Sponsor: B. Braun Medical Inc.

Project Title: Usability Study-Luers for Home Healthcare

Project Recap

B. Braun Medical Inc. tasked our team with examining the usability of luers for home healthcare. With the changing health market, more and more patients are being discharged from the hospital early. This means that some are being sent home with some sort of IV medication leaving sometimes untrained caretakers to change out medications using luer connectors and proper sterile procedure. Our team examined this by creating a study which looked at various groups of different age and training. We believed age to be a primary factor in this study because as we age our fine motor control begins to decrease making it difficult to handle small devices such as these medical valves. We also accounted for age because many of those in home healthcare are elderly and their spouse may be responsible for performing this task. We had a 18-30, 30-60, and 60+ age group. We also used a group of nurses as our control as they should know exactly what to do. About half the participants from each group received a training document detailing the process while the other half were simply told to make the connection to the best of their ability.

Our results were quite interesting. It was found that training did help to cut down on the number of errors per participant but the most significant factor with regards to not making errors was the number of attempts the subject performed. As they continued to work with the device it continued to become more intuitive resulting in more successful connections. The nurses tended to the prefer the industry standard movable collar design, which B. Braun Medical Inc. sells the most of annually. All participants obtained from the general population however did not enjoy using that valve and did not find as much success with it. They tended to prefer the fixed collar designs that often have less moving parts making them easier to work with if they lacked any sort of fine motor control. We found that the most common complaint was caps were difficult to remove and the luers were too narrow to handle. As a result our group came to the recommendation that a wide fixed collar luer with contrasting collar from cap to valve as well as an external cap should be used in the future for any products designed specifically for the home healthcare market.