

Advanced Technology Consortium for Clinical Trials QA Meeting

Held at the RTOG Semi-Annual Meeting in Phoenix, AZ

January 20, 2005

Attending:

ITC

James Purdy, (ATC P.I.)
Walter Bosch
Roxana Haynes
Jeff Michalski (WU)
S. Vijayakumar (UCD)

RTOG/ACR

Betty Martin
Lorraine Quarles
James Galvin (TJU)
Mike Gillin (MDACC)
Tom Caldwell
Vish Iyer
Mohan Suntha
Steve King

RPC

Geoff Ibbott
Dave Followill
Paola Alvarez

RCET

Jatinder Palta
Vince Frouhar

QARC

T.J. FitzGerald
Ken Ulin
Marcia Urie

NCI

Jim Deye

Guests

Irene Mahon (ACRIN)
Fraser Wilton (ACRIN)
Colin Field (NCIC)
Lam Pho (NCIC)
Karen Breitman (Tom Baker CC)
Ying Xiao (TJU)
Nagata Yasushi (JCOG)

MINUTES

1. Dr. Purdy welcomed the attendees and called the meeting to order at approximately 8:00 a.m. All ATC subcontractors were represented by at least one individual.
2. Dr. Deye also welcomed the attendees and reviewed current initiative at NCI pertinent to ATC, including the "MR Workshop on Translational Research in Cancer - Tumor Response" held at the Hyatt Regency Hotel in Bethesda, MD, on November 22-23, 2004, and the Sixth National Forum on Biomedical Imaging in Oncology to be held at the Hyatt Regency Hotel in Bethesda, MD, on April 7-8, 2005. He also informed the group that the revised NCI IMRT guidelines letter had been sent to all cooperative group chairs. A copy was given to all ATC participants present.
3. Dr. Purdy complimented the group on the team efforts that were being made on achieving the ATC's stated goals. He stated that more progress had been made on more fronts in the last 6 months than in any other similar time period. Specifically, his report consisted of the following:

- a. The minutes from Jan 5, 2004 ATC Teleconference were approved.
- b. Carryover budget request with justification are to be submitted to Dr. Purdy within the next few weeks.
- c. The response to Dr. Art Olch (ATC Steering Committee) was finalized and will be sent to Dr. Deye.
- d. Dr. Purdy briefly reviewed updates regarding the ATC Website, and in particular pointed out that the ATC Priority List has been updated. (See **ATC Website**). Note that this list as well as the Tools Status Report is posted on the ATC Website under the NCI Steering Committee Resources link and that timelines are included for many of the items. He proceeded to review this priority list and asked all for their input. He emphasized that these lists including the timelines are to be updated quarterly.
- e. Dr. Purdy updated the group on new software tool resources, including CERR (Computational Environment for Radiotherapy Research) which is linked on the ATC website, and MINERVA (Modality Inclusive Environment for Radiotherapeutic Variable Analysis), which will be linked in the near future.
- f. A brief review of the software tools being developed by the caBIG Clinical Trials Management Systems was presented.
- g. On January 18, 2005, Dr. Purdy met with Dr. Joel Goldwein, M.D., Vice President, Medical Affairs, IMPAC Medical Systems, Inc. to review ATC's mission and history and to set the stage for a meeting to discuss ways IMPAC could help make digital data submission by institutions more efficient, and also make receipt of such data by QA Centers more efficient.
- h. We are continuing our discussion with CMS regarding the use of FOCUS/XIO/FOCAL software by the ITC and other members of the ATC.
- i. This was our largest 6-months accrual for RTOG supported protocol in our history (241 new patients entered; 45 new institutions are able to submit digital data; 4 new TPS vendors became ATC compliant)
- j. The JCOG became the second cooperative group listed on the ATC website for support of protocol requiring digital data submission.
- k. Significant progress has been made in implementing ATC Method 1 at QARC for support of some COG protocols (will be discussed in later section).
- l. Significant progress has been made in the support of NSABP/RTOG PBI protocol (will be discussed in later section).
- m. NCIC working directly with RCET has made significant progress in implementing ATC Method 3 for support of MA.20 (will be discussed in later section).
- n. Dr. Purdy reviewed plans for participation in 2005 Scientific Meetings
 - At the AAMD 2004 Annual Meeting, Dr. Purdy made a presentation to the AAMD Board of Directors and proposed that the AAMD work with the ATC in hosting a workshop at the AAMD 2005 Annual Meeting (June 26-30, 2005, in San Diego, CA) to demonstrate protocol digital data submission for each RTP platform. **ACTION ITEM:** He will appoint a task group (Bill Straube and Betty Martin) to pursue this effort.
 - Encouraged RCET, RPC, ITC, QARC, and RTOG to consider submitting individual abstracts to 2005 AAPM Annual Meeting (July 24-28, 2005, in Seattle, WA). We will also have ATC Booth same as last year and will participate in DICOM Refresher Course.

