

# TBI – from the Hospital to the Community

Nancy Lobos-Nguyen, Ed.D

Educational Consultant

Mandy Tribe M.A.

Educational Consultant

Hospital School Program

Children's Hospital of the King's Daughters

Norfolk VA



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# Presentation Objectives

Increase awareness of:

- Transition from the hospital
- Assessment
- Planning for serving students with TBI



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# The Hospital School Program



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# Admission to the Hospital

- Admission is determined by medical team or physician.
- Once a patient has been settled, Hospital School Program staff (teacher) makes contact with the family.
- Teacher explains his or her role as related to the student while in the hospital which includes: contact with school for records, and current school work and materials, instruction as appropriate, and assist with district assessments as necessary.



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# During the Hospital Stay

- All educational interventions and or services take place only after medical needs are addressed and child has been cleared by physician for education.
- Teachers may complete screening assessments as feasible to determine educational level of functioning.
- At times, more in depth assessment may be requested to assist with educational programming.



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# Transition from Hospital

As medical status improves, processes begin to assist the student return to school

- Teacher will communicate with school about a 504 or IEP
- 504 or IEP needs are determined by either previous history or current needs as identified by testing.
- Testing is completed once the teacher initiates process for eligibility determination.



# Eligibility Determination in the Hospital

- Teacher completes the educational components
- School Psychologist completes the psychological component
- Support staff is pulled as appropriate for additional components such as: speech, occupational therapy, physical therapy, and social work.

# Assessment: Strengths & Weaknesses

- Early Intervention is Key
  
- Knowledge of strengths and weaknesses
  - where is the injury?
  - temporal lobe, frontal lobe, cerebellum?
  - specific or diffuse?



# Cont.

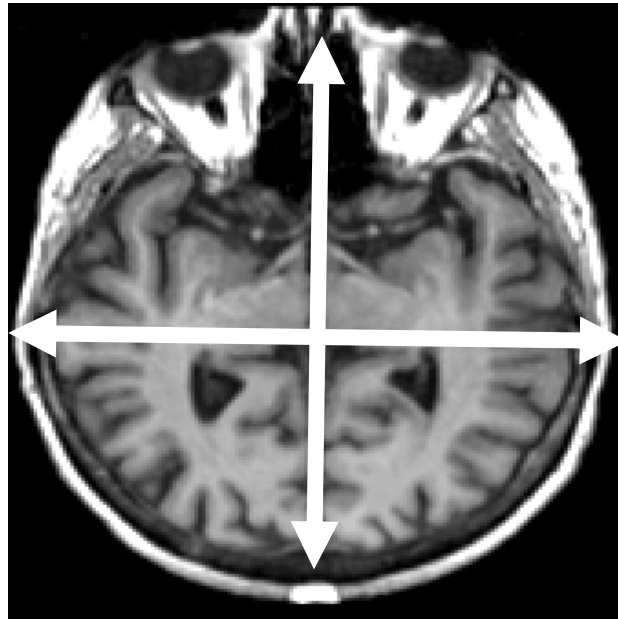
- ❑ Remember that impairment may be present in one or more areas such as in:

cognition; language; memory; attention; reasoning; abstract thinking; judgment; problem-solving; sensory, perceptual and motor abilities; psychosocial behavior; physical functions; information processing; and/or speech.

# *Brain Axes and Functions*

## Anterior

- Executive Functions
- Motor Output



## Left Hemisphere

- Routinized/Detailed/Local
- Convergent/Concordant
- Crystallized Abilities

## Right Hemisphere

- Novel/Global/Coarse
- Divergent/Discordant
- Fluid Abilities

## Posterior

- Sensory Input
- Comprehension

# Possible Assessment Tools

- **CAS** *Cognitive Assessment System* Riverside
- **CTOPP** *Comprehensive Test of Phonological Processing* Pro-Ed
- **DAS-II** *Differential Abilities Scales Second Edition* PsychCorp/Pearson
- **D-KEFS** *Delis-Kaplan Executive Function System* PsychCorp/Pearson
- **KABC-II** *Kaufman Assessment Battery for Children Second Edition* Pearson Assessments
- **NEPSY-II** PsychCorp/Pearson
- **WISC-IV Integrated** PsychCorp/Pearson

# Discharge from the hospital

- ❑ Discharge to home
  - Homebound, therapies
  
- ❑ Follow up in the out-patient clinic
  - Recommendations from physician

# Beginning the transition to school

- Contact with school
  
- Initial meeting
  - Review of medical history
  - Current status
    - Medical
    - Academic
    - Emotional

# 504 or IEP?

## mBI/concussion

- Usually 504 plan

## Moderate to Severe Injuries

- Usually IEP

# Eligibility process

## Assessments

- Completed
- Needed

## Considerations

- Still regaining previous knowledge
- Medications
- Stamina
- Environment

# TBI / ABI?

## □ TBI definition

- ...”by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both, that adversely affects a child's educational performance. The term applies to open or closed head injuries resulting in impairments in one or more areas” ...

## □ ABI

- May not meet the TBI definition
  - Brain tumor
  - Anoxic event
  - Stroke etc.



