

## **Case study of a child with spinal muscular atrophy (SMA); powered wheelchair assessment and drive controls**

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### **Summary**

This case study reflects on the provision of a powered wheelchair to a 4 year old child with SMA. We will explore the assessment process for achieving powered independence in this complex clinical presentation.

### **Aims & Objectives**

To reflect on the different drive systems and final solution for this complex clinical presentation.

### **Background**

A four year old female child with SMA was referred to Guy's and St Thomas wheelchair service in Crystal Palace, London for wheelchair provision. She is using Nippy III ventilation full time via tracheostomy. At the time of assessment it was identified that she would meet the powered wheelchair provision criteria, and her general practitioner was contacted for consent. Her home environment was also visited and reviewed for powered wheelchair suitability.

She returned to clinic for a driving assessment where the following control systems were trialled, mounted in a variety of locations;

- Proportional mini joysticks (throw and no throw)
- x 4 single direction switches of various types and sizes
- Touch pad
- Finger pot

Due to the extreme low tone in trunk and neck muscles, head control options were not trialled as we suspected these would not provide prolonged fine control over the chair.

It was concluded that she had most control over her fingers, but could not move them far enough for even the smallest switches. A proportional system worked in three directions, but she struggled to consistently move her fingers rearwards.

We needed to find a simple drive system that could be used to control four directions of a powered chair, and that required no force to operate and little movement of fingers.

### **Discussion**

We issued a Spectra Blitz with Dynamic G90 controller from the wheelchair service stock. Her Mygo seat was working well on her static seating, so we replicated this on her powered wheelchair. A clear tray was embedded with four fibre optic switches within her natural finger span. Right, forwards and left controls were placed near her dominant left hand and the reverse near her right. She was issued with the chair, and a handover was completed with training program in the presence of community therapists and family. After a few short weeks our service user is now enjoying independent mobility within the home and soon at school.