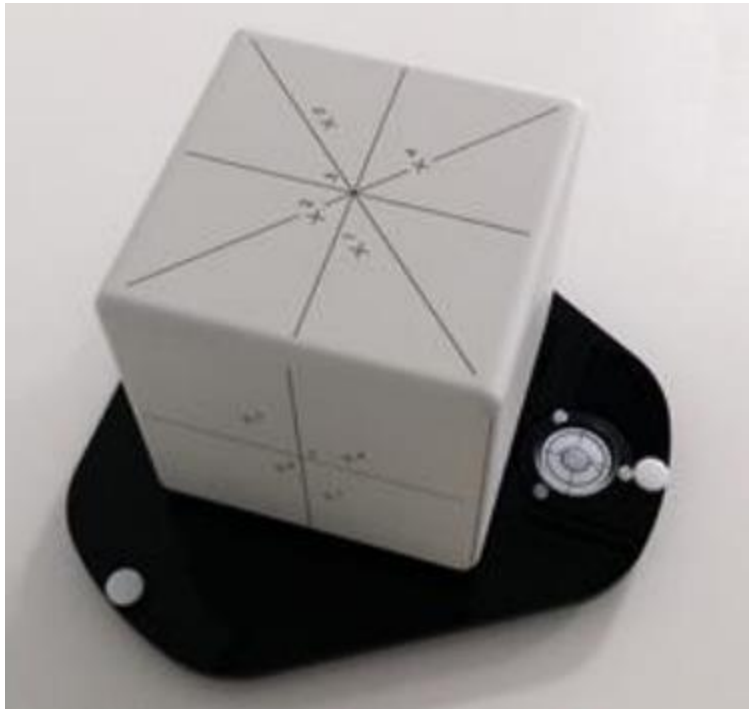
- Ceiling-mounted pods
- Three cameras
- Initial patient setup

