

Analysis of Radiological Physics Center Remote Tools Program Data

The RPC is developing various remote monitoring tools to identify, evaluate, and resolve systematic discrepancies in institution's dosimetry data and dose calculation algorithms. The objective of the program is to provide a baseline quality audit, short of an on-site visit, to all institutions participating in NCI-funded cooperative clinical trial groups. For the conventional external beam radiotherapy the program developed complements the TLD remote monitoring program for machine output that the RPC has been operating since 1972. In conjunction with the mailed TLD, the program monitors machine output, dosimetry data in use, and treatment planning algorithms. The TG-21 factors used in output calibration calculations are reviewed; dosimetry data are compared to RPC "Standard Data" for output, percentage depth dose, wedge, and off-axis factors; and treatment time calculation for two benchmark cases are verified against RPC data and calculation techniques. This program identifies discrepancies comparable to those discovered during an on-site evaluation, with the major discrepancies focused on wedge transmission and photon depth dose.

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