OBJECTIVES

• Incidence and prevalence of brain injury in children and youth
• Neurodevelopmental milestones of the brain
• Cognitive and behavioral challenges which may present in the child with a brain injury
• Strategies and tools to use in the classroom, home and community
TBI IN CHILDREN AND YOUTH

- 450,000 Children aged 0-19 sustain a TBI annually (CDC 2006)
- 62,000 hospitalizations
- 7,400 Deaths
- 384,000 emergency department visits
TBI IN CHILDREN AND YOUTH

- Overall children aged 0-4 had the highest rate of overall incidence of TBI and the highest ED visit rate
- Boys are twice as likely as girls to sustain a TBI
- Highest risk age group is 0-4 years of age followed by 15-19
- Over 30,000 Children left with long lasting significant challenges
CHILDREN AND YOUTH: GROWING INTO THE BRAIN INJURY

• Skills/challenges identified at age the injury occurs not the final word - what you see is not what you get in the long term
• As noted from the incidence rates and because young brains are not fully developed special attention to TBI incidence in children is warranted.
• Developmental milestones become compromised following a brain injury - missed milestones not readily attributed to the brain injury.
THE DEVELOPMENTAL STAGE OF ADOLESCENCE

- Physiological changes in the brain
  - from www.loni.ucla.edu/~thompson/DEVEL/PR.html
THE DEVELOPMENTAL STAGE OF ADOLESCENCE

- Physiological changes in the brain

Source: www.loni.ucla.edu/~thompson/DEVEL/PR.html
THE DEVELOPMENTAL STAGE OF ADOLESCENCE

- Physiological changes in the brain
- Physical and sexual maturation occurs
- Emotionally active time as they move toward adulthood - Issues of identity and intimacy
  - Increasing sense of self-confidence
  - Facing life with energy, increasing independence, and self-sufficiency with little awareness of vulnerability
- Socially learning to balance a world of rules and consequences with a newly acquired freedom of choice
NEURODEVELOPMENTAL MILESTONES OF THE BRAIN: Five Peak Maturation Points

• 1 - 6 years of age
• 7 - 10 years of age
• 11 - 13 years of age
• 14 - 17 years of age
• 18 - 21 years of age

1-6 years

- Overall rapid brain growth, frontal executive, visuo-spatial, somatic, and visuo-auditory functions.
- Children are perfecting their ability to form images, use words, and place things in serial order.
- Begin to develop tactics for solving problems
7-10 years

- Sensory and motor systems continue to mature up to about 7 ½.
- Frontal executive system begins accelerated development.
- Children begin to perform simple operational functions, such as determining weight and logical-mathematical reasoning.
11-13 years

- Primarily involves the elaboration of the visuospatial functions, including maturation of the visuo-auditory regions.
- Children are able to perform formal operations, such as calculations, and perceive new meaning in familiar objects.
14-17 years

- Maturation of the visuo-auditory, visuospatial, and somatic systems.
- Enter the stage of dialectical ability.
- Review formal operations, find flaws with them, and create new ones.
18-21 years

- Final stage of brain development, region governing the frontal executive functions matures.
- Young adults begin to question information they are given, reconsider it, and form new hypotheses incorporating their own ideas.
Brain Growth

Since the greatest percent of brain maturation occurs in the early years, birth through age 5, an injury to a child’s brain before age 5 may be the most devastating time to sustain an injury.
IMPACT OF AN ACQUIRED BRAIN INJURY AT ADOLESCENCE

• Immediate loss of whatever independence they had gained
• Frontal lobe development may halt, slow, or be significantly affected by the injury
• Sense of physical attractiveness becomes altered
• Adolescent perception of invulnerability significantly challenged
IMPACT OF AN ACQUIRED BRAIN INJURY AT ADOLESCENCE

• Loss of self-confidence
• Social appropriateness
  Loss of friends is common and the ability to interpret social situations becomes significantly challenged
• Cognitive and behavioral challenges can compromise any future learning, while previously mastered academic skill and intellectual capacity may not be affected
IMPACT OF AN ACQUIRED BRAIN INJURY AT ADOLESCENCE

- School participation
  A loss of school time can affect academic achievement and social relationships
- Willingness to make adjustments in their life due to resenting the perception that they are different
IMPACT OF AN ACQUIRED BRAIN INJURY AT ADOLESCENCE

- Intimacy and sexual relationships become difficult to initiate and maintain
- Loss of or postponement of future plans
- Use of alcohol and drugs may increase to blunt the personal impact of the injury
IMPACT OF AN ACQUIRED BRAIN INJURY AT ADOLESCENCE

• Fatigue affects how much activity can be done in a day and how much learning can occur
• Rate of learning, growth, and development will slow
COGNITIVE AND BEHAVIORAL CHALLENGES
Cognitive Challenges

• **Memory**
  - Difficulty learning new information
  - Difficulty retrieving information

• **Concentration**
  - Difficulty maintaining focused attention to task
  - Difficulty deciding pertinent information
  - Difficulty filtering out distractions
  - Difficulty ignoring others’ behavior
Decision-Making

