

Principal Investigator's Report Advanced Technology QA Consortium

**RTOG Meeting – Philadelphia, PA
June 23, 2005**

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**Supported by NIH U24 grant CA81647,
“Advanced Technology QA Center”**

P.I.'s Report

- **Welcome**
- **Approval of minutes from June 1, 2005 Teleconference**
- **Review of Action Items from January 20 ATC meeting**
- **Update on potential interactions with other cooperative groups (NABTT, UKCCSG)**
- **ATC Website Review**
- **Treatment Planning Database Studies**
- **Carryover budget requests**
- **Strategic planning for ATC Grant Renewal**
- **NCI QA Workshop**
- **Plans for participation in 2005 Scientific Meetings**
- **Schedule of ATC conference calls and next meetings**

P.I.'s Report

- Approval of minutes from June 1, 2005 Teleconference
- Review of Action Items from January 20 ATC meeting

Review of Action Items from January 20 ATC meeting

- **Bill Straube/Betty Martin are to work with AAMD to present a workshop (presentation) at AAMD 2005 Annual Meeting (June 26-30, 2005, in San Diego, CA) to demonstrate protocol digital data submission for each RTP platform. (To be reported)**
- **ATC Booth at 2005 AAPM Annual Meeting (July 24-28, 2005, in Seattle, WA) (No ATC booth this year; ATC Brochure to be prepared)**
- **ATC Brochure at 2005 ASTRO Annual Meeting (October 16-20, 2005, in Denver, CO). (Ongoing-will be developed August/October)**

Review of Action Items from January 20 ATC meeting

- **RCET/RPC (Drs. Frouhar, Palta, and Ibbott) to develop timeline for BrachySys effort and submit to Dr. Purdy for posting on priority list by end of February. (agenda 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. (agenda item)**
- **Drs. Bosch and Frouhar to put together a mutually agreed on timeline for development of Method 2 and submit to Dr. Purdy within the next 30 days. This will be posted on the ATC website. (agenda item)**

Review of Action Items from January 20 ATC meeting

- **Drs. Bosch and Frouhar to put together a document that clearly describes ATC Methods 1, 2, and 3. (completed and posted on ATC website)**
- **Dr. Bosch to provide updates regarding PET/CT data import and review by ITC. First data set was from a Siemens unit; Dr. Ken Forrester has agreed to submit other PET/CT data sets from other vendor systems. (agenda item)**

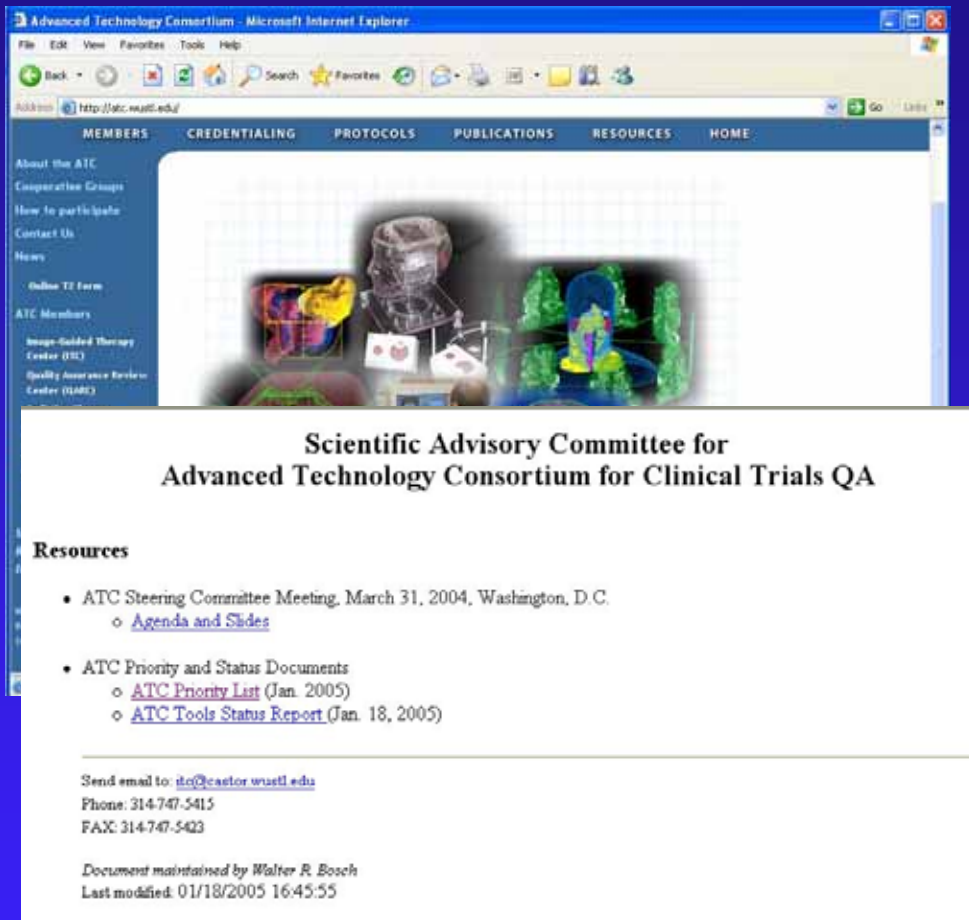
Update on Potential Interactions with other Cooperative Groups

