

Development of an evidence informed upper limb guidelines for children with acquired brain injuries

Gemma Kelly, Melanie Burrough & Ruth Moys

Introduction

- Upper limb impairments are a common consequence of acquired brain injury (ABI) in childhood, and the resultant disability can affect all areas of their daily life (Komar et al. 2016).
- There are a wide variety of available upper limb assessments and interventions, but little consistency in how they are used in clinical practice.

Methods

- An upper limb working group consisting of physiotherapists and occupational therapists was established.
- Literature reviews for upper limb assessments and interventions (e.g. constraint induced movement therapy, bimanual therapy, strengthening, splinting) for children with ABI were undertaken.
- Reviews were expanded to include children with cerebral palsy (CP) and adults who have had strokes.
- Evidence was also collected from the views of parents and children undergoing rehabilitation. and specialist clinicians to establish consensus on best practice.

Results

- Limited research has been conducted in upper limb assessment and intervention for children with ABI.
- Assessment recommendations were made from the best available evidence for children with CP (Figure 1).
- Evidence based summaries were also devised from all evidence sources for each upper limb intervention.
- Recommendations were further summarised in a table to guide therapists in their decision making for individual children based on the child's functional classification level (Table 1 for an example of one row).

Table 1: example of a row from the treatment matrix

	CIMT	Bi-Manual	FES	Static Splinting	Dynamic Splinting	Goal Directed Training
MACS III (severe hemiplegia affecting non-dominant limb)	Consider targeted CIMT only if the child has sufficient voluntary motor control in their affected upper limb to complete 30 minutes of activities. Identify motivating/ meaningful task	Consider intensive bilateral training where the affected upper limb acts in a supporting role	Consider use alongside task training if the child has some voluntary muscle control	Assess need for splint on individual basis (goal of splint use clear and documented). Consider use for maintaining range of movement or reduction of pain in selected cases. Splinting or casting should be used following Botulinum Toxin	Consider use alongside task based training if clear reasoning and goals identified	Consider goal directed training, with adaptations to enable completion of the goals based activity

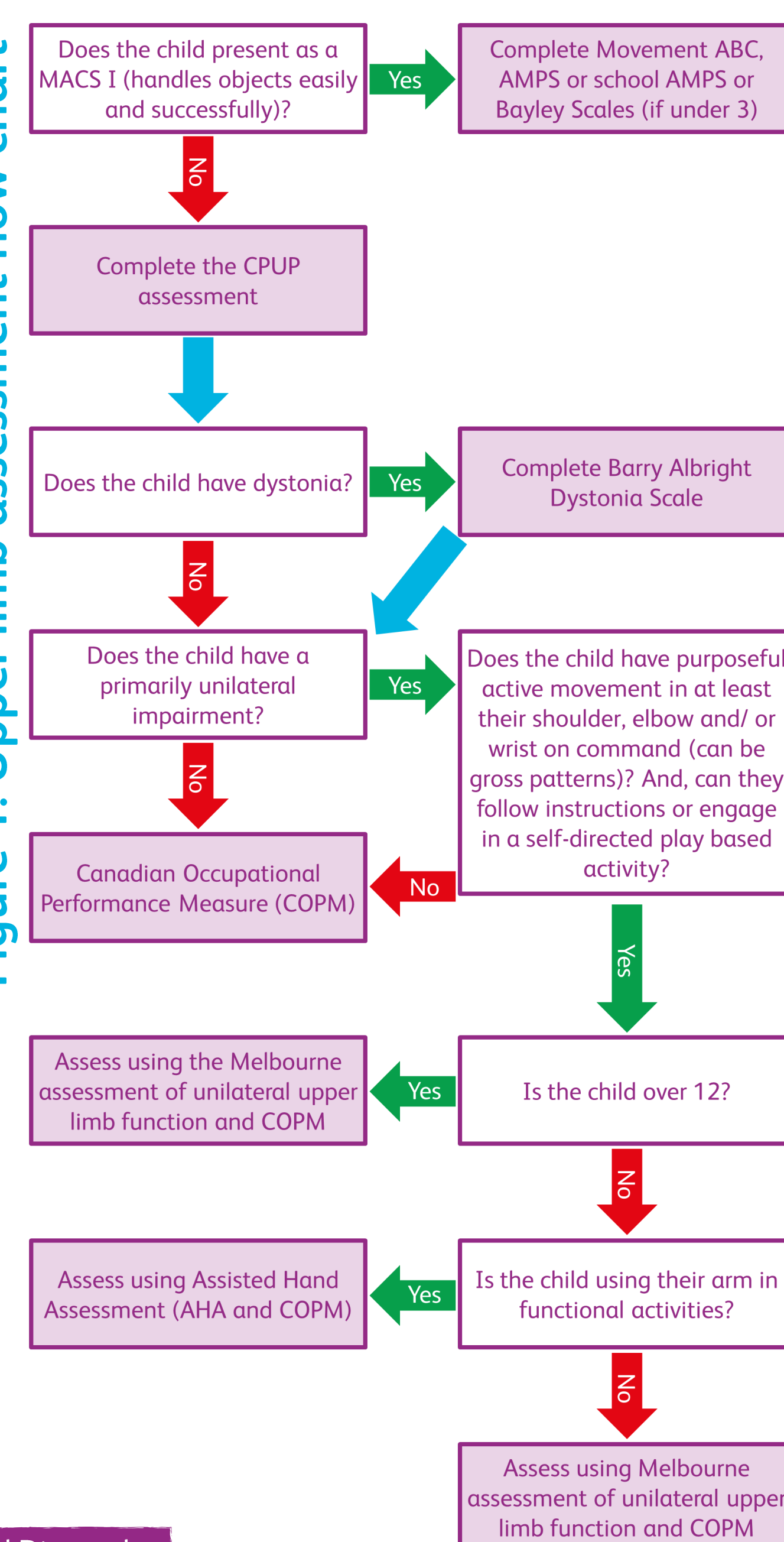
Conclusions and implications for practice

- Establishing best practice upper limb guidelines required the amalgamation of evidence from multiple sources.
- These guidelines have promoted the use of evidence informed decision making in clinical practice for the management of children with acquired brain injuries in the residential rehabilitation unit.
- Further research is needed to establish effectiveness of interventions for children with different upper limb presentations following ABI.

Aim

To develop evidence-based guidelines for the assessment and management of upper limb disabilities in children with ABI in residential rehabilitation.

Figure 1: Upper limb assessment flow chart



References

- Komar A, Ashley K, Hanna K, Lavallee J, Woodhouse J, Bernstein J, Andres M, Reed N. Retrospective Analysis of an Ongoing Group-Based Modified Constraint-Induced Movement Therapy Program for Children with Acquired Brain Injury. Physical & occupational therapy in pediatrics. 2016 Apr 2;36(2):186-203

gkelly@thechildrenstrust.org.uk

@GemEKelly



Please scan the QR code to access a PDF of this poster in the Research section of our website: www.thechildrenstrust.org.uk