



Early intervention - power mobility for children

Nordic seating symposium

5.9.2018: Jenny Kåldman and Astrid Vikingsen Fauske

Who are we?

- Occupational therapists, MSc
- Specialization in assistive technology for children
- Counselors at NAV Hjelpemiddelsentral Oslo og Akershus (The Norwegian Government authority for work and welfare)



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Content

- Background
- Theory
- Method
- Results
- What have we learned?

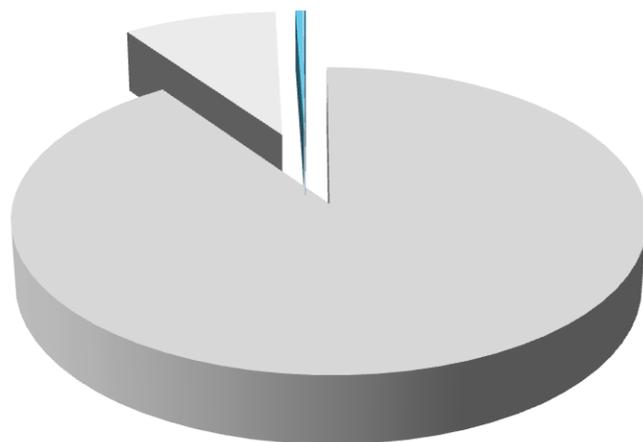
NAV Hjelpemiddelsentral Oslo og Akershus

- The biggest center for assistive technology in Norway
- Serves a population of approx. 1,3 million inhabitants
- Statistics 2017:
 - A total of 1305 power wheelchairs were delivered
 - Users age span: 3-98 years

Statistics 2017:

NAV Hjelpemiddelsentral Oslo og Akershus

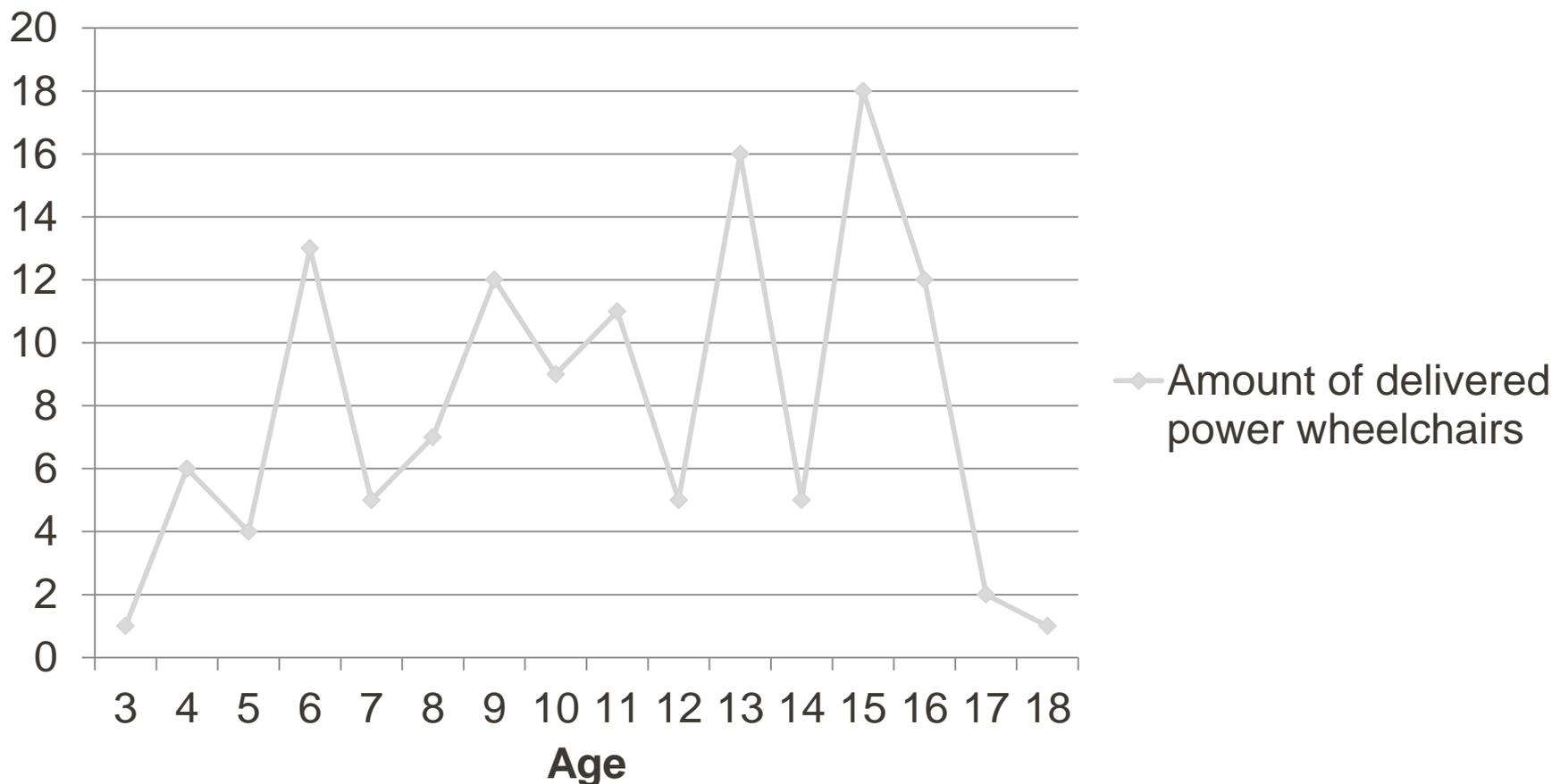
Amount of power wheelchairs delivered, all ages



