



Peter Mac
Peter MacCallum Cancer Centre
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Insights from Peter MacCallum Cancer Centre's AlignRT implementation journey

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Speaker Disclosures

- I am presenting today at the request of Vision RT.
- This presentation has been reviewed by Vision RT for factual accuracy and consistency with product labeling.
- My comments and the accompanying slides reflect my own opinions and are not necessarily those of Vision RT or my institution.
- Peter MacCallum Cancer Centre is a Centre of Excellence for Vision RT.

Peter MacCallum cancer Centre



Australia's leading cancer research, education and treatment centre

Only public health service solely dedicated to caring for people affected by cancer

Australia's largest academic radiation oncology provider

Network of 5 campuses across Victoria

>7000 new cases, **>90,000** treatments annually

Tumour stream-based units



Peter MacCallum Cancer Centre



- 16 Varian Linacs
- 13 Vision RT AlignRT Advance
 - 3 Gen 5 HD cameras
 - 10 Horizon cameras
- 1 Elekta GammaKnife
- Elekta Brachytherapy
- Varian Eclipse
- Brainlab Elements
- Elekta Leksell GammaPlan
- Elekta MOSAIQ ROIS
- 6 Phillips CT
- 1 Siemens CT
- 1 Vision RT MapRT



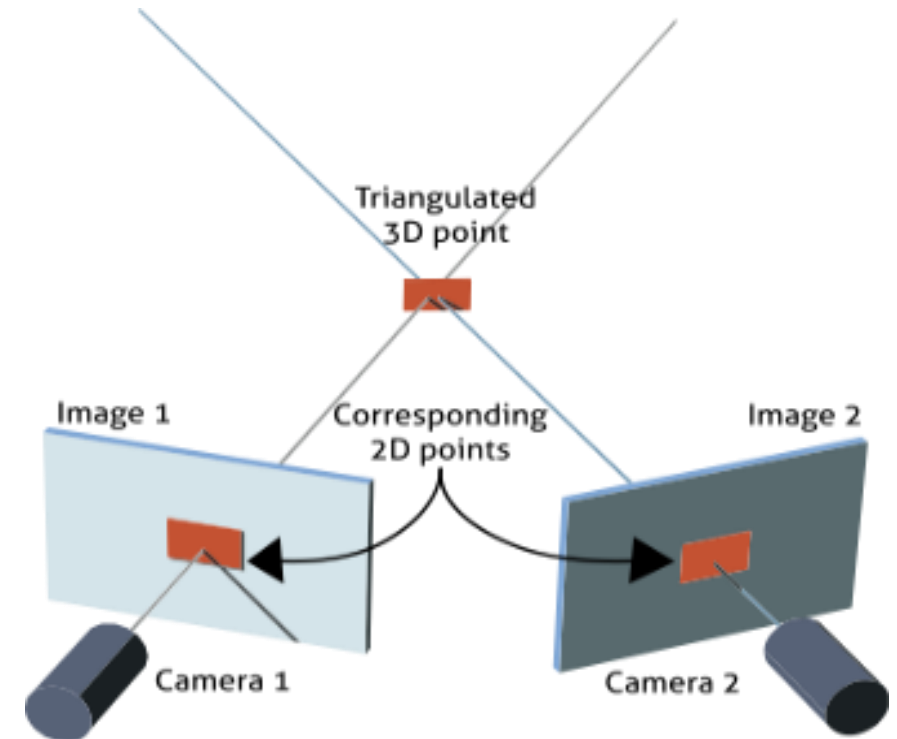
Illustration courtesy of Vision RT

Surface Guided Radiation Therapy

Non-radiographic, non-invasive imaging modality used for patient setup and monitoring

Provides real-time feedback of patient's position with respect to a reference surface (external body contour from planning CT or a surface capture acquired with the surface imaging system cameras)

Patient's surface in the room is read by an optical system and automatically registered to the reference surface to calculate the **deviation between the real-time and expected treatment positions** using six degrees of freedom (6DoF)



Adoption

Received: 22 June 2019 | Revised: 2 September 2019 | Accepted: 9 October 2019
DOI: 10.1002/acm2.12762



