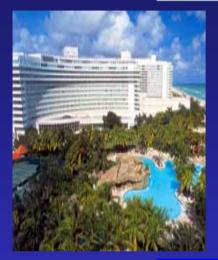


# RTOG Report to ATC











MD ANDERSON CANCER CENTER Making Cancer History AMERICAN ASSOCIATION OF PHYSICISTS IN MEDICINE





RCET University of Florida Radiation Oncology







# RTOG Headquarters Report

- 3D-CRT Protocols
  - Closed Protocols
    - RTOG 0319: Phase I/II Study to Evaluate 3D-CRT 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)
    - <u>RTOG 93-11</u>: 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)
    - <u>RTOG 94-06</u>: 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)





- 3D-CRT Protocols (cont.)
  - 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)
  - Active Protocols
    - <u>RTOG 0117</u>: Phase I/II Dose Intensification Study using 3D-CRT and Concurrent Chemotherapy for Patients with Inoperable, Non-Small Cell Lung Cancer
      - 46 institutions credentialed; 35 patients registered to study; Target Accrual 73
    - <u>RTOG 0126</u>: Phase III Randomized Study of High Dose 3D-CRT/IMRT versus Standard Dose 3D-CRT/IMRT in Patients treated for Localized Prostate Cancer (9/18/03 IMRT allowed)
      - 125 institutions credentialed; 770 patients registered to study; Target Accrual –
         1520





- 3D-CRT Protocols (cont.)
  - <u>RTOG 0521:</u> PhaseIII study of Androgen Suppression (AS) and Radiation Therapy (RT) vs AS and RT followed by Chemotherapy with Docetaxel and Prednisone for Localized, High-Risk Prostate Cancer
  - <u>RTOG 0522:</u> Phase III study of Concurrent Accelerated Radiation and Cisplatin Versus Concurrent Accelerated Radiation, Cisplatin, and Cetuximab (C225) [Followed by Surgery for Selected Patients] for Stage III and IV Head and Neck Carcinomas
  - Developing Protocols
    - <u>RTOG 0415</u>: Phase III study of Hypofractionated 3D-CRT/IMRT versus Conventionally Fractionated 3D-CRT/IMRT in Patients Treated for Favorable-Risk Prostate Cancer
    - <u>RTOG 0515</u>: A Comparative study of Gross Tumor Volume Definition with or without PET Fusion for Patients with Non-Small Cell Lung Carcinoma, 3D-CRT.



- 3D-CRT Protocols (cont.)
  - <u>RTOG 0617:</u> Phase II/III study of Cetuximab in Combination with Concurrent 3D-CRT and Chemotherapy in Patients with Stage IIA/B Non-Small Cell Lung Cancer (NSCLC)





- IMRT Protocols
  - Closed Protocols
    - <u>RTOG 0022</u>: Phase I/II Study of Conformal and Intensity Modulated Irradiation for Oropharyngeal Cancer
      - 36 institutions credentialed; 69 patients registered to study (study closed, data analysis continues)
    - <u>RTOG 0225</u>: Phase I/II Study of Conformal and Intensity Modulated Irradiation for Nasopharyngeal Cancer
      - 36 institutions credentialed; 68 patients registered to study (study closed, data analysis continues)
  - Active Protocols
    - RTOG 0421: Phase III Head & Neck: Re-irradiation (GCSF)/IMRT
      - 36 institutions credentialed; 6 patients registered to study, Target Accrual 240





- IMRT Protocols (cont.)
  - RTOG 0234: A Phase II Study of Surgery followed by Chemoradiotherapy Plus C225 (Cetuximab) for Advanced Squamous Cell Carcinoma of the Head and Neck
    - 36 institutions credentialed; ?? Patients registered to study; Target Accrual –
       230
  - IMRT Developing Protocols
    - RTOG 0435: Phase III Study Unresectable H&N; IMRT/3D-CRT
    - <u>RTOG 0418</u>: Phase II Study of Intensity Modulated Radiation Therapy (IMRT) to the Pelvis +/- Chemotherapy for Post-Operative Patients with Either Endometrial or Cervical Carcinoma
    - <u>RTOG 0415</u>: Phase III study of Hypofractionated 3D-CRT/IMRT versus Conventionally Fractionated 3D-CRT/IMRT in Patients Treated for Favorable-Risk Prostate Cancer



