Improved Way to Affix IV Components to Gurneys from Operating Tables

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The current issue in the process of transporting a patient from the operating room (OR) to the intensive care unit (ICU) is the transferring of the patient in a timely and safe manner. This process becomes difficult because there is usually one person available to manage both the intravenous (IV) stand and the gurney during transport. The top heavy IV stand makes this difficult with approximately 40 pounds on the upper portion of the pole due to the IV pumps required. Therefore, the pole has the tendency to tip over. These factors lead to the concern for the safety of the patient.

**Objective**

- Transfer IV bag & pumps from operating table to ICU bed
- Ensure process is streamlined
- Increase the safety of post-op patient transport
- One-man operation of both gurney and IV stand during transport
- Use a quick release/attach system
- Robust and sturdy, but lightweight design
- Maintain access to patients head

The IV-to-Gurney Coupler joins the IV stand to the gurney utilizing a quick-connect system during patient transport from the operating room to the intensive care unit. It is retractable, quickly and easily attaches to the stand, and affixes the IV stand to the bed in order to prevent the stand from tipping over. In this case, the IV stand will remain on its wheels and travel alongside the bed.

For the finite element analysis, loading conditions were set at the maximum allowable load for the latch, a 200 lb. force. Under this condition most of the stress was found at the hinges. The maximum stress was found to be under the yield strength of 42 ksi (304 stainless steel). Additionally, deformation was minimal and occurred due to separation between the arm and the bracket.

The Stitch-N-Hitch combines a quick attach/release system to the IV pump with the current process of attaching the pump to the stand. The current method uses a thumb screw to attach to the stand. Retaining this thumb-screw attachment is kept in order to allow for easy mobility up and down the pole. For this method the IV container and pumps will transfer between permanently affixed poles on each bed.

For this analysis shown, the loading conditions were set to the approximate weight of the pump (20 lb.). The maximum stress on both components were found to be substantially less than the yield strength (778 psi), while deformation was negligible.

**Acknowledgements**

We would like to thank Dr. Rojas for her advising, aide, and mentoring. As well as, Dr. Liebman for his design considerations and expertise, and to the School of Engineering for additional funding.