RADIATION ONCOLOGY PHYSICS

WILEY

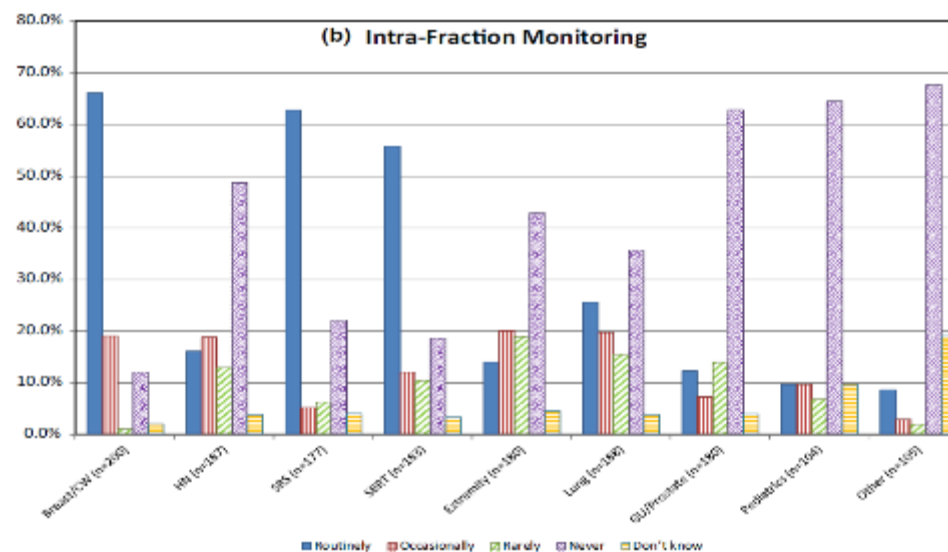
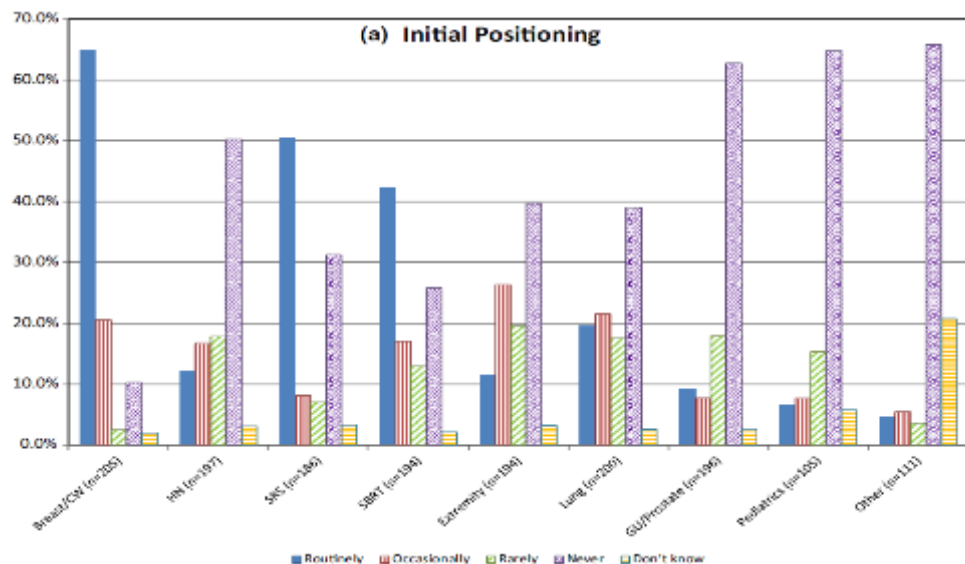
A survey of surface imaging use in radiation oncology in the United States

Laura Padilla¹ | Amanda Havnen-Smith² | Laura Cerviño³ | Hania A. Al-Hallaq⁴

Respondent characteristics and prevalence of SI (n = 439)		
	n	%
SI equipment in clinic		
Yes	234	53.3
No	205	46.7
No, but expected in 1 year	51/205	24.9
No, but expected in 3 years	49/205	23.9
No purchase plans	105/205	51.2

53.3% have SGRT mostly for treatment, rarely for CT simulation. Half of those without SGRT plan on purchasing it within 3 years.

