

Essential Role of Language in the
Assessment & Intervention Strategies for
Complex Children

Understanding the Intersection of Genetics,
Prenatal Exposure, & Post-natal Traumatic Stress
MSHA 2018 Annual Conference – Kalamazoo

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Kalamazoo, MI
22 March 2018

Breaking News...

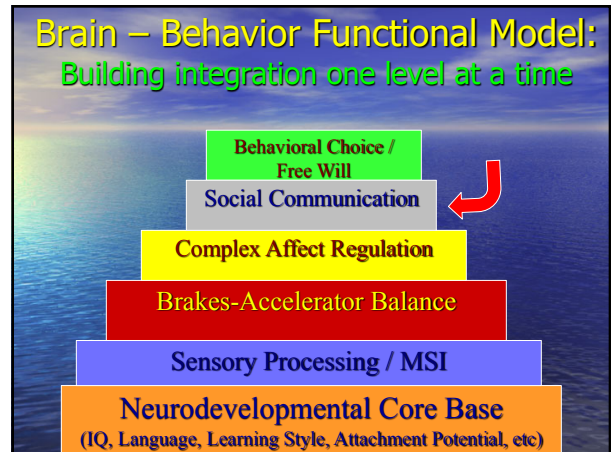
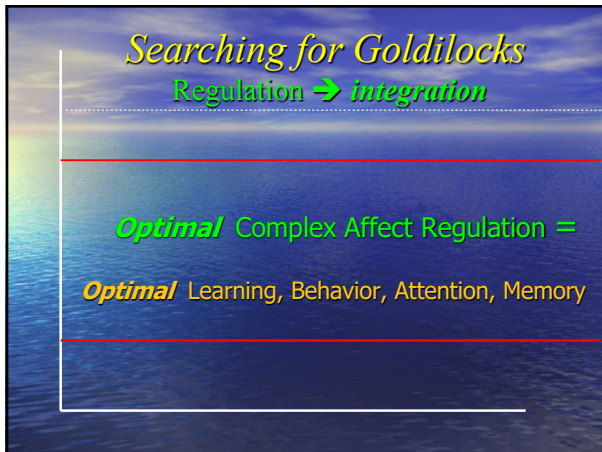
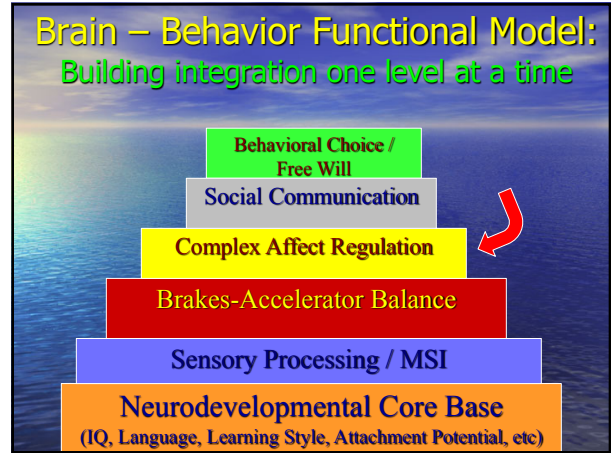
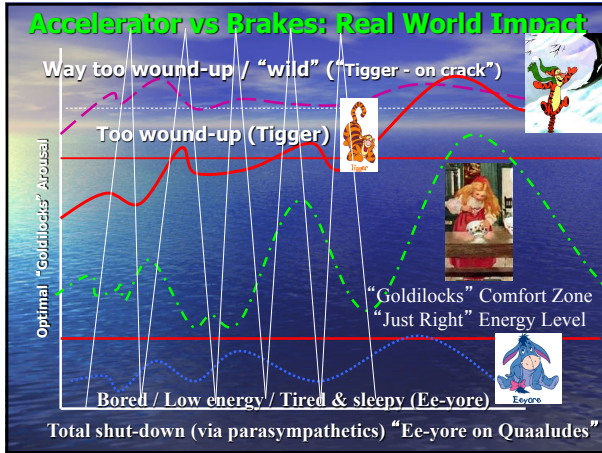
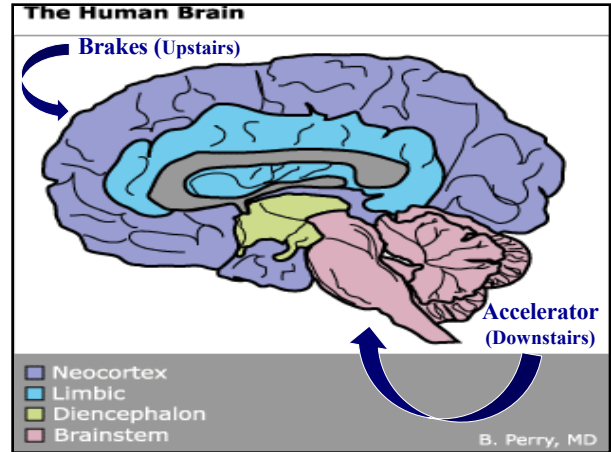
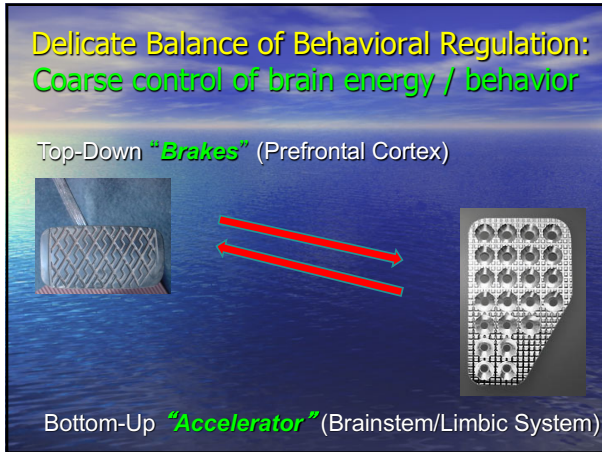
The worst-kept secret ever...