- Adults, ages 19-98: 1180
- Children, ages 5-18: 120
- Children, 4 years: 6
- Children younger than 4 years: 1

Statistics 2017: NAV Hjelpemiddelsentral Oslo og Akershus

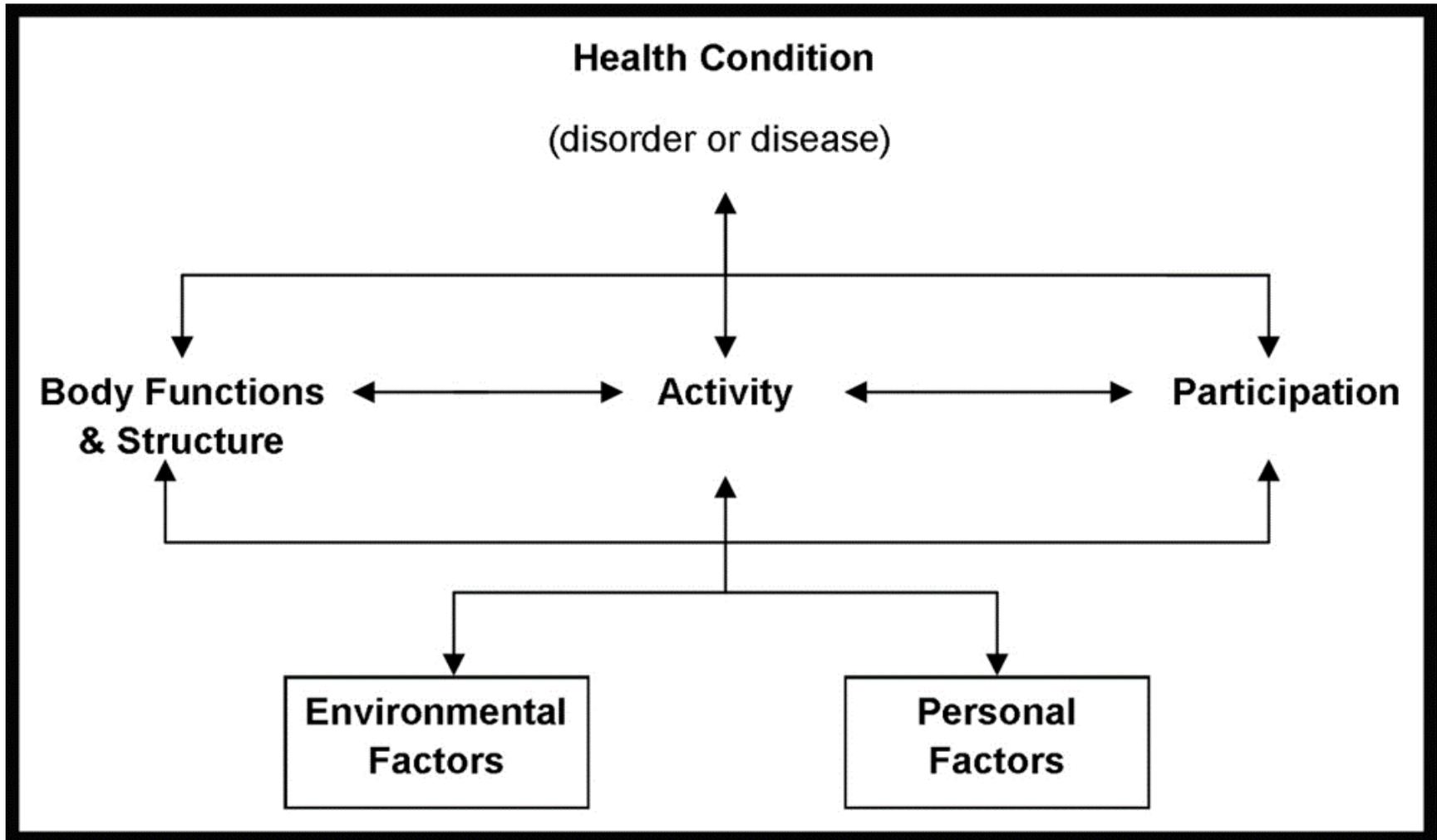
Amount of delivered power wheelchairs ages 0-18