Adoption



Initial positioning with SGRT is most common for breast/chest wall and SRS/SBRT treatments, least common for paediatrics. Use of SGRT for intra-fraction monitoring follows a similar distribution.

Why AlignRT Advance?

- Decades of innovation and evidence
- Leaders in technology for Surface Guided Radiation Therapy (SGRT)
- More than 3000 Systems worldwide
- Proven, comprehensive, 3-stage training program
 - Offsite and onsite
- Dedicated SGRT proficiency training centre
- Ongoing clinical application support
- Engineering support
- SGRT Community www.sgrt.org



Implementation Considerations



Review Article

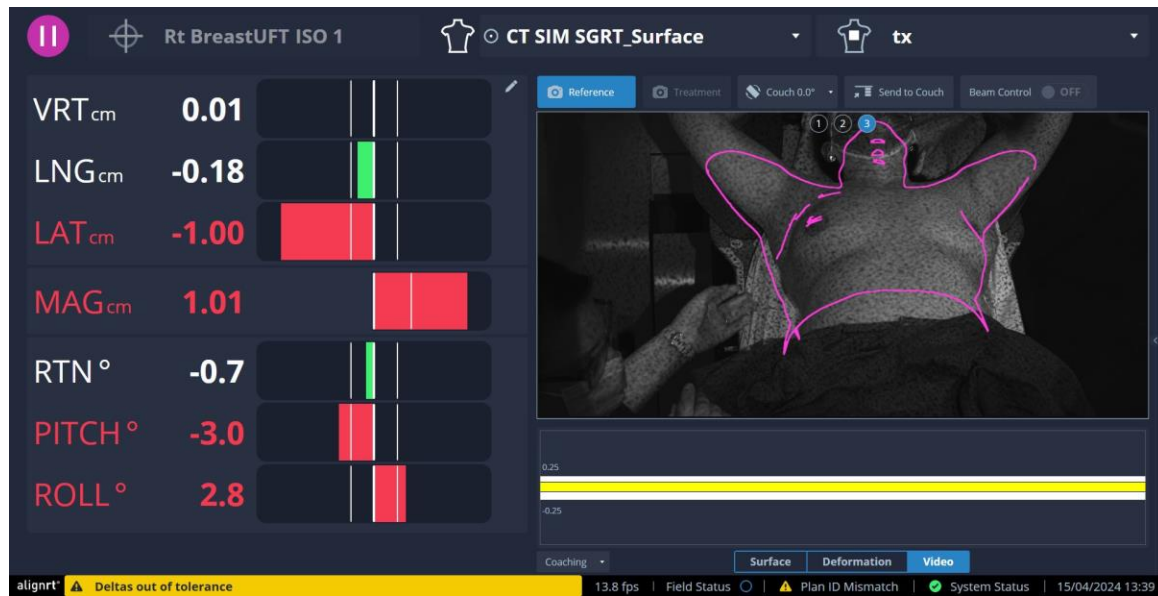
Clinical paradigms and challenges in surface guided radiation therapy:
Where do we go from here?

Vania Batista^{a,b,c,*}, Juergen Meyer^d, Malin Kügele^{e,f}, Hania Al-Hallaq^g

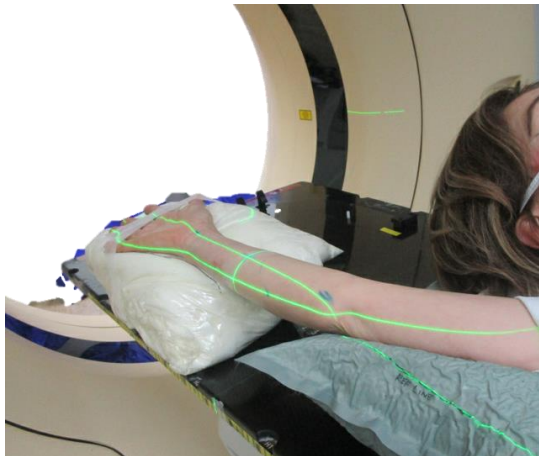
- Commission system for clinical workflows
- Focus on one clinical application at a time rather than implement it for all patients and clinical sites at once
- After the clinical team develops a consistency and fluency with SGRT for one clinical application they may apply what has been learned to another patient cohort.

