

# Comparison of a manual wheelchair designed and produced in Mexico to a wheelchair produced in China based on ISO testing and clinician and user feedback

Maria Luisa Toro MS<sup>1,2</sup>, Yasmin Garcia-Mendez MS<sup>1,2</sup>, David J. Dausey, PhD<sup>3</sup>, Jonathan Pearlman PhD<sup>1,2</sup>

<sup>1</sup>*Human Engineering Research Laboratories, Department of Veterans Affairs, Pittsburgh, PA;*

<sup>2</sup>*Department of Rehabilitation Science and Technology, University of Pittsburgh, Pittsburgh, PA*

<sup>3</sup>*Mercyhurst Department of Public Health and Mercyhurst Institute for Public Health, Mercyhurst University, Erie, PA*

CRIT Guanajuato, Mexico site for their assistance during this study.

## INTRODUCTION

In less resourced settings like Mexico, the majority of those who need a wheelchair (WC) do not have access to an appropriate one (Borg & Khasnabis, 2008). When the need for appropriate WCs is not met, participation in community and society of those who need a WC as their primary means of mobility is hindered (Borg & Khasnabis, 2008). A common problem is that production facilities are limited and many WCs are donated without appropriate provision services (Borg & Khasnabis, 2008). When the WCs are not appropriate for the user and/or the environment they are usually rejected (Mukherjee & Samanta, 2005). The role of manufacturers and suppliers of WC is to produce and/or supply WC that meet relevant standards (i.e. ISO 7176) and that are repairable locally (Borg & Khasnabis, 2008; International Standards Organization, 1998). A previous study suggested that the WCs provided at a Teletón facility in Mexico were frequently failing (Toro, Garcia, Ojeda, Dausey, & Pearlman, 2012). This project set out to evaluate the feasibility of using locally sourced WCs as the WC model provided. Currently nearly all of the WCs provided at Teletón are manufactured in China where there are large factories and significant economies of scale for production. With locally sourced WCs, spare parts could be more readily available, orders could be placed on demand, and the business could stimulate the local economy. In addition, the WCs would not have to be imported, avoiding any challenges shipping WCs into Mexico. During a previous phase of this work, we identified a local vendor who manufactures WCs close to Irapuato: Bertha O. de Osete (FBO). In this project we set out to compare and evaluate a basic pediatric WC from FBO to a pediatric WC manufactured in China by Drive Medical.

## ACKNOWLEDGEMENT

This project was funded by the Benter Foundation and undertaken in cooperation with the American WC Mission and Fundación Teletón México. The authors would like to thank Ricardo Guzman and the staff at the