

AbstractID: 6833 Title: Treatment Errors in Radiation Therapy Performed Using Modern Technology

Purpose:

Conformal and intensity-modulated radiation therapy techniques use clinical data transferred electronically from one radiation therapy equipment to another. Before treatment, patient treatment parameters are downloaded into the linear accelerator for dose delivery. This study evaluates recordable events to identify the types of treatment errors associated with these sophisticated treatment techniques.

Methods and Materials:

Our institution consists of 20 community and academic facilities with 30 medical linear accelerators, and about 650 external beam patients per day are treated. All records of events are reviewed within our quality assurance program. By definition, any unintended deviation from the prescription constitutes a "recordable event." The records of events that occurred at our institution for the years 2005 and 2006 were evaluated. Although the number of recordable events is small, it gives a trend of possible occurrence of the types of treatment errors.

Results:

Traditional types of treatment errors such as transcription and dosimetric errors have been minimized. New types of treatment errors classified as (a) treatment of incorrectly identified patients, (b) downloading different patient files, (c) incomplete treatment of prescribed fields, (d) failure to implement patient shift according to treatment plan, and (e) failure to invoke gating system are observed in the record of events. These constitute over half of the events.

Conclusion:

A failure mode and effect analysis (FMEA) can help in identifying areas where quality assurance should be emphasized. Such analysis is recommended for all new technologies implemented in busy clinics.

Conflict of Interest (only if applicable)