



## WHAT IS NMT?

The Neurosequential Model of Therapeutics is a neuroscience-informed, developmentally-sensitive, approach to the clinical problem solving process.

It is not a therapy – and does not specifically imply, endorse or require – any single therapeutic technique or method.



*Essentially, all models are wrong, but some are useful.*

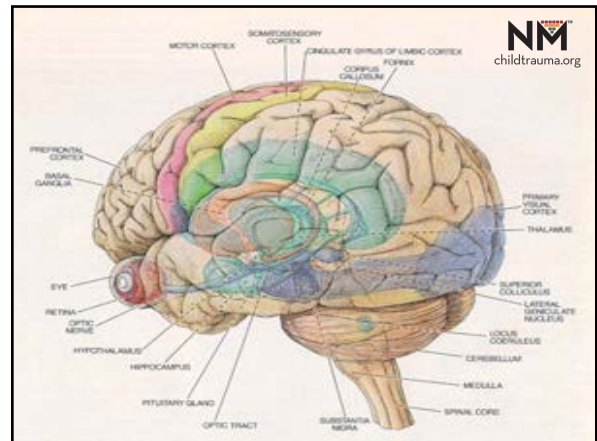
--- George E. P. Box, in Norman R. Draper (1987). Empirical Model-Building and Response Surfaces, p. 424, Wiley. ISBN 0471810339



## Neurosequential Model

*The brain mediates our thoughts, feelings, actions and connections to others and the world.*

*Understanding core principles of neuroscience, including neuroplasticity and neurodevelopment, can help us better understand ourselves and others.*

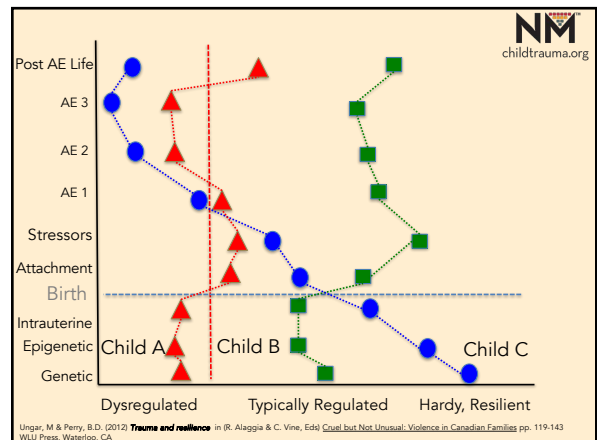


## The Neurosequential Model

*Each person has a unique pathway to the present and deserves individualized care.*

*"One-size fits all" approaches rarely meet the needs of the individual – more often they meet a need of the provider (or system).*

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### The Neurosequential Model

*Humans are complex – individually, in families, communities, cultures and across generations.*

*Overly simple constructs – including the Neurosequential Model – do not capture the depth and breadth of the human experience.*

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### Relational Complexity in Groups

Size of Group	Number of Relationships
2	1
3	6
4	25
5	90
6	301
7	966
8	>3000

Adapted from Kephart, W.M. (1950) A quantitative analysis of intragroup relationships. American Journal of Sociology 60: 544-549

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### Neurosequential Model

*It is important to understand mechanisms underlying current functioning.*

*Your understanding determines your solution*  
- Stuart Ablon (CPS, 2010)

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### SEQUENTIAL DEVELOPMENT Sequential Vulnerability

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### Age Targeted Programs (Education, Mental Health, Caregiving): Early Childhood

**Typical**

**Pre-K**

*Developmental lag – the younger you are, the easier it is to tolerate the “lag”*