- IMRT Developing Protocols (cont.)
  - <u>RTOG 0529</u>: Phase II Study Trial Evaluating Capecitabline, Cisplatin and IMRT (plus Cetuximab) in Carcinoma of the Anal Canal
  - RTOG 0534: Phase III trial of PBRT alone vs NC-STAD+PBRT vs NC-STAD+WPRT for Patients with a Rising PSA after Radical Prostatectomy, IMRT
  - <u>RTOG 0539</u>: Phase II Feasibility study of IMRT for Intermediate- and High-Risk Meningiomas, and of Observation for Low-Risk Meningiomas
  - <u>RTOG 0615</u>: Phase II study of Radiotherapy (IMRT) and Concurrent Cisplatin (CDDP) followed by Adjuvant Cisplatin and 5FU + Bevacizumab (BV) for Patients with Locally Advanced Nasopharyngeal Carcinoma (NPC)
- Symptom Management
  - Phase III Dose Escalation Trial for Non-Operable Spinal Cord Compression due to Metastasis Comparing 30 Gy versus 39 Gy Utilizing SBRT/IMRT Techniques



- IMRT Protocols (cont.)
  - Concepts
    - Phase III Study Hypofractionated Intensity Modulated Radiation Therapy (IMRT) with Incorporated Boost for early Stage Breast Cancer
      - Gary M. Freedman (Radiation Oncology)
    - Phase III Study Trial of Moderate Dose IMRT + Chemotherapy versus Conventional Dose IMRT for Resected Intermediate Risk Head and Neck Cancer
      - Mitchell Machtay, M.D.
    - Phase I/II Study Trial of FDG-PET/CT Guided Intensity Modulated Radiaton of Oropharyngeal Cancer
      - Dian Wang, M.D., Ph.D.





- Brachytherapy Protocols
  - Active Protocols
    - RTOG 0116: Phase I/II Study of Extended Field External Irradiation and Intracavitary Brachytherapy Combined with Chemotherapy (Weekly Cisplatin-Arm 1) and Amifostine (Weekly Cisplatin and Amifostine-Arm 2) in Carcinoma of the Cervix with Positive Para-Aortic or High Common Iliac Lymph Nodes
    - <u>RTOG 0232</u>: Phase III Study Comparing Combined External Beam Radiation & Transperineal Interstitial Permanent Brachytherapy with Brachytherapy alone (IMRT added 6/2005)
      - 63 institutions credentialed; 172 patients registered to study;
         Target Accrual 1520





- Brachytherapy Protocols (cont.)
  - <u>RTOG 0321</u>: Phase I/II Prostate: High Dose Brachytherapy and External Beam
    - − 14 institutions credentialed; 68 patients registered to study; Target Accrual −110
  - <u>RTOG 0413/NSABP B39</u>: Phase III Study of Whole Breast RT versus Partial Breast Irradiation
  - Developing Protocols
    - RTOG 0526: Phase
    - RTOG 0417: Phase II Study of Iressa in Combination with Definitive RT and Cisplatin Chemo in Locally Advanced Cervical Cancer, Optional Brachy/CT
    - RTOG 0526: Sequential Cohort Phase II trial of Two Dose Levels of Transperineal Ultrasound-Guided Brachytherapy for Locally Recurrent Prostate Adenocarcinoma following External Beam Radiotherapy



- SBRT Protocols
  - Active Protocols
    - RTOG 0236: Phase II Study of Extracranial Stereotactic Radioablation in Treatment of Patients with Medically Inoperable Stage in NSCLC
      - 7 institutions credentialed; 29 patients registered to study; Target Accrual 52
    - <u>RTOG 0438</u>: Phase I Trial of Highly Conformal Radiation Therapy for Patients with Unresectable Hepatobiliary Cancer and Liver Metastases
  - Developing
    - <u>RTOG 0618</u>: Phase II Trial of Sterertactic Body Radiation Therapy (SBRT) for Patient with Operable Early Stage Non-Small Cell Lung Cancer





# ATC Review Workstation at RTOG HQ's in Philadelphia, PA







#### **IMAGE-GUIDED THERAPY CENTER [ITC]**

Protocol RTOG-P0126 Dose-Volume Analysis QA Review for: Cross Cancer Institute

Patient Initials: P. W. Case #: 9 0126c0009

Group: 2 Dose Level: Rx Dose: 72.93 (See Appendix I)

#### A. TARGET VOLUME ANALYSIS

Target	Volume (cc)	Percent Volume Receiving ≥ Rx Dose(D1)				ICRU Ref Dose (Gy)			Mean Dose (Gy)	Coverage Score
PTV1	310	100	%≥:	% ≥ 55.8 Gy		73.0	74.4	57	73	1
PTV2	242.4	100	%≥	70.2	Gy	70.0	74.4	68	73.4	1
PTV			%≥		Gy	u				
CTV	113	99.3	% ≥	70.2	Gy	"	74.4	65.4	74	1
GTV	89	100	%≥	70.2	Gy		74.2	72	74	1

Target Volume Coverage Score:  $1: V_{RxD} \ge 98\%$ ,  $2:95\% \le V_{RxD} < 98\%$ ,  $3: V_{RxD} < 95\%$  or

V<sub>RxDCTVorGTV</sub><100%.