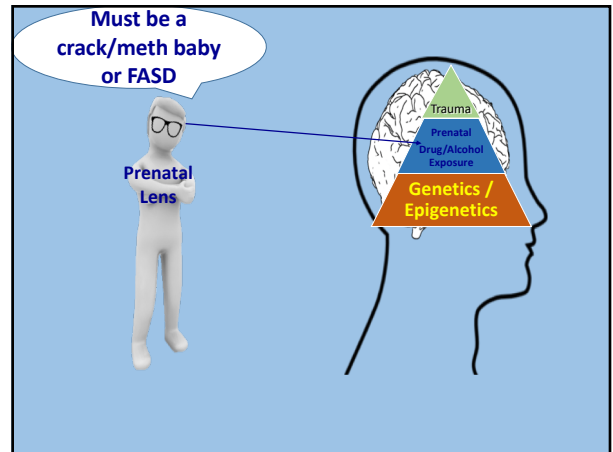
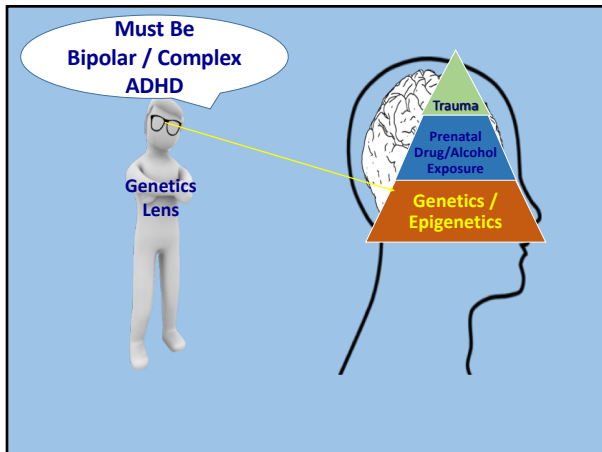
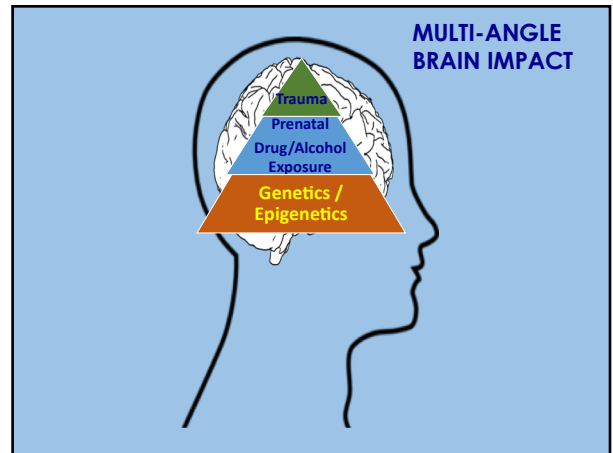
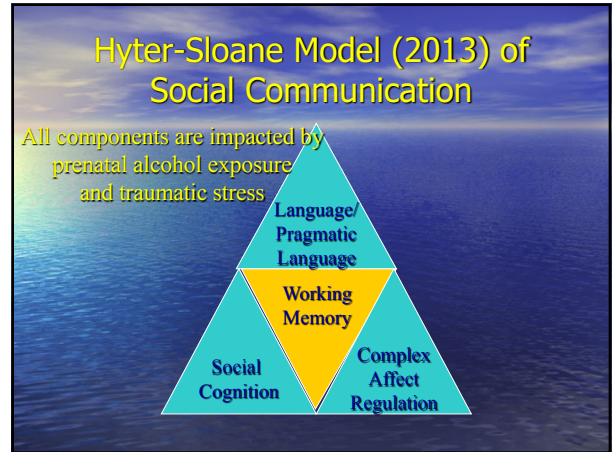
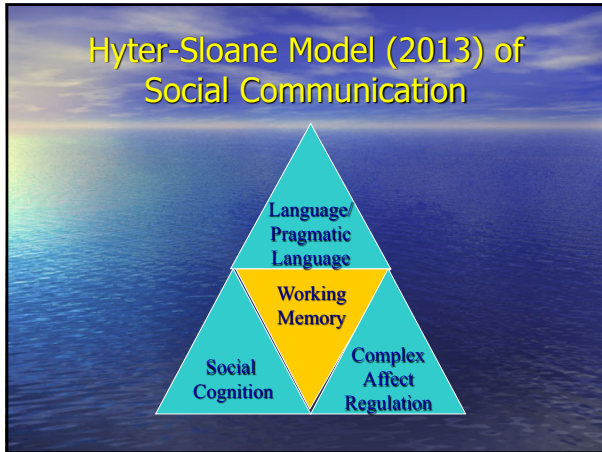
Doc Sloane ♥'s SLPs!!

