Purpose:
The prototype immobilization board has been developed and implemented for proton therapy of the craniospinal axis at the IU Health Proton Therapy Center. This innovation is important because proton beam CSI spares the majority of the thoracic and abdominal organs, avoiding much of the acute and long term toxicity outside of the craniospinal axis associated with standard radiation therapy techniques. Proton CSI provides a significantly lower integral dose than otherwise achievable. The delivery of supine craniospinal irradiation (CSI) is a challenge due to the limitations of the treatment couches in routine clinical use. This is particularly true for proton radiation which requires the patient be reproducibly placed on a smoothly varying (“edgeless”) surface.

Methods:
Since the largest field available to us is 30 cm x 30 cm and field matching is required, the immobilization board attaches to a standard treatment couch mounted on a robotic patient positioner which moves precisely to cover all areas of the body above the mid-femur for patients up to 200 cm. The weight tolerance of the production board exceeds the weight tolerance of the robot (360 pounds).

Results:
We discuss this immobilization device, and our experience treating pediatric and adult patients in the supine position with and without anesthesia.

Conclusions:
Anticipated modifications to the design of the immobilization board will increase access to the majority of the patient’s body, including beams from oblique posterior angles. The cost effective device can be adapted to any standard tabletop (including photon units).