The Brain-Behavior Connection: Focus on Muskegon County

Neurobiological & Neurodevelopmental Impact of Traumatic Stress & Prenatal Alcohol Exposure in Children & Adolescents:

Positive Solutions for Stress & Trauma

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Kalamazoo, MI

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“Of course this is hard...It’s the hard that makes it great”

- Recognizing the **challenges** of our work
- Understanding its **impact** to us both **professionally** and **personally**
Secondary Trauma / Compassion Fatigue

• “The natural and consequent behaviors and emotions resulting from knowing about a traumatized event from a significant other, the stress from helping or wanting to help a traumatized or stressed person.” (Figley, 1995)
And of course...we must always focus on “them”

By recognizing what has happened to our kids!
Trauma
and
Traumatic Stress
What is trauma?

A. Overwhelming event or events that render a child helpless, powerless, creating a threat of harm and/or loss.

B. Internalization of the experience that continues to impact perception of self, others, world, and development.
Remember...

• It not just about the traumatic event...

• It is mostly about the...
Impact!!!
Safety:

Physical vs Psychological
The Event vs The Impact
At a young age, I was raped by a boy on the back of a school bus. Since then, I sit as close to the front as I can get.
SYMPTOMS OF CHILD ABUSE

LOSS OF MEMORY ➔

BLOCKAGE ➔

LIPS ARE SEALED ←

HELPLESS ←

DEAD ZONE ←

PENT UP ANGER ➔

LOSS OF MOBILITY ➔
It's all my fault. I should have. If only I had. I'm bad. I could have. I deserved to be beaten. I let them rape me.
“I don’t care what they do to me at school. I have been through everything from smoking weed with my mother at eight to 15 placements. Their threats at school do not scare me. What could they possibly do to me” (16 year-old boy)
A familiar CTAC story

“I wake up every morning and I think about my grandma telling me I’ll never amount to anything, and I’ll end up just like my mom, then she’d slap me. When other things happen during the day, I hear my grandma’s words in my head and feel her hitting me. Then I’m rude and assault other kids and adults.” (15 year-old girl)
Our Typical Response To Trauma
Our Typical Way to Understand Challenging Children
Prepare to Dive!!!

So instead of being stuck in the sand... if we really want to know... we must go underwater!
“An entirely different way is being developed of viewing all kinds of individual and social misbehaviors and maladaptations, moving from viewing as “sick” or “bad” (or both) to injured”. (Bloom, 1997)
Embracing a Paradigm Shift

“We must *move* from viewing the individual as failing if s/he does not do well in a program...”

Dubovsky, 2000
Embracing a Paradigm Shift

...to viewing the program as not providing what the individual needs in order to succeed.”

Dubovsky, 2000
The Trauma-Informed Child Welfare System

- Common Language
- Identifying Trauma
- Assessing Trauma
- Trauma Informed Decision Making
- Treatment for Impact of Trauma

Child
Our Next Challenge: The Brain-Behavior Connection

So...Let’s start by stepping back to look at the big picture
So... *how* can we really work together to make an *impact* to help traumatized children and adolescents?
INTEGRATION!!!
Behavioral Complexities:
Many trauma pieces to integrate!

- Prevention
- Surveillance
- Screening
- Triage / referral
- Assessment
- Treatment / Management
- Ongoing case management / progress monitoring
Overarching Brain-Behavior Goal: *Total Systems Integration*

- Individual child *(integrated brain function)*
- Committed caregivers *(integrated family function)*
- Individual professionals *(vertical integration)*
- Individual “silos” *(vertical integration)*
- Creative collaboration between silos *(horizontal integration)*
**TSI**: Vertical Systems Integration: Taking care of yourself and your team

- Each “silos” must be the best it can be
- Each member must be ready for action
  - Training / professional development issues
  - Secondary trauma issues are critical
- The **brain** must be the **common language** that links **in all directions**
- Vertical integration allows & **propels** horizontal integration
**TSI**: Horizontal Systems Integration: Seamless & Creative Collaboration

- All (system) silos unite!
- The key word is *transdisciplinary*
- No specific hierarchy / Check egos at the door!
- Involves assessment & treatment/management
- **Ongoing** communication between systems
- **Brain** is the common language to accomplish
- Must use Trauma-/FASD-informed brain model
- And…
Always remember...

Children must remain in the **center** of any discussion.
How can we achieve integration?