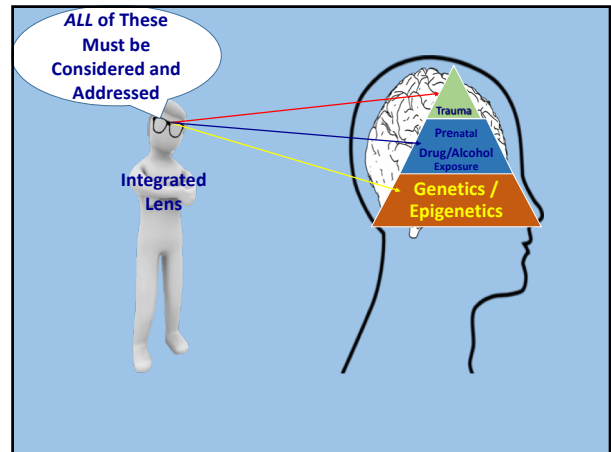
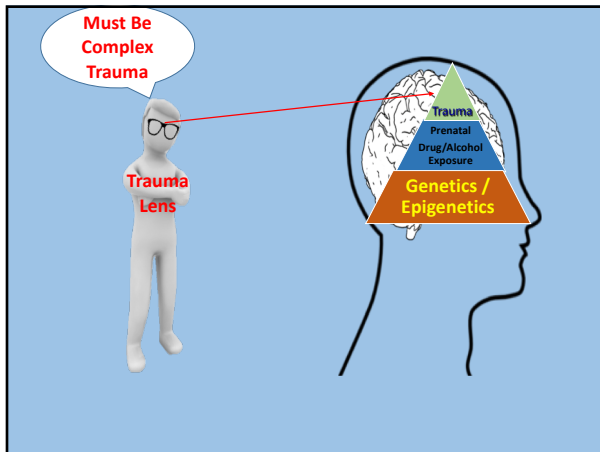
My recent work in
Northern Michigan