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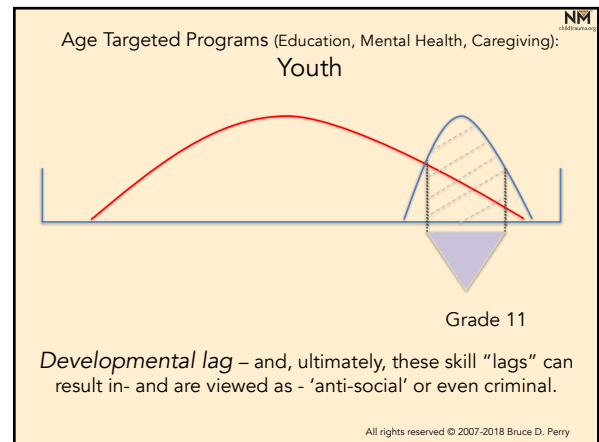
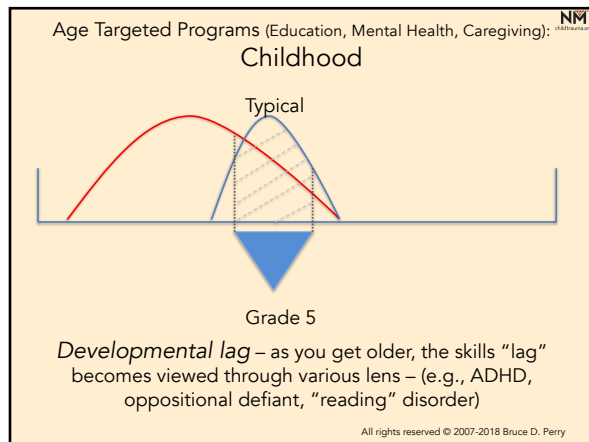
### BECAUSE WE HAVE MINIMAL EARLY IDENTIFICATION AND INTERVENTION

### Children Who Start Behind Stay Behind

**Of 50 Children Who Have Trouble Reading in First Grade  
44 Will Still Have Trouble in Fourth Grade**

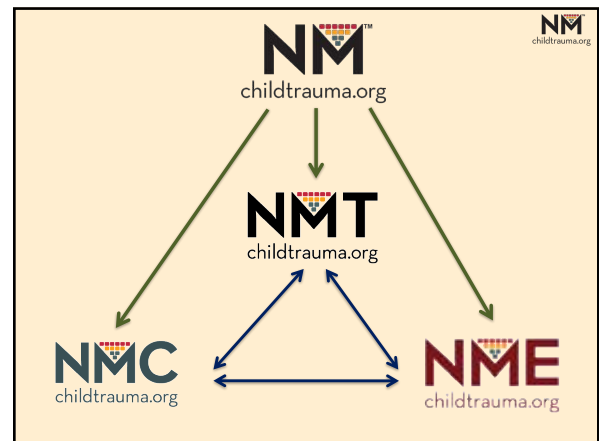
**First Graders**

**Fourth Graders**



**Heuristic** (/hjuˈrɪstɪk/; Greek: “Εὕρισκω”, “find” or “discover”) refers to experience-based techniques for problem solving, learning, and discovery that that employs a practical method not guaranteed to be optimal, but sufficient for immediate goals. *Where finding an optimal solution is impractical, heuristic methods are used to speed up the process of finding a satisfactory solution via mental shortcuts to ease the cognitive load of making a decision.* Examples of this method include using a rule of thumb, an educated guess, an intuitive judgment, stereotyping, or common sense.

In more precise terms, heuristics are strategies using readily accessible, though loosely applicable, information to control problem solving in human beings and machines.



