The Children's Trust
For children with brain injury

Bringing about functional change following paediatric acquired brain injury (ABI)

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Introduction

- Effects of paediatric ABI may not become apparent until the impaired area of the brain fully matures due to it occurring on the background of development.[1]
- Effects can be life-long and devastating. Subtle effects can have a substantial impact on a child & young person's (CYP's) learning; the activities they participate in; and the level to which they engage.
- Long term consequences remain poorly understood for those with a 'hidden disability'.
- The Children's Trust's Brain Injury Community Team (BICT) provides multidisciplinary, consultative, non-intensive clinical support for CYP with ABI and their families. Working holistically and collaboratively they work across home, school and community to increase activity and participation.

Methods

- Systematic collection of CASP data (n = 11: 10 parent; 1 youth) before and after BICT intervention.
- Non-parametric statistical analyses (Wilcoxon Test) used to determine if changes following BICT intervention were statistically significant.

Results

- Statistically significant changes were found in CASP Total Summary Standard Scores (Fig. 1) & School Participation Level Scores (Fig. 2); where $p \leq 0.05$ (Table 1).
- All 11 CYP had an initial needs assessment, ABI education and recommendations as a minimum.
- 7 of the 11 CYP's recommendations included need for onward referrals.
- CYP referred to BICT ranged from 0 to 14 years post injury (Table 2).

Table 1: Change in CASP scores

CASP domains	Z value	P value
Home Participation	-0.35	-
Community Participation	-1.3	-
School Participation	**-2.7**	p≤0.05*
Home & Community Activities	-0.08	-
Total Summary Score	**-1.98**	p≤0.05*

**P value less than 0.05 = statistically significant*

Table 2: Child demographics

CYP	Gender	Age at injury (yrs)	Age at referral to BICT (yrs)	Years post injury	Cause of injury	ABI/ TBI	CASP - Parent (P)/ Youth (Y) completed	Change in Total Summary Score (post intervention)
CYP 1	F	8.5	8.9	0.4	Meningitis	ABI	CASP- P	0
CYP 2	F	12.5	12.8	0.3	Fall	TBI	CASP- P	+4.3
CYP 3	F	13.8	13.9	0.1	Stroke	ABI	CASP- P	+23.8
CYP 4	F	14.4	14.9	0.5	Fall	TBI	CASP- P	+33.8
CYP 5	F	5.5	5.8	0.2	Brain Tumour	ABI	CASP- P	+5.6
CYP 6	M	8.7	11.7	3.0	Brain Tumour	ABI	CASP- P	+23.0
CYP 7	F	0.0	0.2	0.2	Impact	TBI	CASP- P	+14.2
CYP 8	F	12.3	12.9	0.6	Stroke	ABI	CASP- P	-3.8
CYP 9	M	0.0	13.6	13.6	Stroke	ABI	CASP- P	-12.5
CYP 10	F	0.1	9.6	9.4	Meningitis	ABI	CASP- P	-4.4
CYP 11	F	15.8	17.3	1.5	Stroke	ABI	CASP - Y	+17.2

Child & Adolescent Scale of Participation (CASP) [2&3]

- CASP is a frequently used outcome measure (clinically and academically) developed primarily for children with acquired neurological disorders to measure CYP's activity and participation levels.
- CASP scores include total summary score & sub-total scores (home & community activities; home participation and community participation; school participation).
- Increase in CASP scores indicate an increase in level of activity and participation..

