

## AbstractID: 12686 Title: Development of National Radiotherapy Audit in the UK

**Purpose:** The use of audit within the radiotherapy community in the UK has developed over the last 20 years. A National Interdepartmental Audit Network was set up which comprised eight regional groups covering the 66 departments. Recently, national audits have been introduced, to set a baseline for all departments to achieve a dosimetry standard.

**Method and Materials:** Standard photon and electron audits were developed which could be performed by departments within each regional group. The aim was to measure a clinically relevant situation using both host and auditors' equipment. The use of a spreadsheet meant that the results were available instantly to exclude set up errors, and enable investigation of any unexpected results. The uptake of IMRT has been slow in the UK so an audit method was developed in order to increase confidence in centers starting IMRT programs. The method required all institutions to export a plan on their treatment planning system (TPS) and then irradiate dosimetry film in a water equivalent phantom at a standard depth. In addition, a set of alanine dosimeters was used to measure absolute delivered dose at a defined point. The TPS calculated dose grid was exported in a standard format and films and alanine were processed centrally.

**Results:** 33/58 centres in the IMRT audit have been analysed. 49/55 alanine measurements were within 3% of predicted dose. 20/21 prostate plans achieved better than 96% pixels passing a 3%/3mm gamma evaluation and 17/18 head and neck plans at 4%/4mm.

**Conclusion:** Recent reporting of radiotherapy incidents in the press have shown that confidence needs to be established in the whole radiotherapy process and audit has a major part to play in achieving this. Participating in and developing new forms of audit which reflect the modern methods used in 21st century radiotherapy should be a major goal.