

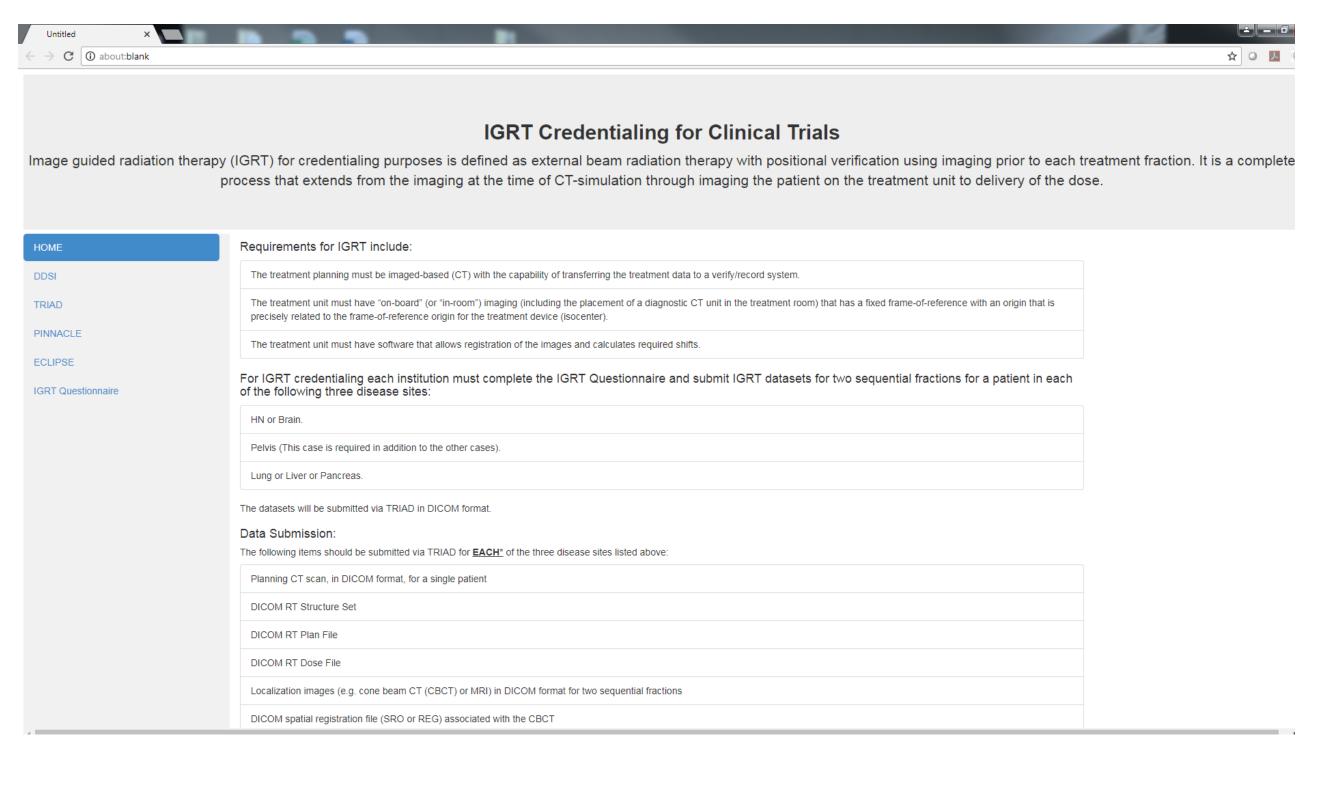
IGRT Credentialing for NCI Sponsored Clinical Trials

A Molineu, P Chi, J Lowenstein, D Followill
Imaging and Radiation Oncology Core (IROC) Houston QA Center
The University of Texas, M.D. Anderson Cancer Center, Houston, Texas



Purpose: To credential institutions participating in NCI sponsored clinical trials for IGRT.

Institutions can be approved for either boney anatomy or soft tissue anatomy IGRT. They are asked to submit IGRT datasets for two fractions from either a HN or brain case (for boney anatomy) and a lung, liver or pancreas case (for soft tissue anatomy.) All sites must also submit data for a pelvis case. The data is submitted through TRIAD in DICOM format and should include the planning CT, RT structure set, RT plan file, RT dose file, localization images used (CBCT, kVCT, etc), and the spatial registration file if available. (Figure 1) The sites also submit a questionnaire where they are asked to describe their IGRT procedures and QA. (Figure 2) Once the submission is complete, the items are reviewed in MIM Maestro®.



