AbstractID: 10471 Title: Evaluation of 3-D treatment plans using physical and motorised enhanced dynamic wedges

Purpose: To analyze the treatment plans generated using physical and enhanced dynamic wedges for head and neck patients from Eclipse treatment planning system. **Materials and Methods:** The physical wedge filters of angles of 15º, 30º, 45º and 60º are used. In Enhanced Dynamic Wedge technique no external beam modifier is used to create wedge dose profiles, instead wedged isodose profiles is created by the sweeping action of the jaw from open to closed position while the beam is on. The dose rate and jaw speed are also varied during the treatment, which is the function of selected energy, field size and wedge angle. The single STT called Golden STT (GSTT) is used for 60º wedge angle and other wedge effects are obtained by mixing open and wedge field intensities. The conformal treatment plans of 20 head and neck patients were used in this study. Plans are generated using both physical and enhanced dynamic wedges. The dose was normalized to 100% at isocenter. The plans were compared using Dose-Volume histogram (DVH) tool. **Results and Discussion:** The treatment plans generated shows that the enhanced dynamic wedge plans were comparable with that of the physical wedge plan and the DVH analysis showed that the critical organ sparing is slightly better with enhanced dynamic wedge. The maximum dose within the target volume is higher in physical wedge plan. The number of monitor units to deliver a particular dose with EDW field is less than that of PW field due to change in wedge factor, which could probably reduce the scatter dose to structures off the field. Enhanced dynamic wedges eliminate the beam hardening effect, and also it is possible to obtain an asymmetric wedge fields with EDW. The dose and jaw position control accuracy statistics are displayed and saved to dynalog files after treatment.