# In-Bore Cameras

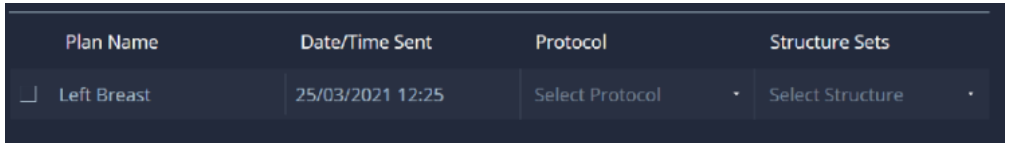

- In-bore ring
- Two cameras
- Monitoring during treatment

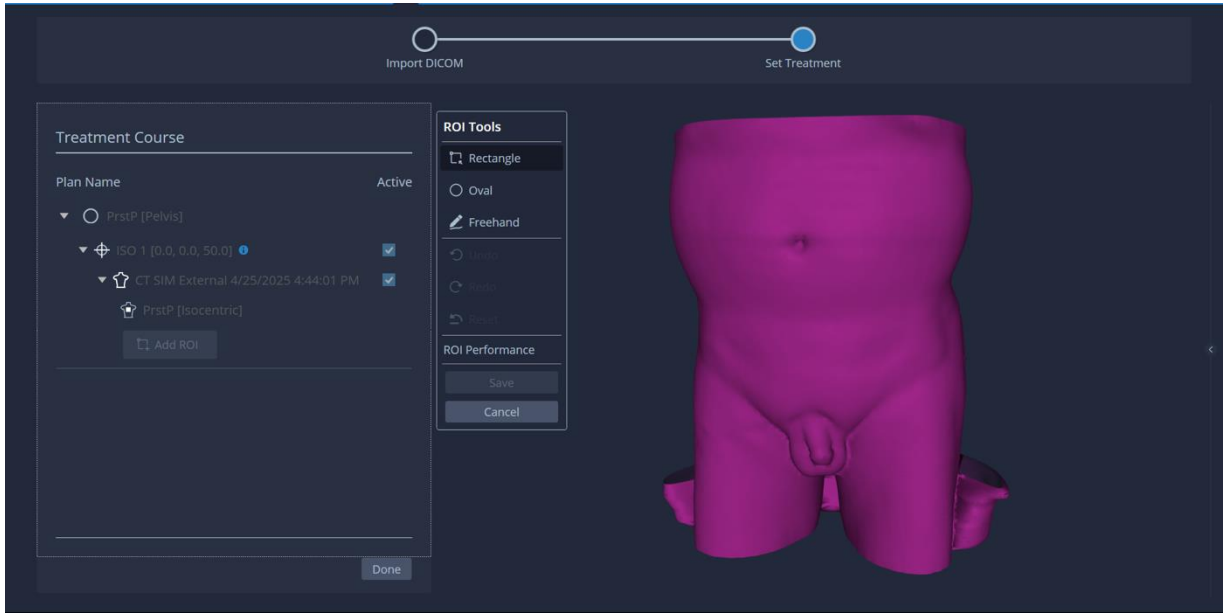
# QA Devices



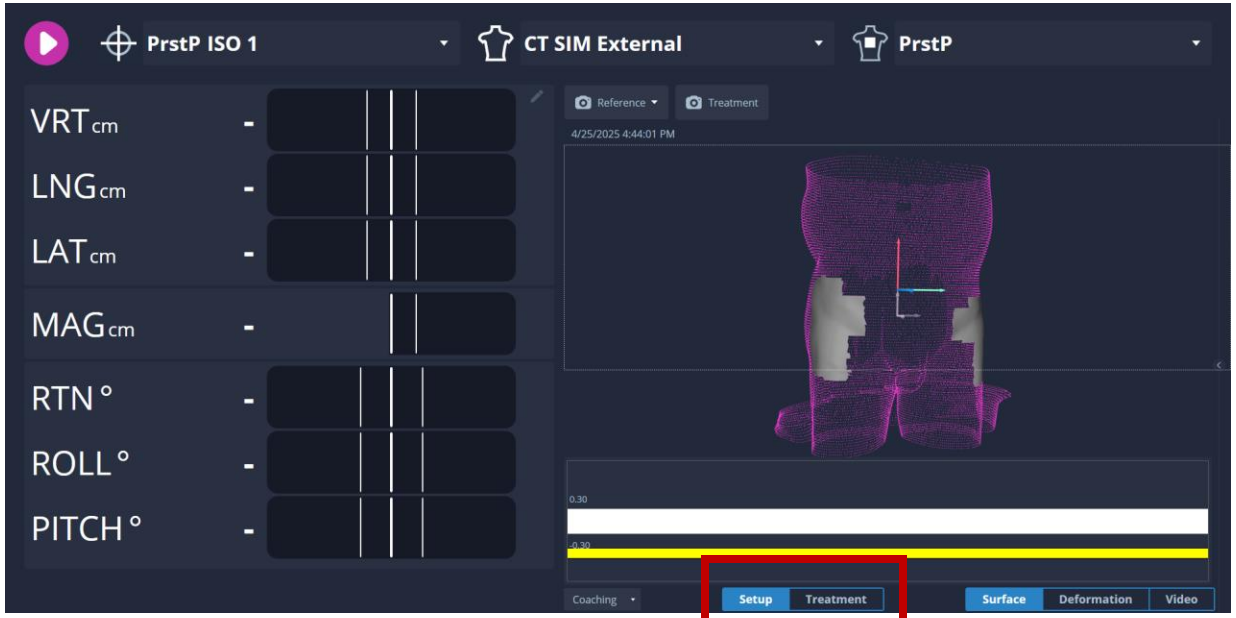


# Software Interface



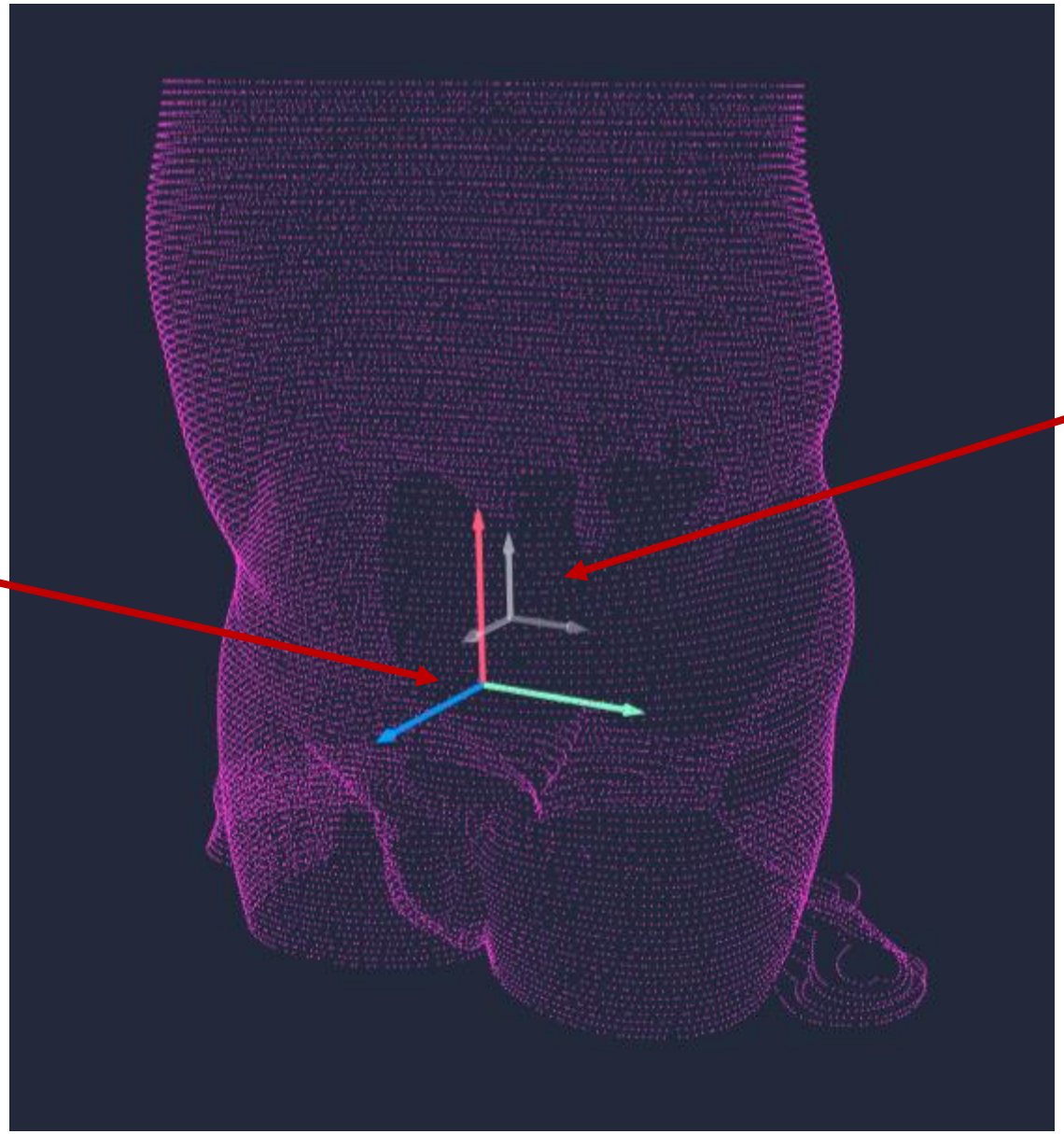




Preparation




Treatment

# Two Isocenters



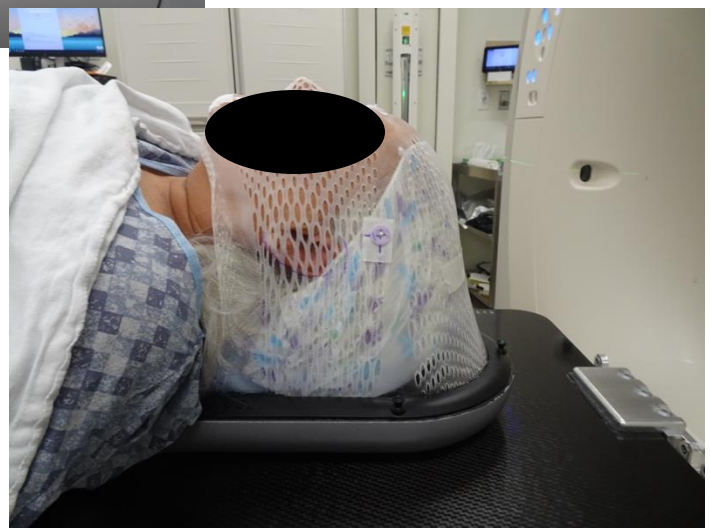
# Initial Questions…

- What's going to be different with the in-bore SGRT system?
- How will we set up the patient?
- What adjustments do we need to make with our workflow?

# General Workflow

| | | |
|---|---|---|
| 1 | CT simulation | - Standardized setup and immobilization devices<br>- Mark/tattoo |
| 2 | Treatment planning | - Multiple TPS systems: RayStation, Eclipse, Ethos… |
| 3 | Import to SGRT system | - CT contours/surfaces<br>- ROI selection |
| 4 | Treatment Delivery | - Set up with the sim devices<br>- Align marks/tattoos to laser<br>- Make minor adjustments |