×		
① about:blank		☆ ○ 🄼 ©
	Pelvis (This case is required in addition to the other cases).	
	Lung or Liver or Pancreas.	
	The datasets will be submitted via TRIAD in DICOM format.	
	Data Submission:	
	The following items should be submitted via TRIAD for EACH * of the three disease sites listed above:	
	Planning CT scan, in DICOM format, for a single patient	
	DICOM RT Structure Set	
	DICOM RT Plan File	
	DICOM RT Dose File	
	Localization images (e.g. cone beam CT (CBCT) or MRI) in DICOM format for two sequential fractions	
	DICOM spatial registration file (SRO or REG) associated with the CBCT	
	Screen captures of CT and IGRT images showing shift	
	Completed DDSI once data is uploaded to TRIAD	
	Completed IGRT Questionnaire	
	*If the site is only interested in obtaining credentialing for soft tissue IGRT, the HN/Brain submission can be omitted. Likewise the Liver/Lung/Pancreas submission can be omitted if only boney anatomy credentialing is required. However, IROC strongly suggests that all images are submitted at one time to ease the credentialing process.	
	* The pelvis case is required for both boney and soft tissue approval.	
	Instructions on how to export data from the following TPS:	
	PINNACLE	
	(Pinnacle TPS, Mosaiq EMR and Varian LINAC)	
	ECLIPSE	
	(Eclipse TPS and ARIA EMR v 13.6)	

Figure 1 Website description of IGRT credentialing requirements.

IGRT Questionnaire

IIIStitu	tion Name:RTF:CTEP Number:
Addres	SS:
Physic	ist name:Physicist email:
Radiat	ion Oncologist name:Radiation Oncologist email:
Data n	nanager/CRA name: Data manager/CRA email:
Other	contact name: Other contact email:
Phone	number:
IGRT	Types Used (check all applicable):
2D:	
CBCT:	
CT:	\square MV \square kV
MRI:	
Other:	
Please	list Model and Manufacturer of each system used:
Regis	stration Method(check all applicable):
Ma₁	nual Registration
If othe	r, describe
What t	type of alignment does your site perform? Bony Soft Tissue Fiducial tumor
-	include a detailed description of your IGRT methods including registration algorithm, patientent and approval procedure

Motion Management	(check techniques	used in the clinic):
-------------------	-------------------	----------------------

Simulation:	Free Breathing	_ 4DCT	breath hold
Treatment: [Free Breathing]breath	hold

maging QA:
ach site is expected to follow the recommendations issued by the AAPM's TG-179 report.
Oo you perform daily tests either of isocenter coincidence or of phantom localization/repositioning?
□Yes □No
o you perform monthly laser alignment QA? Yes No
o you perform monthly couch shift QA?
o you perform monthly Image quality QA?
o you perform annual imaging dose QA?
f you answered no to any of the above, please explain
requency/Tolerance:
What is your IGRT frequency (daily, weekly, etc)? Please describe for all relevant disease sites.

nat is your IGRT frequency (daily, weekly, etc)? Please describe for all relevant disease site
nat is your tolerance level for patient repositioning? Please describe for all relevant disease sites.
you reimage after shifting the patient? $\square {\sf Yes} \ \square {\sf No}$ If so describe the circumstances when you

do?
In what situations do you reimage the patient during the treatment?
What is your rotational tolerance $__$ and is your treatment couch able to rotate? \square Yes \square No
Are fiducial markers used? Yes No

Figure 2 IGRT credentialing Questionnaire

Results: 221 submissions have been received, of which 24 are incomplete. 189 approvals have been issued: 122 for boney and soft tissue anatomy, 52 for soft tissue only, and 15 for boney only. 164 approvals are for c-arm type machines. The rest are for CyberKnife (14), proton (6) and TomoTherapy (5). One site did not receive approval due to lacking a comprehensive IGRT Several sites have clarified or procedure. improved their procedures based on feedback from the review. Common questions for the site include asking about bladder fill for pelvic irradiations, asking for clarification on procedures for re-imaging after applying shifts, and asking for clarification about scan-range procedures.

