

# AbstractID: 12761 Title: Abdominal CT scan technique variability within a Radiology Department

**Purpose:** To investigate variations in scan technique for patients undergoing abdominal CT examinations within a Radiology Department.

**Method and Materials:** We reviewed data of all 302 routine non-contrast abdominal pelvis scans performed at MUSC in one month on five CT scanners (two Definitions; one LS 16; one Sensation 16; one Sensation 64) located at three separate facilities. Data were obtained on the radiation used to perform these CT examination ( $CTDI_{vol}$  and Dose Length Product), as well as the scan length and the patient AP dimension.  $CTDI_{vol}$  data and scan length were compared for patients with similar AP dimensions for all five CT scanners. Variation between scanners for a given parameter was quantified as the coefficient of variation (COV), which was defined as the standard deviation divided by the mean and expressed as a percentage.

**Results:** The middle quintile of AP dimension ranged from 23.8 cm to 26.5 cm. Patients with AP dimensions  $< 21.4$  cm were in the bottom quintile, and those with AP dimensions  $> 30.1$  cm were in the top quintile.  $CTDI_{vol}$  increased from 15.7 mGy for patients in the bottom quintile to 26.6 mGy for patients in the top quintile. COV values for  $CTDI_{vol}$  were generally 13%, but increased to 25% for the patients in the largest quintile. Patient scan length increased from 52.3 cm for patients in the bottom quintile to 57.4 cm for patients in the top quintile. COV values for patient scan length were about 10%.

**Conclusion:** When normalized by patient size, variations in techniques used to perform abdominal CT scans at our institution are relatively modest for normal sized patients but increase by a factor of two for the largest patients.