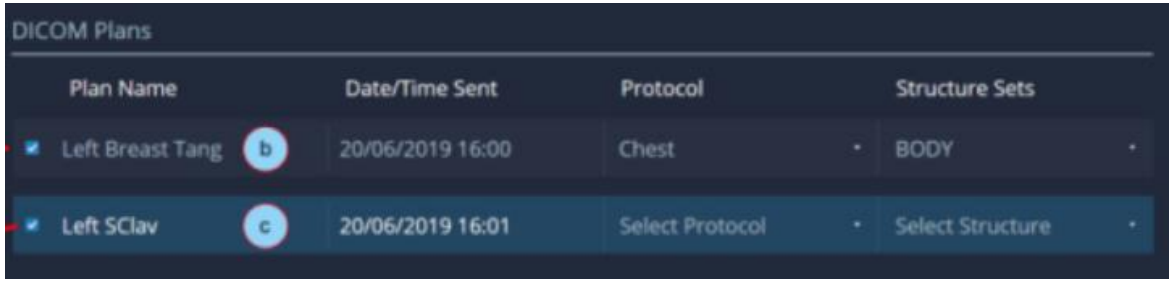
# CT Simulation & Treatment Planning

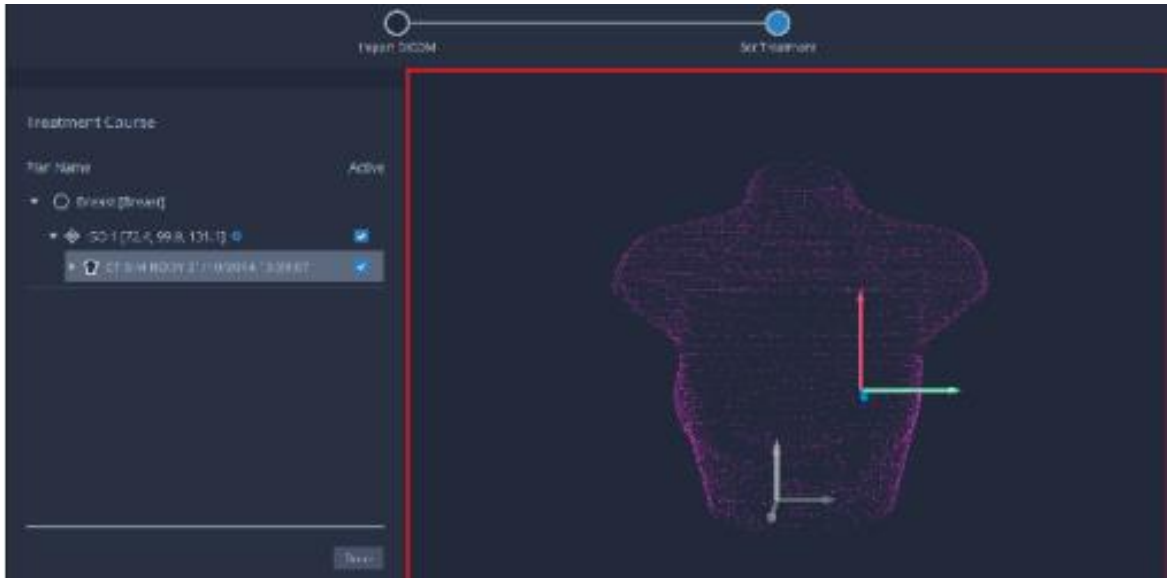


- Therapists place marks/tattoos and bb's.
- Dosimetrists set the localization point.
  - Setup isocenter and treatment isocenter
- Plans are exported from TPS to the SGRT system.
- Check that DICOM info is not lost between transfer.

# Plan Import in SGRT System

- Import patient DICOM
- Select the SGRT protocol and surfaces
- Delineate the ROI