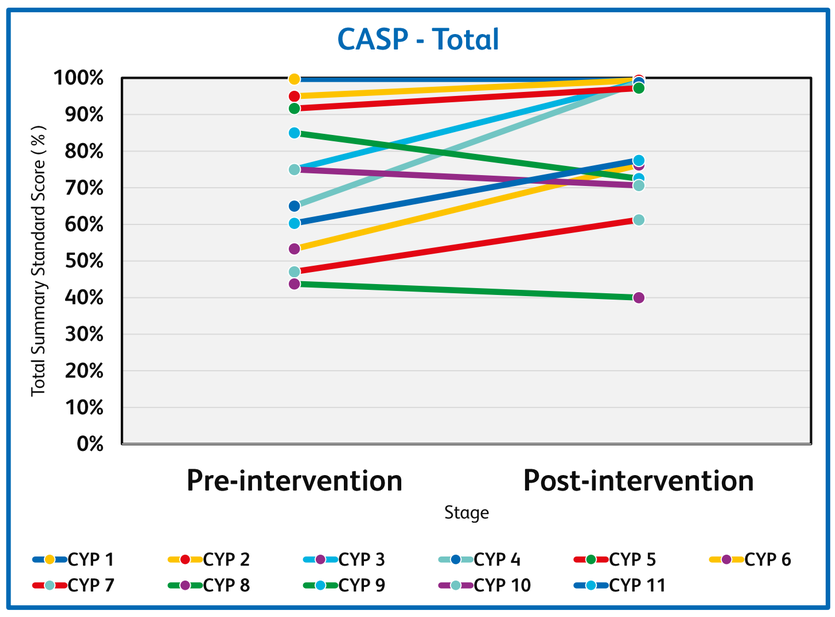

Figure 1: Change in CASP – Total Summary Standard Score

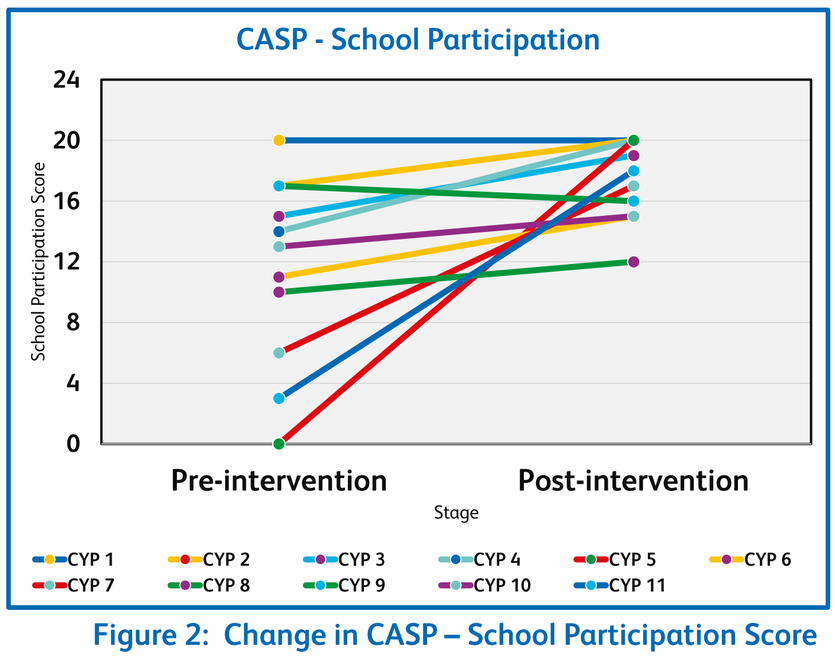

Figure 2: Change in CASP – School Participation Score

Conclusion

- Specialist community MDT support has a significant impact on a small group of CYP at the level of activity and participation.
- Clinical input for CYP with ABI within the community is beneficial.
- Greater understanding of long term and high level difficulties of CYP with ABI within the community is needed.

References

1. Anderson V, Catroppa C, Morse S, Haritou F and Rosenfeld J. (2005). Functional plasticity or vulnerability after early brain injury? *Pediatrics. 116*: 1374-1382.
2. Bedell, G. (2004). Developing a follow-up survey focused on participation of children and youth with acquired brain injuries after inpatient rehabilitation. *NeuroRehabilitation, 19*, 191-205.
3. Bedell, G. (2009). Further validation of the Child and Adolescent Scale of Participation (CASP). *Developmental Neurorehabilitation*, *12*, 342-351.

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