- UKCCSG
- NABTT
- EORTC

Update on Potential Interactions with other Cooperative Groups

- **JCOG: Requested 2nd protocol support**
- **NABTT (Dr. John Fiveash, M.D., Department of Radiation Oncology, University of Alabama-Birmingham): requested use of ATC Method 1**
- **UKCCSG Phase II Study of Prospective QA by Web-Based Review of Radiotherapy Fields in the Treatment of Standard Risk Medulloblastoma within the HIT-SIOP PNET4 Protocol (Dr. Susan Harden contact person). requested use of ATC Methods 1 and 2**
- **EORTC (Bernard Davis, M.D., Univ. Hospital of Zurich contact person)**

ATC WEB SITE (<http://atc.wustl.edu>)



- NCIC Link
- Timelines for Method 1 at QARC and Method 2 at ITC
- Publication Page

Treatment Planning Database Studies

1. Sue Tucker
2. Joe Deasy
3. CMS

P.I.'s Report

- Carryover budget requests
- Strategic planning for ATC Grant Renewal (2 years remaining)

NCI QA Workshop (Sept 8-9, 2005)

- A comprehensive two day program that will address a broad range of QA concepts and procedures used in modern day radiation therapy, including 3DCRT, IMRT, SRS/SRT, and brachytherapy.
- Objective is to assess current status of QA requirements and procedures in RadOnc as it is practiced today.
- Participants will provide an up to date status of QA efforts and ongoing issues for listed modalities and their associated equipment including computerized TPS, simulators and CT-simulators, imaging used in treatment planning, treatment delivery equipment on-board imaging and computer networking, and clinical trials QA.
- It is expected that this overview and assessment will set the agenda for further, more detailed and technical, considerations of all aspects of QA in radiotherapy in other venues.
- Faculty will include many nationally known experts in the field of radiation oncology actively involved in quality assurance efforts.
- Geoffrey Ibbott, Ph.D. And James A. Purdy, Ph.D. - Program Directors

NCI QA Workshop (Sept 8-9, 2005)

- **Thursday Morning, September 8th (Registration and Welcome/Opening Remarks by C. Norm Coleman, MD and Jim Deye, Ph.D.)**
- **Session I - Design and Impact of Quality Assurance Programs**
 - **Development of Quality Assurance in Radiation Therapy: National and International efforts - Dick Fraass, Ph.D.**
 - **Error in the Delivery of Radiation Therapy: Results of a QA Review- The PMH Experience - Jean-Pierre Bissonnette, Ph.D.**
 - **Error in the Delivery of Radiation Therapy: Results of a Quality Assurance Review- The MSK Experience - Howard Amols, Ph.D.**
 - **Quality Assurance Program in a Community Practice Setting - Mary Ellen Masterson-McGary, M.S.**
 - **The Advanced Technology QA Consortium (ATC): Its role in Clinical Trials – J. Purdy, Ph.D..**
 - **RPC Experience in Credentialing using Anthropomorphic Phantoms – G. Ibbott, Ph.D.**
 - **QARC Experience using Benchmark Tests - T. J. FitzGerald, M.D.**
 - **RTOG Experience with AT Clinical Trials – J. Michalski, M.D.**
 - **Experience with TELESYNERGY in Cancer Disparity Prog. - F. Govern, Ph.D.**