- Encouraged RCET, RPC, ITC, QARC, and RTOG to consider submitting individual abstracts to 2005 ASTRO Annual Meeting (October 16-20, 2005, in Denver, CO). We will also have ASTRO Refresher Course.
- o. Dr. Purdy reviewed the schedule for the next ATC conference calls and future meetings
 - Next ATC Teleconference will be March 2, 2005 Note no teleconference in Feb.
 - Plan for an ATC meeting of at least P.I.s at 2005 COG Semi-Annual meeting scheduled for Los Angeles in March 29-April 3, 2005 (Note if ATC Steering Committee Meeting is finalized for a date near these dates, we would not have a meeting at the COG meeting)
 - Plan for ATC Steering Committee Meeting sometime Spring 2005 (Jim Deye to arrange)
 - ATC meeting at RTOG Semi-Annual meeting scheduled for June 23, 2005 at Loews Philadelphia Hotel, Philadelphia, PA.
 - ATC meeting at RTOG Semi-Annual meeting scheduled for January 19, 2006 Fontainebleau Hilton Resort, Miami Beach, FL
- p. Dr. Purdy stated that the ATC still faced several technological challenges including (1) developing and implementing a robust ATC Method 2; (2) successful implementation of ATC compliant digital data export by stereotactic SRS/SRT TPS vendors; (3) developing ATC capability to receive PET data in a format useful for RT protocols; (4) developing ATC capability to receive 4D CT and image-guided verification data sets.
- 4. Dr. Palta provided a report of RCET activities over this last 6-months period. These included (a) testing with ITC and “bug” fixes of ATC Method 2, which is ongoing; (b) installation and testing of ATC Method 3 at NCIC, which is near completion; (c) development of draft guidelines for the use of IMRT in clinical trials (submitted 12/04). Other areas RCET has been active in include the Integrating the Healthcare Enterprise in Radiation Oncology (IHE-RO) ASTRO initiative addressing the issue of obtaining seamless connectivity in radiation therapy. RCET research and development efforts have been aimed at the development of data mining algorithms (image feature and context based) and advanced algorithms for imaging data transmission and storage (wavelet transforms). These will be reported on in more detail at the June face-to-face meeting at RTOG. In addition, RCET is working on new modules for NetSys including
 - Fast DRR
 - Dose matrix algebra
 - 2D and 3D visualization
 - 2D and 3D contours and ROI
 - Image segmentation and image processing
 - LDR intracavitary brachytherapy

Dr. Palta informed the group that an integration of RCET infrastructure, IMPAC database, and UF Outcome database is under way at UF for outcome studies. A research abstract for submission to the ASTRO 2005 and a manuscript in the Red Journal is planned.

Dr. Palta also made a detailed presentation on the IHE-RO ASTRO initiative. A copy of this material is provided on the ATC Website as part of the RCET presentation.

5. Dr. Ibbott provided a report of RPC ATC activities. He pointed out that they had the NCI site visit for their competing renewal on July 7. They received a favorable score with recommendations for 6 years funding. He also pointed out that the site visit provided several useful recommendations. The TLD monitoring program continues to function well, and now has the added capability to check TomoTherapy machines. He reviewed phantom credentialing results and pointed out that there were no delays in credentialing due to phantom availability. The data continue to show only 66% are successful on their first attempt.

Dr. Ibbott reviewed credentialing requirements for the brachytherapy ATC supported protocols and the use of the ITC Remote Review Tool. He again stressed the point that brachy dose calculation capability is an important need for RPC QA efforts. He pointed out that RCET notified RPC on Jan. 14 that a new version of BrachySys was ready, but that on Jan. 18 problems with the install caused RCET to postpone this implementation. (**ACTION ITEM:** RCET/RPC to develop timeline for this effort and submit to Dr. Purdy for posting on priority list by end of February). Dr. Ibbott also reviewed the criticisms regarding RTOG 0232 Credentialing Procedure. Some have complained that the procedure is “onerous” (Physicist completes questionnaire, benchmark plans require several hours, completion time as low as 3-5 days, when submissions are complete). Also, some think the forms are too long/complex (note additional questions were requested by QARC and perhaps could be deleted; also we could eliminate or reduce “white space” and just have the needed information attached). (**ACTION ITEM:** Dr. Ibbott to put together a RPC/RTOG/QARC task group to review brachy credentialing requirements, including benchmarks and forms and report back to ATC). Dr. Ibbott did provide data that showed a significant number of institutions had completed prostate brachytherapy 0232 credentialing, but had not accrued any patients to the protocol.