Our experience - Possible reasons for starting late

- Fear of reducing the child's motor skill development?
- Lack of knowledge among therapists?
- Parental grief?
- Feels like a defeat?
- Fear of accidents?
- PTs starts interventions with the child earlier than OTs, and focuses more on physical training?

Early intervention – Why?



Early intervention – Why?

- Occupational science

- The human as an occupational being with a biologically driven need to act on the environment, to explore, satisfy curiosity, create, achieve and demonstrate competency.
- Children develop rules, skills and habits through playing and exploring. (Yerxa, 1990)

Early intervention – Why?

Jones et. al (2012; 131):

«Self produced locomotion can be an organizer of psychological changes in infants, developmental changes in social understanding, spatial cognition and communication»

Lobo et. al (2013):

«The inability to move independently seems to have ripple effects on the development of cognitive functions and language skills»

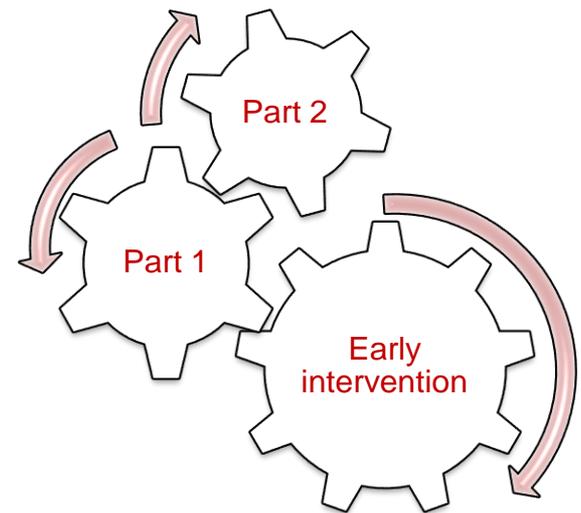
Early intervention – Why?