The Neurosequential Model of Therapeutics

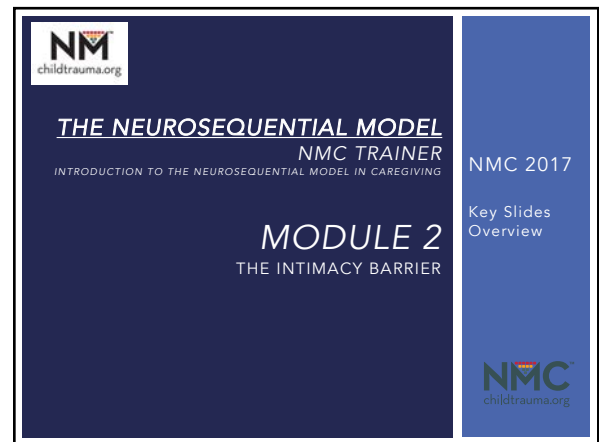
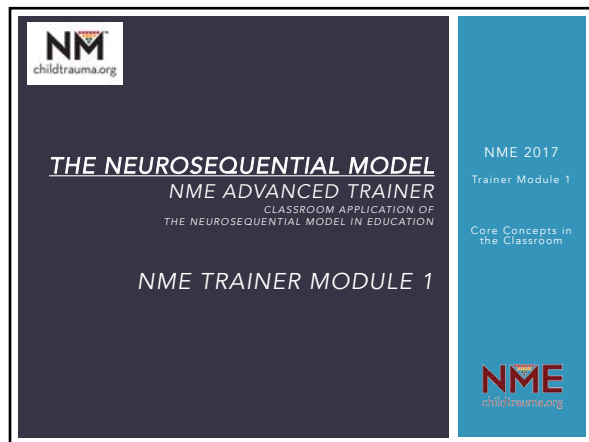
## Introduction to the NMT Certification Process:

### Phase I of NMT Certification

## THE NEUROSEQUENTIAL MODEL TRAIN THE TRAINER

### MODULE 7 NEGLECT

TTT 2017  
Key Slides  
Overview

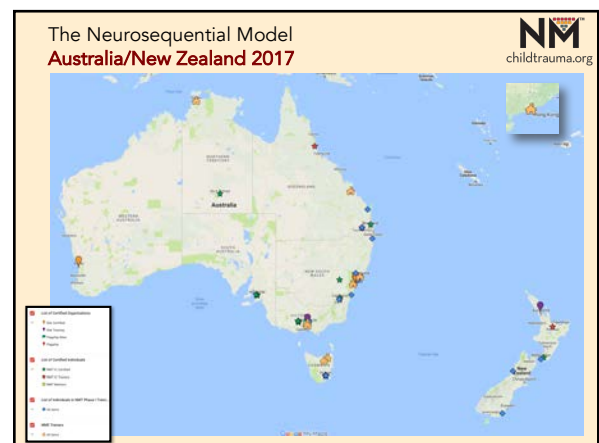
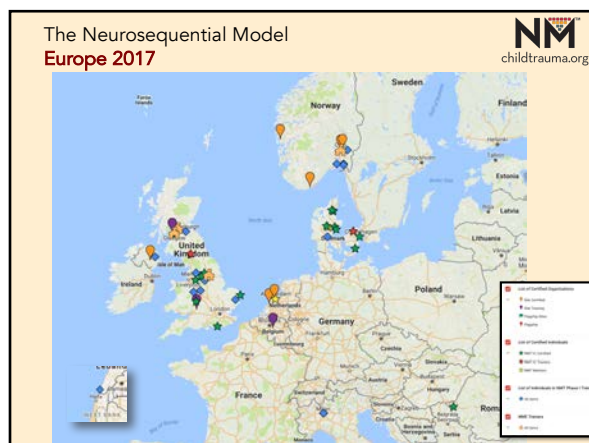
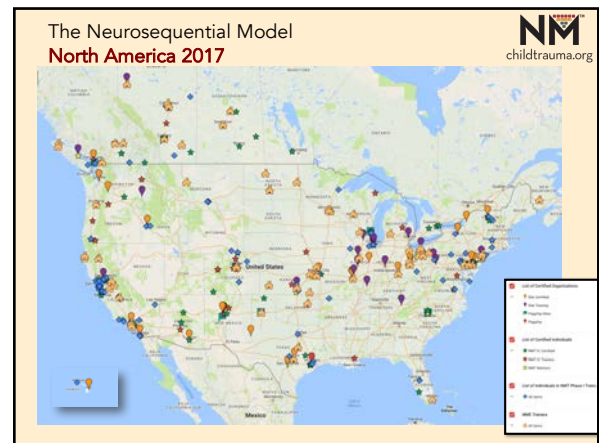


