

NSABP B-39  
RTOG 0413

# Whole Breast Irradiation (WBI)

PBI Workshop  
January 22, 2005  
Phoenix, AZ

## *WBI intent*

Treat the entire ipsilateral breast through tangential fields and ensure that the lumpectomy cavity is dosimetrically covered within the irradiated volume.

# *WBI*

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- **CT-based treatment planning** is preferred and strongly encouraged
- **Regional nodal irradiation** is NOT allowed
- **Intensity modulated radiotherapy (IMRT)** is not allowed

# Permissible “IMRT” for WBI

✓ Segmental treatment techniques such as “field-in-field” that are intended to improve the uniformity of the dose distribution.

## Criteria:

- Optimizations based on dose-volume constraint is NOT used
- The majority of monitor units (>50%) are given through one large field at each gantry angle
- No routine individual Q/A dosimetry measurements made
- The number of segments is small <6
- The goal is dose uniformity and not steep dose gradients to protect organs at risk.

# *Timing of WBI*

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## → No chemotherapy:

- Within 8 weeks following lumpectomy
- Within 3 weeks following pre-randomization CT

## → Chemotherapy:

- No sooner than 2 weeks after last cycle
- No later than 8 weeks after last cycle

# *Whole breast dose*

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## Acceptable dosing:

50 Gy in 2.0 Gy per day fractionation

50.4 Gy in 1.8 Gy per day fractionation

# *WBI: Boosts*

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- Permitted but not required
- Brachytherapy boosts are NOT allowed
- Boost dose:
  - 10-16 Gy in 5 – 8 fractions
  - 66.4 Gy Maximum cumulative prescription dose