“For clinics that have adopted SGRT, its utility and versatility to solve various clinical challenges is evident. But the tug between existing clinical workflows and changes to these workflows caused by SGRT is strong.”

Breast



Routine and complex



11 R ForearmUFT ISO 1 SGRT SGRT_Bolus Tx

VRT _{cm}	0.02
LNG _{cm}	0.02
LAT _{cm}	0.00
MAG _{cm}	0.03
RTN [°]	0.0
PITCH [°]	-0.2
ROLL [°]	0.6

Reference Treatment Couch 0.7" Send to Couch Beam Control ON

BEAM: ENABLED

Surface Deformation Video

03/09/2022 17:17

Match Parameters

Couch Shift [cm]

Vrt	-0.10
Lng	+0.24
Lat	-0.05

Couch Shift [°] Include

Rtn	-0.2	<input type="checkbox"/>
Pitch	0.0	<input type="checkbox"/>
Roll	0.0	<input type="checkbox"/>

Couch Representation:
Isocentric Standard

Apply

- For Session
- Permanently

11 LT F&N UFT ISO 1 SGRT SGRT_BOLUS Tx

VRT _{cm}	0.03
LNG _{cm}	-0.06
LAT _{cm}	-0.06
MAG _{cm}	0.09
RTN [°]	0.2
PITCH [°]	0.1
ROLL [°]	0.0

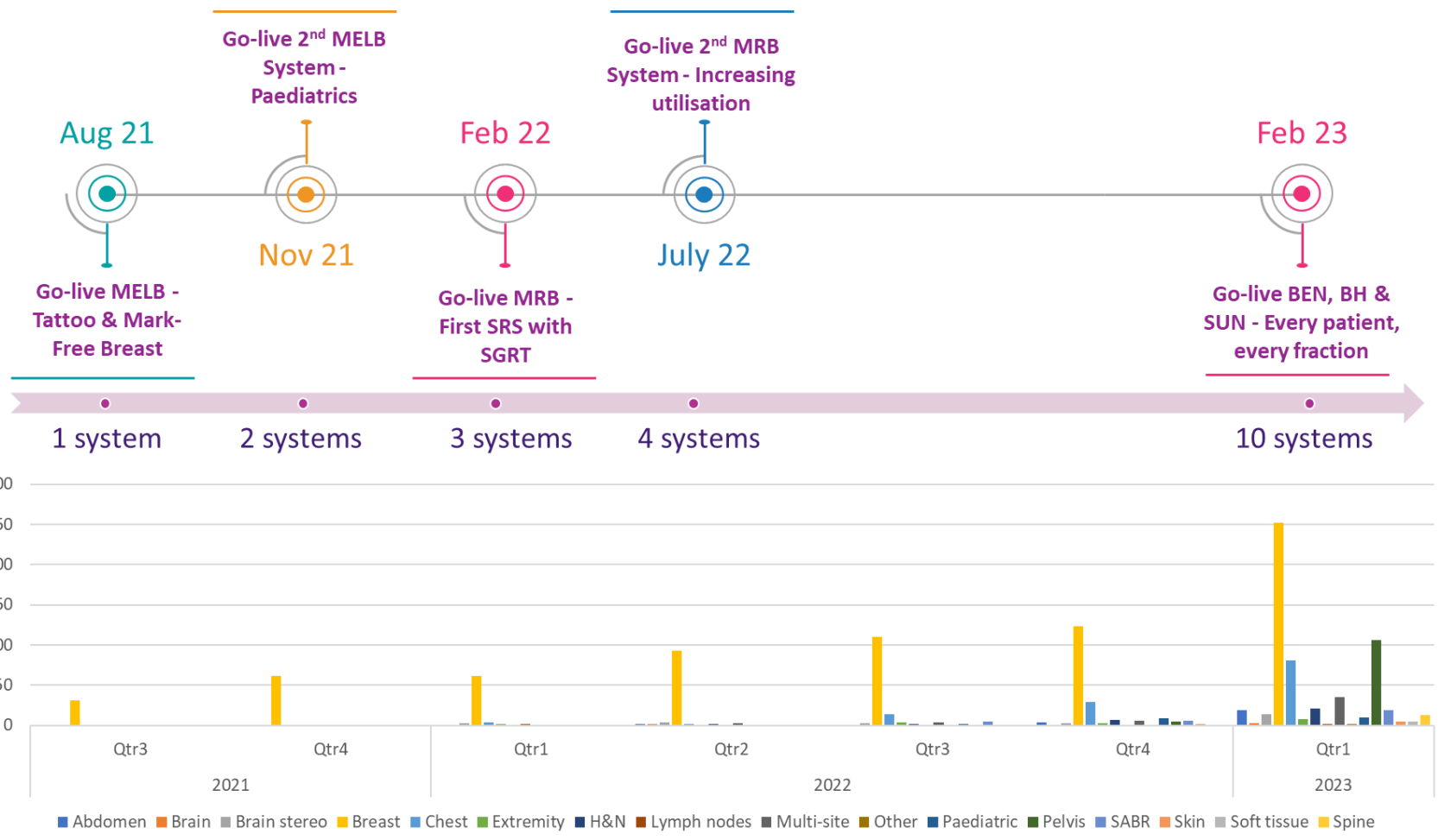
Reference Treatment Couch 0.7" Send to Couch Beam Control ON