***NM is not "On the Shelf"***

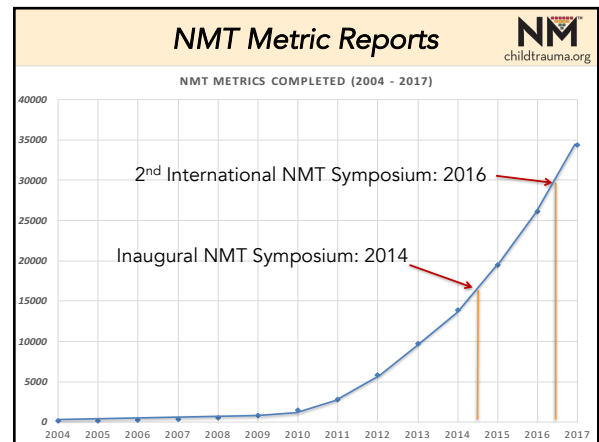
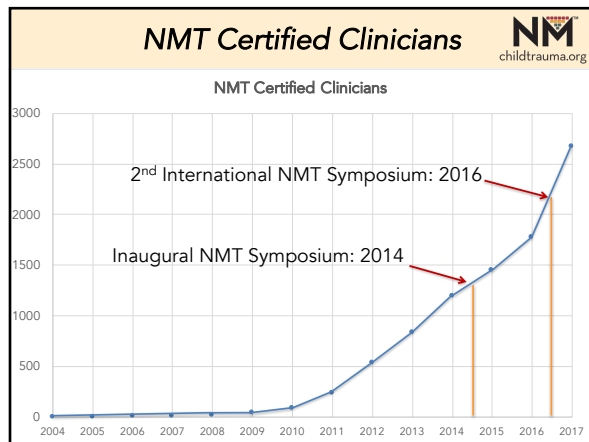
86% of clinical research is never used in direct patient care (Balas & Boren, 2000)

- It takes an average of 17 years for the 14% of research that influences clinical practice to get there (Morris, Wooding, & Grant, 2011)
- NMT was first manualized in 2008 when the NMT Certification Process was developed
- Since then....
  - 35,000 metrics completed
  - over 2000 Phase I trained clinicians
  - 10 Flagship Sites in three countries (US, Canada, Australia)
  - 100 Phase I Certified Clinical Sites & Programs in 16 countries

