

ATC-Compliant Treatment Planning Systems

Recent changes

- **CMS/XiO 4.3.1** DICOM coding problem (works with DICOMpiler), may be fixed in 4.3.3 (released).”
- **Protons:** XiO, Eclipse

R = RTOG Data Exchange Format

D = DICOM RT Objects

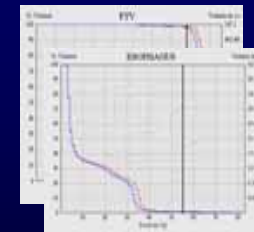
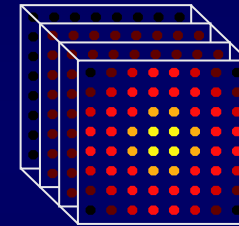
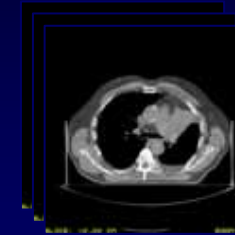
Vendor	Treatment Planning Systems		Exchange Format	Treatment Modality				
	System	Version *		3DCRT	IMRT	Seed Brachy	HDR Brachy	Protons
CMS	Focus/XiO	3.1	R	✓	✓	✓		✓
	XiO	4.3.1**	D	✓	✓			
Elekta	RenderPlan 3D		R	✓				
	PrecisePlan	2.01	D	✓	✓			
Nomos	Corvus		R		++			
Nucletron	Helax TMS		R	✓	✓			
	TheraPlan Plus		R	✓				
	PLATO RTS	2.62	D	✓				
	PLATO BPS	14.2.6	D				✓	
Philips	Pinnacle ³		R	✓	✓			
	AcqPlan	4.9	R	✓				
Rosses Medical	Strata Suite CTPlan	4.0	R			✓		
RTek	PIPER	2.1.2	R			✓		
Varian	BrachyVision	6.5 (Build 7.1.67)	D				✓	
	Eclipse	7.1	D	✓	✓			✓
	VariSeed	7.1	D			✓		

Work in Progress Toward ATC Compliant Data Export

- ATC Compliant
 - BrainScan (R) – limited distribution, not posted to ATC web site
 - Tomo/Hi-ART (D) – Version 3.0 to be released in late 2007 has DICOM export (code from “research workstation” with minor bug fixes)
- Vendor Complete
 - AccuRay/CyRIS MultiPlan (D) – waiting for clinical user data (applicable protocol?)
 - Nucletron/Spot (D) – waiting for data from clinical user (as of 2/2005)
 - Philips/Pinnacle3 (D) – setup beams w/o iso-center problem from 8.0beta, problem has been fixed in released version (according to Philips), waiting for clinical user data
 - Prowess – in testing at beta site as of 1/16/07

Data Objects for Advanced Technology Clinical Trials

- Data Objects
 - Volumetric, digital images
 - Contours (TV, OAR)
 - 3-D dose distributions
 - Treatment plans
 - DVHs
 - Treatment verification images
- Challenges
 - Diverse treatment planning systems
 - Proprietary data formats



Typical Data Set per Patient ~ 100 MB

SRS/SRT/SBRT Issues

- Treatment Planning and Delivery Systems
 - AccuRay
 - BrainLab
 - GammaKnife
 - Radionics
 - Synergy
 - Trilogy
- What data do we need to support QA?
 - Treatment Planning Data
 - “Localization” data?
 - Treatment Verification Data
 - Patient position verification images – variety of techniques