NCI QA Workshop (Sept 8-9, 2005)

- **Session II - Radiation Therapy Equipment/Process QA Programs**
 - QA of Radiation Therapy Simulators and CT-Simulators - *Sasa Mutic, M.S.*
 - QA of PET, US, and MRI for Radiation Therapy Treatment Planning - *Marc Kessler, Ph.D.*
 - QA of Treatment Planning Systems - *Karen Doppke, M.S.*
 - Treatment Planning QA for Individual Patients - *Ping Xia, Ph.D.*
 - QA of Dose Measurement Instruments - *William Simon, M.S.*
 - QA of Medical Linear Accelerators - *Peter Biggs, Ph.D.*
 - QA of Multileaf Collimators - *Art Boyer, Ph.D.*
 - QA in the Fabrication of Treatment Aids - *Dennis Leavitt, Ph.D.*
 - External Beam Radiation Therapy Clinical QA - *Nancy Tarbell, M.D.*
 - RPC Experience with QA Audits - *David Followill, Ph.D.*

NCI QA Workshop (Sept 8-9, 2005)

- **Friday Morning, Session III - New Technologies**
 - QA of Electronic Portal Imaging - *Mike Herman, Ph.D.*
 - QA of Kilovoltage and Megavoltage Cone Beam CT - *TBN, Ph.D.*
 - Record and Verify System Use: QA or Efficiency Device – *B.Curran, M.E.*
 - QA for Individual Patients (including MOSFETs and the new Wireless Technology) - *Mike Gillin, Ph.D.*
 - QA of Intensity Modulated Radiation Therapy - *Jatinder Palta, Ph.D.*
 - QA of Helical Tomotherapy - *John Balog, Ph.D.*
 - QA for Intraoperative Radiation Therapy - *Mike Mills, Ph.D.*
- **Friday Afternoon, Session IV - Brachytherapy**
 - QA for LDR Brachytherapy - *Bruce Thomadsen, Ph.D.*
 - QA for HDR Brachytherapy – *TBN*
 - QA for Prostate Seed Implants - *Wayne Butler, Ph.D.*
 - Brachytherapy QA - a Physician's Perspective - *Julia White, M.D.*
 - QA for Radiopharmaceutical Therapy - *Barry Wessels, Ph.D.*

NCI QA Workshop (Sept 8-9, 2005)

- **Friday Afternoon, Session V - Stereotactic RS and RT**
 - **QA Stereotactic Radiosurgery (GammaKnife) - Steve Goetsch, Ph.D.**
 - **QA Stereotactic Radiosurgery (Linac Based) - Frank Bova, Ph.D.**
 - **QA SRS/SRT using CyberKnife - Todd Pawlicki, Ph.D.**
 - **QA for SBRT - Jim Galvin, Ph.D.**
 - **SRS/SRT QA - a Physician's Perspective - Robert Timmerman, M.D.**
 - **AAPM Task Groups' Efforts Addressing QA Issues - Eric Klein, M.S.**
 - **How Effective is the Current QA Paradigm? - George Sherouse, Ph.D.**
 - **Closing Remarks - Jim Deye, Ph.D.**