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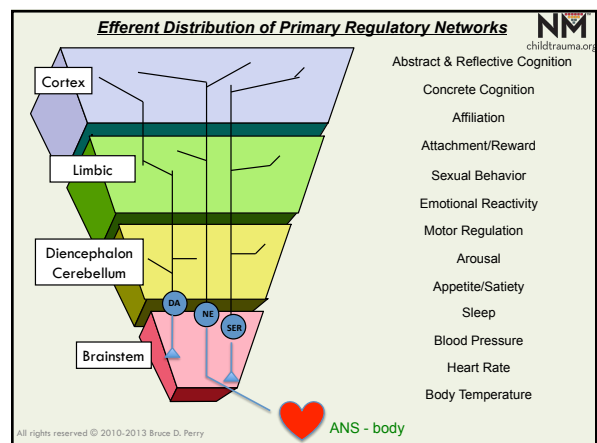
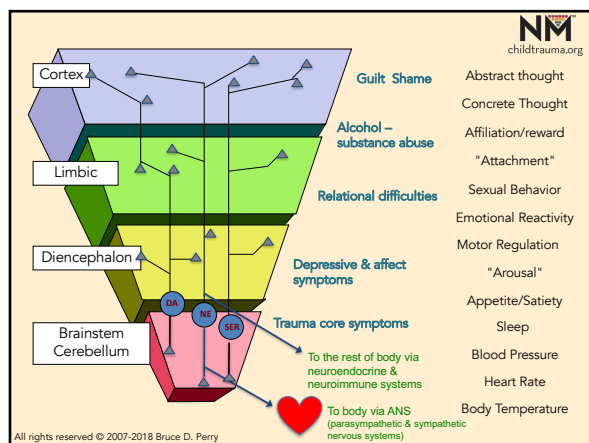
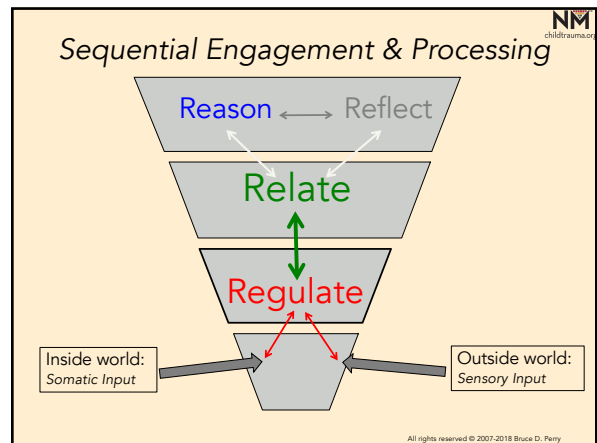
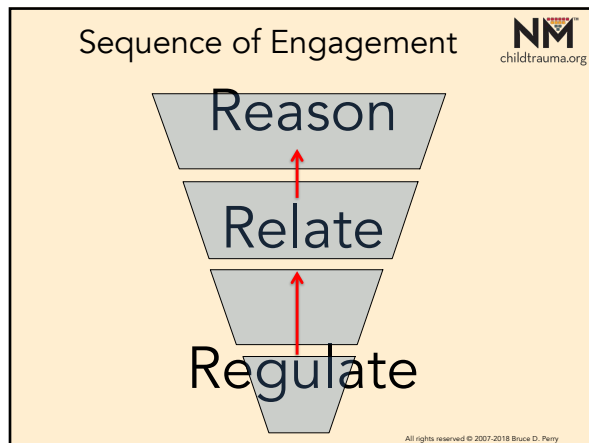
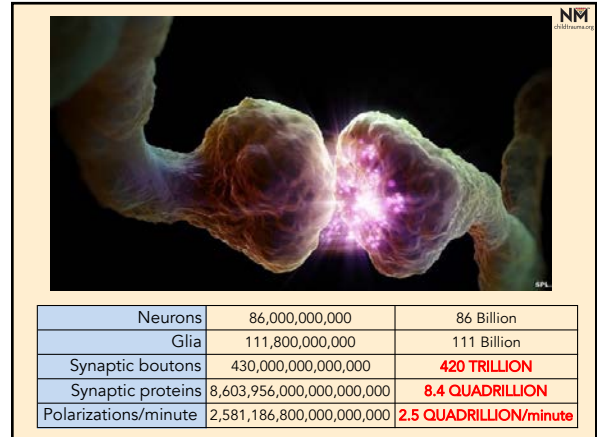
Cumulative Clinicians, Teachers, Caregivers Exposed to the Neurosequential Model

