

Ferno Power Stair Chair Implementation

Background:

The City of Greater Sudbury Paramedic Services transports over 20,000 patients annually. Some patients are not ambulatory and require Paramedics to utilize a manual “stair chair” device to carry them up/down stairs, prior to placing them onto the stretcher for transport to the hospital.

The repetitive cycle of lifting patients with the manual stair chair up and down flights of stairs has an adverse effect on the well-being of Paramedics and results in both fatigue and strain-type injuries with additional loss of productivity.

Paramedic Services undertook an analysis of injury rates from 2016 to 2018. There were a total of 35 injuries related to the use of the manual stair chair. These claims accounted for 28% of total reported claims during this period and resulted in a cost to the City of \$172K, in medical claims and \$161K in lost time for a total cost of \$333K over three years.

The 35 claims indicated above can, in part, be attributed to the following:

- Increase in patient weight (the Canadian Community Health Survey indicated that the 90th percentile weight of a Canadian male adult is now 228 lbs., this is up from the 1990’s).
- Paramedic physical fitness declining as they progress in their career.
- Paramedics carrying more medical equipment due to their expanded scope of practice.

Injury rates resulting from the physically demanding work by Paramedics are a significant concern for Paramedic Services. Evidence shows that a number of Paramedics end their careers due to disability, instead of retirement. This concern has been identified by the “Emergency Services Strategic Plan 2014-2020”, published July 30, 2014 with the stated intent to, “find alternative powered solutions to reduce the accumulative effects of lifting, while improving patient safety”.

In March of 2015, Paramedic Services implemented power stretchers and power load systems into all ambulances. Since this time, back injury strains and sprains relating to lifting or carrying the stretcher have been virtually eliminated. The implementation of these power lifting devices alone has resulted in an overall reduction of 60% of all reported injuries. The next logical step was to identify other powered equipment that could reduce strains and sprains.

Actions Taken:

Paramedic Services identified power stair chairs as another conveyance device with the potential to further reduce strain-type injuries to Paramedics. Currently, FERNO-Washington Inc. is the only manufacturer producing a power stair chair that meets the Ontario Ministry of Health and Long-Term Care Equipment Standards for Paramedic Services.

The Ferno Powertraxx is designed to climb or descend stairs with the push of a button. The Powertraxx has an electronically controlled motor and direct drive transmission with chair tracks. The tracks and motor carry the patient load, eliminating manual lifting up and down stairs by the Paramedics. The chair is powered by a battery, with the capacity to run up to twenty flights of stairs per charge. The chair's operation is controlled by easy-to-use paddle-style controls allowing the Paramedic to be in control at all times.

Benefits of the Power Stair Chair include:

- Allows provider to focus on proper patient care rather than worrying about the possibility of injury.
- Improves the patient experience by smoothly moving the patient, thereby minimizing the risk of patient falls and the uncomfortable jarring movements that can occur with a manual stair chair.
- Able to lift up to 500 lbs/227 Kg.
- Reduction of work-related injuries. Within Paramedic Services, about half of the on-the-job injuries sustained occur while lifting and moving patients (National Institute of Occupational Health and Safety).

In the fall of 2018, Paramedic Services purchased 25 Ferno Powertraxx, at a cost of \$185,000 with an anticipated life cycle of 10 years. Based on the experience of the power stretcher/power load implementation, where we saw the elimination of strain type injuries related to lifting and loading the ambulance stretcher. We would anticipate a reduction in stair chair related injuries of at least 50%, this means we would have an annual cost avoidance of \$55K, with a pay back in 3.3 years. Furthermore, this implementation will have a positive impact on Paramedic wellbeing, by reducing lifting effort and injuries related to the manual stair chair.

Paramedic Services expects to have all City of Greater Sudbury Ambulances equipped with Ferno Powertraxx units by the end of February 2019.

During the 2018 fall training sessions, all Paramedics received hands on training for the Ferno Powertraxx. Additionally, Platoon Trainers are actively in the field providing supplementary training when required.

On December 13, 2018 Paramedic Services assisted with evacuating residents of Walford on the Park Retirement Residence. This unit is a multi-level complex and was without use of its elevator due to the power being off. Approximately 20 residents with mobility issues required assistance to exit the building to awaiting transportation. This incident provided an opportunity for Paramedic Services to utilize the Ferno Powertraxx prior to it being deployed into regular service. This new equipment proved invaluable in safely evacuating residents from the upper floors. Paramedics were very comfortable using the units and once the evacuation was complete, Paramedics commented that they were very impressed with the chair with little physical effort to move the residents.

Conclusion

It is anticipated that the Ferno Powertraxx power stair chair will have a positive impact on the patient experience and the well-being of Paramedics. This will result in fewer injuries and prolonged careers for Paramedics through a dramatic reduction in the frequency of manual lifting required and the strain-type injuries that result. Paramedic Services will evaluate the power stair chair program, by continuing to monitor repetitive type injuries. Lastly, Paramedic Services will continue to look for opportunities and workplace improvements that positively affect employee wellbeing while they provide medical care to the citizens of the City of Greater Sudbury.