

Consensus Classifications of the Gross Motor, Manual Ability, and Communication Function Classification Systems Between Therapists and Parents of Children with Cerebral Palsy

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PURPOSE

We share our experiences in establishing consensus classifications between service providers trained in research and parents of children with cerebral palsy (CP) using the Gross Motor Function Classification System¹ (GMFCS), the Manual Ability Classification System² (MACS), and the Communication Function Classification System³ (CFCS).

BACKGROUND

- This work is conducted in the context of a multi-site international study on *Developmental Trajectories of Impairments, Health Conditions, and Participation of Children with Cerebral Palsy* (the On Track Study).
- In previous work, we established an understanding of the child, family, and service factors that contribute to motor development,⁴ self-care,⁵ and participation⁶ of two functionally distinct subgroups of children with CP.
- To assist with planning for individualized care to optimize these outcomes, the next stage in our research is to describe developmental trajectories of multiple measures by GMFCS, MACS, and CFCS levels.
- Whereas the GMFCS was initially designed for use by service providers, and later validated for completion by parents, both the MACS and CFCS were developed for service providers to use in collaboration with parents.
- We acknowledge the importance of both parent and service provider perspectives in classifying the full range of usual performance across settings, aiming for guidelines for reconciling differences when they occur.

METHODS

- Participants were 671 parents of children with CP (56% male) between 2-12 years of age enrolled in the On Track Study and 90 trained and reliable physical and occupational therapists
- Ethical approval was provided by all academic institutional review boards and multiple agencies across all participating sites; signed informed consent/assent was obtained from each parent/child participant prior to data collection
- Parents were asked to complete the GMFCS, MACS, and CFCS prior to a therapist visit
- During the visit, parents and therapists discussed the classifications and the therapist documented: i) immediate agreement with the parent, ii) consensus with the parent after discussion, or iii) disagreement with the parent
- Percentage agreement was used to describe the proportion of cases in which a consensus agreement was ultimately reached



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RESULTS

Patterns of Consensus and Disagreement



Gross Motor Function Classification System (GMFCS)

| GMFCS Assessor Classification | Parent Classification | | | | |
|-------------------------------|-----------------------|-----|-----|-----|-----|
| | I | II | III | IV | V |
| I | 212 | 3 | 0 | 0 | 0 |
| II | 2 | 149 | 1 | 0 | 0 |
| III | 0 | 2 | 75 | 0 | 0 |
| IV | 0 | 0 | 2 | 116 | 0 |
| V | 0 | 0 | 0 | 5 | 104 |

- 97.8% agreement
- All disagreements no more than one level difference

Shaded boxes represent consensus (reached immediately or after discussion)

Manual Ability Classification System (MACS)

| MACS Assessor Classification | Parent Classification | | | | |
|------------------------------|-----------------------|-----|-----|-----|----|
| | I | II | III | IV | V |
| I | 135 | 5 | 0 | 0 | 0 |
| II | 3 | 256 | 0 | 0 | 0 |
| III | 0 | 3 | 99 | 1 | 0 |
| IV | 0 | 2 | 1 | 105 | 0 |
| V | 0 | 0 | 1 | 6 | 54 |

- 96.7% agreement
- All but three disagreements no more than one level difference

Shaded boxes represent consensus (reached immediately or after discussion)

Communication Function Classification System (CFCS)

| CFCS Assessor Classification | Parent Classification | | | | |
|------------------------------|-----------------------|-----|-----|-----|----|
| | I | II | III | IV | V |
| I | 254 | 5 | 1 | 0 | 0 |
| II | 4 | 111 | 0 | 0 | 0 |
| III | 2 | 2 | 115 | 1 | 1 |
| IV | 0 | 3 | 12 | 108 | 0 |
| V | 0 | 2 | 1 | 3 | 46 |

- 94.5% agreement
- All but 10 disagreements no more than one level difference

Shaded boxes represent consensus (reached immediately or after discussion)

RECONCILING DISAGREEMENTS

Fundamentally, we relied on parents' classifications (they know their children best, see them in multiple settings, and are most able to describe usual performance), unless the therapist provided compelling reasons, which included:

- Therapists' descriptions of capability were lower than parent-reported performance
- Therapists suggested that the parent was not 'ready' to discuss lower function
- For the GMFCS: incorrect age band used
- For the MACS: parents wished to classify each hand separately or did not recognize alternative ways of using the hands
- For the CFCS: parents' over-estimation of children's communication performance with unfamiliar partners

CONCLUSIONS

• Based on our experience,⁷ parents and therapists were able reach consensus on GMFCS, MACS, and CFCS classifications in most cases.

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