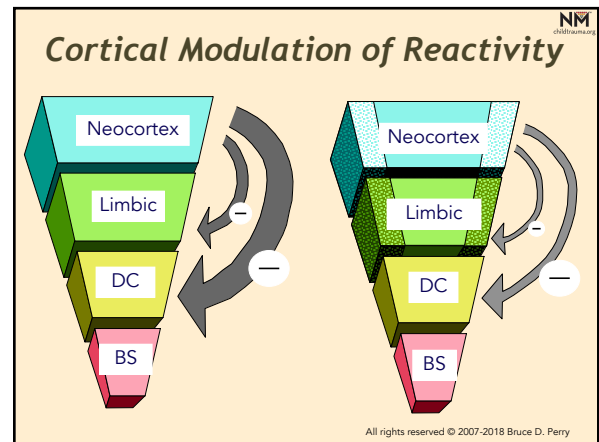
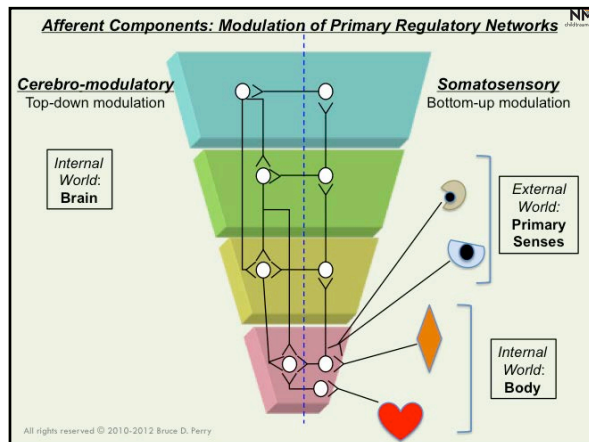
YEAR	Web, Webinars, Books, Live Training
2004	6,000
2005	20,000
2006	40,000
2007	80,000
2008	120,000
2009	180,000
2010	250,000
2011	300,000
2012	350,000
2013	400,000
2014	500,000
2015	600,000
2016	800,000
2017	900,000

YEAR	Clinicians Using NMT (Direct) Cumulative	Children, Youth, Adults (Impacted/yr)	Clinicians Using NMT (Indirect) Cumulative	Children, Youth, Adults (Impacted/yr)
2004	1	25	10	250
2005	4	100	40	1000
2006	10	250	100	2500
2007	12	300	120	3000
2008	20	500	200	5000
2009	45	1125	450	11250
2010	86	2150	860	21500
2011	240	6000	2400	60000
2012	540	13500	5400	135000
2013	840	21000	8400	210000
2014	1000	25000	10000	250000
2015	1340	33500	13400	335000
2016	1700	42500	17000	425000
2017	2209	55225	22090	552250
<b>Total Direct</b>	<b>201,175</b>	<b>Total Indirect</b>	<b>2,011,750</b>	

YEAR	Beta Metrics	Web Metrics
2004	20	0
2005	50	0
2006	80	0
2007	120	0
2008	200	0
2009	220	0
2010	142	515
2011		1375
2012		2992
2013		3897
2014		4174
2015		5616
2016		6686
2017		8200
<b>Total Metrics</b>	<b>33455</b>	

YEAR	NMT Level I	NMT Training (I&II)	NMT Level II (Trainers)	Sites Certified	Site Trained Clinicians	Internal Trained
2004	0	0	0	0	0	0
2005	0	0	0	0	0	0
2006	0	0	0	0	0	0
2007	0	0	0	0	0	0
2008	0	0	0	0	0	0
2009	0	0	0	0	0	0
2010	0	0	0	2	44	0
2011	0	22	0	4	64	12
2012	14	34	10	3	86	44
2013	22	36	14	5	144	36
2014	51	86	32	7	154	60
2015	66	120	54	10	146	54
2016	127	130	32	12	200	67
2017	145	220	42	16	220	80
<b>Totals</b>	<b>425</b>	<b>648</b>	<b>184</b>	<b>59</b>	<b>1058</b>	<b>353</b>
			Site Users	<b>1411</b>		
			Individual Users	<b>1257</b>		
			Total Users	<b>2668</b>		





**"Self-regulation" (SR)**

**Somatosensory regulation/self-soothing (SS)**  
*Bottom-Up: Primary*  
Starts in womb; suck/swallow  
Tied to intrauterine and perinatal associations  
Breathing, walking, running, rocking, swimming, rhythm  
Doodle, hum, swing, jump, dance

**Cortical Modulation (CM)**  
*Top-down: Secondary*  
Tied to cortical development & state-dependence  
Slower process -

**Dissociation (Diss)**  
*In-Out: Universal*  
Inescapable, unavoidable, painful - Universal  
Adaptive continuum  
Mind-wandering to threat-induced full dissociation  
Used rhythmically ("in-out")

