

Purpose: During stereotactic arc therapy for cranial lesions there is a significant risk of the linac gantry colliding with the treatment table and/or headframe, resulting in equipment damage or patient injury. If a collision is detected manually before the patient treatment, the plan has to be altered and the workflow of the physicist is disrupted. To solve this we have developed a software program that predicts collisions during the time of treatment planning, thus greatly reducing the possibility of a re-plan of a patient's treatment. **Method and Materials:** The software uses dimensional measurements from the table and gantry as well as information about tumor location to give a patient-specific collision analysis for a particular treatment. In our clinic we use an ExacTrac headframe system and Novalis TX linac. The software program was written in Java. **Results:** To test the software we analyzed 28 different patient plans comprised of 161 different arcs. In every instance where there was an actual collision (8 times) the program correctly predicted the outcome. There were 9 instances where the software incorrectly predicted a collision. On average, the distances that the software reports overestimates the actual distances by 1.2 cm. The software program took 3 seconds to run for each arc tested. **Conclusion:** This software has been used successfully in our clinic for a year. We are still manually checking for collisions, but since implementation there has not been need for a re-plan, as every potential collision has been detected.