IHE-RO Technical Committee Meeting

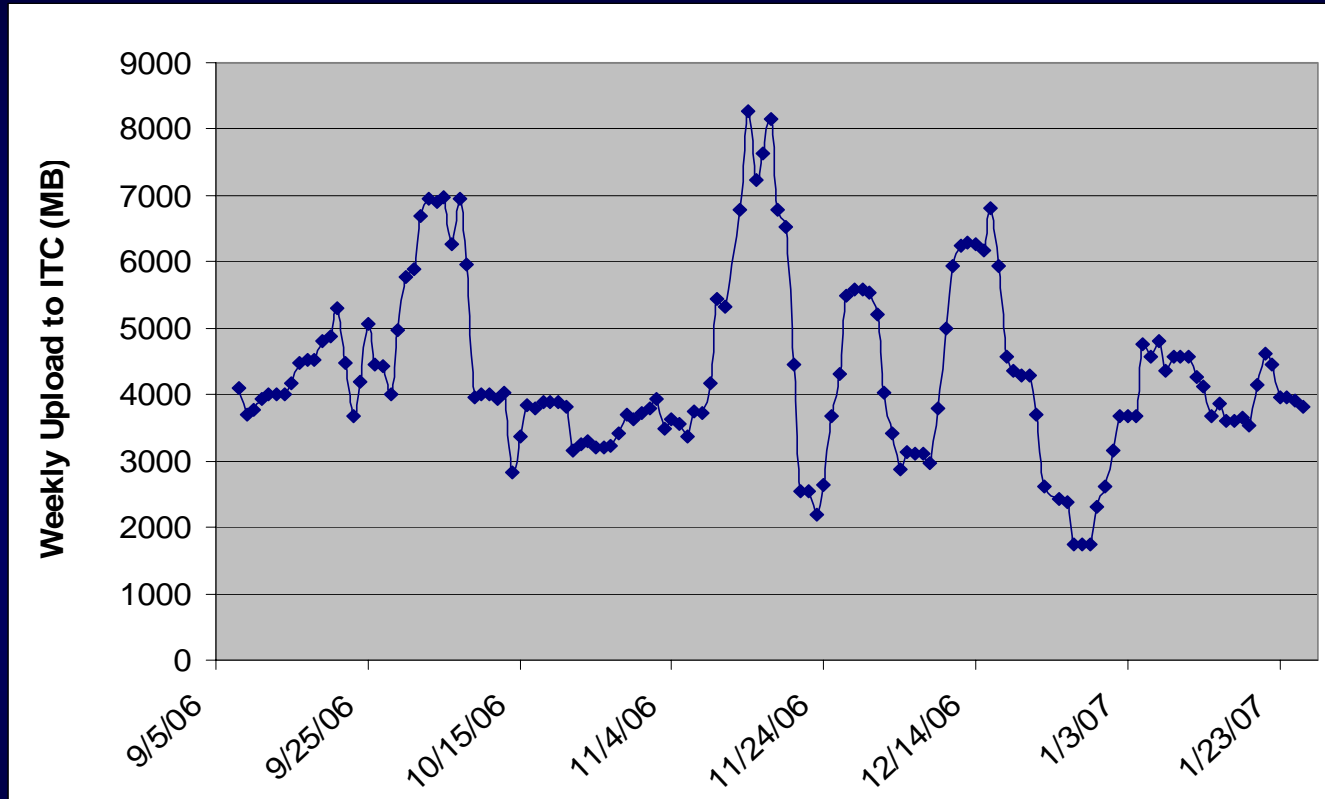
January 22-25, 2007, IMPAC, Mountain View, CA

- Review of public comment response to 2007 Technical Framework Document
- Plans for 2007 Formal Connectathon and Test Tools
- Scope of Work for 2008
 - Image registration for segmentation and plan review
 - Treatment delivery scheduling
- Topics for future work
 - Dose compositing
 - RT data submission for clinical trials
- Begin work on next-generation DICOM RT Objects (WG-7)