One kid at a time...
One family at a time...
One professional at a time...
One agency (silicon) at a time...
Making an Impact ...by...
Learning about the brain!!!
Let’s talk about the brain!!

Because the brain is clearly the *common language* needed to enhance communication / facilitate creative collaboration between all parties and...

we need it for “*true integration***”
And.............

Brain knowledge helps us really understand our challenging kids and adults!...
Thinking about the brain: A 3-D Jigsaw Puzzle

- Upstairs vs Downstairs
- Back meets front
- Left meets Right
Upstairs vs Downstairs

• *Top* (Pre-frontal cortex) vs *Bottom* (brain stem)

• *Brakes* vs *Accelerator* (much more later...)*
The Human Brain

Brakes (Upstairs)

Accelerator (Downstairs)

Neocortex
Limbic
Diencephalon
Brainstem

B. Perry, MD
Back meets Front

• **Perceive** (sensory system) then **act** (motor system) then **think** (cognitive system)

• **Cerebellum**: ("white-hot" in behavioral neuroscience) is central "player" for all sensory, behavioral and cognitive function

• Cerebellar connections to PFC / subcortical areas have major impact on complex regulation
The Human Brain

Cerebellum
Hemispheric Integration
Left meets Right

• Connecting logic with emotion

• Key to emotional processing / regulation

• Corpus Callosum: Major structure that is not well understood by most clinicians

• Huge part of complex affect regulation
Corpus Callosum
Let’s get practical!!!
Brain – Behavior Functional Model: Building integration one level at a time

Neurodevelopmental Core Base
(IQ, Language, Learning Style, Attachment Potential, etc)

Sensory Processing / MSI

Brakes-Accelerator Balance

Complex Affect Regulation

Social Communication

Behavioral Choice / Free Will
Neurodevelopmental Core Base
(IQ, Language, Learning Style, Attachment potential, etc)

Sensory Processing / MSI

Brakes-Accelerator Balance

Complex Affect Regulation

Social Communication

Behavioral Choice / Free Will
Brain-Behavior-Resiliency Model
Wave of the Future

- Mastery / Efficacy
- Relatedness
- Complex Affect Regulation
Brain – Behavior Functional Model: Building integration one level at a time

Building Resiliency

Protection

Behavioral Core:
Free Will

Social Communication

Complex Affect Regulation

Brakes vs Accelerator

Sensory Processing / MSI

Neurodevelopmental Core Base
(IQ, Language, Learning Style, Attachment potential, etc)
Inspecting the Foundation: Core Neurodevelopmental Building Blocks

(“Hard wiring” of the Brain)
- Cognition / IQ
- Learning Preferences / Differences / Disability
- Language
- Memory
- Neuromotor processing / control
- Visual-Spatial Processing
- Tempero-sequential processing
- Temperament / Personality
- Attachment
Upstairs Brain vs Downstairs Brain

Brakes – Accelerator Balance
The Human Brain

Brakes (Upstairs)

Accelerator (Downstairs)

- Neocortex
- Limbic
- Diencephalon
- Brainstem

B. Perry, MD
Master Controller Level: Accelerator vs Brakes

• This level is where the action is!
• Huge impact on all behavior
• Assessment at this level is critical
• Many physiological treatments impact here:
  – Medication
  – Physical exercise / complex movement
  – Occupational therapy
• Let’s examine this level in some detail...
Floorin’ it: 0 to 60 in 4.3 seconds!

Importance of the accelerator

- RPM of the brain
- Intrinsic Energy Levels
- Circadian Variations
Arousal Genesis / Regulation

Way too wound-up / "wild" ("Tigger - on crack")

Too wound-up (Tigger)

Bored / Low energy / Tired & sleepy (Ee-yore)

Total shut-down (via parasympathetics) "Ee-yore on Quaaludes"
Accelerator: ("RPM" of the brain) **Increasing** Brain Energy

- Physical activity (mind-brain-body connection)
- Risk-taking behavior (auto pilot teen function)
- Motivation (Intrinsic / Extrinsic)
- Sensory inputs (vestibular, auditory, tactile)
- Anxiety / Panic (remote control to the accel.)
- Anger / Explosiveness (redline tachometer)
- Drugs (legal / illicit) (stimulants)
- Mania / Hypomania (stuck fast accelerator)
Accelerator: (“RPM” of the brain)