Livingstone and Field (2014; 691):

«The independence fostered by power mobility may stimulate increased interest in activities and decrease need for caregivers assistance»

Project goal: Establish a change of practice

- Can we get the municipal therapists to start the process of applying for a power wheelchair earlier?
- Process:
 - Part 1: Acquire evidence-based knowledge
 - Part 2: “Spread the word” to the municipal therapists



Method, part 1: «Acquire knowledge»

- Literature study
- Pilot project
- Single case studies:
 1. Evaluation and testing with the family and municipal therapist
 2. Delivery of power wheelchair
 3. Follow up 1 month after delivery

Tools used during testing and follow up

- Videos and photos throughout the process
- “Power mobility training tool” (Kenyon et. al, 2017)
- Wheelchair driving checklist (Jones et. al, 2003)
- Semi-structured interview guide
 - With parents or kindergarten staff at follow-up

Examples on driving skills from check-lists

- *“The child stops and starts the wheelchair upon command. Any direction or distance is acceptable”* (Jones et. al, 2003)
- *“The child makes a 90-degree turn around a corner, even if the movement is not continuous”* (Jones et. al, 2003)
- *“Demonstrates the motor ability to use the access method to move the power mobility device at least 5 feet.”* (Kenyon et. al, 2017)
- *“Appears to notice large obstacles within 10-15 feet of the power mobility device when it is in motion”* (Kenyon et. al, 2017)

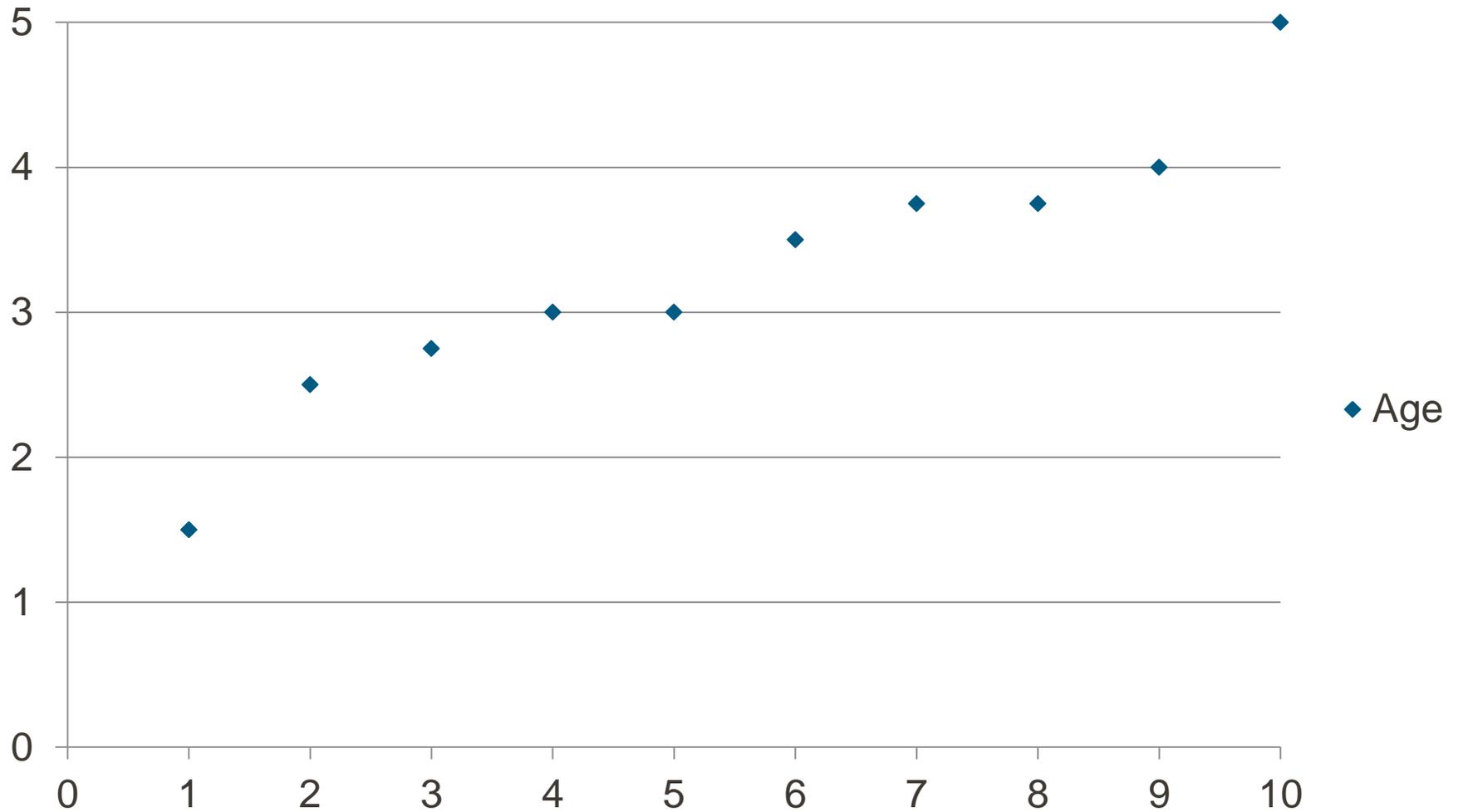
Our principles when adjusting the wheelchairs

