

## I. Setting standards for relocatable stereotactic head frames: Proposals

The head frame system used to immobilize and reproducibly relocate a patient is critical to fractionated high precision conformal stereotactic radiotherapy of intra-cranial lesions. Unfortunately, there are no widely accepted standards of performance, safety and documentation. Organizations such as the AAPM are now considering setting guidelines. The authors propose the following items be quantitatively and qualitatively assessed:

1. Design Concept: method of immobilization and method of re-localization, long-term mechanical rigidity, problem areas, restraining forces, alignment of the neck, frame attachment to various couches, and compatibility with fiducial co-ordinate hardware.
2. Patient Comfort and Safety: comfort, a quick release mechanism, patient hair, use of dentists for bite-blocks, and a formalized list of problem patient characteristics.
3. Compatibility with MRI, CT and Radiotherapy Equipment: MRI artifacts and distortion, frame use in an MRI head coil, CT artifacts, documentation of use in other radiotherapy installations, portal imaging accessories, collision risks, collision interlocks, and beam attenuation factors.
4. Positioning Accuracy: measurements should describe results taken on different days over many areas of the head (including the posterior and superior), using standardized methodology and terminology.
5. Quality Assurance: QA technique, QA technique validation, time required, portal images.
6. Therapist Training: mandatory training program, staff consistency, daily QA, checklists, and a head frame system which is robust and requires few subjective decisions.