Dr. Ibbott briefly reviewed the credentialing requirements for the NSABP B39 PBI protocol. Also, there was a workshop on this effort on Saturday morning at 7:30am.

Finally, he reported that Gary Gluckman is coming to Houston on Feb 2 to install DoseQA, a product that would allow the phantom digital data to be submitted directly to RPC and thus eliminate the need for the digital data to be submitted to ITC. The tool would also provide more data analysis features.

6. Drs. Ken Ulin and FitzGerald provided a report of QARC ATC activities. An update on the QARC – IMRT Benchmark was provided. 57 Benchmarks have been submitted (31 to QARC in which 20 were approved and 13 not approved; 24 approved by RPC and 2 are awaiting RPC approval). Next an update on the progress being made on implementing ATC Method 1 at QARC and is summarized as follows:
 - *Late Summer 2004:* Hardware acquired and installed
 - *October- November, 2004:* Software configured
 - *December, 2004:* Import of trial patient data at QARC

- *January 6, 2005*: Import (via ITC) and review of first actual patient data (on-treatment review)
- *January 14, 2005*: Specific institutions invited to submit data using Method 1 for COG medullo and high grade glioma protocols

Near and future developments for QARC/ITC regarding ATC Method 1 was summarized as follows:

- QARC staff (Ken, Marcia, Jeff) competent in data Import
- Ftp capability setup for QARC
- Patient data import directly at QARC (not through ITC)
- Increase number of institutions submitting
- Increase protocols supported (ECOG & SWOG head and neck)
- Development of printing or screen capture for QARC documentation (beam geometry parameters if no recalculation)
- Prioritizing user-friendly requests (import and RRT)

Dr. FitzGerald provided his view on ATC meeting the needs of RT cooperative groups including (a) real-time response review; (b) PET/CT fusion review; (c) verification of accounting for organ motion; (d) correlation of toxicities with partial volume doses from multiple studies and from multiple groups; and (e) QA centers links to core imaging centers. He also shared some comments from QARC's Board of Directors Meeting held in Dec 2004 that are pertinent to ATC activities as listed below:

- Plan for ITC integration needs to be formalized. Recent interactions are laudable. Now there is concern that the interaction be clearly defined to assure continuity.
- Relationship of QARC to CaBig, ACRIN
- Address QA for RF Ablation, Radioimmunotherapy, PET/CT
- Further Development of DICOM RT Capability, ATC Method 2

7. Ms. Betty Martin, with input from ITC and RPC representatives, reviewed pending issues of ATC supported RTOG protocols as listed below. Note this includes 11 RTOG studies (7 active / 4 closed with data analysis continuing). Accrual numbers listed are as of January 12, 2005

- RTOG 94-06: Phase I/II Dose Escalation Study Using 3D Conformal Radiation Therapy for Adenocarcinoma of the Prostate
 - 54 institutions credentialed; 1084 patients registered to study (study closed, data analysis continues)
- RTOG 93-11: Phase I/II Dose Escalation Study Using 3D Conformal Radiation Therapy in Patients with Inoperable NSCLC
 - 27 institutions credentialed; 180 patients registered to study (study closed, data analysis continues)
- RTOG 98-03: Phase I/II Radiation Dose Escalation Study Applying Conformal Radiation Therapy in Supratentorial Glioblastoma Multiforme
 - 46 institutions credentialed; 210 patients registered to study (study closed, data analysis continues)
- RTOG 0319: Phase I/II Study to Evaluate 3DCRT Irradiation Confined to Region of the Lumpectomy Cavity for Stage I/IIA Breast Carcinoma