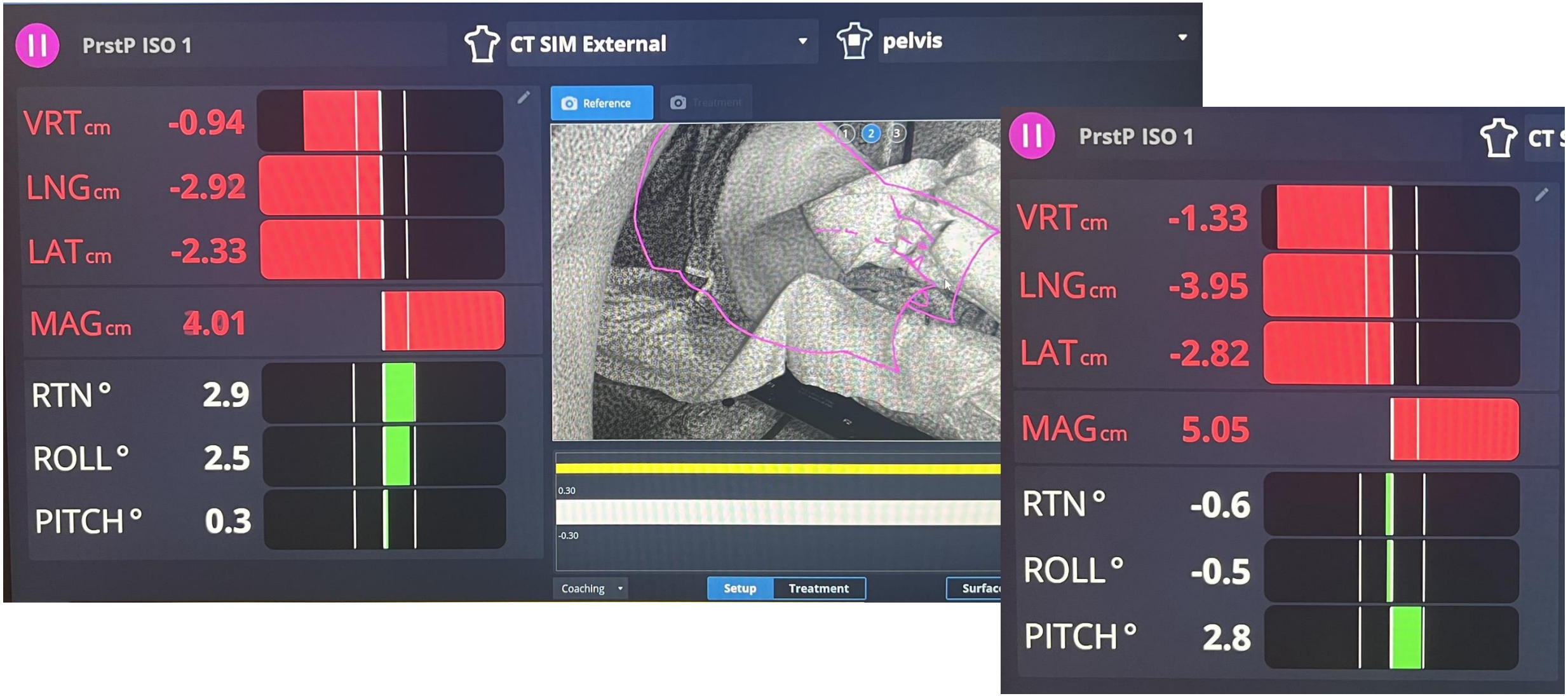


# Treatment Workflow

- Set patient up to the external laser
- Adjust the pitch/roll/rotation using SGRT
- Adjust the lateral/longitudinal/vertical using SGRT
- Move patient to the treatment position
- Change the SGRT from “Setup” to “Treatment”
- Acquire CBCT
- Take a new reference for the treatment session

# Patient Examples: Prostate



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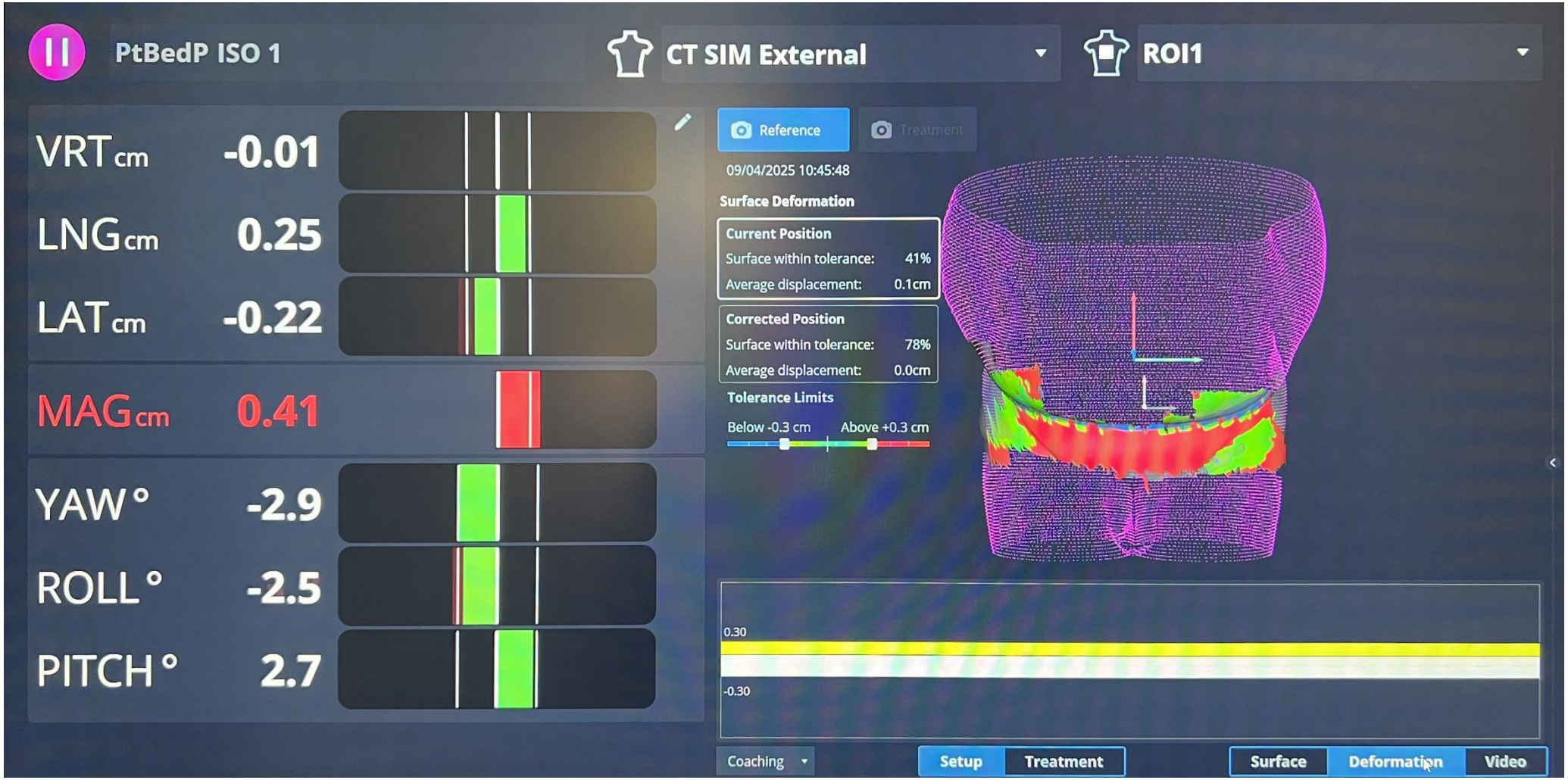

