Purpose: To establish baseline values and ranges for CTDIvol and DLP as a function of treatment site to be used to monitor CT simulation protocols and scan techniques for inadvertent changes and patient specific anomalies.

Methods: We have collected CTDIvol (mGy) and DLP (mGy cm) values reported for all CT simulations performed on two large bore GE lightspeed RT scanners and one GE PET/CT scanner located in the Radiation Oncology facilities of the University of California San Diego for the calendar year 2010. Additional acquired data included patient identifier, scan date, scan type, intended treatment site and scanner location. Data was analyzed to calculate averages and standard deviations of CTDIvol and DLP as a function of intended treatment site and scan type.

Results: The average CTDIvol for all helical scans was 32.3 with a standard deviation of 16.3 while the average DLP was 1095 with a standard deviation of 570. The average CTDIvol for all CINE scans was 115.6 with a standard deviation of 40.3. while the average DLP was 2064 with a standard deviation of 1625. As a function of treatment site for the helical scans, average values for CTDIvol ranged from 16.7 for TBI to 49.1 for brain while DLP ranged from 755 for breast to 1888 for TBI. For the CINE scans, average values for CTDIvol ranged from 113 for lung to 155 for liver while DLP ranged from 1630 for lung to 3929 for liver.

Conclusions: The collected data provides expected ranges for CTDIvol and DLP for technologists to use in evaluating CT scans to look for anomalies which may be caused by changes in scan protocols or incorrect protocol or scan parameter selection. This will allow us to set up a quality assurance program to detect, report and correct such errors as they occur.