#### B. DOSE HETEROGENEITY(DH) And CONFORMITY

	Conformity Index*	Dose Heterogeneity	Dose Heterogeneity Score
PTV(2)		1.02 ✓	1

Dose Heterogeneity (2% Max Dose/Rx dose):  $1: DH \le 1.07, \ 2: 1.07 < DH \le 1.10, \ 3: DH > 1.10$ 

#### C. NORMAL STRUCTURE ANALYSIS (See appendix II for standard structure names)

Normal Tissue	Volume (cc)	% Vol ≥ Ref Dose (D1)	Ref Dose (D1) (Gy)	Max Dose (Gy)	Mean Dose (Gy)
Bladder	112	50	65.0	74.4	61.1
Left Femur	192	0	52.0	41	34.4
Right Femur	187	0	52.0	42	33.0
Rectum	87	30	60.0	74.3	49
Penile Bulb	9.3	55.2	70.0	73	68
Unspecified Tissue	23710	0.9	58.9	74.4	8

Reviewed by: Iquarles	Date: 12-1-04

After completing this form please FAX to the ITC: (314)747-5423.



P0126DVAreview



Plan Summary Page 1 of 1

#### **Image-guided Therapy Center**

Page 1 of 2 Next Close

Protocol: 0126 Case: 0009 (Plan ID: totalhetero ) Plan Date: Mon Nov 18 11:06:31 200: Plan Description: composite plan Calculation Volume Size: Width(x) 42.3(cm) x Depth(y) 28.8(cm) x Height(z) 26.1(cm) [142 x 145 x 88] Center: X = 0.8, Y = -2.1, Z = 3.1 SITE: Prostate Beam # (Field): . . . 1 (\_\_\_\_) >Left (B4) >Post (B2) >Right(B3) Description: . . . . 15MVXRAYS 15MVXRAY! 15MVXRAYS 15MVXRAYS Machine ID: . . . . 100.0 cm SAI Setup Distance: . . . 100.0 cm SAD 100.0 cm SAD 100.0 cm SAD | Socienter Depth: . . ODI | 11.4 cm | ODI | 12.5 cm | ODI | 2.1 cm | ODI | 2.4 cm | ODI | 2.1 cm | Socienter Coord: . 0.8, -3.9, 2.7 cm | O.8, -3 Coll. Width(cone):. . X1: 5.0 cm X1: 5.2 cm X1: 4.8 cm X1: 4.0 cm X2: 5.0 ct X2: 5.0 cm X2: 5.1 cm X2: 4.1 cm Y1: 6.3 ct 12.5 cm Y1: 6.3 cm 12.5 cm Coll. Length (cone): . Y2: 6.2 cm Y2: 6.1 cm 180 degrees 180 degrees 180 degrees Collimator Angle: . . 180 degrees 180 degrees 180 degrees 180 degrees 180 degrees Couch Angle: . . . . Head to Gantry Head to Gantry Head to Gantry Head to Gantry Head/Foot Orient: . . Gantry Angle: . . . . 270 degrees 90 degrees 180 degrees 360 degrees x x x x x :  $x \times x$ Rotation Arc: . . .  $x \times x$ Comp Filter Used: . . NO COMPENSATOR NO BOLUS USED NO BOLUS USED NO BOLUS USED NO BOLUS USEI Bolus Used: . . . . Wedge(Normal): . . . Wedge Orientation: . 1162 TI 1159 TD ICRU Ref Pt (cGy):. . 1739 TD 1739 TD Films Link/Aligned: . .

