

AbstractID: 8114 Title: An attempt to establish regional diagnostic reference levels for CT scanners in India

**Purpose:** To establish regional diagnostic reference levels for CT scanners from a survey in Tamil Nadu, South India. **Method and Materials:** A regional survey of 71 CT scanners in a few districts in Tamil Nadu was done over a period of one year as a part of an ongoing Atomic Energy Regulatory Board (AERB) funded project. The survey included dissemination of necessary data involving exposure parameters and radiation doses used routinely in each centre. Dose estimation in CT scanners was performed using a 32 cm CT dose index (CTDI) acrylic body phantom and a 10cc pencil ion chamber. Weighted CTDI ( $CTDI_w$ ) and effective doses were calculated using observed CTDI values. An attempt to establish regional diagnostic reference levels was made by adopting results from a local dose reference level obtained from the host institution where the study was conducted. **Results:** Out of the 71 CT scanners surveyed, 24 were conventional, 29 spiral and 18 multidetectors. The mean  $CTDI_w$  values for biphasic abdominal CT using corresponding routine institutional protocols would be 14.55 mGy, 12.6 mGy and 17.18 mGy for conventional, spiral and multidetector CT scanners respectively. The third quartile values of effective dose for biphasic abdominal CT from the regional dose survey would be 17.15 mSv (range: 5.36 mSv – 46.81 mSv), 14.83 mSv (range: 3.68 mSv – 25.63 mSv) and 20.37 mSv (range: 4.31 mSv – 47.08 mSv) for conventional, spiral and multidetector CT scanners respectively. **Conclusion:** Regional diagnostic reference levels for body CT examinations could be established from prior knowledge of the local reference levels obtained. The wide variation of dose levels observed from various centres could contribute extensively to the population dose in the region in concern.