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**REGULATORY OPTIONS**

- **"Self-regulation" (SR)**
  - Self-"soothing" - using SS
  - Cortical regulation
  - Dissociation
- **Somatosensory regulation (SS)**
  - Self vs Other
- **Relational regulation (Rel)**
  - Positive co-regulation
  - Co-dysregulation
  - Tied to primary relational templates
- **Pharmacological regulation (Rx)**

• **Optimal regulatory interactions use "multiple" pathways**

- SS and Rel
- Cort and SS
- Diss and SS

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**The Six R's**  
*Key Elements of Positive Developmental and Educational Settings*

- Relevant (developmentally-matched)
- Rhythmic (resonant with neural patterns)
  - Repetitive (patterned)
  - Relational (safe)
- Rewarding (pleasurable)
- Respectful (child, family, culture)

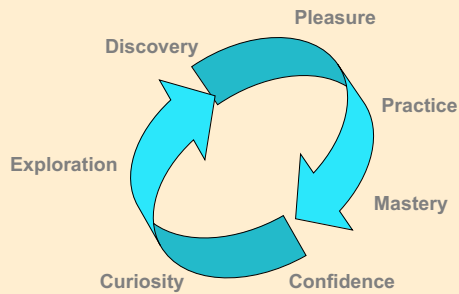
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**Creating the Relational 'Space' for Optimal Development, Learning & Healing**  
*(or How do you like those P's?)*

- Present,
- Parallel,
- Patient &
- Persistent in Providing
- Patterned, Predictable, Positive doses of
  - Protected (safe) experience

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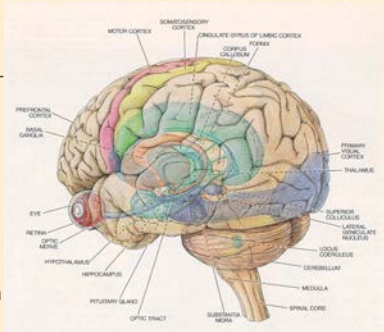
## The Cycle of Learning



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The brain –  
*particularly the human*  
**NEOCORTEX** –  
allows us to  
absorb the  
accumulated  
and distilled  
experiences of  
thousands of  
previous  
generation – in  
a single  
lifetime.



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## The Relational Landscape is Changing

Children have fewer emotional, social  
and cognitive interactions with fewer  
people.

The impact of “modern” life on the  
developing child has yet to be fully  
understood.

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## Poverty of Relationships

The compartmentalization of our  
culture has resulted in material wealth  
yet poverty of social and emotional  
opportunity.

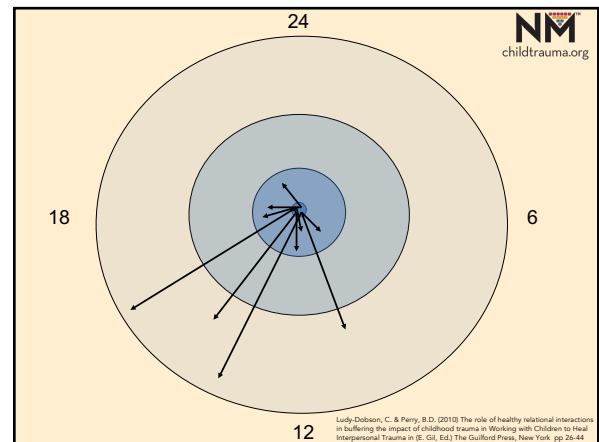
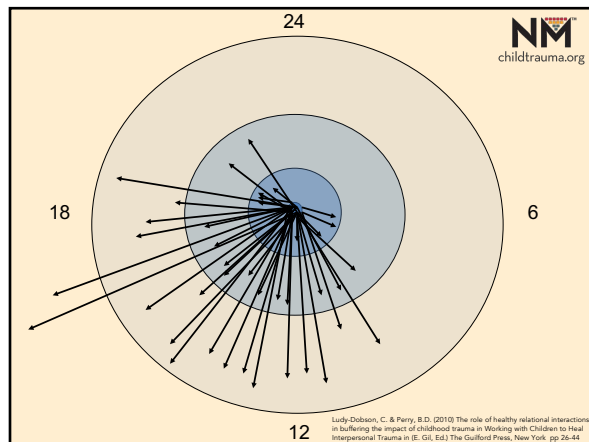
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## So What? Why does this matter?