BEAM: ENABLED

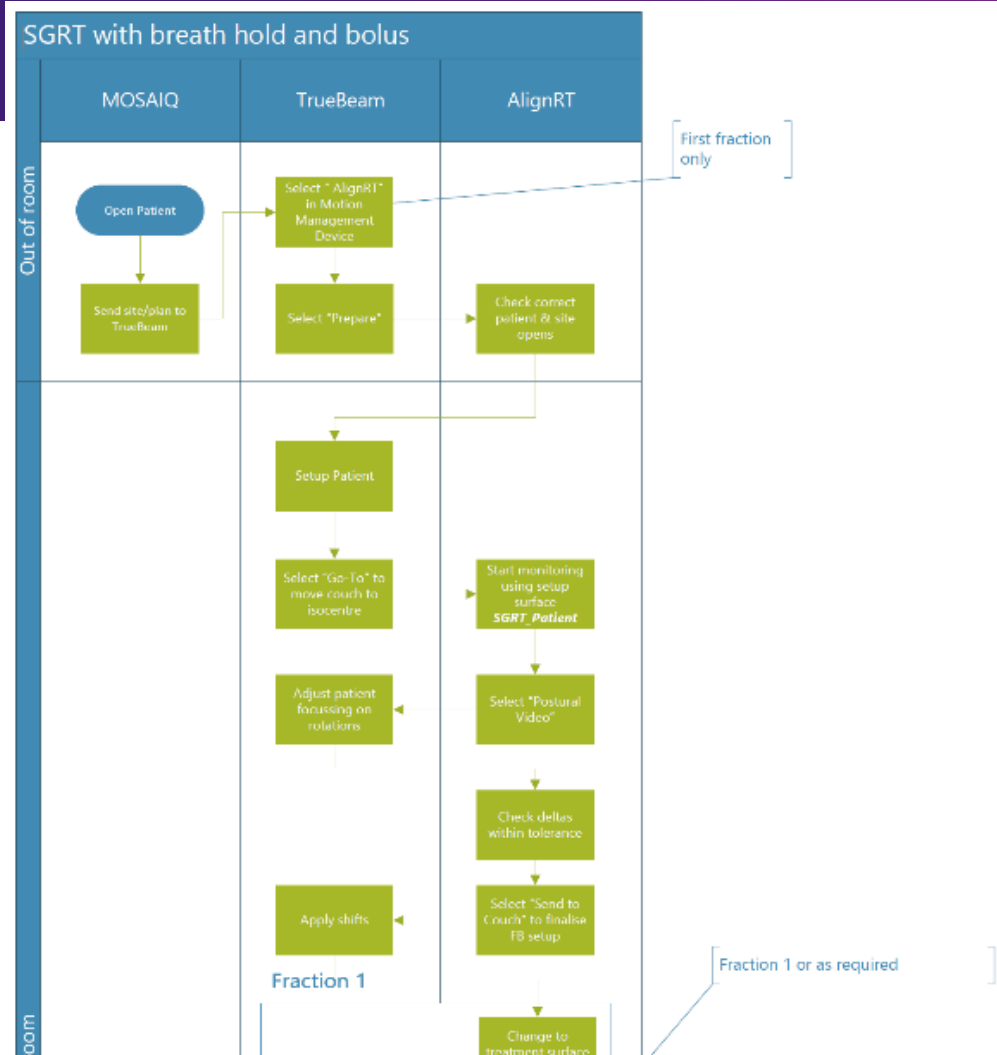
Surface Deformation Video

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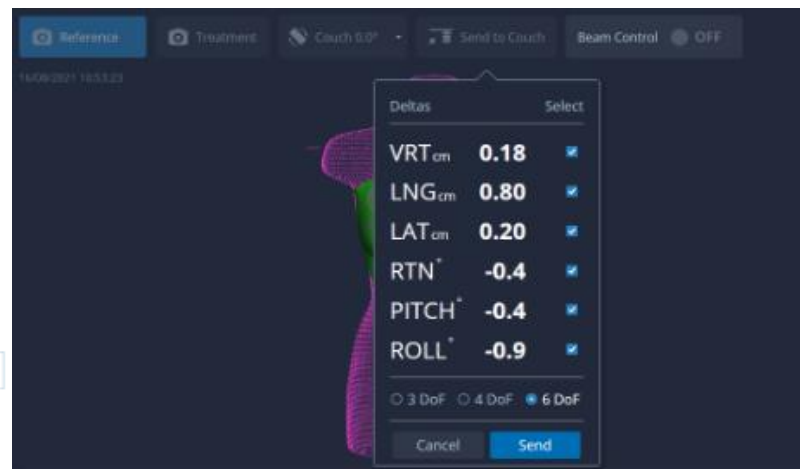
Peter Mac Timeline