- CTAC ACF Grant re trauma-informed child welfare
- Strengthening connections between primary care and various agencies
- Natural & organic partnership between schools and primary care
- Trauma screening and assessment
- Critical role of SLP on these teams

Let's take a whirlwind tour of
trauma & prenatal exposure
impact on the developing brain







Behavioral Epigenetics: The future is now!

- Epigenetics: chemical alterations to DNA **after** conception
- Epigenetics is the **ultimate link** between nature & nurture
- Some evidence that (on occasion) these epigenetic alterations may be passed on to the next generation

The Brain-Behavior Connection: Intrauterine Drug Exposure:

- The “Myth” of Meth (& crack / cocaine)
- “Mixing and matching” drugs while pregnant
- Nicotine use **increases** ADHD risk 4-fold
- Prenatal cannabis use remains a mystery
- The need for animal models to **clarify**
- Huge increase in prenatal opiate use / abuse

The Brain-Behavior Connection: Chronic and Severe Prenatal Stress:

- Growing appreciation of neg. impact on fetus
- What level of stress is damaging to fetus?
- Some placental stress buffering is protective
- By **GW 12**, the limbic system/PFC/cerebellum 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 (& even **reverse** deleterious effects)

Influence of Prenatal Alcohol Exposure

FAS: not the whole story

Fetal Alcohol Spectrum Disorders (FASD)

- Fetal Alcohol Syndrome
- Partial FAS
- Alcohol-related Neurodevelopmental Disorder (ARND) (“mild-moderate” FAS)
- Neurobehavioral Disorder – Associated with Prenatal Alcohol Exposure (DSM-5)

Adapted from Streissguth

Fetal Alcohol Spectrum Disorder: Clinical Pearls of Wisdom

- “Mild – Moderate” FASD is still v. problematic
- It is all about *when* the drinking occurred (during the pregnancy) and *how much* alcohol was consumed *per session*
- Maternal blood etoh level = fetal blood etoh level
- Meth-Alcohol link: “Swiss cheese brain” issues

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

Severe brain damage caused by prenatal alcohol exposure

Severe FAS

Normal Brain

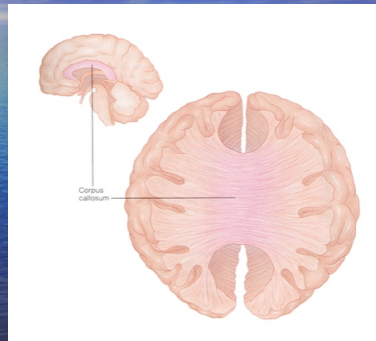
5-day old infants

photo: Clarren, 1986

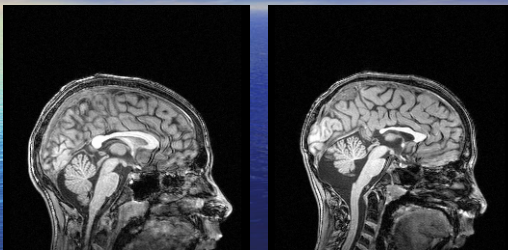
Corpus Callosum

- 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)