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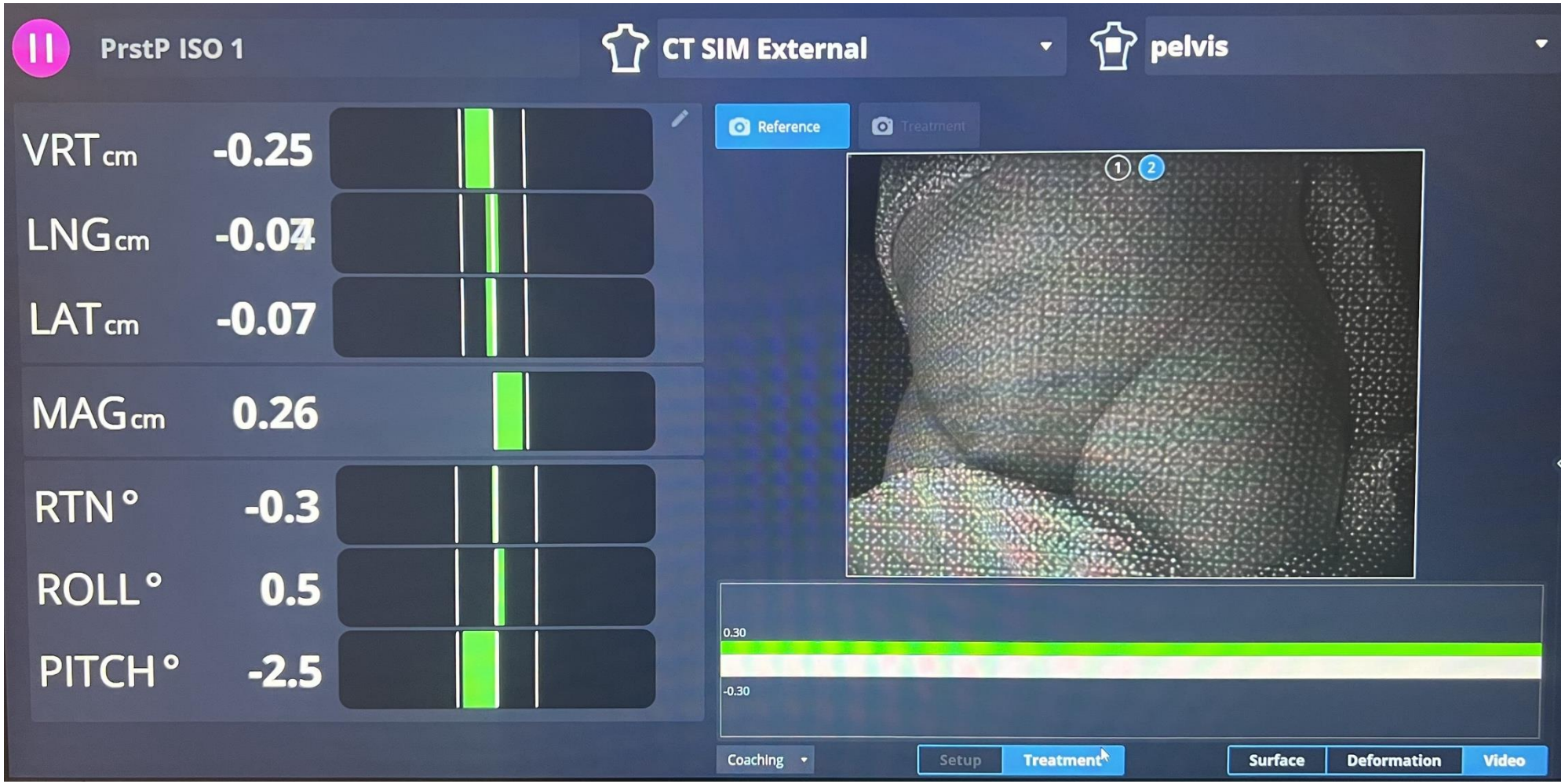