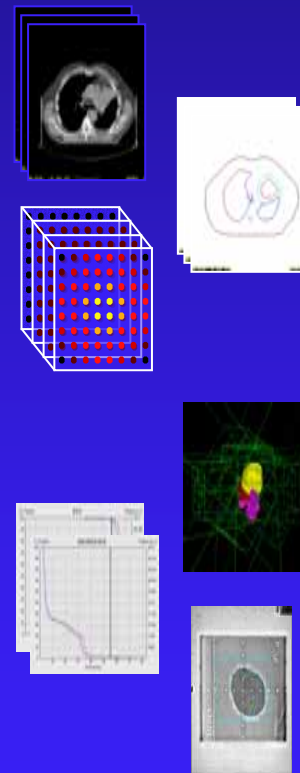
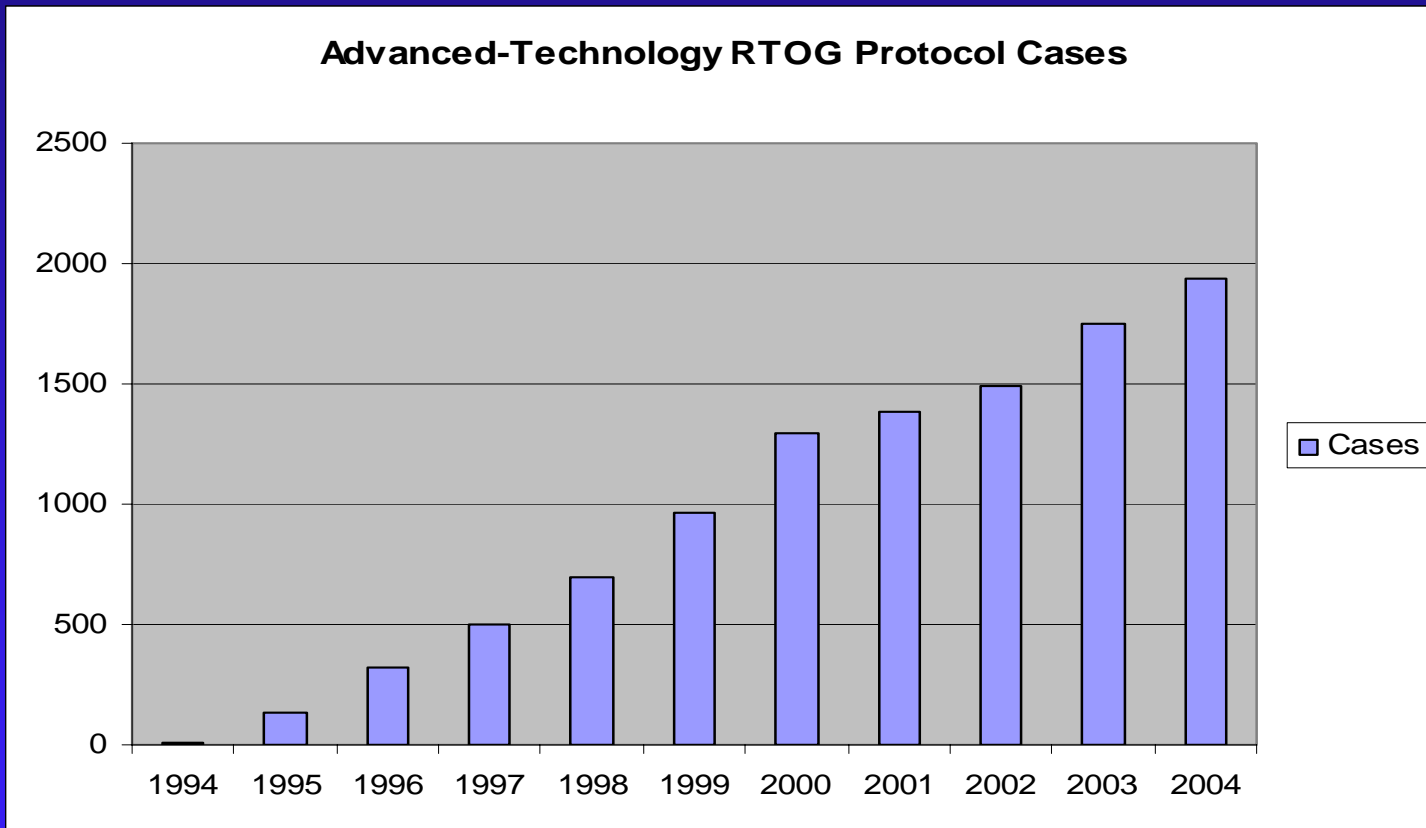
2005 Scientific Meetings