- 31 institutions credentialed; 58 patients registered to study; Target Accrual – 46 (study closed, data analysis continues)
- RTOG 0022: Phase I/II Study of Conformal And Intensity Modulated Irradiation for Oropharyngeal Cancer
 - 31 institutions credentialed; 67 patients registered to study; Target Accrual – 64
- RTOG 0117: Phase I/II Dose Intensification Study using 3DCRT and Concurrent Chemotherapy for Patients with Inoperable, Non-Small Cell Lung Cancer
 - 39 institutions credentialed; 20 patients registered to study; Target Accrual – 73
- RTOG 0126: Phase III Randomize Study of High Dose 3DCRT/IMRT versus Standard Dose 3DCRT/IMRT in Patients treated for Localized Prostate Cancer (9/18/03 IMRT allowed)
 - 108 institutions credentialed; 448 patients registered to study; Target Accrual – 1520
- RTOG 0225: Phase I/II Study of Conformal And Intensity Modulated Irradiation for Nasopharyngeal Cancer
 - 31 institutions credentialed; 38 patients registered to study; Target Accrual – 64
- RTOG 0232: Phase III Study Comparing Combined External Beam Radiation & Transperineal Interstitial Permanent Brachytherapy with Brachytherapy alone
 - 50 institutions credentialed; 86 patients registered to study; Target Accrual – 1520
- RTOG 0236: Phase II Study of Extracranial Stereotactic Radioablation in Treatment of Patients with Medically Inoperable Stage in NSCLC
 - 3 institutions credentialed; 3 patients registered to study; Target Accrual – 52
- RTOG 0321: Phase I/II Prostate: High Dose Brachytherapy and External Beam
 - 2 institutions credentialed; 1 patients registered to study; Target Accrual – 110

Ms. Martin reported that there are 9 studies that have requested ATC support. They are:

- RTOG 0515(0238): A Phase I/II Study of Gross Tumor Volume Definition with or without Pet Fusion for Patients with Non-Small Cell Lung Carcinoma.
- RTOG 0438(0245): Phase I Study Highly Conformal Radiation Therapy for Patients with Unresectable Primary Hepatobiliary Cancer and Liver Metastases
- RTOG 0413/NSABP B39: Phase III Study of Whole Breast RT versus Partial Breast Irradiation
- RTOG 0415: Phase III Randomized Study of Hypofractionated 3DCRT/IMRT vs. Conventionally Fractionated 3DCRT/IMRT in Patients treated for Favorable Risk Prostate Cancer (on hold)
- RTOG 0417: Phase II Study of Iressa in Combination with Definitive RT and Cisplatin Chemo in Locally Advanced Cervical Cancer, Optional Brachy/CT
- RTOG 0418: Phase II Study of IMRT to the Pelvis +/- Chemotherapy for Post-operative Patients with either Endometrial or Cervical Carcinoma
- RTOG 0421: Phase III Head & Neck: Re-irradiation (GCSF)/IMRT

- RTOG 0436: Phase III Esophagus, Cetux./Cis/RT then Surgery vs. Cis/Taxol/RT/Surgery (discussion to allow IMRT)
- RTOG 0522: Phase III Advanced Unresectable Head & Neck RT+Cis vs. RT+Cis+C225/IMRT

Dr. Purdy pointed out that it is clear that we are being successful with our credentialing and QA approach as more and more study chairs are seeking this form of QA and digital data submission. However, some time in the future we will have exhausted current ATC resources and thus there will have to be some form of prioritization regarding utilizing ATC resources. Dr. Purdy will monitor closely and provide input back to RTOG and other cooperative groups when demand becomes greater than can be handled by the ITC and other key resources supported by this grant.

Finally, Ms. Martin reviewed the credentialing approval notification letters and pointed out this system was working well. She also informed all that the bi-weekly teleconferences held on Friday between RTOG/ITC/IPC to discuss specific protocol issues were working very well.

