AbstractID: 13779 Title: Quality Assurance of Plan Parameter Integrity before and during treatment

**Purpose:** As a part of initial and ongoing quality assurance, it is necessary to ensure that changes made after the physician approves a plan will not cause a deviation from original intent. Although plan parameters are electronically transferred, few plans are often prepared per case. Past the physician's approval, the specific plan is further modified, and is manually chosen for transfer in our multi-vendor environment. During treatment, parameters are also modified by therapists and physicians. We created an automated verification system to document (1) proper TP-RV parameter transfer of the plan, and (2) constancy of treatment parameters on a weekly basis.

**Method and Materials:** A macro (Excel®, Microsoft, Seattle, WA) gathers the TP (Eclipse®, Varian, Palo Alto, CA) and the RV (MOSAIQ®, IMPAC, Sunnyvale, CA) outputs. The macro registers in each modality patient name, ID, prescription, and field parameters. Field parameters include modality, energy, gantry and collimator angles, couch position and angle, aperture definition (cone size or jaw and MLC leaf positions for all segments), wedge angle, and bolus thickness. The Macro then reviews each Eclipse-MOSAIQ parameter pair. The number of parameter-pairs ranges from 30 for a single electron field, to as many as 200,000 pairs for an IMRT plan. Basic plan checks are built into the software, such as ensuring the prescription is complete, all parameters are entered and do not exceed machine limits.

**Results:** Gathering both outputs and conducting the review is usually performed within 5 minutes. Since the Eclipse data is already available during the weekly comparison, retrieving the MOSAIQ portion and reviewing is performed in 2 minutes.

**Conclusion:** The algorithm was used for the past year on about 500 patients. The generated report highlights outliers, allowing the reviewer to consider general plan appropriateness, rather than focus on the minutia of each parameter.