Workflows



Postural Video™

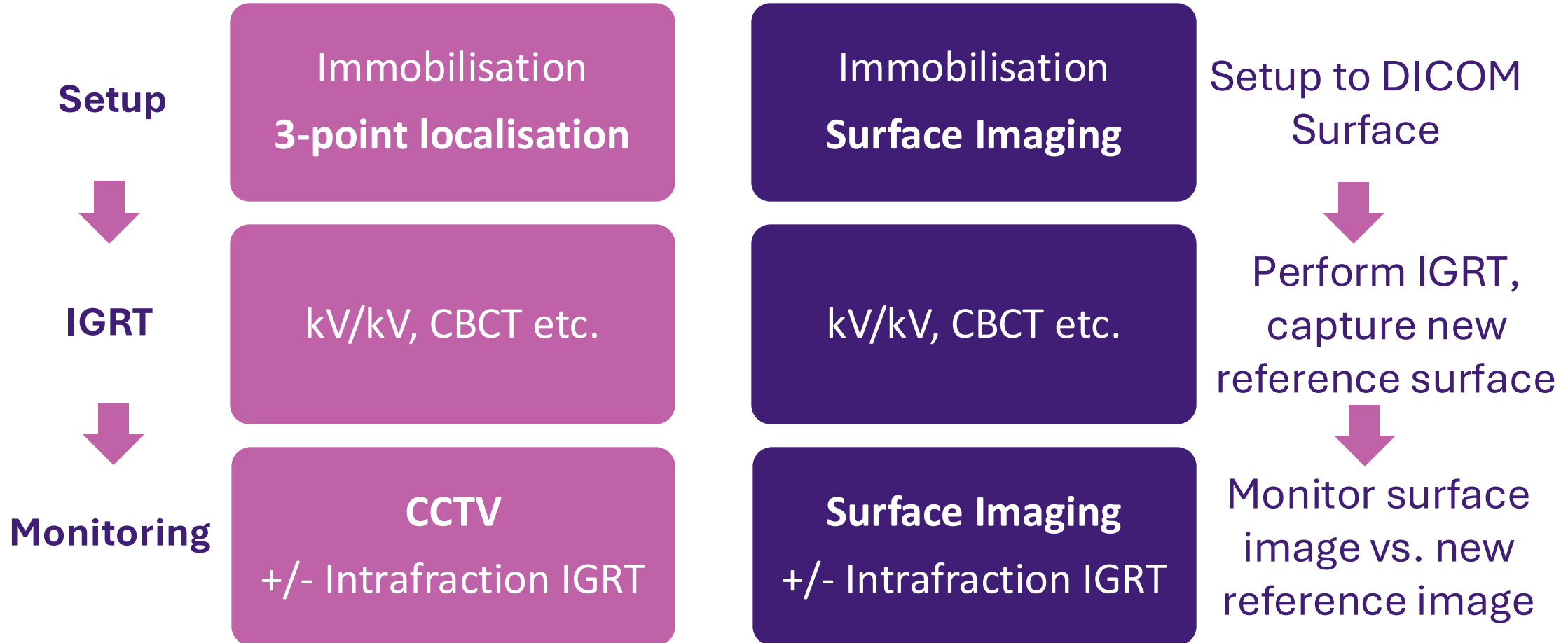


Send to Couch

Workflows

Conventional

SGRT



Radiation Therapist Acceptability

More time/support with initial training and having an opportunity to consistently see & treat AlignRT patients.

...encourage learners to observe treatment with AlignRT prior to doing the training. This would help