

Site Specific Imaging Guidelines Used in Clinical Practice: Breast Cancer

Introduction:

This study will establish site specific imaging guidelines to be used within the Radiation Therapy program at the Sudbury Regional Hospital (HRSRH). With the installation of amorphous silicone flat panel imagers and CR technology, there is a need to re-evaluate current clinical practice (image on first day and weekly).

Aim:

To determine the frequency of portal imaging required to verify patient setup reproducibility throughout the course of radiation treatments. The study will assess the validity of imaging for the first 3 fractions and weekly.

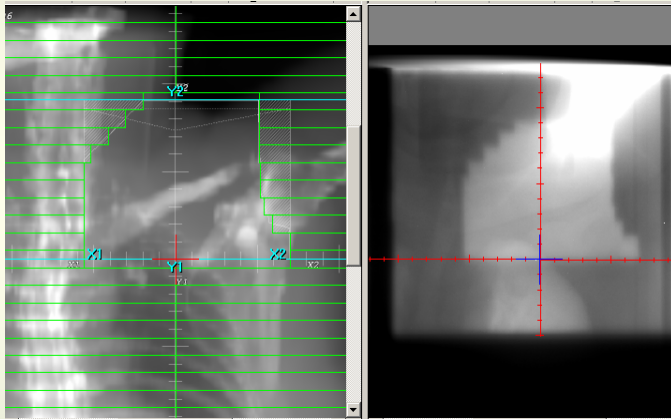


Figure 1a: AP s'clav DRR comparison to AP s'clav EPI

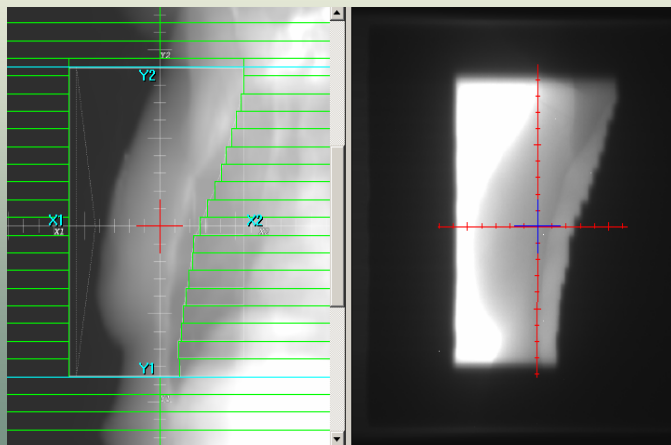


Figure 1b: Med Tang DRR comparison to Med Tang EPI

Methods:

- 21 breast cancer patients were included in this study with no exclusion criteria (15 tangent techniques & 6 AP/PA supraclavicular fields + tangent four field techniques)
- Portal images of AP s'clav & Medial fields (4 field technique) or Medial field only (tangent technique) were obtained pre-treatment days 1-3
- Portal images were also obtained weekly throughout treatment
- Images were assessed live by the radiation therapists and retrospectively by the prescribing radiation oncologist using clinical assessment [no imaging assessment tool used (i.e. image assist)]
- Shifts were documented and tracked using an electronic assessment tool and the patient's electronic treatment chart
- Correlation between the physician's and therapist's assessment was analyzed using Cohen's Kappa Statistics

		Radiation Oncologist		
		YES	NO	
Radiation Therapist	YES	4	0	4
	NO	23	149	172
		27	149	176

Table 1: Contingency table of RT & RO shifts

Results:

- 52% of patients (11/21) required shifts during study
 - 7/11 required shifts during first 3 days of treatment
 - 10/11 required shifts after 1st week
- The data indicates low agreement between RO and RT groups (Kappa value = 0.23)
- Large agreement when no shift was required (100%)
- Low agreement when a shift was required by the RO (15%)

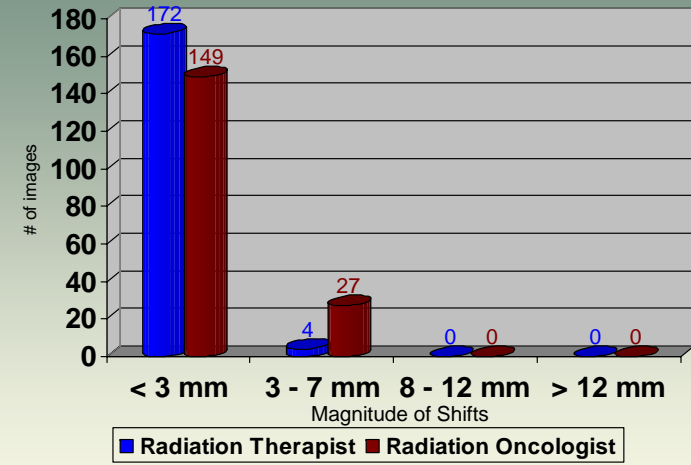


Figure 2: Comparison of number of images shifted by RO & RT

Discussion:

- Shifts were required on images obtained day 1-3 (33%)
- Most shifts were on images obtained weekly (67%)
 - May need to re-evaluate immobilization
- Data demonstrates low agreement between RO & RT
 - RT assessment considers clinical set up of patients (i.e. SSD's, location of PB edge, clinical coverage of breast tissue); RO assessment relies mainly on lung volume and clinical coverage of breast tissue visible on image
 - Compare criteria that RT and RO use to assess images

Conclusions:

- Imaging for first 3 fractions is beneficial to verify stability of set up
- Weekly imaging is necessary to ensure reproducibility of set up throughout treatment

Authors: Inocencia Nyarambi MRT(T), Lauren Oliver MRT(T), Renée Roy MRT(T), Tammy Sloan MRT(T), Laurie Stillwaugh MRT(T), Lisa Tarini MRT(T)
Sudbury Regional Hospital – Regional Cancer Program.
41 Ramsey Lake Road, Sudbury, ON P3E 5J1