

REACHING THE FUTURE... AND A GLASS OF WATER
PAM MCCASKILL, OT(C) AND KAREN DICKINSON, OT(C)
Stan Cassidy Centre for Rehabilitation

SCCR and the UNB Institute for Bio-Medical Engineering jointly run a Rehab Engineering Clinic that meets monthly. We receive referrals for clients who require specialized engineering intervention to design equipment solutions to functional problems that are not already commercially available. In 2004, we received a new referral for one of our known clients with spina bifida and a stroke at birth. She was already extremely limited when she experienced a medical complication that further impaired her feeding, dressing, and transferring skills. Surgery and possible prosthetic/orthotic intervention were discussed with the client, her family, her medical team and Rehab Engineering.

Then the Manus Assistive Robot service Manipulator (ARM) came to our attention. It is a robot which assists people with severe limb dysfunction by compensating for lost arm and hand function. It can be mounted on a power wheelchair or a mobile base and the unit operates in planes of movements similar to human movement. It has a shoulder, upper arm, elbow, forearm, wrist, and gripper. By means of an input device such as a keypad or joystick, the ARM can be operated to grasp objects with its gripper. When not in use the ARM can be folded in beside the wheelchair.

The manufacturer in the Netherlands was contacted and subsequently made a visit to Canada with the Manus ARM for the client to trial. Within minutes, the client was mastering the keypad and was realizing the potential benefits of the technology. At the time, only one other client in North America owned a unit. Other units in North America have been purchased by universities for research purposes. In the Netherlands, their assistive devices program purchases these units for clients who meet particular diagnostic and functional criteria and replace them every 5 years.

Today's presentation will outline the benefits of this technology in general terms, and in specific terms with respect to the two clients in NB currently using the ARM. During the process of obtaining the ARM for two clients, we became involved in building a supportive case to approach the funding agencies (private charitable organizations rather than government). Our success in obtaining funding will be discussed. Of course, with all new technologies, there are some drawbacks. Mounting the ARM to the client's power wheelchairs, home accessibility and the challenge of interfacing electronics with drive access methods will be reviewed.

References

Exact Dynamics website, <http://www.exactdynamics.nl/>