- Choosing a chair that best fits the child's and parents needs
- Stable pelvis, then provide more support if necessary
- Placement and selection of joystick
- Common accessories:
 - Safety hoop in front of the chair
 - Emergency stop button
 - Small joystick in the back, for maneuvering by an adult

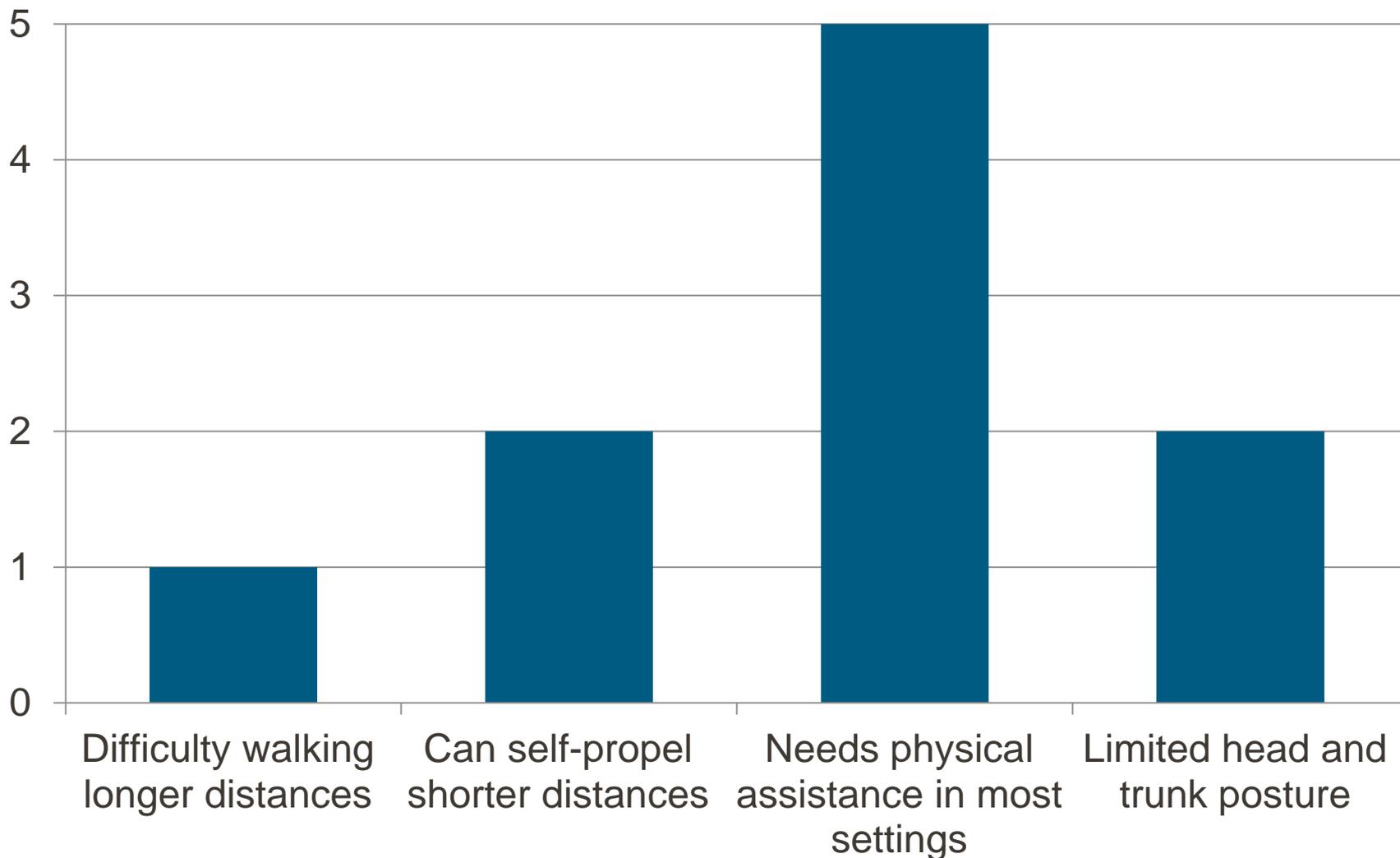
Participants

- Inclusion through municipal therapists
- Inclusion criteria:
 - Children younger than 4 years old
 - Motor impairment that requires a long term need for wheelchair
 - Physical and cognitive ability to learn to drive a power wheelchair independently

The participants age span at startup



The participants gross motor function (equivalent to GMFCS levels II-V)



Expected use

Out of 10 participants:

- Independent locomotion outdoors: 10/10

Areas of use:

- Primarily outdoors: 10/10
- Stored at home: 6/10
- Stored at kindergarten: 4/10

Challenges during the project

It's a time consuming process

- Average provision time (from referral to follow-up): 5 months

Getting everyone «on board»

- Different expectations and views
- Unrealistic expectations (both high and low)
- Driving a power wheelchair requires many skills that you can't expect that young children have developed properly

Challenges during the project

Training

- Younger children has a shorter attention span and risk assessment skills
- Training demands a lot from both therapists, staff, parents and the child

Reactions from parents and other adults

«I don't want my child to become lazy»

(Mother of child with CP)

«We can see that our child becomes frustrated while practicing maneuvering his power wheelchair, since he already masters driving his manual wheelchair so well»

(Father)

Reactions from parents and other adults

«I just don't know when we'll have time to use the power wheelchair. She already has a rigid schedule of other training regimes, feeding and resting. She is a child, she also needs time to play with the other children!»