# Programming

- Physical symptoms.
- Cognitive symptoms.
- Behavioral symptoms.
- Brain injury can resemble other disabilities: Know the differences!
- Instructional strategies.

# Planning return to school

- Pre-morbid self
  - May or may not look different [ which is worse?]
- Therapies
- Stamina
- Tolerance of:
  - Sounds, light, other students

# Outcomes

- ❑ Each child's recovery process, outcome, and social situation are unique
- ❑ Growing into the brain injury

# Things to Remember

- Medical input
- Specific information about outcome is impossible for medical/rehab professionals to provide because there are no indicators they can rely on to predict this information
- Family
- Non-linear nature of the condition
- Pre-morbid functioning and memories

# Appendix

- **CAS** *Cognitive Assessment System* Riverside
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# CAS

<b>Planning</b>	
Planned Codes	Sustained attention, psychomotor speed, strategy use
Matching Numbers	Sustained attention, visual scanning, psychomotor speed, strategy use
Planned Connections	Sustained attention, visual scanning, psychomotor speed, strategy use
<b>Simultaneous</b>	
NV Matrices	Inductive reasoning, multiple choice
Verbal/Spatial Relations	Receptive language, working memory, grammatical relationships, visual scanning/discrimination
Figural Memory	Visual perception, spatial relationships, visual memory, graphomotor reproduction, constructional skills, figure-ground relationships



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# CAS, cont.

<b>Attention</b>	
Expressive Attention	Inhibition of automatic response
Number Detection	Cancellation task, sustained attention, visual scanning, visual discrimination, inhibition, psychomotor speed
Receptive Attention	Sustained attention, visual scanning, attend to perceptual, then shift set to meaning
<b>Successive</b>	
Word Series	Word span, rote auditory memory
Sentence Repetition	Rote recall of meaningless sentences, grammatical structure important
Sentence Questions	Language comprehension based on grammatical structure with meaningless content
Speech Rate	Oral praxis



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# CTOPP

## Phonological Awareness

Elision	Phonological perception, segmentation
Blending Words	Phonological assembly
Sound Matching	Phonological perception, segmentation
Phoneme Reversal	Phonological perception, segmentation, working memory
Blending Nonwords	Phonological assembly
Segmenting Nonwords	Phonological perception, segmentation

## Phonological Memory

Memory for Digits	Short-term memory, sequencing
Nonword Repetition	Phonemic analysis, assembly, working memory



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# CTOPP, cont.

<b>Rapid Naming</b>	
Rapid Digit Naming	Number automaticity, processing speed, verbal fluency
Rapid Letter Naming	Letter automaticity, processing speed, verbal fluency
Rapid Color Naming	Color name knowledge, naming automaticity, processing speed, verbal fluency
Rapid Object Naming	Object recognition, naming automaticity, processing speed, verbal fluency



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# DAS-II, cont.

Recall Digits— Backward	Working memory for auditory material
Recall Objects— Immediate	Memory for verbal and pictorial stimuli
Recall Objects— Delayed	Longer-term memory, verbal and pictures
Recall Sequential Order	Short-term memory for verbal and pictorial stimuli, sequencing
Recog. of Pictures	Nonverbal visual memory, recognition
Seq. & Quant. Reasoning	Fluid reasoning, sequential reasoning, figural and numeric
Verbal Similarities	Verbal knowledge, verbal reasoning
Speed of Info Processing	Processing speed, graphomotor
Verbal Comp.	Receptive language, basic language concepts
Word Definitions	Verbal knowledge, oral expression



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# DAS-II

Copying	Visual-motor integration, graphomotor skills
Early Number Concepts	Receptive language, spatial and numerical concepts
Matching Letter-Like Forms	Visual perception, orientation, attention to details
Matrices	Inductive reasoning, multiple choice
Naming Vocabulary	Expressive naming
Pattern Construction	Visual-spatial processing, constructional praxis, planning, bimanual coordination
Phonological Processing	Phonological awareness, segmentation, assembly
Picture Similarities	Fluid reasoning, visual perception
Rapid Naming	Fluent retrieval from LTM; automaticity of visual-auditory associations
Recall of Designs	Visual and spatial memory
Recall Digits Forward	Rote auditory memory, sequencing



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# D-KEFS

Sorting	Problem-solving, verbal and spatial concept formation, categorical thinking, flexibility of thinking
Trail Making	Mental flexibility, sequential processing on visual-motor task, set shifting
Verbal Fluency	Verbal fluency
Design Fluency	Visual fluency
Color-Word Interference	Attention and response inhibition
Tower	Planning, flexibility, organization, spatial reasoning, inhibition
20 Questions	Hypothesis testing, verbal and spatial abstract thinking, inhibition
Word Context	Deductive reasoning, verbal abstract thinking
Proverb	Metaphorical thinking, generating versus comprehending abstract thoughts



