

## Works In Progress

### Semi-automated beam data validation.

When preparing a beam file for use with a TPS, care must be taken to ensure that the data was measured correctly and entered into the system in the correct format. A process for analyzing the accuracy of the input data is presented. A series of test configurations are measured in a waterphantom. For measured data algorithms, this data is used as input for the TPS. For modeled beam algorithms this data is used for comparison to calculated results to evaluate the correctness of model parameters. In either case, comparisons between measured and calculated data are made. A software tool has been developed that will automatically compare a series of calculated and measured results. The percent difference between the measured and calculated data is computed for each measured data point. A distance to agreement is also computed. Points that fail user-defined criteria are plotted for analysis. Still being developed is the integration of the tool into the beam file creation for a commercial TPS, Multidata DSS. It is proposed that a software tool such as this be run on a beam file before it can be flagged for clinical use by the TPS. Also in development is a series of data correctness tools that analyze such factors as jaw transmission, TMR for stated energy, output factor for machine model, wedge factor for machine model and wedge type, etc. This requires the creation of a benchmark library to be used for comparison.