AbstractID: 6699 Title: The effect of patient size and x-ray tube potential on doses to patients undergoing abdominal CT examinations

The purpose of this study was to investigate how patient size and x-ray technique factors affect doses to patients undergoing abdominal CT examinations. Patients between 10 and 120 kg were modeled as uniform cylinders of water. Mean section doses, energy imparted and effective doses were computed for x-ray tube potentials ranging from 80 to 140 kVp. For a 70 kg individual, increasing the x-ray tube potential from 80 to 140 kVp increased the mean section doses by a factor of six. At 120 kVp, increasing the patient weight from 10 to 120 kg reduced the mean section dose by a factor of 3.3, but increased the energy imparted by a factor of 2.0. At 120 kVp and 250 mAs, scanning a single 10 mm section resulted in an effective dose of 0.61 mSv for a 10 kg patient, 0.16 mSv for a 70 kg patient, and 0.10 mSv for a 120 kg patient. In abdominal CT, patient doses vary significantly with patient size and selected x-ray tube potential.