The "SNAP" 1 and 2: post-acute Systematic Neuropsychological Assessment Profiles for paediatric and adult severe acquired brain injury

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For children with brain injury

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Objectives

- It is very difficult but imperative to gain a person's neuropsychological profile in the post-acute stage of severe acquired brain injury (ABI) (Newby et al, 2013)
- Due complex physical and psychological deficits, an individual may be unable to engage in/score on standardised tests
- The primary objective was to develop a process to gain a systematic profile of an individual's cognitive functioning in the post-acute stage
- Relevant information would be gained through MDT observations and unstandardised tasks mapping on to all domains of neuropsychological functioning
- The "SNAP" 1 and 2 aimed to bridge the gap between brief bedside assessments (often administered on a one off basis that are rarely used to guide on-going rehabilitation) and formal assessment. The profiles were developed to allow systematic assessment of an individual over time and contribute to biopsychosocial formulation and interventions
- An additional aim for "SNAP" 1 and 2 was aid to provide meaningful information regarding an individual's cognitive functioning at transition points between services
- Furthermore the profiles were to be pragmatic and low cost as to satisfy the demands of everyday clinical practice

Methods

- The "SNAP 1" is a descriptive "snapshot" profile devised by adapting the work of Adlam (2010). A profile composed of experienced clinical opinion regarding all neuropsychological domains was produced intended for use in multidisciplinary forums that gave rise to rehabilitation
- The "SNAP 2" is a more detailed profile based of more systematic clinical observation of everyday functioning and unstandardised tasks to tap into all neuropsychological domains. It was developed using experience from the authors' clinical backgrounds and knowledge of informal assessments (such as the "NAID", Crayton et al.1998)
- For both profiles, knowledge regarding how cognitive functioning maps onto everyday functioning and tasks was given considerable thought
- The profiles were developed in specialist residential rehabilitation settings that naturally gave opportunities of observing an individual's cognitive skills in a novel environment, thereby allowing profiles of unscaffolded skills inaction

Results

- SNAP 1 and 2 were developed to help empower and guide clinicians when an individual cannot engage in formal neuropsychological assessment
- They are used cumulatively to build understanding of an individual, in line with the individual's increased recovery
- They are low cost, pragmatic tools that provide a helpful an accessible model to systematically profile neuropsychological

SNAP 1: Function and use

The "SNAP 1" is a descriptive "snapshot" profile devised by adapting the work of Adlam (2012). A profile composed of experienced clinical opinion regarding all neuropsychological domains was produced intended for use in multidisciplinary forums that gave rise to rehabilitation goals.

SNAP 2: Function and use

The "SNAP 2" is a detailed profile based of more systematic clinical observation of everyday functioning and unstandardised tasks to tap into all of these neuropsychological domains. It was developed using experience from the authors' clinical backgrounds and knowledge of informal assessments. Examples of these include assessments that have been used in services for people with intellectual disability such as the Social Training Achievement Record (Williams, 1982) and the Neurological Assessment for individuals with Intellectual Disability (Crayton et al.1998). These items in these assessments are quick and easy to administer and have a low floor and low ceiling thresholds

Illustrative Case Study

The SNAP 1 and 2 are cumulative tools that help build a neuropsychological profile for neurorehabilitative use for people that cannot be fairly tested with standardized tools – to illustrate this, a case study is presented that focused on the domain of memory (this was not collected in isolation of the other domains in clinical practice). Below we described how observations and subsequent unstandardised testing of the memory domain of a person with ABI allowed for specific recommendations that were integrated into their care plan.

Memory *(working, long-term, prospective)*

(i) Memory: Clinical Observation
- Recognition of people or places i.e. bedroom
- Finding their own belongings
- Tell you where they are
- Orientated around a new environment

(ii) Memory and learning for verbal information
- Remember therapist names over duration of a session
- Repetition of common words
- Memory of these after 10 minutes
- Repetition of sentences of increasing complexity
- Repetition of strings of numbers of increasing complexity
- Free recall, cued recall and recognition of earlier events in the day e.g. meals
- Recall of TV programmes, events in the media

Memory and learning for visual information
- Recall of hidden object with increasing number of distractors
- Recall of hidden pictures of everyday items with increasing number of distractors
- Recognition of previously seen pictures

How SNAP 1+2 guides clinical enquiry and data collection within the domain of Memory

The clinician used the checklists below as a pragmatic tool to gather unstandardised data that gave a picture of the person's abilities

School *(to include pre-injury Schooling and current TCT school feedback):*

Name: **Date of Discharge:**

Background *(to include developmental milestones, early attachment)*

Acquired brain injury & ideas as to their impact & prognosis

Family *(to include genogram, family strengths & resources and family risk):*

Cognition/ Neuropsychological Skills (from direct obs/ assessment & previous info)

Orientation *(time, place, person):*

General Ability Range *(average, high-average, low-average, v.low average):*

Attention *(focused, sustained, divided)*

Memory *(working, long-term, prospective)*

Language *(receptive, expressive)*

Executive Functioning (distractibility, impulsivity, social sensitivity, inhibition, planning)

Visual-spatial Perceptual Skills *(vision and perception)*

Communication

Emotion & Behaviour

Physical/ Fatigue

Personality, Identity & Insight

Proposed Goals *(to include goals from CYP, Clinicians, Parents):*

MDT Actions *(to include for each discipline):*

Jim, 2014 *(adapted from Adlam, 2010)*

Recommendations and conclusions on the basis of using SNAP 1+2

- The results of SNAP 1+2 indicated that the person has a profile of neuropsychological strengths and weaknesses: they was able to read, repeat sentences of increasing complexity, follow commands to perform actions on request, yet had significant difficulties with visual memory, which was a likely significant contributory factor to observed disorientation around the unit (i.e. failing to identify their own room and wandering into other resident's bedrooms).
- Therefore the recommendations from clinical psychology intervention used the identified cognitive strengths to try to improve orientation to time and place. This conversely scaffolded the identified weaknesses. Specifically, strategies included the use of written timetables and written instructions/maps to help the person find the main areas within the unit. This resulted in less observed episodes of physical disorientation and hypothesed in turn to improve the person's internal sense of security and safety.
- SNAP 1 and 2 provided significant contribution to the care of a person who suffered a significant hypoxic brain injury following a cardiac arrest.

Conclusions

- The post-acute Systematic Neuropsychological Assessment Profiles 1 and 2 (SNAP 1 and 2) can be used in early post-acute stages of severe ABI producing meaningful information regarding an individual's cognitive functioning when they are unable to engage in formal assessments.
- The profiles empower clinicians to assess individuals early in rehabilitation thus avoiding unnecessary delays in gathering information to inform understanding and intervention to increase quality of life of those affected by severe acquired brain injury
- Additionally these profiles can be used across the lifespan in paediatric and adult brain injury settings.

References

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