8. Dr. Bosch presented the IT Task Group Report to ATC including updates on ATC Method 1 data submissions to ITC, the status of ATC Method 1 at QARC, the status of ATC Method 2 at ITC and what is needed long term to make Method 2 functional, PET/CT fusion for target volume evaluation, and the status of ATC-compliant treatment planning systems. He pointed out that the average rate of FTP data submission to ITC is about 1.3 Gb/week. Also, the ITC has added a disclaimer that is seen when first opening the Remote Review Tool pointing out that it is not intended for clinical use. How often the disclaimer is shown is still being discussed at ITC,
 - a. The status of ATC Method 1 at QARC was reported as follows: At the ATC meeting in June 2004, ITC was given the task of developing a Linux platform for the receipt and QA of digital data at QARC and IPC. This platform is intended to provide these centers with more efficient access to the volumetric imaging and dosimetry data currently submitted using ATC Method 1. Drs. Bosch and Matthews developed a prototype RRT server and DICOM/RTOG data import tool (part of the ATC/AAPM/NEMA DICOM Demonstration at AAPM 2004 annual meeting.) and ITC was granted permission by CMS for limited use of proprietary software components for support of ATC activities at QARC, pending formal license agreement between ITC and CMS. A Linux workstation was purchased by QARC and delivered July 2004 and configured for network access from ITC September 2004. The RRT and data import tools were installed on the QARC-ITC workstation November 2004. A series of teleconferences were then held and results were reviewed and summarized below:
 - 11/18/2004 ITC gave system overview, demonstrated data import panels; QARC requests documents, RRT grayscale controls
 - 12/02/2004 ITC provide draft procedure documents
 - 12/14/2004 R. Hanusik, W. Bosch discuss QARC patient hierarchy and integration of RRT into QARC QA process

- 12/16/2004 Discussion of protocol templates for QARC-supported protocols; QARC to identify protocols with institutions capable of submitting digital data
 - 12/29/2004 Discussion of QARC data preparation preferences, demonstration of import of digital data from CD-ROM (at QARC) and from FTP (via ITC), QARC identified COG ACNS0331 and several possible institutions to be asked to submit digital data, ITC to configure template for this protocol
 - 1/06/2005 Dr. Fitzgerald reviews target volumes for pediatric CNS patient using RRT
 - 1/13/2005 Discussion of hardcopy reports (data import log, plan summaries)
- In summary, this effort is proceeding well and should be in use by QARC prior to the Spring COG meeting.

b. The status of ATC Method 2 at ITC was reported as follows: (a) Testing of Method 2 continues (at a reduced priority) within the ITC; (b) Separate servers are being maintained for production (at ITC) and development (at RCET); (c) The ITC test suite includes DICOM and RTOG format treatment planning data sets (two from each of eight manufacturers); (d) Sean O'Leary (ITC) has been assigned the task of performing uploads, downloads, and comparisons of datasets. The ATC Method 2 testing methodology is as follows:

- Upload test data sets to WebSys server at ITC (POLARIS).
- Verify that data are registered in server database and viewable using Rapid Image Viewer tool.
- Download test data sets from ITC WebSys server.
- Use DICOM dump utility to compare corresponding files (one each of CTs, RT Structure Set, RT Plan, RT Dose, etc.) from original and retrieved copies of data sets.
- Report discrepancies between original and retrieved files, as well as unexpected behavior in WebSys client and Rapid Image Viewer tool.

A log of these report discrepancies is being maintained. The latest WebSys version is v. 2.1.3b that was installed on POLARIS 12/21/2004 and provided improved case selection (by Case ID, Submission Date, Description, Institution). Problems noted were as follows:

- WebSys client crashes while scanning certain RT Dose objects
- Selected files may be omitted from upload without warning
- Database error resulting in loss of non-CT DICOM objects

After this update, there was considerable discussion as to what is needed long term to make ATC Method 2 functional. It was felt that deployment of ATC Method 3 at NCIC (NetSys only) is serving as a model for development of ATC Method 2. Dr. Purdy asked all for any suggestions for new strategies to speed the process of development of a robust ATC Method 2. All felt that the current test methodology at ITC was the best approach and that we should continue using this approach.

(ACTION ITEM: Dr. Purdy asked that Drs. Bosch and Frouhar put together a mutually agreed on timeline for this effort and give to him within the next 30 days. This will be posted on the ATC website).