- **AAMD Annual Meeting to be held June 26-30, 2005, in SAN DIEGO, CA.**
- **AAPM Annual Meeting to be held July 24-28, 2005, in SEATTLE, WASHINGTON.**
 - Brochure
 - Participate in DICOM Refresher Course
 - RCET, RPC, ITC, QARC, and RTOG individual abstracts?
- **ASTRO Annual Meeting to be held October 16-20, 2005, in DENVER, COLORADO.**
 - Brochure
 - RCET, RPC, ITC, QARC, and RTOG individual abstracts?

Future ATC Teleconferences and Meetings

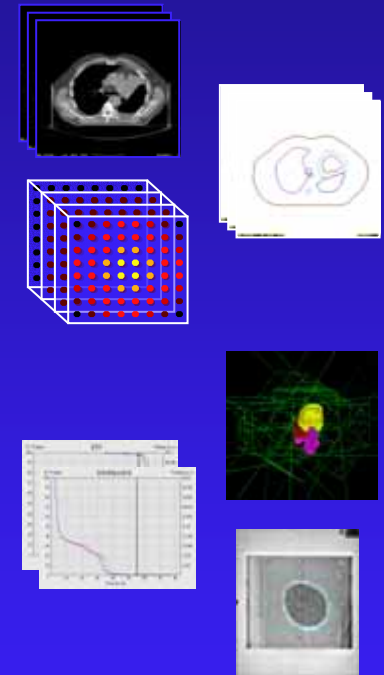
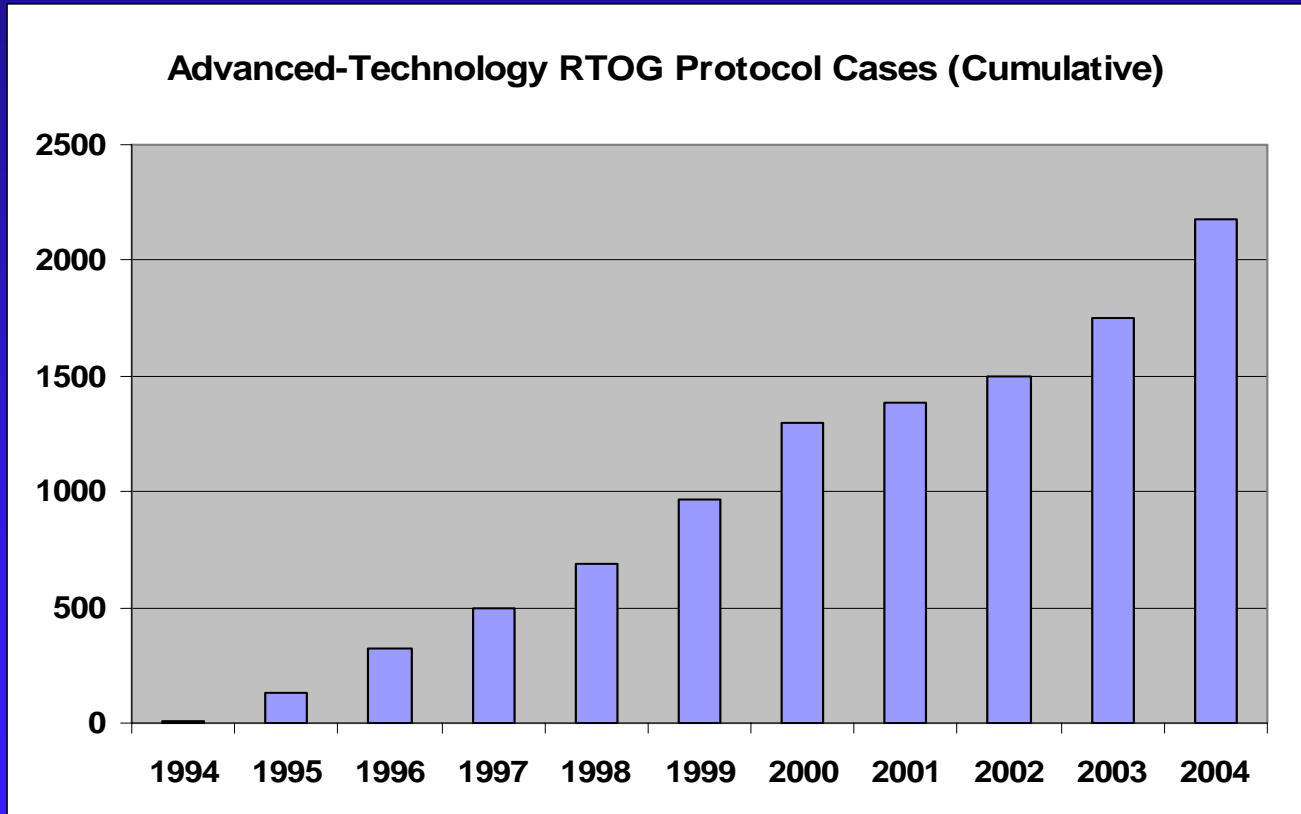
- **Next Teleconference**
 - July 6 or August 3, 2005
- **Future Meetings**
 - COG, SWOG, ...?
 - RTOG Semi-Annual meeting January 19, 2006
Fontainebleau Hilton Resort, Miami Beach, FL
 - ATC Steering Committee 2006