**Decreasing** Brain Energy

- Depression / sadness / grief
- Conscious effort (relaxation, meditation)
- Drugs (legal / illicit) (opiates, cannabis, sedatives, anesthesia)
- Sensory input / strategies
Remote Control of the Accelerator
The Confusing Picture of Anxiety
Fight-Flight-Freeze in the JJ / CMH / DHS system

- Anxiety / Panic as source for reactive anger ➔ aggression
- Anxiety – Attention – Language interplay in kids/teens w/ aggression
- False machismo in anxious teen boys
Anger / Explosiveness: Critical Link to Reactive Aggression

- Anger as coping skill
- (“Just” anger as clinical progress!)
- Reactive / emotive aggression = Anger **plus** “bad” brakes ➔
The Prefrontal Cortex: The home of Executive Function

Executive Function: The "brakes" of the brain

- Working memory / memory recall
- Focusing (locking, shifting & sustaining)
- Planning / organizing
- Self-monitoring of behavior/action
  - Impulse control
  - Key role in interoception
- Major role in Regulation
Delicate Balance of Arousal / Behavioral Regulation: Control of brain energy / behavior

Top-Down "Brakes" (Prefrontal Cortex)

Bottom-Up "Accelerator" (Brainstem/Limbic System)
The Case for Complex Affect Regulation
Fine Tuning Energy, Emotions & Behavior

- Arousal Regulation
- Behavior Regulation
- Emotion Regulation
Complex Affect Regulation: Clinical Realities

• Arousal Regulation can be critical 1st step
• Arousal regulation translates to behavior regulation / clinical “traction”
• Emotion regulation can be the most difficult to achieve in traumatized kids / adults
• Complex affect regulation → true brain integration → ?neuroplasticity?
• Link to social communication
Hyter Model of Social Communication (Sloane Revision)

All components are impacted by prenatal alcohol exposure and traumatic stress.

- Pragmatic Language
- Working Memory
- Social Cognition
- Complex Affect Regulation
Free Will / Choice / Behavior
Don’t Forget About the Steering

- Conscious control of behavior
- Importance of **tight structure** for optimal behavior management
- Willfulness misconceptions
  - It’s not *all* willful!
  - But some *is* willful!
  - And some *looks* willful!
- Behavioral “curve balls” in homes, schools, detention...
Final Thoughts re Regulation: Power Steering vs Manual Steering

- **Regulated** steering = *power* steering!
  - Easier to make appropriate motor / behavioral decisions while regulated

- **Dysregulated** steering = *manual* steering
  - Tougher to keep the behavioral “car” on the road
Searching for Goldilocks

When regulation turns into *integration*

**Optimal** Complex Regulation =

**Optimal** Learning, Behavior, Attention, Memory
Challenging Behavior is intimately connected with Child Development
Nature dancing with Nurture
Neurobiology of Development

- Brain "sculpts" itself in response to the environment **AT THE SAME TIME** it is developing (via genetic blueprints)
Experience alters brain structure: Power of epigenetics

- These sculpted *structural changes* allow the child’s brain to become the *best brain* for the given surroundings
  - Implications for traumatic stress
  - Implications for foster care placements
    - Externalizing behaviors frequently seen when moving from “chaos” to “quiet”
    - Placation turns into anger / aggression after the meth bust
Streams of Development: Importance of Connectedness

- Moral
- Cognitive
- Social
- Emotional
Moral Development
Impact of trauma / FASD

- Babies, Toddlers & “hard-wired” fairness
- *Psychological Science* (Feb 2012)
- Sloane, Baillargeon, & Premack
- (Proud papa moment!!!)
- Future research possibilities at CTAC
The Brain-Behavior connection: 
3 major & intertwined components

• **Genetics / Epigenetics**
  – What you inherit from both parents

• **Intrauterine environment**
  – During pregnancy

• **Extraterine environment**
  – After pregnancy
The Brain-Behavior Connection: Complexities & Realities

- Genetics / Epigenetics →

  - Neurodevelopmental strengths / weaknesses
  - Temperament / Personality
  - Family history of:
    - Attentional disorders (ADHD)
    - Learning disorders (e.g., Dyslexia)
    - Mood disorders (Depression / Bipolar)
    - Anxiety Disorders
    - Neuropsychiatric disorders (Tourette Disorder)
Behavioral Epigenetics: The future is now!