provide context and make it easier/quicker to pick up the learning content.

Hands on training with real patients and buddied up with an experienced RT that can confidently problem solve when problems arise... using the systems constantly and not only for 1 or 2 patients...

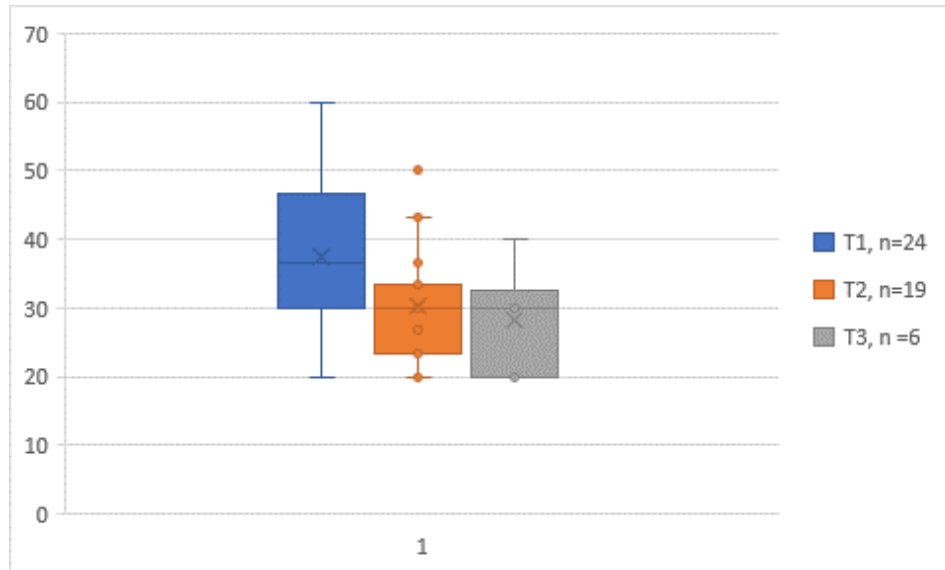
Workflow flowchart, particularly DIBH, tips and tricks.