IHE-RO Timeline

8 Feb 2007	Physician input to be solicited from ASTRO IMRT/IGRT Practicum faculty
15 Feb 2007	Teleconf. to review priorities and task assignments for 2008 profiles
13 Mar 2007	Teleconf. to review bids for test tools for 2007 Formal Connectathon
17 May 2007	Go/no-go decision regarding quality of test tools and plans for 2007 Formal Connectathon
16-20 Apr 2007	TC meeting 2008 profile development (joint meeting with DICOM WG-7)
26-27 July 2007	TC meeting at AAPM for 2008 profile development
27-31 Aug 2007	Formal Connectathon @ ASTRO HQ
1 Oct 2007	2008 Profile document released for public comment
1 Nov 2007	2008 Profile public comment period closes
1 Dec 2007	2008 Profile ready for implementation; RFP for 2008 Test Tools released
21-24 Jan 2008	Informal connectathon for 2008 profiles
25-29 Aug 2008	Formal Connectathon @ ASTRO HQ

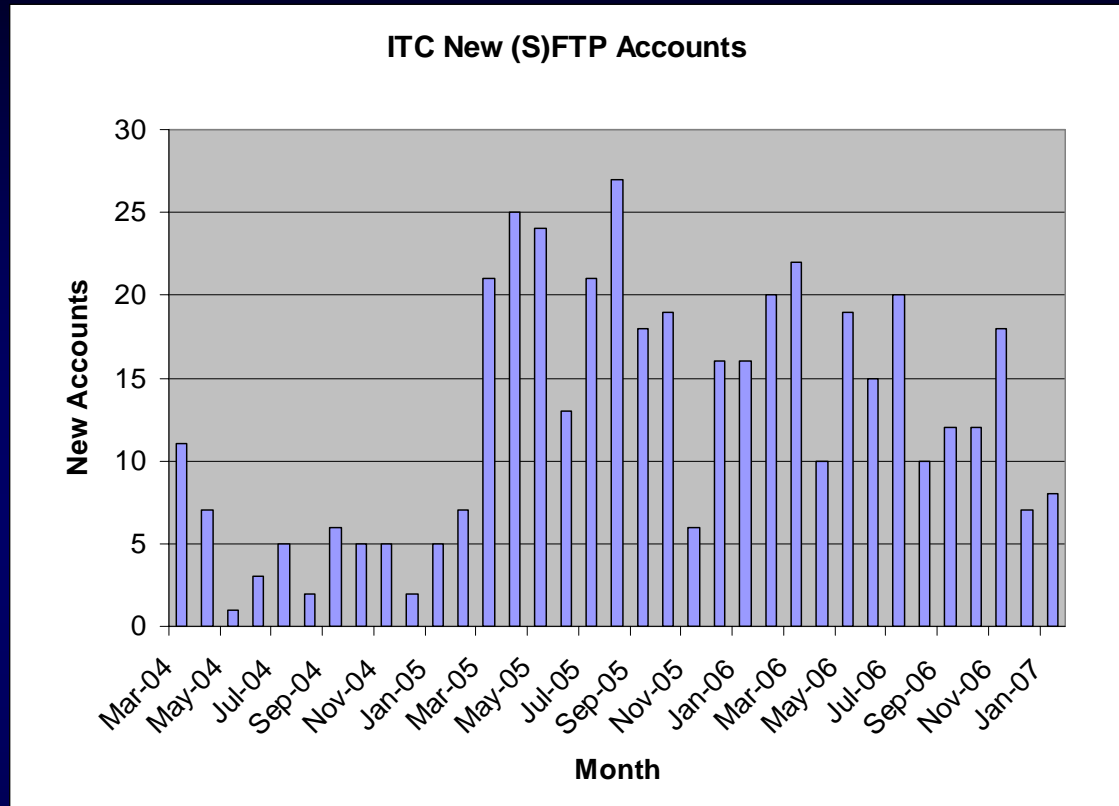
Data Submission to ITC



- Average SFTP upload rate = 4.29 Gbyte/week
- CD media < 1/week
- Tape media << 1/month

New (S)FTP Accounts at ITC

<u>Year</u>	<u>Accts</u>
2004	47
2005	202
2006	181



- Currently there are ~485 credentialed institutions, >600 SFTP accts.
- Some hospital firewalls block SFTP/SSH2 (outgoing connections on port 22)
- In virtually all cases, SFTP firewall issues are resolved quickly by phone consultation with physics or IT staff.