

Pre-treatment cone beam CT image guidance combined with linear accelerator based intensity-modulated radiotherapy (IMRT) is compared to and contrasted with tomotherapy an alternative commercially available IMRT planning and delivery system. The underlying rationale of the two different IMRT approaches are discussed and their methods pre-treatment image guidance and modes of treatment delivery are described. Differences between dose-distributions delivered using tomotherapy and conventional linear accelerators are outlined. Because conventional linear accelerator design has been refined over many decades, innovative design enhancement of one aspect of system performance often limits another facet of system capability. Consequently the two IGRT/IMRT delivery systems may prove optimal for different types of treatment, proving advantageous for certain disease sites while being of almost equal utility in others.

1. Understand the differences and similarities in pre-treatment image guidance for the two systems discussed.
2. Understand the differences and similarities in treatment delivery for the two systems discussed.