Radiation Therapist Acceptability

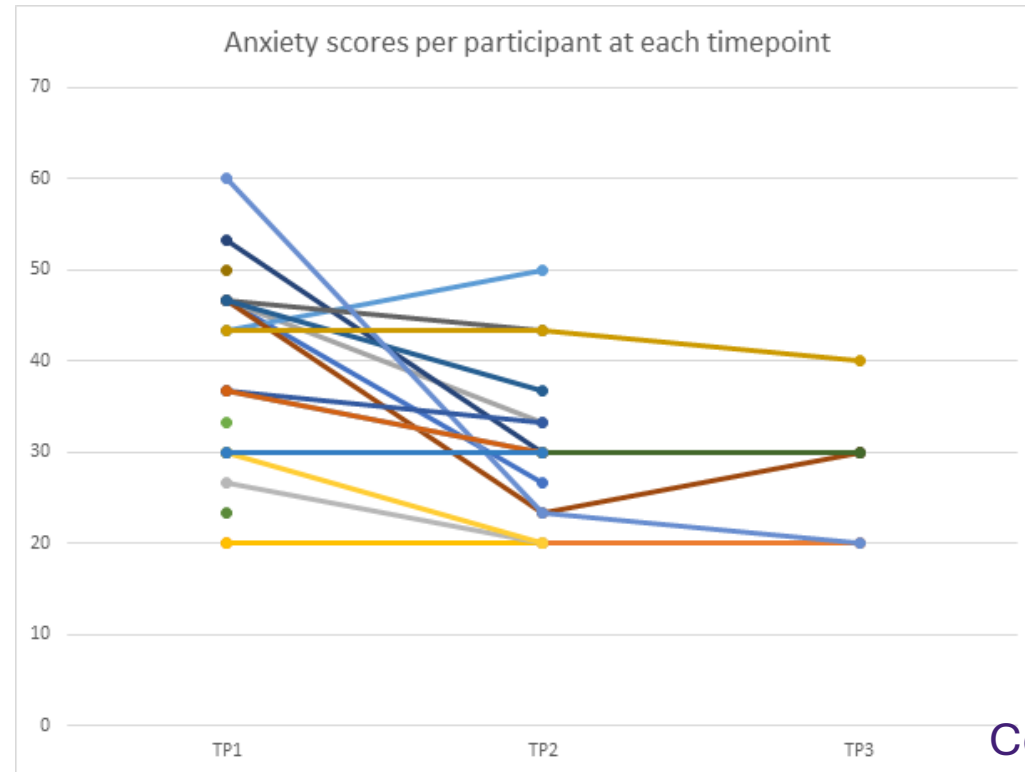
The State-Trait Anxiety Inventory (STAI) used to determine anxiety levels

No to low anxiety: 20-37
Moderate anxiety: 38-44
High anxiety: 45-80

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6945947/>

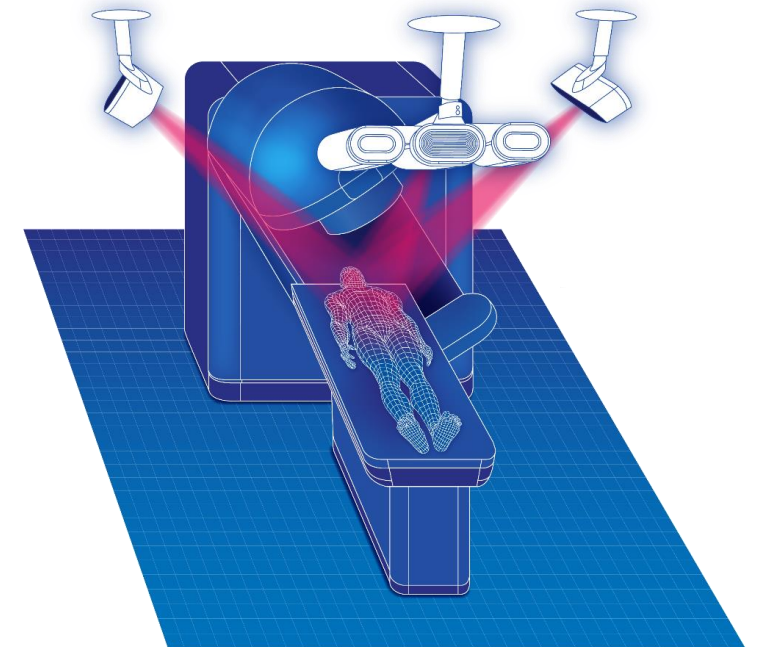


	Anxiety	Average	SD	p-value
n=24	Timepoint 1	37.4	10.8	
n= 19	Timepoint 2	30.2	8.6	0.023
n=6	Timepoint 3	28.3	7.5	0.642



Summary

<i>Result</i>	<i>Take home</i>
Embraced the technology	Making the jump helps to reduce conflict with conventional treatment
Streamlined	Removing complexity makes it easier to learn and trust
Efficient	Efficient processes (not adding time) helps to gain buy-in
Problem solving	Time to problem solve decreases with more experience
Accurate	Accurate from day 1



Thank you



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