- Epigenetics: chemical alterations to DNA after conception
- Epigenetics is the *ultimate link* between nature & nature
- Some evidence that (on occasion) these epigenetic alterations may be passed on to the next generation
- Remains (somewhat) controversial (among “pure” neuroscientists)
The Brain-Behavior Connection: Complexities & Realities

• **Intrauterine environment**
  
  – Exposure to drugs (legal / illegal)
  – Maternal stress
  – Maternal nutrition
  – Exposure to alcohol
The Brain-Behavior Connection: Complexities & Realities

• Intrauterine Drug Exposure:
  – The “Myth” of Meth (& crack / cocaine)
  – “Mixing and matching” drugs while pregnant
  – Multiple drug use in pregnancy overwhelms even ultra-fast research computers!
  – Nicotine use *increases* ADHD risk 4-fold
  – Cannabis use remains a mystery
  – The need for animal models to clarify
  – Slowly accumulating data base of *prescription drugs* and their effects on fetal development
The Brain-Behavior Connection: Complexities & Realities

- Chronic and Severe Prenatal Stress:
  - Growing appreciation of negative impact on fetus
  - What level of stress is damaging to fetus?
  - Some placental stress buffering is protective
  - By 12 weeks of gestation, the limbic system and PFC are susceptible to chronic stress (via cortisol)
  - Prenatal stress can lower birth weight
  - Prenatal stress can impact adult health (think ACE)
  - Solid early life parenting / attachment can be protective (and even reverse deleterious effects)
Prenatal Nutrition

• Fetus is not the “perfect (nutritional) parasite”

• Dutch WW II prenatal stress study:
  – Fetal Programming: Preparing the baby for the life outside the womb
  – Prenatal maternal starvation: message to fetus: prepare for more of the same after birth
  – Life-long risk of obesity / heart disease due to no ongoing starvation (after WW II ended)

• Overlap with prenatal alcohol exposure
Fetal Alcohol Syndrome

FAS is among the most common of the known causes of cognitive impairment.
Fetal Alcohol Spectrum Disorders (FASD)

- Fetal Alcohol Syndrome
- Partial FAS
- Alcohol-related Neurodevelopmental Disorder (ARND) ("mild-moderate" FAS)
- Prenatal Exposure to Alcohol (clinically suspected to have FAS but appear physically normal)

Adapted from Streissguth
Human fetus: 7 weeks of gestation
Fetal Alcohol Spectrum Disorder: Affects Multiple Body Systems

- Growth problems (including failure to thrive)
- Brain / CNS damage
- Cardiac defects
- Skeletal abnormalities
- Cranio-facial anomalies
- Kidney and other internal organs
- Respiratory problems
- Hearing / Vision problems
Fetal Alcohol Spectrum Disorder

- “Mild – Moderate” FASD is still very problematic
- It is all about *when* the drinking occurred (during the pregnancy) and *how much* alcohol was consumed
- Maternal blood alcohol level = fetal blood alcohol
- “Swiss cheese brain” issues
- Confusion over why *all* fetal ETOH exposure is not created equal
Recognition / Screening / Assessment of FASD
FASD: Critical Facial Abnormalities

- Palpebral fissure (small eyes)
- Thin upper lip
- Smooth philtrum
Fetal Alcohol Syndrome:
It doesn’t always look like this
...It can look like this!...clinical examples of FAS: transcending race
Facial features of FAS in a mouse

Normal (control) mouse

FAS mouse

Small eyes

Flat philtrum

Adapted from Sulik & Johnston, 1982
Diagnostic Assessment for FASD
FASD Diagnostic Assessment

- Ongoing controversy of best practices
- Primary Care Providers are typically out of the loop (but need to be on the front line!)
- University of Washington FASD system first to validate importance of **mild-moderate FASD**
- “The Big 4” categories: Growth, Face, Brain, Alcohol Exposure
- FASD screening is gaining momentum
FASD Facial Abnormalities

↓ palpebral fissure (small eyes)

Thick upper lip

Smooth philtrum
Lip-philtrum guides


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Measurement of palpebral fissures

Measuring palpebral fissure length

Chudley, A. E. et al. CMAJ 2005;172:S1-21S
FASD:
Impact on Brain Structure
Severe brain damage caused by prenatal alcohol exposure