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# KABC-II

<b>Simultaneous</b>	
Triangles	Visual-spatial processing, constructional praxis, planning, bimanual coordination
Face Recognition	Visual facial memory (ventral stream)
Pattern Reasoning (5-6)	Inductive reasoning, visual processing, figural
Block Counting	Visual-spatial processing, quantitative knowledge
Story Completion (5-6)	Reasoning, sequencing, attention to visual details
Conceptual Thinking	Inductive reasoning, visual processing, pictorial
Rover	Planning, inhibition, spatial processing
Gestalt Closure	Visual processing, holistic perception
<b>Sequential</b>	
Word Order	Short-term auditory memory for unrelated words, nonverbal response, later items interference task
Number Recall	Short-term auditory memory
Hand Movements	Short-term visual memory, sequencing, praxis



## KABC-II, cont.

<b>Planning</b>	
Pattern Reasoning (7-18)	Inductive reasoning, visual processing, figural
Story Completion (7-18)	Reasoning, sequencing, attention to visual details
<b>Learning</b>	
Atlantis +Delayed	Associative memory, meaningless symbols and names, syllable length cues
Rebus +Delayed	Associative memory, rebus clues to meaningful sentences
<b>Knowledge</b>	
Riddles	Receptive language, reasoning, long-term memory retrieval
Expressive Vocabulary	Word knowledge, oral expression
Verbal Knowledge	General knowledge, multiple choice, pictorial representations



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# NEPSY-II

<b>Executive Functions/Attention</b>	
Animal Sorting	Problem-solving, verbal and spatial concept formation, categorical thinking, flexibility of thinking
Auditory Atten & Response Set	Sustained auditory atten., vigilance, inhibition, set maintenance, flexibility
Clocks	Telling time, reading analogue clocks, visual-spatial processing, graphomotor
Design Fluency	Visual-motor fluency, flexibility, divergent thinking, graphomotor
Inhibition	Naming fluency, inhibition, shifting set
Knock and Tap	Self-regulation, inhibition, maintaining set
Statue	Resistance to distraction, inhibition, motor persistence



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# NEPSY-II

Memory and Learning	
List Learning (Delay)	Verbal memory
Memory for Designs (Delay)	Visual memory, spatial recall and visual details
Memory for Faces (Delay)	Facial memory (ventral stream)
Memory for Names (Delay)	Associative memory, names and faces
Narrative Memory	Meaningful memory
Sentence Repetition	Auditory short-term memory, content and grammatical structure important
Word List Interference	Auditory memory, short term and working memory (with interference)



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# NEPSY-II

<b>Visuospatial Processing</b>	
Arrows	Spatial processing, visualization, line orientation, inhibition, no motor
Block Construction	Visual-spatial processing, constructional praxis, planning, bimanual coordination
Design Copying	Visual-motor integration, graphomotor skills, local and global processing
Geometric Puzzles	Visual-spatial processing; figural, mental rotation, no motor demands
Picture Puzzles	Visual-spatial processing, pictorial, visual discrimination, local detail processing, figure-ground
Route Finding	Visual-spatial processing, orientation



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# NEPSY-II

<b>Sensorimotor Functioning</b>	
Fingertip Tapping	Simple motor speed, perseverance
Imitating Hand Positions	Visual perception, praxis, kinesthesia
Manual Motor Series	Imitate a series of rhythmic movements
Visuomotor Precision	Visual-motor integration, graphomotor w/o construction
<b>Social Perception</b>	
Affect Recognition	Facial processing (ventral stream), matching emotions
Theory of Mind	Perspective taking for knowledge and emotions



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# NEPSY-II

Language	
Body Part Naming	Knowledge of body parts, receptive and expressive
Comprehension of Instructions	Receptive language, sequencing, grammar
Oromotor Sequences	Oral praxis, sequencing, memory span
Phonological Processing	Auditory attention, phonological awareness, segmentation, assembly
Recognition of Reversals	Visual perception of orientation, orthographic knowledge
Repetition of Nonsense Words	Phonemic awareness, auditory memory span, sequencing
Speeded Naming	Naming automaticity, processing speed
Word Generation	Verbal fluency, integrated RH/LH functioning, compare category with letter responses



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# WISC-IV Integrated

<b>Verbal Comprehension</b>	
Verbal Subtests Multiple Choice	Long-term memory retrieval; compares free-recall and recognition memory
<b>Working Memory</b>	
Visual Digit Span (Forward)	Compare visual to auditory memory span
Spatial Span (Forward and Backward)	Compare visual to auditory working memory
Letter Span (Forward)	Compare numbers to letters (familiarity)
L-N Seq Process Approach	
Arithmetic Process Approach	Compare working memory effects
Written Arithmetic	Compare arithmetic knowledge



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# WISC-IV Integrated, cont.

<b>Perceptual Reasoning</b>	
Block Design Multiple Choice	Visual discrimination and spatial perception; removes v-m integration and speed demands
Block Design Process Approach	Comparison of orientation (LH) versus configuration (RH) errors
Elithorn Mazes	Executive functions—planning, organization, monitoring, inhibition; graphomotor skills
<b>Processing Speed</b>	
Coding Copy	Visual-motor integration, graphomotor skills, processing speed
Coding Recall	Paired-associate symbol and digit recall, free recall



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