AbstractID: 7676 Title: Design a patient positioning and immobilization stand for both TBI and TSET treatments.

Generally, patients undergoing TBI treatments become exceedingly frail during the course of therapy. The average duration of irradiation is 12 minutes. In addition 0.5 cm accuracy is required for the lung block positioning. Towards providing adequate patient support, immobilization and comfort during the treatment as well as assuring accurate placement of lung blocks a large field stand has been designed. The patients are irradiated AP/PA with the weight being fully supported while in standing position. Effective support and immobilization is provided by a set of bars at the patient's neck level and velcro straps at various levels. Another single bar at the umbilicus level can be adjusted for the appropriate treatment SSD. A mechanism to align the lung blocks with patient's skin marks and provide easy adjustments in the lateral and axial directions, if needed, is an important feature of the stand. TSET treatments are carried out using the 6 dual field technique. Additional features of the large field stand allow for easy orientation of the patient's body and extremities prior to treating each set of dual fields. In addition a template on a vertically adjustable platform facilitates such orientations and SSD setups.

Port films during TBI treatments confirm good lung block positioning. In addition in-vivo dosimetry results for TBI and TSET confirm our dose calculations and indicate a dose variation at the treatment SSD plane of less than 10%.