- c. Dr. Bosch informed the group of the first successful PET/CT data import and review by ITC working with Washington University (Dr. Jeff Bradley and Mr. Sasa Mutic). This was accomplished by sending DICOM PET images directly to ITC's Focal workstation and importing treatment planning data using ATC Method 1 utilities and then sending the patient dataset to ITC's Focal Workstation. The CT and PET studies were registered using maximum the mutual information auto-registration feature in Focal. This data set was from a Siemens unit; Dr. Ken Forrester has agreed to submit other PET/CT data sets from other vendor systems. Updates will be given on future ATC teleconferences.
9. Dr Jim Galvin reviewed the localization credentialing test being done for RTOG 0236. He is using the ITC's Remote Review Tool to review data sets submitted to satisfy this requirement. These include cone beam CT and CT-sim images using a stereotactic body frame. It was discussed that orthogonal portal images were also being taken for those sites using the body frame and that perhaps these should also be submitted to the ITC for digitizing and later review. This will be discussed on an upcoming RTOG conference call.
10. Several of the NSABP B-39 / RTOG 0413 study chairs (Drs. Vicini and Arthur) attended the ATC meeting to review any pending issues involving ATC support for this protocol. Downloading the benchmark datasets from the RPC website and importing into various treatment planning system appears to be the biggest unresolved hurdle at this time. All expressed confidence that this would be resolved in a timely fashion (or that a workaround would be made available).
11. Several members of ACRIN and ACR (Irene Mahon, Fraser Wilton, and Steve King) presented a brief review of the status of the PET CORE Lab in Philadelphia. The laboratory interfaces with participating sites of multi-center trials conducted by ACRIN and other cooperative groups or investigators that require the use of PET imaging. The core laboratory has been developed in collaboration with the PET/Nuclear Medicine Committee Chair and fulfills the following functions; (a) site qualification, (b) quality assurance review of patient and phantom data, (c) advanced processing and QA of quantitative patient image data, (d) blinded diagnostic interpretations, and (e) integration of PET and PET/CT data with radiation therapy planning data to enable review and QA for trials involving image-guided therapy. There was discussion among the ATC meeting participants and there did appear that efforts from ACRIN and ATC could be synergistic with regard to RT clinical trials. It was agreed to see if the next ATC meeting at RTOG this summer could be held at ACRIN in order to promote further interactions.
12. Dr. Colin Field presented an update on the NCIC's efforts in implementing ATC Method 3 for support of the MA.20 protocol. Progress has been made and the following timeline for its use has now been established:
 - 1/31/05 Complete MA.20 testing on test server
 - 2/04/05 Based on feedback from testing, fine tune FAQ, submission and review manuals.
 - 2/11/05 Move test system to production system
 - 3/04/05 Test admin tools: Adding users, changing privileges, deleting cases, creating protocols

- 3/04/05 MA.20 user testing of production system
 - 3/11/05 Based on feedback of MA.20 user testing, make final corrections to web pages, FAQ, and documentation
 - 3/15/05 Activate MA.20 dry runs and electronic rapid review on production server
13. Drs. Bosch and Purdy reported on the JCOG 0403 protocol (Phase II study of SBRT in patients with T1N0M0 NSCLC). Institutions participating in protocol JCOG 0403 submit digital data representing CT images, structure sets, treatment plans, 3D dose distributions, and DVHs to Dr. Satoshi Ishikura at the National Cancer Center Hospital East, Kashiwa, JAPAN. Dr. Ishikura then forwards these data to the ITC for processing using ATC Method 1. Data are then reviewed by Dr. Ishikura or his delegate using the ITC Remote Review Tool. Currently, there are 13 institutions eligible to enroll patients and capable of digital data submission on JCOG 0403. (One other institution, which is eligible to enroll patients but NOT capable of digital data submission, has been exceptionally allowed to participate in the study). All are listed on the ATC website. Dr. Ishikura uses the online JCOG Data Submission Information form also provided on the ATC web site to announce the submission of data to the ITC FTP server. As of January 17, /2004, four SBRT data sets (cases 3, 7, 9, and 10) have been received and prepared for review using the RRT.
 14. Dr. Frouhar briefly reviewed the RCET Brachytherapy QA software called BrachySys that is being developed for RPC. Some progress was reported but as previously discussed in the RPC report there is an urgent need for this software. (**ACTION ITEM:** Dr. Purdy asked Drs. Frouhar, Palta, and Ibbott are to put together a mutually agreed on timeline for this effort and give to him within the next 30 days. This will be posted on the ATC website).
 15. Plans for 2005 ATC Steering Committee (ATCSC) Meeting were discussed briefly. It was agreed that it would be best to hold the ATCSC meeting in the Washington DC area so more members of NCI and other pertinent organizations could attend. Dr. FitzGerald indicated he had some suggestions for revising the format of the meeting and would forward to Drs. Deye and Purdy right after the meeting. Dr. Deye will discuss with Dr. Purdy and will circulate suggested dates. (**ACTION ITEM:** Dr. Deye to arrange 2005 ATC Steering Committee Meeting).
 16. Dr. Purdy thanked all for their participation, with particular thanks to Ms. Martin and other RTOG staff for their efforts in arranging the meeting facilities. The meeting adjourned at approximately 4:30 pm.

Respectfully submitted January 31, 2005
James A. Purdy, Ph.D.
ATC Principal Investigator