

Development of a comprehensive compensator system

A compensator system for our clinic has been developed, which consists of a computer program being used as an interface between different patient data sources for input, and generates physical compensators or dynamic Multi-Leaf (DMLC) leaf-sequencing files as end product. Tissue deficit at the surface of patient contours are measured by a Moire camera or calculated from CT scans. The compensator or DMLC files generated could be just for missing tissue compensation, or could include dose optimization. Thickness of the compensator generated by our commercial treatment planning computer could be imported for the purpose of calculating an intensity map. From the calculated intensity map, leaf-sequence file is generated, which could be used by the Dynamic MLC in place of the physical compensator. We have two Varian machines, one is equipped with a 40-pair MLC and the other is equipped with only a 26-pair MLC. With 26-pair MLC, the size of the compensated treatment field is limited to 26 cm wide at the center of the treatment field. Due to the finite width of each leaf (1 cm), the physical compensator is found to be superior in term of spatial resolution. This is important for treatment sites, such as head and neck, which have highly irregular shaped contours. The Pro and con between using physical compensator and dynamic MLC will be discussed.