[Max Point Dose = 7472]
Page# 1 of 2 Plan Info (Total ICRU Dose: 7296 [Sampled Dose Value: 7300])





Remote Review Tool - Case: 0126c0009

Page 1 of 1

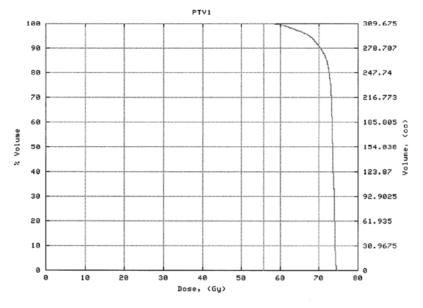
Remote Review Tool

#### **Image-guided Therapy Center**

-guided Therapy Center

PROTOCOL: 0126 CASE: 0009

STRUCTURE: PTV1



	% Vol >= D1	% Vol >= Dref	Max Dose	Min Dose	Mean Dose
Plan ID	(55.8 Gy)	(55.8 Gy)	(Gy)	(Gy)	(Gy)
totalhetero	100.0	100.0	74.7	56.9	72.7

Calculated: Fri Apr 16 14:08:26 2004 (/web/RTOP/patient/0126c0009/olddump.dat)

Printed Fri Jan 14 09:48:51 CST 2005

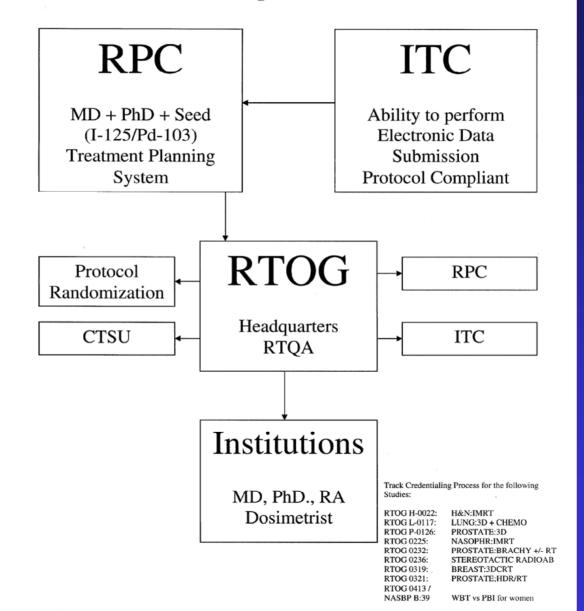
Close window





#### **RTOG 0232**

#### **Prostate – Brachytherapy** Credentialing Process Notification







# Institution Approval Letter for RTOG – 0232



#### **Radiation Therapy Oncology Group**

American College of Radiology 1101 Market Street, 14<sup>th</sup> Floor Philadelphia, PA 19107 (215) 574-3189 (800) 227-5463 Ext. 4189 (215) 928-0153 Fax

Date

Radiation Oncologist, M.D. Institution – CTSU Address City, State, Zip Code

Dear Dr.:

The Credentialing process by the Radiological Physics Center (RPC) for prostate brachytherapy and Electronic Data Submission to the Image-Guided Therapy Center (ITC) for RTOG-0232 – A Phase III Study Comparing Combined External Beam Radiation and Transperineal Interstitial Permanent Brachytherapy with Brachytherapy Alone for Selected Patients with Intermediate Risk Prostatic Carcinoma has been successfully met.

You are now approved to enter patients onto RTOG Prostate Implant Protocol 0232. A change in Radiation Oncologist, Physicist, treatment planning system, nuclide or seed model will require recredentialing by the RPC and/or ITC.

Sincerely,

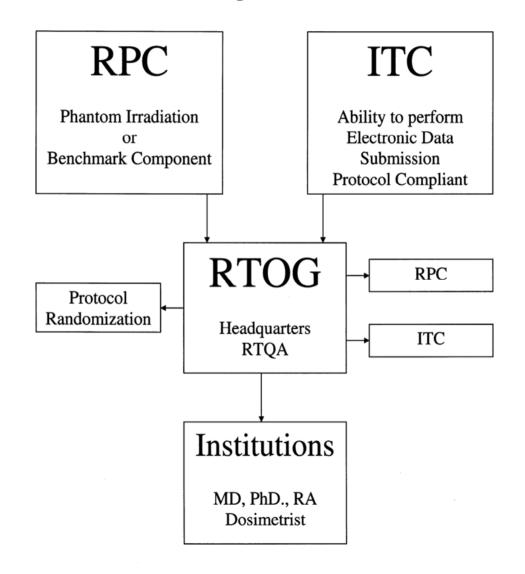
Elizabeth A. Martin Director, R.T. Quality Assurance