June 24 2004 ATC Mtg: 1939 Complete Digital Data Sets Submitted Over 10 Year Period using ATC Method 1



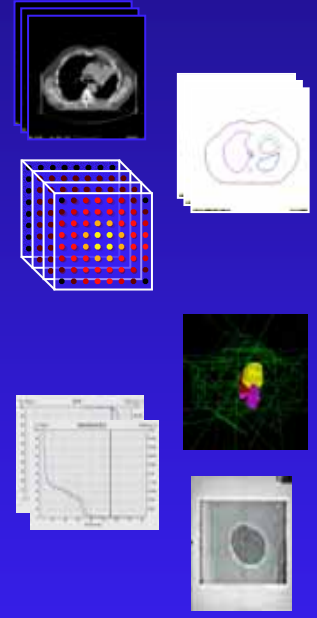
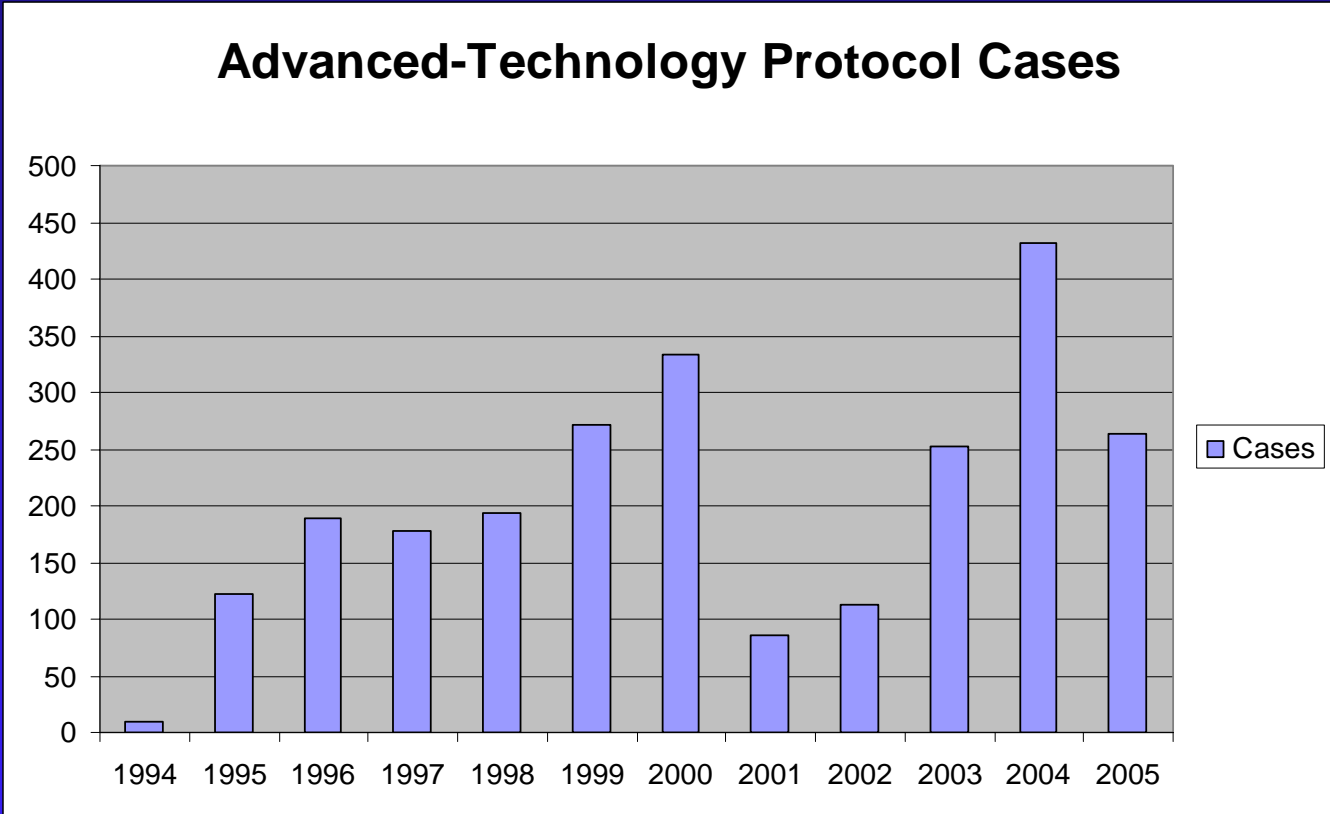
- 10 commercial RTP systems have implemented export capability
- 121+ institutions able to submit data

