

AbstractID: 9241 Title: A comparison of dosimetry devices.

**Purpose:** With more and more departments moving to a filmless environment there is a need to find alternative methods for IMRT and routine QA.

**Method and Materials:** This study compares results from 8 different devices. They include, MapCheck from Sun Nuclear, 729 chamber array from PTW, MatriXX chamber array from Scanditronix-Wellhofer, EBT gafchromic film from ISP, Varian EPID dosimetry, Kodak CR, Bang Gel from MGS Research, and Delta<sup>4</sup> 3D diode array from ScandiDos. The devices were compared using 3 IMRT fields at 6 and 18MV energies. The 3 fields consisted of a small prostate field, a large head and neck field, and a solid compensator field. In addition, a series of 10x10 open field exposures were made at various gantry angles for 6MV. The results are compared to traditional Kodak EDR2 film.

**Results:** All devices reported doses to within about 3% of the calculated values for points inside the treatment area. Larger differences were found for the measured high gradient areas. Differences of up to 60% in cGy/mm were found. There were also large differences in the dose measured outside the treatment area. Only the Mapcheck and EBT film were within 4% of the calculated values in this area. Angular response was found to vary up to about 13% for some of the devices.

**Conclusion:** All of the devices provide reasonable results for measuring doses in the treatment area for normal incidence of the beam. If it is desired to measure at multiple gantry angles or to accurately measure the dose outside the treatment area, then the choices are more limited.

**Conflict of Interest (only if applicable):**