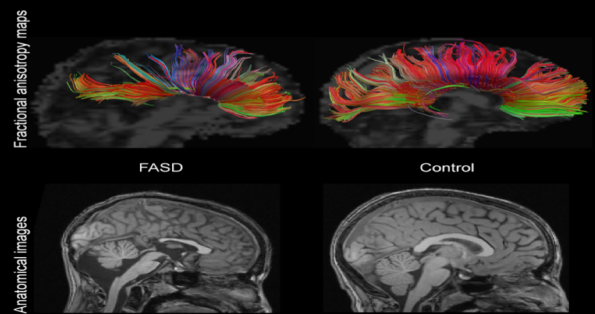
Normal Development

Fetal Alcohol Syndrome

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FASD Impact: Diffusion Tensor Imaging

Inter-hemispheric Fiber Tractography through Corpus Callosum



Fractional anisotropy maps

FASD

Control

Anatomical images

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Language Impact of Prenatal Alcohol Exposure

- Critical cornerstone of trauma assessment
 - If we don't look...we will not find!
- Impacts many intervention strategies
- Receptive language often more impacted
- *Cocktail Party Syndrome* issues
- School-based SLPs as consultants and developmental strategists

FASD Resources

- www.nofas.org
- www.fasalaska.com
- www.fafasd.org
- www.fascenter.samhsa.gov
- www.cdc.gov/ncbddd/fasd

Child Traumatic Stress & the Developing Brain

"Trauma Tops Everything"

Sandra Bloom, MD



- Trauma – Substance Abuse connection
- Trauma – Mental Health connection
- Trauma – Juvenile Justice connection
- Trauma – School failure connection

- Cycle of trauma is **pervasive...** but can be addressed, treated, & prevented

Types of Stress

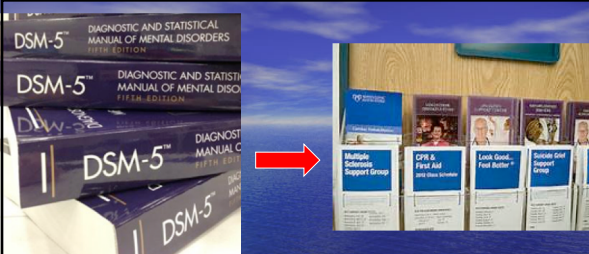
National Scientific Council on the Developing Child (2005)

- Positive**
Brief increases in heart rate, mild elevations in stress hormone levels.
- Tolerable**
Serious, temporary stress responses, buffered by supportive relationships.
- Toxic**
Prolonged activation of stress response systems in the absence of protective relationships.

Toxic 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**
- Key findings (ACES) link child traumatic stress with variety of **child/adult physical illness**


VJ Felitti, MD



"If child abuse and neglect were to disappear today, the DSM would shrink to a pamphlet within two generations" John Briere 1992

Traumatic Stress and the Brain

- **Stress and the tiger**
 - Our bodies are **designed** to respond to stress
 - Adrenalin and cortisol help us **run** from tiger or **hide**
 - Threat is of **short duration**



BUT...when the tiger lives in *your* home, neighborhood, or life...



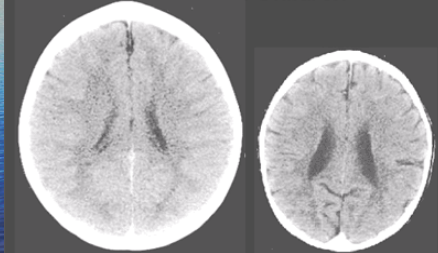
Impact of chronic toxic stress on immune system function

- ...The developing Fight-Flight-Freeze system is *chronically* pressed into action:
 - Too much cortisol *suppresses immune system*, increasing risk of infection
 - Inflammatory response *persists* after it is no longer needed



Neglect: The *Worst* Offender

3-Year-Old Children



Normal

Extreme Neglect

Child Welfare Academy

1997 Bruce D. Perry, M.D., Ph.D.

Final Thoughts

- MAS is on a mission!
- Increasing capacity of language-based assessment and intervention
- Primary Healthcare Teams
- Congregate Care Facilities
- Rural Mobile Outreach
- Developing co-treatment protocols
 - SLP / IMH / OT / Music Therapy

Thanks for your attention!

I am honored to have this opportunity!

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www.wmich.edu/traumacenter