5-day old infants

Severe FAS Normal Brain

photo: Clarren, 1986
Corpus Callosum

- 100 million neurons!!! (largest brain structure)
- Connects the two brain hemispheres
- Allows the left side to communicate with the right side
- Assists the individual child to calm down during / after “meltdown”
- Is often damaged by prenatal alcohol exposure / traumatic stress
Corpus Callosum
Gross structural abnormalities in FAS
(12 year old male subjects)

Normal Development

Fetal Alcohol Syndrome
Star Trek Medicine: Diffusion Tensor Imaging

Inter-hemispheric Fiber Tractography through Corpus Callosum

Fractional anisotropy maps

FASD

Control

Anatomical images
FASD: “real-world” impact on functional neurodevelopment:

• Animal & human studies clearly show:
  – Microcephaly / cognitive deficits
  – Multiple neurodevelopmental insults:
    • Executive function
    • Language
    • Memory
    • Visual-spatial processing
  – Sensory processing dysfunction
  – Adaptive function / self-regulation
  – Psychopathology

Reynolds 2011
FASD impact on neurodevelopment: The CTAC experience

- CTAC: evaluated 2500 children since Feb 2000
- 37% of CTAC traumatized child welfare sample (6-15 y/o) has been diagnosed with FASD
- CTAC first to describe *additive impact* of trauma + FASD on neurodevelopment (Henry, Sloane, & Black-Pond 2007)
- CTAC has not had much experience with *non-traumatized* FASD children
  - This FASD population: a *critical* research group
FASD Secondary Disabilities: Recent research findings

• A recent L/T study of individuals with FASD:
  – Mean age: 14 yrs (range 6-51 yrs)
  – N = 415
  – Mean IQ = 86 (Range 29-126)
  – 80% of the sample *not* raised by biological parents
  – 60% had trouble with the law
  – 50% were in confinement
  – 49% had repeated inappropriate sexual behavior
  – 35% had drug / alcohol problems
  – Early diagnosis 2-4 times more likely to prevent or lessen impact of these secondary disabilities

Streissguth 2004
The Brain-Behavior Connection: Complexities & Realities

- Extrauterine environment
  - Parental attachment / nurturing
  - Parental style / psychopathology
  - Nutritional status
  - Exposure to violence, natural disasters
  - Exposure to neglect
  - Exposure to abuse (verbal / emotional / physical / sexual)
Building the Brain: Using Mirrors

- **Mirror Neurons** “smart brain cells” that explain how we connect and relate to each other
The Brain-Behavior Connection: Complexities & Realities

• The 2-way street of attachment
  – Traumatized / FASD infants may have mirror neuron damage
    • Similar pattern may be seen in some ASD infants
  – Optimal attachment depends on both parent and infant having intact “mirror equipment”
  – Neurotypical parents adopting infants at birth can experience vague sense of unease & ineptness due to infant’s brain damage (similar to ASD parents)
  – “Double (attachment) whammy” of FASD & trauma
The Science of Attachment

- *Parenting From the Inside Out* by Daniel Siegel, MD (2004)
- *The Developing Brain* by Dan Siegel, MD (2nd Edition – March 2012)
- *Mirroring People* by Marco Iacoboni, MD (2009)
Child Traumatic Stress & the Developing Brain
Classifying Stress

Positive Stress

– Moderate / brief exposures to stressful events
– Important / necessary for healthy development
Classifying Stress

Tolerable Stress

- Significant (and often severe) stress exposure
- Potentially damaging
- Buffeted by *supportive* adult relationships
Classifying Stress

Toxic Stress

- Strong, frequent, prolonged exposure
- No (or inadequate) adult buffering & support
- Can directly damage the developing brain
Consequences of chronic stress on the developing brain

- Human body has remarkable capacity for handling acute and chronic stress
- Chronic and significant toxic stress eventually takes its toll
- Resiliency / protective factors ➔➔
Resilience to Traumatic Stress: Psychosocial & Neurobiological Factors

- Mastery / efficacy
- Adequate self-regulation skills
  - Facing fears / active & successful coping
- Optimism / positive emotions
- Positive reframing of negative stimuli
- Social competence / social support
- Capacity for relatedness
- Purpose in life / moral compass / spirituality
“Trauma Trumps Everything!!!”

Sandra Bloom, MD
Types of Traumatic Stress

- Neglect
- Physical Abuse
- Verbal Abuse
- Emotional Abuse
- Sexual Abuse
- Exposure to Domestic Violence
- Exposure to Catastrophic Event
Traumatic Stress & the Child’s Developing Brain

- Research reveals a strong link between all types of child abuse/neglect and the subsequent development of psychiatric illness in adulthood.