Research Associate
Dosimetrist
RTOG Randomization
ITC
RPC
CTSU





# RTOG 0234 IMRT H&N – CHEMORT & C225 Credentialing Process Notification







# Institution Approval Letter for RTOG – 0234



#### **Radiation Therapy Oncology Group**

American College of Radiology 1818 Market Street, Suite 1600 Philadelphia, PA 19103-3604 (215) 574-3189 (800) 227-5463 Ext. 4189 (215) 928-0153 Fax

Date

Principle Investigator
Institution – RTOG # , NCI # , RPC #
Address
City, State, Zip

Dear Dr.:

The IMRT Head and Neck Benchmark component of the credentialing process reviewed by the Radiological Physics Center (RPC) and the ability to perform electronic data submission for RTOG 0234 – Phase II Randomized Trial of Surgery followed by Chemoradiotherapy Plus C225 (Cetuximab) for Advanced Squamous Cell Carcinoma of the Head and Neck has been successfully met.

You are now approved to enter patients onto RTOG Protocol 0234.

If in the future you wish to enter patients onto other RTOG protocols using IMRT requiring the Benchmark Component of the credentialing process contact RTOG Headquarters for eligibility to participate.

Sincerely,

Elizabeth A. Martin Director, R.T. Quality Assurance

cc: Physicist
Research Associate
RTOG Randomization
ITC
RPC





### **RTOG 0236**

# Phase II Trial of Stereotactic Body Radiation Therapy (SBRT) in the Treatment of Patients with Medically Inoperable Stage I/II Non-Small Cell Lung Cancer

## **SCHEMA**

R E G I S T E R

Stereotactic Body Radiation Therapy (SBRT), 20 Gy per fraction for 3 fractions over 1½-2 weeks, for a total of 60 Gy

# Tomotherapy





## Institution Approval Letter for RTOG – 0236



#### Radiation Therapy Oncology Group

American College of Radiology 1818 Market Street, Suite 1600 Philadelphia, PA 19103-3604 (215) 574-3189 (800) 227-5463 Ext. 4189 (215) 928-0153 Fax

Date

, M.D.

Institution – RTOG # ; NCI # ; RTF #
Department of Radiation Oncology
Address
City, State, Zip

Dear Dr.:

Your institution has successfully completed the Lung Phantom Irradiation Dosimetry Test, Facility Questionnaire, Immobilization/Localization and Respiration Control Systems Test.

You can now enter patients on to RTOG Protocol 0236.

The Dry Run / Rapid Review will be reviewed on the actual case. The dosimetry will be reviewed and the study chair will determine if this and the drawn structures are protocol compliant and sufficient for the patient to go ahead with treatment. Since this test case (Dry Run / Rapid Review) is the first case entered from your institution, the scanning parameters, the structure outline, and the dosimetry will have to be according to protocol in order to pass the Dry Run / Rapid Review PRIOR TO DELIVERING ANY PROTOCOL TREATMENT. The plan will be reviewed centrally at the ITC, and suggestions regarding protocol compliance will be forwarded to your institution. The treatment plan for subsequent patients enrolled from your site will not be required to be centrally reviewed prior to treatment, but will be reviewed for protocol compliance at a later

However, the Immobilization/Localization and Respiration Control Systems Test must be repeated for the first 4 cases submitted from your institution and the results reviewed by James Galvin, D.Sc., Medical Physics Co-Chair. The data for the first patient entered must be reviewed and approved before you enter a second patient, and the results of the Immobilization/Localization and Respiration Control Systems Study for this patient must be approved prior to entering a third patient. At this point, any additional number of patients can be entered. You will have to send forward the results of the Immobilization/Localization and Respiration Control Systems Study for the third and fourth patients entered. Please refer to the attached information.

Sincerely,

Elizabeth A. Martin Director, R.T. Quality Assurance

c: Physicist
Research Associate
James Galvin, D.Sc.
RTOG Randomization
ITC
RPC





## Institution Approval Letter for RTOG – 0236

#### RTOG Protocol 0236

#### Immobilization/Localization and Respiration Control Systems Study

This study must be performed on a single patient, and approval received from RTOG Headquarters, before you attempt to enter your first patient on RTOG Protocol 0236. A similar study must be performed for the first patient entered on this protocol, and approval must be received from Headquarters prior to entering a second patient. This same procedure must be followed before entering a third patient. A fourth patient can be entered at the same time as the third, as well as, additional patients can also be entered at this time. However, the results of the Immobilization/Localization and Respiration Control Systems Study for the third and fourth patients entered on this protocol must be sent forward for review as quickly as possible. This information will be analyzed, but no further communication will be sent from RTOG Headquarters except in those situations where problems are detected. If problems are found, you could be asked to stop entering patients until the issue is resolved. In situations where no problems are found, the Immobilization/Localization and Respiration Control Systems Study will be discontinued after you have sent the data forward for the fourth patient you have entered on this protocol.