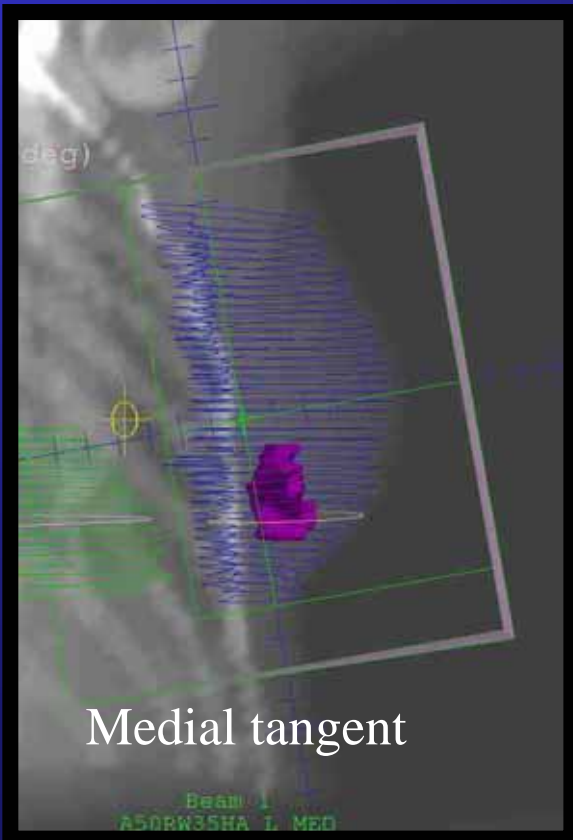
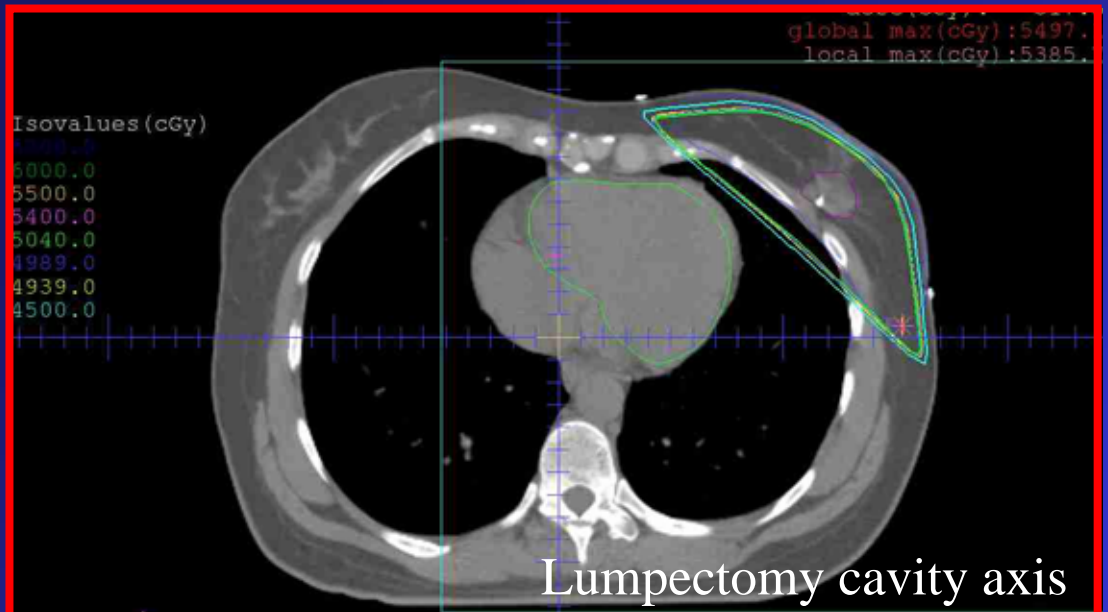
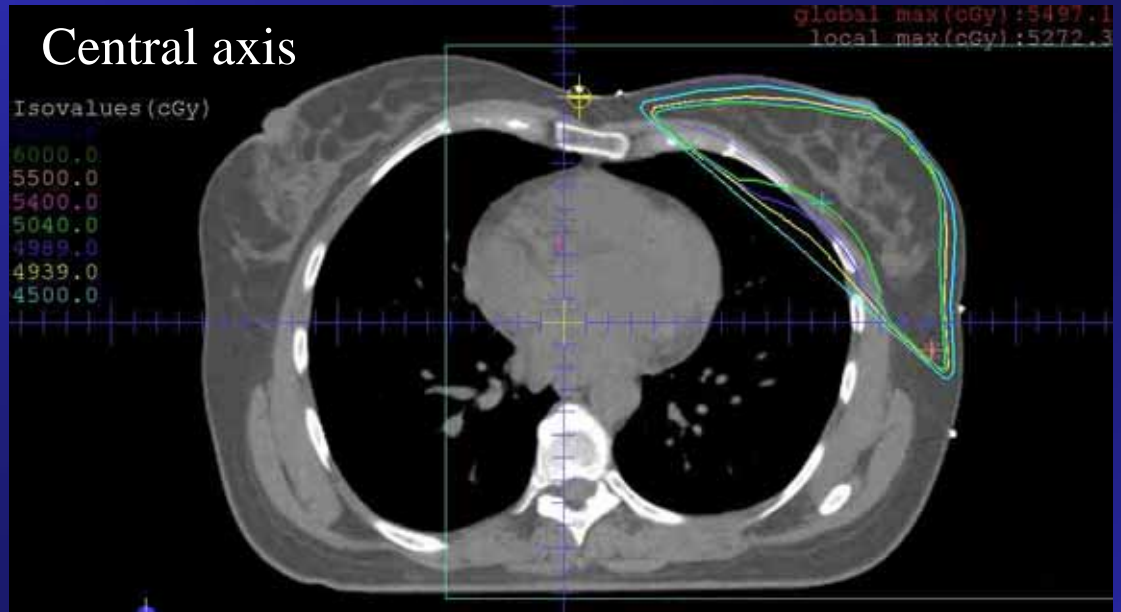
# *WBI: Dose Verification*

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- Verify that lumpectomy cavity is within the prescription dose for the whole breast
- Cavity must be included in  $\geq 90\%$  isodose
- Submit one axial CT slice demonstrating that the identified lumpectomy cavity is covered by  $\geq 90\%$  isodose line.



# WBI Dose Verification



# *WBI dose verification: missing cavity*

→ Patients receiving WBI after chemotherapy

→ Pre-randomization breast/thorax CT:

- Axial slice with lumpectomy cavity

→ Treatment planning CT:

- Comparable anatomical slice demonstrating that the  $\geq 90\%$  isodose line is covering the region where the cavity was previously visible

# *Use study-entry CT for WBI treatment planning*

- Combined study-entry and planning CT:
  - ✓ Appropriate patient position for WBI or PBI with 3-D CRT
  - ✓ Reproducible immobilization
  - ✓ Leveling and Set-up points
    - Paint marker for CT and tattoo prn after randomization
  - ✓ CT field-of-view includes: both lungs entirely  
contralateral breast  
thyroid

# *Fluoroscopy-based Planning*

- Lumpectomy cavity must have been marked with clips
- Tangent fields include clips with 2 cm margin
- Submit scanned copy or digital picture of simulation film

