RTOG 0236 Dry Run Guidelines

GENERAL

The SBRT Dry Run test for this study is required to be performed for the first patient that an institution plans to put on study. Successful completion of a Lung Phantom Dosimetry Test, facility questionnaire and an Immobilization/Localization and Respiration Control Systems Test are required before the Dry Run test case is to be attempted.

- The Dry Run test will be reviewed in the same manner as an actual case
- The dosimetry will be reviewed and the study chair will determine if this and the drawn structures are protocol compliant and sufficient for the patient to go ahead with registration and treatment.

Since this test case is the first case entered by an institution, the scanning parameters, the structure outline, and the dosimetry will have to be according to protocol in order to pass the dry run.

PRESCRIPTION

One of the most important aspects of the Dry Run test is to demonstrate full understanding of the prescription and proper use of this prescription in your Dry Run treatment plan and subsequent patient treatment plans. Review the protocol for the prescription doses to be used.

DIGITAL DATA

Digital patient treatment planning data must be submitted in digital format to the ITC. This digital data must comply with one of two possible formats:

- RTOG Specification for Tape/Network Format for Exchange of Treatment planning Data, Version 3.20, or later; or
- DICOM 3.0 in compliance with the ITC's DICOM 3.0 Conformance Statement

Contact the ITC if you have any questions about either of these formats or your RTP systems ability to comply with these requirements that are not answered by reviewing the list of exchange implementations on the ITC web site.
Using either of the formats identified above, the following data must be submitted to the ITC:

1) Protocol compliant CT scan series (RTOG P-0126, Sec. 6.3);
2) Protocol compliant contours for all critical normal structures, GTV, CTV and PTVs (RTOG P-0126, Sec. 6.4.5);
3) Beam geometry (see *Multiple Groups of Beams* below about multiple groups of

beams) and doses (absolute) for both fraction groups (PTVLD[**L**ow **D**ose] and PTVHD [**H**igh **D**ose]) delivering a protocol compliant dose with the doses calculated **with** heterogeneity corrections (P-0126 QA Guidelines);

4) DRR or digital film prescription images for each beam in item 3 above, if submitting institution intends to submit such digital data to comply with protocol requirements pertaining to imaging (P-0126 QA Guidelines);
5) DVH's (see Dose-Volume Histogram Evaluation below) for the total dose of all dose distributions submitted for item 3 (summed fraction groups from item 3) for PTVs and all critical normal structures (P-0126 QA Guidelines) (**Note:** DVHs are only required for total dose, not for individual fraction groups);

HARD COPY DATA

6) Three hard copy isodose distributions for the total dose plan (sum of both fraction groups) in absolute dose. The isodose images must be isodoses superimposed on gray scale CT anatomy and must include one axial, one sagittal and one coronal through the treatment isocenter. (P-0126 QA Guidelines)

7) Completed Dry Run specific T2 form completely filled in and signed by all identified personnel.

MULTIPLE GROUPS OF BEAMS

RTOG P-0126 requires that all fields be treated each day. This requires that the fields used for the first day of treatment must be treated identically every day for 31 fractions. Likewise, the 13 boost fractions (for Arm 2) or 8 boost fractions (for Arm 1) will be treated with first day port and orthogonal films obtained.
The treatment planning data is to be submitted in two Fraction Groups, where a Fraction Group represents the beams and doses for a concurrently treated set of beams. In this protocol, there are two fraction groups. One for the large field treatments (PTVLD) and one for the boost treatments (PTVHD). The ITC collects the data in this way to maintain our ability to identify daily fractionation throughout the course of therapy. The ITC will combine the two submitted fraction groups, as needed, to evaluate the total dose hard copy submitted and for protocol dose compliance determination.
One method of accomplishing this submission (though it may vary significantly between treatment planning systems) is to create the total dose plan and save it. Recall the total dose plan, delete all the boost fields and save it as the PTVLD plan. Likewise recall the total dose plan and delete the large fields and save it as PTVHD. The beams and doses (and perhaps DRRs) for PTVLD and PTVHD will be submitted in digital form to the ITC as well as the DVHs for the total dose plan.

DOSE-VOLUME HISTOGRAM EVALUATION

There should be reasonable agreement between individual participating institutions's DVH computations and those of the ITC. Therefore, any discrepancy between the

submitting institution's DVHs and those computed by the ITC in excess of ±5% (or 3 cc for small structures) in total volume or ±5% (relative to the absolute structure volume) of the volume calculated to be at or above the appropriate TD 5/5 dose for the particular structure will need to be resolved prior to successfully completing the Dry Run Test. **NOTE:** There is no requirement that the patient whose data is used for the Dry Run test be treated according to P-0126. This test set can be from a data set for a patient who was previously seen and/or treated (in some other fashion). The only requirement is that the CT scan be close to protocol compliant and the tumor/target volumes and critical normal structure contours be defined in compliance with P-0126 and that protocol compliant treatment plans be generated and the appropriate data submitted to the ITC. The immobilization device requirement is waived for this test data set. All patient identifying data for the Dry Run test data must be removed before submission to protect patient confidentiality.

PORT FILMS

No port films are required for the Dry Run test other than DRRs as identified in item 4 above as the patient's treatment is not required to be per protocol. However, if you plan on submitting your treatment verification images in digital format, you must prove that you have a compliant method of submitting these images as part of the Dry Run test.

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