Update on QRRO-ATC Efforts

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RTOG Semi-Annual Meeting

January 2009

New Orleans, LA

QRRO Prostate Seed Implant Project

- Summary
  - Gather 150 post-implant prostate seed plans from 15 centers
  - For each plan
    - Re-contour target, rectum, urethra
    - Localize seeds and re-calculate dose
  - Compare contours and dose distributions of submitted data and re-contoured/re-calculated seed plans.
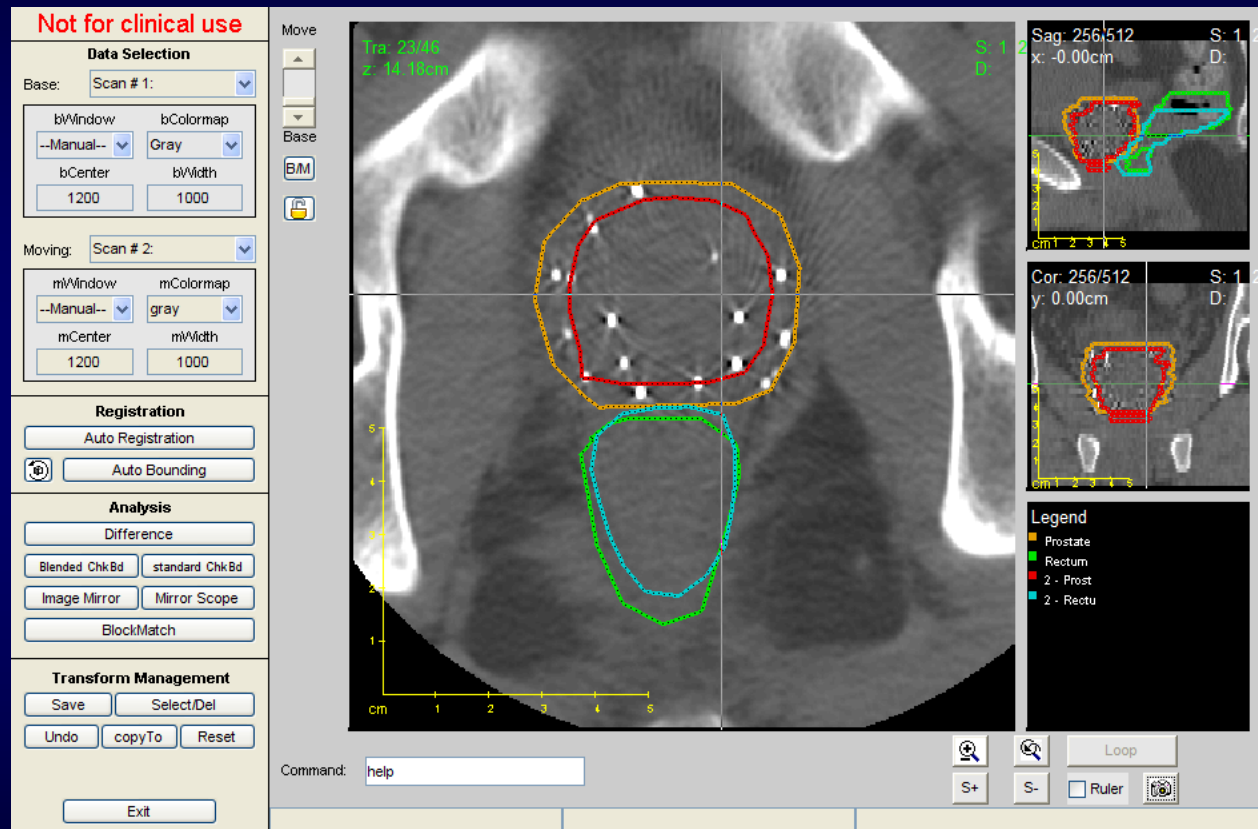
QRRO-ATC Project

- Suggested workflow:
  1. Site uploads brachy seed plan data (CTs, Structures, Doses, Plans) to ITC SFTP server (or on CD media)
  2. ITC performs DDIQA, converts dataset to CERR and DICOM.
  3. QRRO referee downloads DICOM images from ITC secure web server, draws contours, localizes seeds, re-calculates dose, uploads data to ITC.
  4. ITC imports reference plan, converts dataset to CERR and DICOM.
  5. CERR (or DICOM-based analysis tool) used to compute volumetric, dosimetric measures of concordance between submitted and reference datasets.