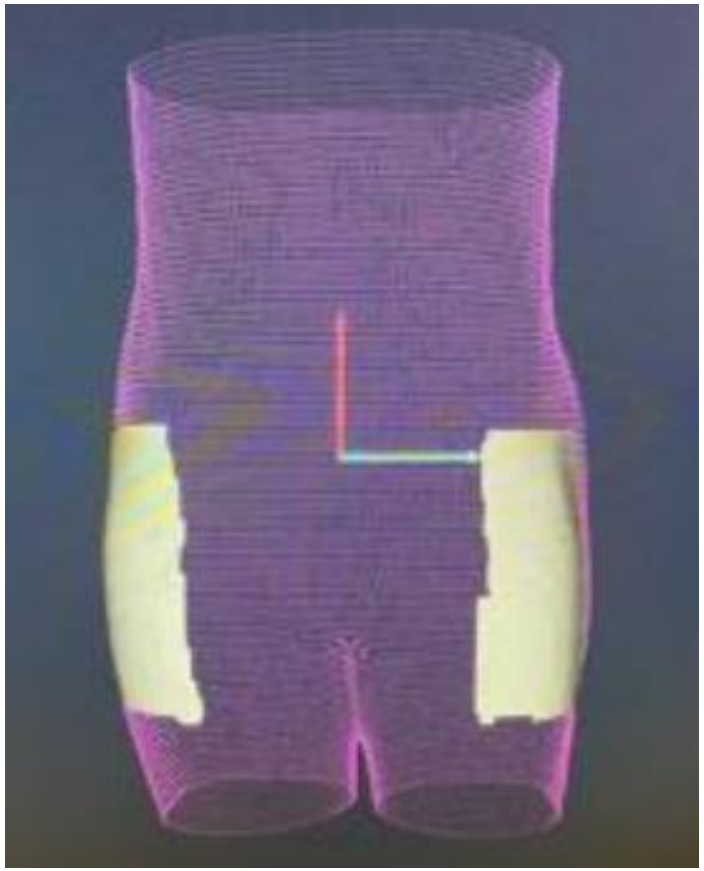
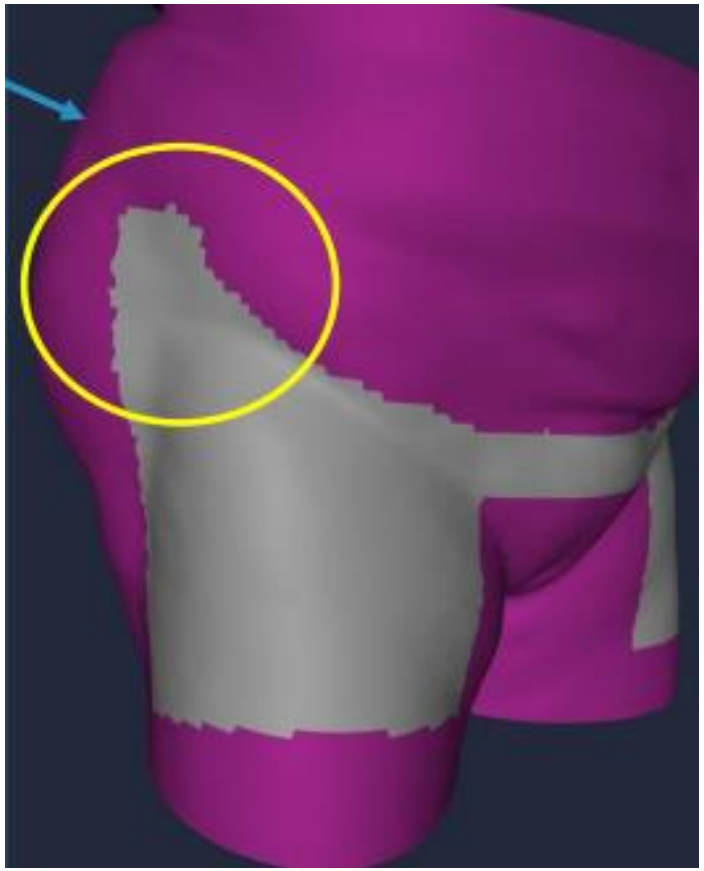


