IROC Radiation Therapy QA Centers: 5 Years of Support of the NCI's NCTN Clinical Trials.

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Purpose/Objective: The Imaging and Radiation Oncology Core (IROC) Cooperative has been active for the past five years supporting the National Clinical Trial Network (NCTN) and the details of that support are reported. The objective of this work is to describe the numerous activities accomplished by IROC over the past five years in support of NCI’s NCTN, Division of Cancer Prevention (DCP) and Experimental Therapeutic Clinical Trial Network (ETCTN) clinical trials.

Material/Methods: IROC was made up of six QA centers (Houston, Ohio, Philadelphia-Rt, Philadelphia-Di, Rhode Island, St. Louis) providing an integrated RT and DI quality control program supporting NCI’s clinical trials (Figure 1).

Results: IROC provided core support for 198 NCTN, DCP and ETCTN trials with RT, DI and RT/DI components. All 5 groups incorporated the use of TRIAD in at least one protocol. After five years, 123 trials used TRIAD for data submission of DICOM and DICOM RT datasets.

SITE QUALIFICATION
IROC monitored 1840 RT photon and 28 proton institutions in 32 different countries. 26 of the 28 proton centers are approved to participate in NCTN clinical trials. Over 74,000 beams outputs were monitored these past five years with ≥8% of the sites requiring repeat audits due to a beam outside of the 5% criterion.

Figure 1: Countries with ≥ 1 RT centers monitored by IROC.

Figure 2. Countries with ≥ 1 RT centers monitored by IROC.

Figure 3. Patient data flow/review for NCTN clinical trials that includes TRIAD.

Figure 4. MiM software used for case review.

CREDENTIALING
As part of credentialing, 2,985 QA phantoms were irradiated, 1,600 benchmark cases were reviewed, 897 image guidance processes were assessed and 12,943 credentialing letters were issued over the past five years.

Results: DATA MANAGEMENT
Over the past 5 years of IROC activities, 24,368 RT patient cases were received (many using TRIAD) by IROC and prepared for review.

CASE REVIEW
Over the past 5 years, 19,881 RT cases were reviewed by IROC technical staff for quality and interpretation. It was IROC’s responsibility to prepare the data and ensure it’s completeness and the NCTN Group’s responsibility to interpret the cases as per protocol or deviation.

Conclusion: The volume of QA services provided by IROC were numerous, are continually being evaluated for effectiveness, harmonized across all NCTN Groups and administered in an efficient/timely manner to enhance accurate and per protocol trial data submission. To this end, 89 peer reviewed manuscripts were published supported by IROC.