Jan. 20 2005 ATC Mtg: 2180 Complete Digital Data Sets Submitted Over 10 Year Period using ATC Method 1



- 14 commercial RTP systems have implemented export capability (see <http://atc.wustl.edu>)
- 166 institutions able to submit digital data

- **June 23 2004 ATC Mtg: 2441 Complete Digital Data Sets Submitted Over 11 Year Period using ATC Method 1***



- **15 commercial RTP systems have implemented export capability (see <http://atc.wustl.edu>)**
- **215 institutions able to submit digital data**

RTOG Digital Data Protocols

Protocol	Description	Institutions Credentialed	Cases Accrued
9406	Ph I/II 3DCRT Prostate Dose Escalation	54	1084
9311	Ph I/II 3DCRT Lung Dose Escalation	27	180
9803	Ph I/II 3DCRT GBM Dose Escalation	46	210
0022	Ph I/II 3DCRT/IMRT Oropharynx	35	69
0319	Ph I/II 3DCRT Partial Breast	31	58
0117	Ph I/II 3DCRT/chemo Lung	44	25
0126	Ph III 3DCRT/IMRT Prostate	122 (50 IMRT)	610 (100 IMRT)
0225	Ph I/II 3DCRT/IMRT Nasopharynx	35	53
0232	Ph III Ext Beam/TIPPB Prostate	55	122
0236	Ph II SBRT Lung	5	13
0321	Ph I/II HDR/Ext Beam Prostate	6	17
0413	Phase III Partial Breast Irradiation	65	56

Challenges: ATC Supported Clinical Trials

- ATC compliant stereotactic radiosurgery or radiotherapy RTP systems
- PET (Quantitative) and image fusion QA
- 4-D CT (several 100 MB)
- Image-Guided RT (EPID, Kilovoltage Cone beam CT, Helical Tomotherapy megavoltage CT)
- Adaptive Radiotherapy (Daily Confirmation and Adjustment using On-Board Imaging)

Challenges: ATC Supported Clinical Trials

- **Successful implementation of ATC Method 1 at QARC**
- **Successful implementation of ATC Method 2 at ITC (and other)**
- **Accrual digital data submissions to ITC**