# Patient Examples: Prostate

# ROI Selection





# Summary

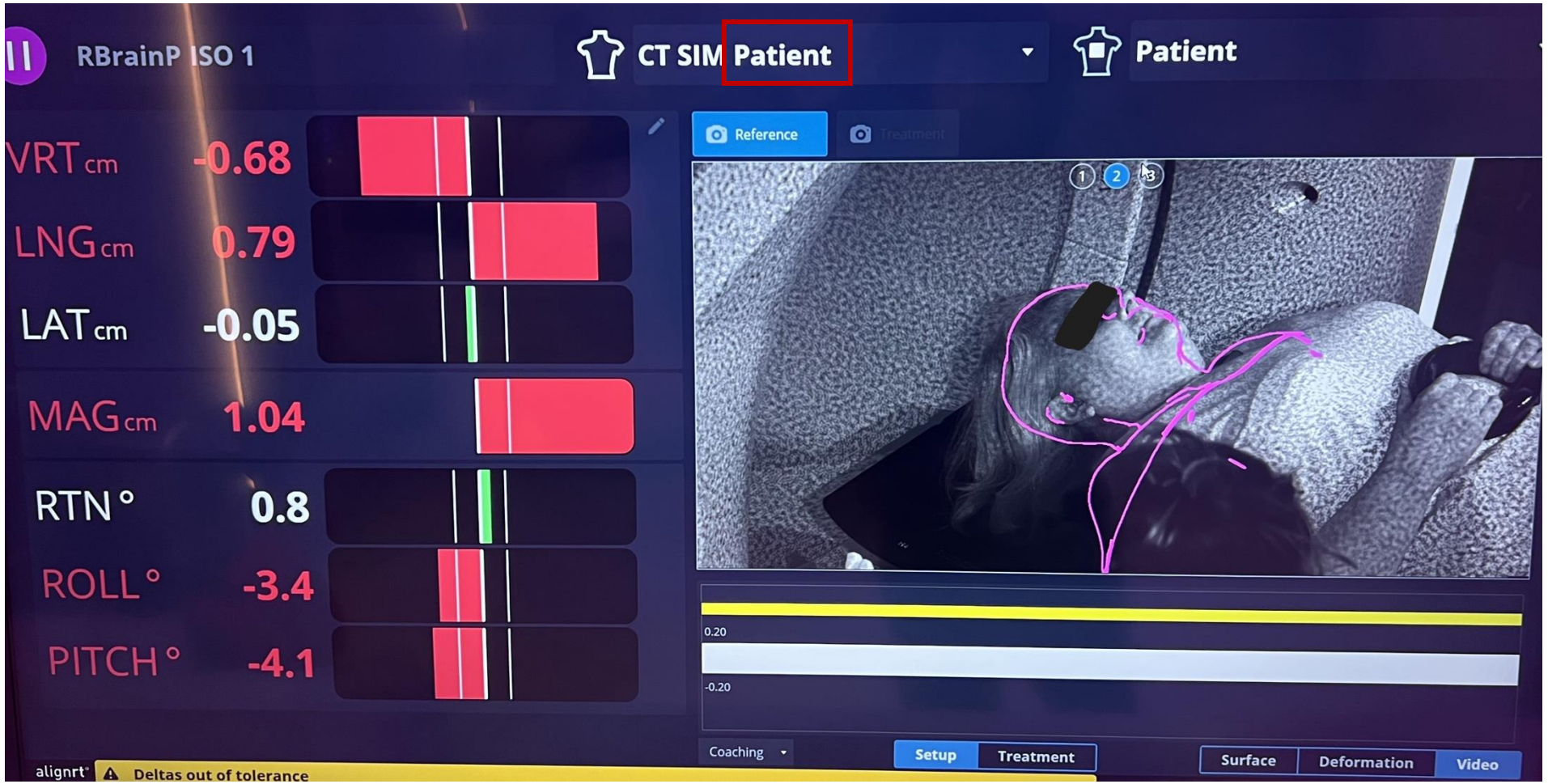
- **SGRT helps with pitch, roll and rotation.**
  - Ethos couch has only 3 degrees of freedom.
  - Re-imaging is significantly reduced.
  - Less manual adjustment after patient is in bore.

- **ROI plays an important role.**
  - Therapists has a preferred ROI type.

- **SGRT reduces overall setup time.**

- **SGRT allows better monitoring during treatment.**

# Patient Example: Brain



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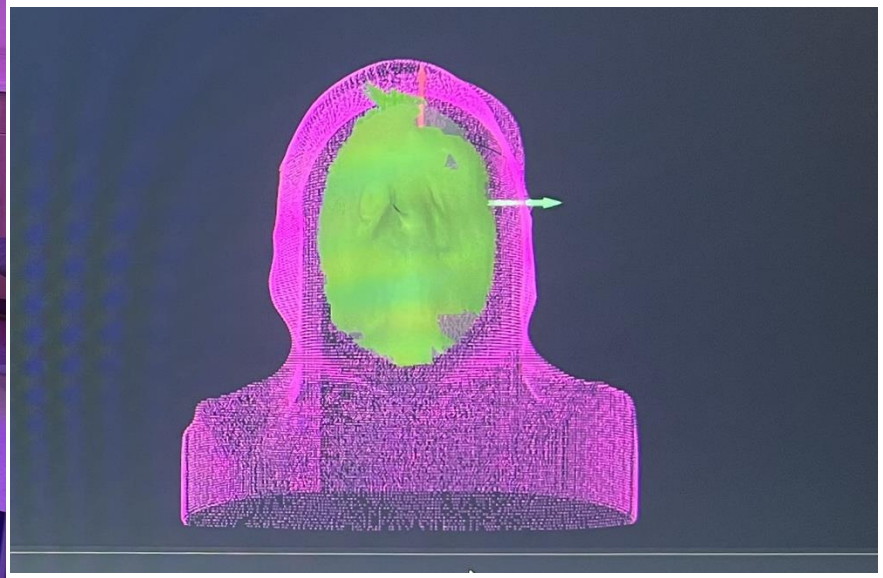

# Patient Example: Brain


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# Summary

- **The use of multiple surfaces helps with initial patient setup.**
  - Patient only surface
- **Less patient readjustment and re-imaging with SGRT**

# Overall Experience

High therapist satisfaction

Reduction in setup time

Reduction in re-imaging dose

Intrafraction motion monitoring

# Thank you

Inova™

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