- Impaired judgment and impulsivity
- Singular view/lack of empathy for others
- Lack of forward planning
- Lack of organizational skills/strategies
- Ineffective/decreased use of problem-solving strategies
Psychosocial Challenges

- Lowered self-esteem, depression, and decreased self-control.
- Difficulty building relationships with peers, teachers, and family.
- Compromised understanding of social norms.
• Increased levels of unwanted behavior, such as:

- Physical Aggression
- Verbal Aggression/Outbursts
- Provocation of/Interference with peers
- Inappropriate Sexual Behavior
- Property Destruction
- Substance Use and Abuse
- Self-Injury
- Running Away
Sensorimotor Challenges

- Vision Impairments (e.g., Field cuts, peripheral neglect, etc.)
- Speech Impairments (e.g., Anomia, Agnosia, Phonemic awareness)
- Physical Mobility
- Balance
- Hand-Eye Coordination (Handwriting)
- Decreased Gross- and Fine- Motor Control
- Altered sensation
Alert Program

“How does your engine run?”

“If your body is like a car engine, sometimes it runs on high, sometimes it runs on low, and sometimes it runs just right.”

(Williams & Shellenberger, 1996)
Similarities between Brain Injury and Other Disabilities

- Many individuals with brain injuries demonstrate behavioral and emotional challenges similar to individuals with other disabilities.
Learning Disabilities

• Difficulty learning new information
• Difficulty recalling new information
• Difficulty organizing materials
Social Emotional Disabilities

• Physical and Verbal Aggression
• Verbal Outbursts
• Temper and Irritability
Additional Challenges

• Attention
• Concentration
• Motivation
• Initiation
• Social Skills
• Social Awareness
• Memory
• Planning
• Problem Solving
• Establishing Peer Relationships
• Maintaining Peer Relationships
Student Success Skills

- **Attention/Concentration:** Being able to attend and participate in instructional activities.
- **Memory:** Being able to select, store, and retrieve relevant information.
- **Organization:** Being able to maintain books and assignments.
- **Following Directions:** Being able to follow verbal, as well as written directions.
Attention & Concentration

• Reduce distractions: noise, other students, and wall decorations
• Divide or ‘Chunk’ the work into smaller components
• Encourage an oral summary of information that is read
• Use cue words
• Use non-verbal cues
Memory

- Repetition
- Slow presentation
- Assignment sheet or memory book
- Written information or pre-arranged notes
- Help with categorization of information or chunking information
- Chunking information to aid in retention
- Mnemonic Devices
Organization

- Provide additional time to review
- Written checklists
- Written schedule
- Assign check-in person
- Practicing and color-coding materials
Following Directions

• Post behavioral expectations in a easily visible area
• Keep behavioral expectations consistent among classes
• Provide written and oral directions
• Ask the student to repeat the directions
• Underline or **highlight** directions
• Break down complex tasks into simple steps
• Provide additional time and additional instructions
Verbal De-Escalation Techniques

• Many times when a person is having difficult issues, and their behavior is beginning to escalate, it is possible to support them in a way that avoids a full “blow-up”, and serves as proactive treatment, rather than reactive techniques. By recognizing that there was likely a change in their environment that prompted the behaviors, that the person probably doesn’t know how to respond to the changes, and that the person is likely to repeat previous patterns, we may help them de-escalate during times of upset simply by interrupting the escalation process and providing an alternative adaptive way of responding.
• The focus is not to teach a new repertoire of skills, rather it is to help the person avoid the upset and risks associated with continuing to a difficult situation. By intervening early with a few proactive strategies, we may be able to stop the behavior before it has really started, or help the person “turn it around” before they have a more traumatic experience.

• The following strategies may be helpful in situations where a person is demonstrating that their behavior is escalating, and that they require some extra support to help them gain control.
Response Priming

• May be used to offset a request, so that it is cushioned by non-demanding comments.

• Example:
Reflect and Reassure

- If the student has become upset, it may be helpful to reflect what the person is saying/feeling, and reassure the student it will be ok.

- Example:
Stimulus Change

• Sometimes de-escalation is simply a matter of changing the thing that is contributing to the person’s upset. This may be either removing the something aversive or providing something that the person wants.

• Example
Interspersed Requests

- Many students do not respond to a request the first time. Simply allowing the student time to process, and repeating the question, may promote follow through.

- Example
Focused Redirection

• During high emotional arousal the student may lose the ability to focus on any single thought or action which may help them engage in calming or problem solving. You may focus attention on a segment of confused speech or conversation, until the person begins to focus more clearly.

• Example
Reinforcer Recall

• Once a student’s behavior begins to escalate, it may be hard for them to remember their reinforcer history. The teacher may remind the student of a positive or reinforcing situation in a de-escalation attempt.

• Example
Topic Dispersal

• When a student is perseverating on a single issue or topic, and it is keeping upset, it may help to introduce a series of different topics in rapid succession, in order to disperse their thought.