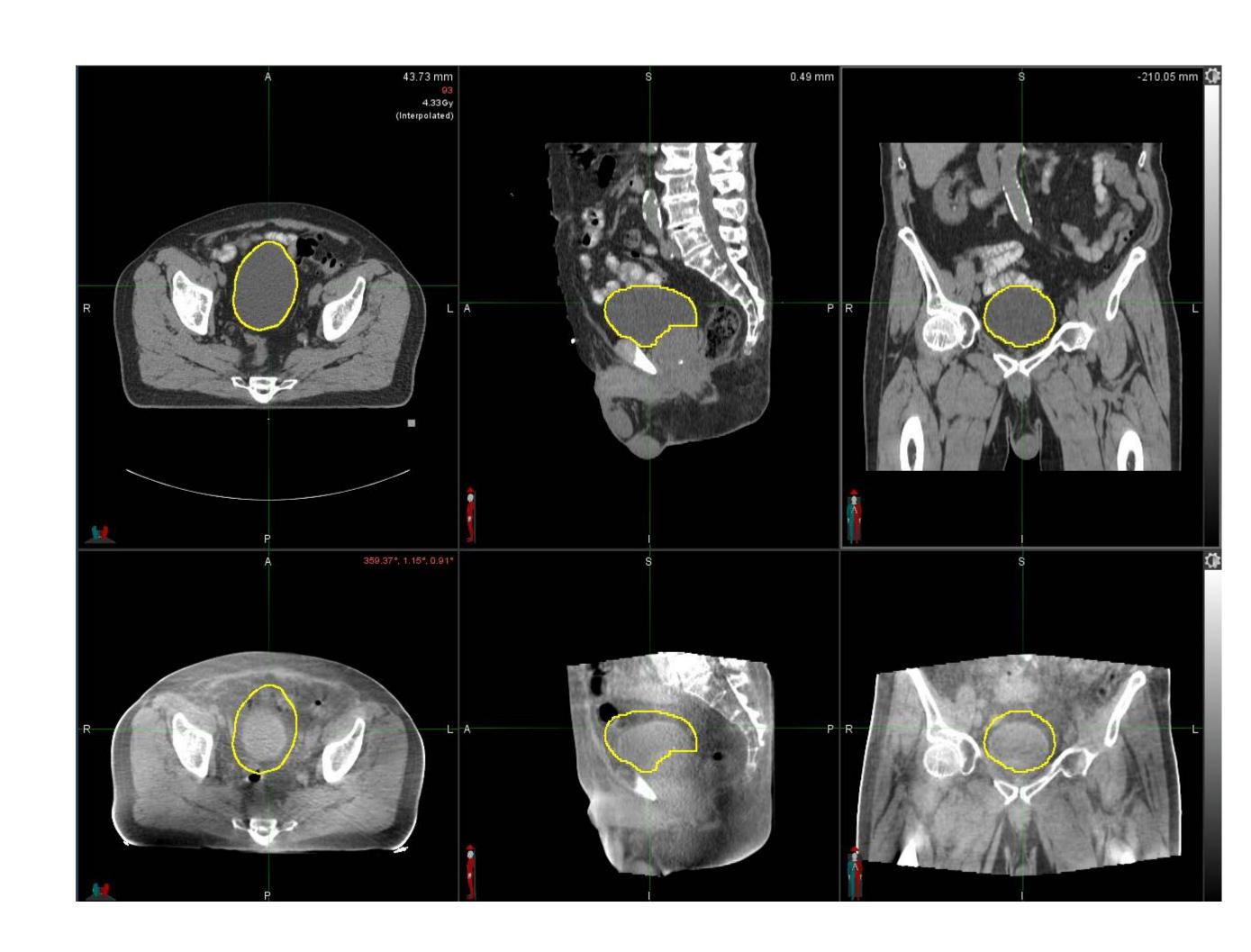


Figure 3 Example of a submission where bladder filling is markedly different between

Conclusions: IGRT credentialing ensures that institutions participating in NCI sponsored clinical trials have an IGRT QA program and can capture and register images that exhibit an appropriate field of view and quality.

Support: IROC grant CA180803 awarded by the NCI