### **RTOG 0413**

# A Randomized Phase III Study of Conventional Whole Breast Irradiation (WBI) Versus Partial Breast Irradiation (PBI) for Women with Stage 0, I, or II Breast Cancer

## Randomization

#### **GROUP 1\***

**Whole Breast Irradiation (WBI)** 

45-50 Gy in 25 (1.8-2.0 Gy) fractions to whole breast, followed by optional boost\*\* to ≥ 60 Gy

## GROUP 2\*

Partial Breast Irradiation (PBI)\*\*\*

34 Gy in 3.4 Gy fractions using multi-catheter interstitial brachytherapy

or

34 Gy in 3.4 Gy fractions using MammoSite® balloon catheter

Oľ

38.5 Gy in 3.85 Gy fractions using 3D conformal external beam radiation

For all PBI techniques: RT given to index quadrant only, BID (with a fraction separation of 6 hours), in 5-10 days.





NSABP-B-39 / RTOG 0413 QA Review

NSABP B-39 / RTOG 0413 Radiation Treatment Review

lain Menu

This review was completed 6/1/2005 10:52:31 AM.
Dose-Volume Analysis information cannot be updated.
This review has been assigned to Julia White

Case Number: 29	Change Case Number		
Initials: SH Modality / PBI Technique: 3D Dose Level: 38.5 Rx Dose: 38.	Conformal External Beam 5 (Gy)		
Date data submitted to ITC:			
Contact Email	Contact Email	Contact Email	Contact Email

Click here for Target Volume Review Form

#### A. TARGET VOLUME ANALYSIS

Target	Volume (cc)	Percent Volume Rece 0.90 Rx Dose(C		ICRU Ref Dose (Gy)	Max Dose (Gy)	Min Dose (Gy)	Mean Dose (Gy)	Coverage Score
PTV_EVAL	246	100	34.6	38.50	40	30.2	39	1

#### B. DOSE HETEROGENEITY (DH) And CONFORMITY

	Dose Hetereogeneity	Dose Heterogeneity Score
PTV_EVAL	1.04	1

Dose Heterogeneity (Max Dose/Rx dose): 1: DH <= 1.20, 3: DH > 1.20

#### C. NORMAL STRUCTURE ANALYSIS (See appendix II for standard structure names)

Normal	Volume	% Vol >= Ref Dose		Ref Dose (Gy)		Max Dose	Mean	Score	Criteria	
Tissue	(cc)	1	2	1	2	(Gy)	Dose (Gy)		1	2
Ipsilateral Lung	1696	2.4	<b> -</b>	11.6	13.5	36	1.1	1	< 15%	< 20%
Contralateral Lung	2153.3	0	-	1.9	3.85	0.4	0	[1	< 15%	< 20%
Ipsilateral Breast	2022.1	34 / 10.1	F	19.25/38.5	21.17/40.42	40	15	[1	< 60/35%	< 65/40%
Contralateral Breast	1882	0	J	1.2	3.08	1	0	1	Point	< 5%
Thyroid	8	0	F	1.2	3.08	0.2	0.1	1	Point	< 5%
Heart (Right Sided)	F	-	F	1.9	3.85	F		-	< 5%	< 10%
Heart (Left Sided)	660.3	0.4	-	1.9	3.85	4	0.2	1	< 40%	< 45%
Unspecified Tissue	25170.1	-	-			33	-	E	F	<u></u>





# R. T. Quality Assurance Staff



Back Row L/R: Lorraine Quarles; Denise Manfredi; Tammy McGlade;

Betty Martin; Joanne Hunter

Front Row L/R: Darlene Herd; Julie McIlvaine





# ATC Meeting Schedule

- Monthly teleconferences are held on the first Wednesday of each month to keep all ATC participants up to date on ongoing activities. Next call on March 1, 2006 at 2:00 CST.
- Bi-weekly teleconferences are held on Friday for RTOG/ITC/RPC Specific issues.
- ATC meeting at the RTOG Semi-Annual Meeting in Toronto, Canada, Fairmont Royal York, Thursday, June 22, 2006 at 8:00am 5:00pm.