- New findings (ACE study) link child traumatic stress with variety of adult medical illness.

VJ Felitti, MD 2009
Traumatic Stress & the Child’s Developing Brain

• Early childhood traumatic stress to the developing brain results in:

  – Physical neuroplastic brain changes that:
    • Cause abnormal functioning (including memory)
    • Contribute to problematic behaviors
    • Contribute to developmental delays
    • Result in child being unable to realize potential
So...what about neglect???
But...this case *only* involves neglect!
Neglect: The **Worst** Offender
Romanian Orphanage Neglect

3-Year-Old Children

![Brain scans]

- Normal
- Extreme Neglect

Child Trauma Academy

1997 Bruce D. Perry, M.D., Ph.D.
Developmental Impact of Neglect

- Physical growth delays ("failure to thrive")
- Language delays
- Cognitive / learning delays
- Regulatory (arousal / emotional / behavioral) issues
- Social communication problems
- Attachment dysfunction
- Immune dysfunction

De Bellis 2005
Early Neglect and Brain Development

- Excessive amygdala activity ("stuck accelerator")
- Diminished prefrontal cortex function ("bad brakes")
- Mirror neuron system dysfunction ("broken mirrors")
  - Attachment issues
  - Social communication problems (including ASD)

Iacoboni 2008
Neglect and the Corpus Callosum

- Myelinated areas of the brain are particularly susceptible to effects of *early neglect*
- Corpus callosum is *largest* myelinated structure in the brain
  - *Connects* the two brain hemispheres & allows the left side to communicate with the right side
- Corpus callosum is *smaller in boys* with neglect

Teicher 1997
Now...back to our Building Blocks...
Impacts to ND Base

- Low IQ (regardless of etiology)
- Language Impairments
- Learning Disabilities (e.g., Dyslexia)
- Attachment dysfunction
ND Core Insults: Tipping the Tower

Behavioral Choice / Free Will
Social Communication
Complex Fine Tuners
Master Controllers

Neurodevelopmental Core Building Blocks
• Anxiety Disorders (genetic + environment)
• Post-traumatic Stress Disorders
• Executive Dysfunction / ADHD
• Sensory Processing Disorders
Master Controller Issues: The Shrinking Middle

Neurodevelopmental Core Building Blocks

- Behavioral Choice / Free Will
- Social Communication
- Complex Fine Tuners
- Master Controllers
“Triple Whammy”
Bad Genetics + FASD + Complex Trauma
= Jenga Time!

Behavioral Choice / Free Will

Complex Fine Tuners

Master Controllers

Social Communication

Neurodevelopmental Core Building Blocks
Next Steps
The (Overwhelming) Trauma “To Do” List

- Prevention
- Surveillance
- Screening
- Triage / referral
- Assessment
- Treatment / Management
- Ongoing case management / progress monitoring
Urgency of Assessment
Trauma Screening Checklist
(Initiative-wide)  (n=767)
Each checklist represents a child age 6 or over

<table>
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<tr>
<th>Location</th>
<th>Count</th>
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<tbody>
<tr>
<td>Hillsdale</td>
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<td>Livingston</td>
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<tr>
<td>Mason</td>
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<td>Lake</td>
<td>43</td>
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<tr>
<td>Newaygo</td>
<td>109</td>
</tr>
<tr>
<td>Manistee</td>
<td>29</td>
</tr>
</tbody>
</table>
Total Number of Students = 687
Total Number of Students = 687
WMU CTAC
Comprehensive Assessment

- History (caregiver / teacher / “system” input)
- Cognitive screen (K-BIT 2)
- Neurodevelopmental screen
- Neuromotor evaluation
- Pragmatic language evaluation
- Psychosocial interview
- Medical (including FASD assessment)
Assessment Reality Check

• Too many foster kids needing help....not enough CTAC’s

• Role of Primary Care Provider (Now and in the future):
  – Patient-Centered Medical Home (Pediatrics)
  – Family-Centered Medical Home (Family Practice)
Effective Trauma/FASD Treatment: Creative Collaboration by the totally integrated “Dream Team”
Effective Trauma/FASD Treatment:

- Comprehensive Assessment (1st step of treatment)
- Psychoeducation / Demystification
- Creative / collaborative case management
- Trauma-informed Psychotherapies
- Sensory-focused Occupational Therapy
- Expressive Therapies (Music, Art, Dance therapy)
- Optimized nutrition
- Exercise / complex movement (Yoga / Tai Chi)
- Trauma / FASD-informed medication treatment
Effective Trauma/FASD Treatment

- Classroom accommodations / special education
- Tutoring / coaching / mentoring
- Speech-Language Therapy
- Social skills treatment / enhancement
- Wraparound protocols
- Behavioral management
- Parent behavioral management training (PMTO)
- Multi-systemic Therapy (MST)
How to decide what to do when:
Who wants to be quarterback?

• Overwhelming list of choices!
• Many barriers to coordinated care
  – Access to quality care
  – Insurance issues
  – Transportation / Time issues
  – Lack of creative case management
• Case for primary care provider tx:
  – Trauma-informed patient / family-centered medical home treatment model
Psychopharmacologic Treatment in Children / Adolescents
Changing Landscape of Psychotropic Medication

• Since 2000, many new medications have been introduced
• It is difficult for primary care physicians to keep pace with new meds
• Especially tough for JJ/MH professionals to get useful information on medication
• New choices = new treatment opportunities
• These are exciting times!!
Psychopharmacologic Treatment

• Psychopharmacology as part of multi-modal Tx

• Critical questions:
  – *When* to do meds!
  – *Which med* to do first?

• Adequate follow-up essential (the details matter!)

• For optimal medication treatment:
  – Need effective *collaboration / communication*

  • With parents / teachers / MH professionals / other supervisory adults (tutors / coaches / case managers / direct care staff/ OT’s / SLP’s)
Psychopharmacologic Treatment

- **Important points in using medications:**
  - Target Symptoms vs DSM-IV Diagnoses
  - “Deconstructing the DSM”
  - *Brain-based* meds (stay tuned!)
  - Impairment of function requirement:
    - **Starting** medications
    - Changing medication **doses**
    - Changing **type** of medication
Psychopharmacologic Treatment

Important points in using medications:

– Emphasize that the **GOAL** of med Tx is to *restore normal (as possible) brain function*

– Remember the "**COMFORT ZONE**"

– Optimal med Tx **allows** other treatment modalities (CBT, OT, DBT) to be more effective

– Impact of substance use / abuse
Remember, its all about...

Leveling the playing field !!!
Specifics of optimized brain-based medication treatment
It’s baaaack!
Meds via vehicle-brain metaphor

- Accelerator
- Brakes
- Steering
Optimized Brain-based Medication Treatment

- Major target area: Brakes:
  - Focus / concentration
  - Arousal dysregulation
  - Executive dysfunction
    - Working memory
    - Impulse control
    - Hyperactivity
  - Mood dysregulation

- Major target area: Accelerator:
  - Sleep / arousal
  - Limbic irritability
    - Anger / explosiveness
    - Mood lability
  - Callosal dysfunction
  - Anxiety / OCD
  - Panic / Fight-Flight
  - Depression
Psychotropic Medication
Proposed Algorithm (Sloane 2011)

Key Clinical Questions:

1) Sleep Issues? Y or N
2) Mood Issues? Y or N
3) Executive Function:
   3a) Regulation Issues? Y or N
   3b) Impulse Control Issues? Y or N

Revisit regulation until stable ➔➔
Psychotropic Medication
Proposed Algorithm

- **If regulation is solid:**

5) Low motivation / low arousal?  Y or N
6) ↓ focus / attention?  Y or N
7) Depression? / Anxiety?  Y or N
Psychotropic Medication
Proposed Algorithm

• Are medications now optimized?  Y or N
• Is the playing field now level?  Y or N

• If not, use other physiologic treatments:
  – Sensory-focused occupational therapy
  – Exercise / Complex Movement (Yoga, Tai Chi)
  – Optimized nutrition
  – Expressive Therapies (Music, Art, Dance)
A level playing field allows other treatment modalities to be more effective

• Psychotherapy
• Case management
• Wraparound protocols
• Behavioral management
• Social skills training
• Parent training
• MST
• Tutoring
Remember...
Medication is the *beginning* of the journey (not the end)
We are all in this together!

- Need for all parties to really work together in all areas to help our kids achieve total integration

- “Just keep swimming” (Dorie from Finding Nemo)
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