QRRO-ATC Project Status

- ITC has received10 survey datasets planned by M. Botnick
  - DICOM RT data (CT images, Structure Sets, Plans, Doses)
  - Seed model and activity information
- CT images from five datasets were imported and re-planned by M. Zelefsky as reference datasets and sent to ITC.
- Survey and reference data for five patients were registered and compared using CERR

ATC • AdvancedTechnologyConsortium
Providing support in quality assurance and data management for radiation therapy clinical trials

Image-Guided
Therapy
Center
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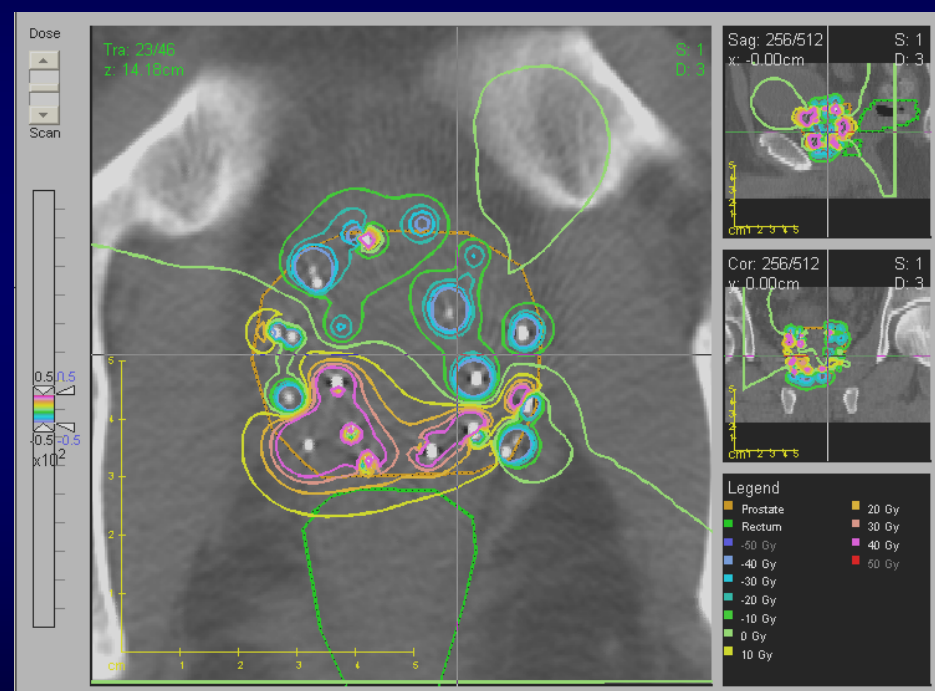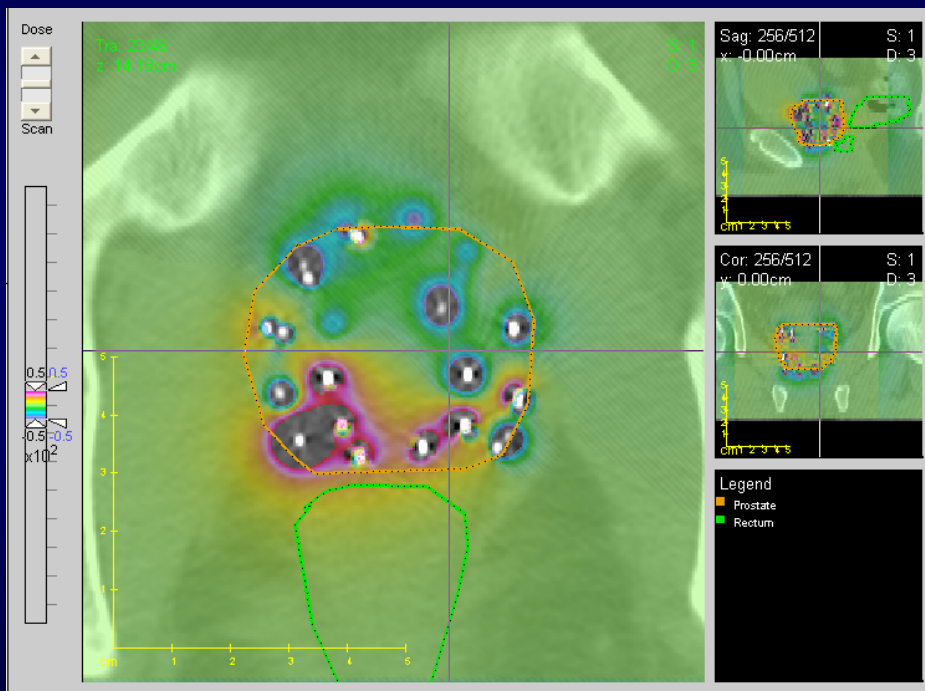# Comparison of Survey and Reference Datasets

- ## Contoured Structures
  - ### Survey and Reference Volumes
  - ### Intersection
  - ### Union

Comparison of Contoured Prostate Volumes: Survey *vs.* Reference

	Survey vol (cc)	Ref vol (cc)	Intersect. (cc)	Union (cc)	Intersect / Union
Case 1	44.9	41.4	34.0	52.2	0.652
Case 2	57.5	35.9	34.3	59.1	0.581
Case 3	25.0	20.1	16.3	28.9	0.562
Case 4	30.2	31.5	27.1	34.6	0.781
Case 5	27.1	23.1	20.9	29.3	0.714

Comparison of Survey and Reference Dose Distributions (Differences)

- Case 2: Survey Dose – Reference Dose (-50 to 50 Gy)

QRRO Prostate Brachytherapy Survey Instructions

1. Export seed plan data from TPS (images, structures, plan, dose)

2. Anonymize DICOM data files using ITC DICOMpiler

3. Upload seed plan data to ITC

   - SFTP (Secure FTP)

   - HTTPS (secure web upload)

4. Report seed plan parameters (isotope, seed model, activity, prescription)