AbstractID: 1472 Title: Image guided and on-line IMRT planning for palliative and emergency cases

Intensity Modulated Radiation Therapy (IMRT) is becoming the standard of care for cancer treatment. However, many patients such as palliative and emergency care patients may not benefit from this kind of treatment. The common practice for these patients is the so called simulate and treat approach. Under those conditions, the positioning, planning and delivery process can take between 30 minutes to one hour and a half to implement. Moreover, the treatment quality is far from being considered state of the art. In this work a new workflow was implemented using helical tomotherapy to generate images of the patient in the treatment position. Then, with the patient still on the couch, an IMRT plan (including the subsequent planned fractions) is created using the CT just taken and then this optimized plan can be immediately delivered to the patient. On average, the overall process takes between 14 to 22 minutes depending on the case. New contouring tools were developed to facilitate the target and sensitive structure delineation. As opposed to IMRT used for curative intent, the exact location of the dose gradients may be relaxed, therefore the only verification that may be necessary is an independent monitor unit verification. Examples for whole brain, spine and bone metastases are presented. The present workflow provides *image guided IMRT* for palliative and emergency care patients with times that are comparable or even smaller that the current processes.