Clinically feasible set of outcome measures in occupational therapy and speech therapy for children and adolescents with Cerebral Palsy via multiprofessional working model in Finland

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Objective: To find a reliable, valid and clinically feasible set of outcome measures to be used by occupational therapists (OTs) and speech therapists (STs) for children and adolescents with CP.

Background: According to a national survey performed in Finland in 2005 a total of 220 different outcome measures, including 48 for occupational therapists and 81 for speech therapists, were used for rehabilitation assessments in children and adolescents with CP. This has led to an attempt to develop a national consensus on the outcome measures.

Method: Since 2008 occupational therapists (OT) have participated in a multiprofessional project in neuropediatric units of two university hospitals (Helsinki and Turku) and one outpatient clinic (Turku) aiming to find reliable and valid outcome measures for children and adolescents with CP. OTs selected the most valid outcome measures based on the available evidence, expert opinion and ICF framework to be used in everyday clinical practice.

Results: OTs evaluated altogether 118 children and collected information systematically after every assessment. The clinical utility of the applied measures was analysed and necessary changes were made for the final recommendation. The final OT recommendation, which is illustrated in figures 1 and 2, includes eight outcome measures (COPM, AHA, Melbourne, QUEST, MFED, Beery VMI, BOT-2, M- Fun) and clinical evaluation. The aim of the OT recommendation was to evaluate the child´s functional abilities as widely as possible. The suitable measures were selected taking into account child's age and functional fine/gross motor level (MACS/GMFCS).

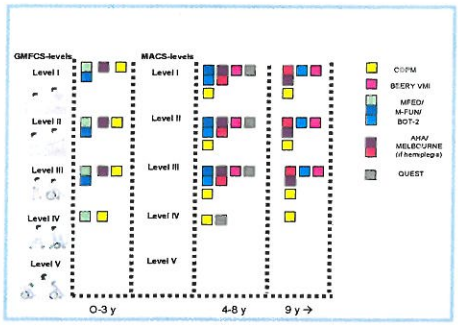

Figure 1: Occupational Therapy measures for children with CP according to age and severity by GMFCS and MACS.

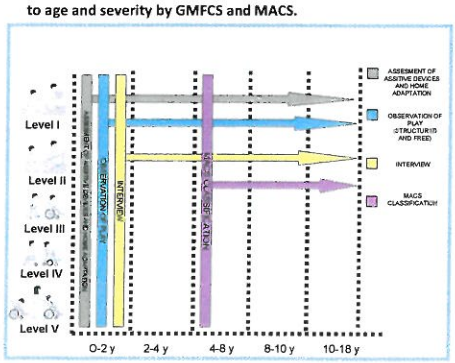

Figure 2: Clinical evaluation in Occupational Therapy for children with CP.

Conclusion: The OT recommendation has clarified and unified assessment for children and adolescents with CP. Our future aim is to find a national consensus amongst Finnish OTs to engage to the evidence-based consensus on outcome measures. OTs from two other university hospitals (Kuopio and Oulu) and three state-owned special schools will start to evaluate children with CP according to the suggested recommendation in autumn 2011.

Method: Since 2008 speech therapists (ST) have participated in a multiprofessional project in neuropediatric units of two university hospitals (Helsinki and Turku) and one outpatient clinic (Turku) aiming to find reliable and valid outcome measures for children and adolescents with CP. Any of the outcome measures standardized and acquirable in Finland are not specifically targeted to be used with children or adolescents with CP. That is one of the reasons why different classifications were preferred to exact outcome measures. We utilized Ph.D. Mary J. Hidecker´s *Communication Function Classification System* (CFCS, Table 1.) and developed two other classifications, *verbal motor skills* (Table 3.) and *eating skills* (Table 2.), based on available evidence, expert opinion and ICF framework.

Table 1.

Communication Function Classification System (CFCS) for individuals with Cerebral Palsy

Table 2.

Eating skills

1. No difficulties in eating, *no sensory problems*
2. Mild problems in motor skills, e.g. eating is *slower, mild sensory problems, e.g. certain foods/textures are difficult to eat*
3. Food has to be chopped, cup drinking is difficult, chewing skills are weak, *sensory problems disturb life, e.g. sensitive gag reflex*
4. Very seldom independent eating, food has to be smashed, major difficulties in oral motor stability, no chewing skills, drinking reminds sucking, *because of sensory problems only purees or liquids can be eat, denial*
5. Gastrostomy or nasogastric tube: oral eating is out of question because of difficult motor or *sensory problems*

Table 3.

Verbal motor skills

1. Normal, appropriate to age
2. Immature, e.g. missing sounds – understandable
3. Slower, stiff, inaccurate – mostly understandable
4. Slow, stiff, inaccurate – mostly not understandable, shapes of words
5. Very difficult control, only sounds

Results: All the three classifications were utilized with 60 patients. The assessments were conducted by speech therapists. The results were reviewed for the diagnoses (Table 4.) and for the relationship between the classifications CFCS (Table 4.), verbal motor skills (Table 7.), eating skills (Table 6.) and GMFCS and MACS (Table 5.).

Table 4.

Dg/CFCS/Speech Therapy

Dg	CFCS I	CFCS II	CFCS III	CFCS IV	CFCS V	ALL
G80.0		1 (1)		1 (1)		3 (3)
G80.1	1 (0)	5 (3)		2 (5)		13 (8)
G80.2	3 (2)	5 (4)	4 (4)	4 (4)		28 (18)
G80.3			2 (2)	5 (5)	1 (0)	8 (7)
G80.8				2 (2)		2 (2)
G80.9		2 (1)		3 (2)	2 (2)	7 (7)
ALL	18 (4)	13 (10)	6 (6)	20 (20)	3 (2)	60 (42)

Num of children (of which receiving speech therapy)

Table 5.

GMFCS/CFCS class	C1	C2	C3	C4	C5
G1	13	5	1	2	
G2	3	4	1	2	
G3	1		1	4	1
G4		2	2	5	
G5		2		5	2

MACS/CFCS class	C1	C2	C3	C4	C5
M1	6			2	
M2	5	4		2	
M3	1	3	2	5	
M4		2		4	
M5		1		1	1

Table 6.

CFCS/Eating Skills

class	E1	E2	E3	E4	E5
cfcs1	11	3			
cfcs2	6	3			1
cfcs3	1	1	1		1
cfcs4	4	5	6	2	1
cfcs5			1	2	

Table 7.

CFCS/Verbal Motor Skills

class	V1	V2	V3	V4	V5
cfcs1	7	8	1		
cfcs2	2	7	4		
cfcs3			4		1
cfcs4	2	2	5	3	6
cfcs5		1		1	1

Conclusion: The variations in the current use of outcome measures raised a need to reach a consensus on clinically feasible assessment tools for children and adolescents with CP in Finland. The classifications developed by the speech therapists appeared to be easy and quick to use and the results similar regardless the examiner. The combined results of all the classifications gave a good impression on a person`s management of everyday life regarding communication and eating. Thus the need for help, such as speech therapy, was also easily observed. One of our aims is that a child with CP would be assessed in the same way regardless of where he/she lives and who is the examiner.