(The child's assistant at the kindergarten)

What have we learned?

A thorough evaluation process

- Include all adults in the child's everyday life to get a better analysis and inclusion
- Network:
 - Establish who is responsible for follows-up and practicing with the child
- Motivation for using the wheelchair
 - Does the therapist, parents and the staff working with the child have time and motivation for practicing?

What have we learned?

- Environment
 - Where and when can the power wheelchair be used?
- Importance of proper positioning and stability for driving
- Reality check – areas of usage and safety
 - Goal setting, both short- term and long- term
 - Make a plan for practicing and usage
 - Learning to drive independently can be a time consuming process

What have we learned?

■ Practice

- Therapists should be responsible for giving thorough instructions to everyone
- Therapists should be responsible for making a practice plan
- Should be motivating and neither too difficult nor too easy
- Purposeful and meaningful
- Short and frequent sessions rather than longer sessions now and then
- Program the movements of the joystick to respond not too slowly nor too quickly (Rosen et. al, 2017)

Positive reactions from parents and other adults

- Many of the parents and therapists has commented on the importance for children to be able to move independently
- Many say they would recommend others to start early
- Many say that their child seems motivated to drive the power wheelchair

Where do we go from here?

- We have already seen an increase in number of inquiries
- Our plan is to continue phase two this autumn: «spread the word» by:
 - Arranging courses for municipal therapists
 - Developing hand-out material (recommendations for assessment, practicing and follow-up)
- We need to implement changes in our organization, to speed up the provision time

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