

# PREVENTING PATIENT SLIDING IN STEEP TRENDLENBURG

## GOALS

To prevent patients who are positioned in steep Trendelenburg from sliding on the OR bed and avoiding any related injuries.

### Introduction

The University of Michigan Health System has a large Obstetrics and Gynecology Department that provides a wide range of services to our patients. These include robotic and laparoscopic surgeries that require the patient to be placed in a steep Trendelenburg position. We have used eggcrate foam, gel pads, shoulder braces and bean bags as positioning devices to prevent sliding on the OR bed and potential injury. In spite of these used separately and sometimes in combination, we still experienced cephalad movement of some patients. One patient had extensive movement of approximately 30 cm.

### Traditional Methods

In a study done by Klauschie and Wechter, they had laparoscopic and robotic patients positioned in steep Trendelenburg. Thirty-one patients were positioned with eggcrate foam and 29 patients positioned with gel pads. The eggcrate patients had a mean slide distance of 3.3 cm and the gel pad patients had a mean slide distance of 3.6 cm. These traditional methods do not prevent patient sliding.



### Speed Bump Method



Frame is attached to OR bed rails.



Speed bump placed in concave of patient's neck, against the trapezius muscle.



Orientation of foam pieces to frame.

The speed bump method has a frame covered with Velcro that is secured to the rails on the OR bed. The patient is positioned with four pieces of foam that attach to the frame. One of the pieces of foam has a raised half roll section that resembles a speed bump. This is placed in the contour of the patient's neck, bumping up against the trapezius muscle. Another piece of foam is placed under the patient's head to stabilize side to side movement. The last two pieces of foam are placed lightly next to each shoulder at a 45 degree angle. These function not as shoulder braces but as lateral stabilizers.

### Results

During a ten month period of time 503 laparoscopic and robotic gynecological cases were performed. All of these patients were placed in low lithotomy with their arms secured at their sides and the Velcro covered frame with speed bump foam positioning system was used. These patients were inclined in steep Trendelenburg at a 30-40 degree angle. No patient slid on the OR bed and there have been no skin shearing or brachial plexus injuries.

### Conclusion

Patients supported by body contours that engage a large muscle mass such as the trapezius muscle can be prevented from sliding on the OR bed while in steep Trendelenburg, even up to a 30-40 degree angle. This security allows patients to avoid injuries to skin, joints and nerves that are associated with sliding.

The University of Michigan Health System (UMHS) based in Ann Arbor Michigan, is an academic medical center.

The 76 operating rooms across the medical center campus are located at:  
 University Hospital, Frankel Cardiovascular Center, C.S. Mott Children's Hospital & Von Voigtländer Women's Hospital,  
 Kellogg Eye Center, East Ann Arbor Ambulatory Surgery Center, Livonia Surgery Center

References: Klauschie J, Wechter ME, Jacob K, Zanagnolo V, Montero R, Magrina J, Kho R. (2010) Use of anti-skid material and patient-positioning to prevent shifting during robotic assisted gynecologic procedures. Journal of Minimally Invasive Gynecology. Jul-Aug 17(4):504-7



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