• Example
Functional Replacement

• A student may respond in an unwanted way, because that is the only way they know how to respond. If an opportunity is given for the student to get the same results with an alternative behavior, this may prevent further upset.

• Example
Behavioral Momentum

- When a student is demonstrating an established chain of behaviors leading to a more serious one, it may help to interrupt the flow, and replace it with a different one.
Personal Intervention Plan

The student’s individualized plan for addressing behavioral challenges

• Preferred Interaction Style
• Antecedents to unwanted behaviors
• Description of unwanted behaviors
• Replacement Behaviors
• Needed support from others
Personal Intervention Plan

1/09 Behavior Intervention & Therapy

Background Information: I am a I sustained my injury from at birth, from having a brain hemorrhage and suffered a second injury when I fell out of my family’s van as we were driving. I live with

I have no significant health issues due to my injury. I have been diagnosed with ADHD, but I take medication for this, and it doesn’t interfere with my daily routines.

My history includes physical, verbal aggression, property destruction, and threats, both towards my family and neighbors. I have also demonstrated unhealthy attitudes/obsessions with my teacher, with whom I tried to force friendship and called repeatedly. During my programming at CCS, I have had similar behaviors as well as a few episodes of inappropriate sexual behavior and entering a neighbor’s house and refusing to leave.

General Interaction Style: I have a good verbal presentation to others. When I am upset, I have responded well when staff talk to me, and help me de-escalate. During the times when I have not been able to calm down, I have required physical assistance. I like it when staff are nice to me, and when they honor my preferences. I do better when staff ask me, rather than tell me, to do something. I like to spend time by myself to keep away from negative influences, such as peers behaving poorly. I like spending time with preferred peers, when they are doing well.
BEHAVIORS I’ve demonstrated when I have been upset in the past:

- I have destroyed property.
- I have had physical aggression
- I have had verbal aggression
- I have used weapons.
- I have demonstrated obsessive behaviors.

Self-Management (PERSONAL INTERVENTION) strategies:

- I will go to my room.
- Listen to some calming music.
- Talk to staff
- Take a walk outside
- Remove myself from the situation.
- Ignore negative behavior from others.
SETTING EVENTS (When I am less likely to self-control my behaviors):

- Poor interactions with others
- Feeling tired

SITUATIONS OR THINGS THAT I GET UPSET ABOUT (When I am less likely to self-control my behaviors):

- When people scream at me
- The use of common phrases like “raining cats and dogs,” or other similes
- Balloons
- When staff leave unexpectedly
- Sometimes, family interactions
- When I feel like I’ve been lied to
THINGS THAT STAFF AND MY FAMILY CAN DO to assist me in managing my anger better:

- Positive interaction styles are extremely important with me. Praise me for positive statements and actions.
- Prompt me as to other ways to calm myself when upset.
- Talk to me in a way that is direct and simple. Avoid using sarcasm.

Medications:
- N/A

Survey of Reinforcers:
- Participant Signature

  Date ______________

- Staff Signature

  Date ______________

Route to: PT/OT, Emerg. Resp., AI School, Case Mngr.
Behavioral Contracting

Contingency Contract

We, ______ Meagan ______, and ______ Mrs. Green ________, agree to the following terms to ensure that Meagan ________ is able to demonstrate good behavior and progress toward meeting classroom expectations.

I agree to work on the following:

________________________________________________________________________

________________________________________________________________________

As a result of follow-through with these expectations, I will receive:
I will get __________________________ by __________________________
I will get __________________________ by __________________________

It is understood that this agreement is mutual. I agree that the behaviors listed above are important aspects of my education. I want to maintain a close rapport with my teachers and other staff. I also agree that these behaviors are very important for me to be successful.

_____________________________            __________________________
Clinician                              Date

_____________________________            __________________________
Student                                Date
2:1 Interactions

• For every request made, 2 positive statements should precede it. In this way, you reinforce follow-through of requests, and develop a positive rapport to “offset” the demand.
Contingent Privileges

• When children are given more privileges or activity reinforcers dependent upon the demonstration of positive behavior it is likely to both add positive behaviors to their repertoires while reinforcing already existing ones.
Individual Incentive Programs

- Based on the student’s current or “baseline” rate of behavior, incentives are used to reinforce smaller, “baby” steps toward their ultimate goal. For example, one student may earn a token toward a reward every 20 minutes if their current rate of verbal outbursts is once per 25 minutes, where another student may earn a token every day, if their verbal outbursts currently occur less than daily.
Self-Monitoring

- Students keep track of their own behavior, and are rewarded for meeting expectations. In this way, it teaches them to attend to the occurrence of the behavior, and gives them immediate feedback, allowing them to recognize when they are fully controlling their behavior.
Conclusion

As educators we will work with students who have been impacted by brain injuries and it is important to be aware that the impacts of a traumatic brain injury are far reaching. While it may be easiest to address the most immediate concern, which is typically mal-adaptive behavior, it is important to assure that all of their social, emotional and cognitive needs are being addressed within the school programming.