Both the **STRESS RESPONSE** and the  
**REWARD** networks in the brain are  
shaped by relationships in early  
childhood – in healthy and unhealthy  
ways.

Relationships have a key role in global  
health, creativity and productivity of a  
group

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## On Becoming Humane

Being born a human being does not ensure a child will become humane.

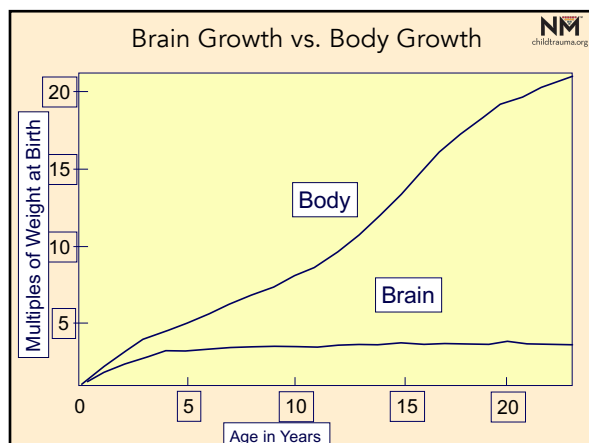
Humans become humane. The capacity to care, to share, to listen, value and be empathic – to be compassionate – develops from being cared for, shared with, listened to, valued and nurtured.

Humane caregiving expresses our capacity to be humane. Inhumane caregiving can decrease or even destroy this capacity.

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The brain develops and organizes as a reflection of our genetic gifts, epigenetic heritage, intrauterine, perinatal and developmental experiences, organizing in response to the pattern, intensity and nature of our sensory and perceptual experience.

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Robert F. Anda · Vincent J. Felitti · J. Douglas Bremner · John D. Walker · Charles Whitfield · Bruce D. Perry · Shanta R. Dubler · Wayne H. Giles

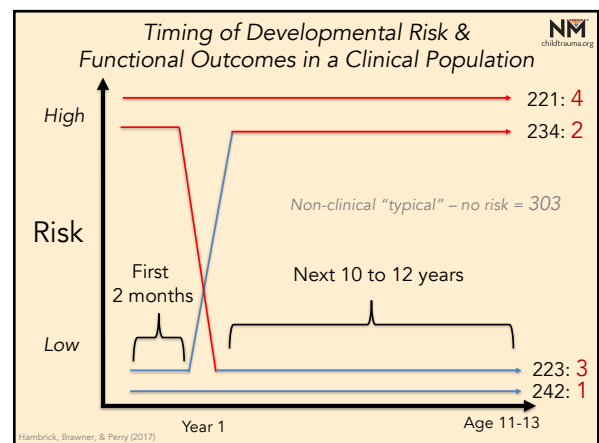
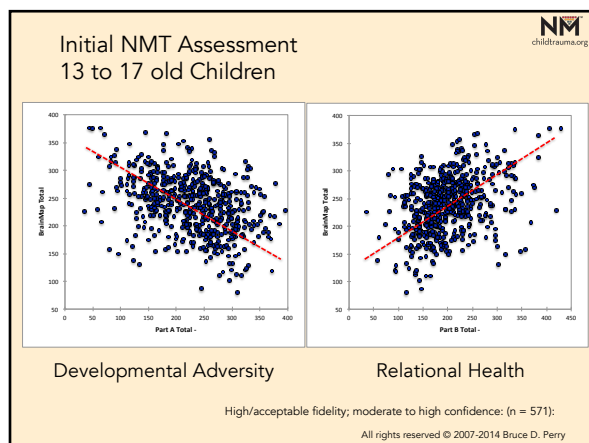
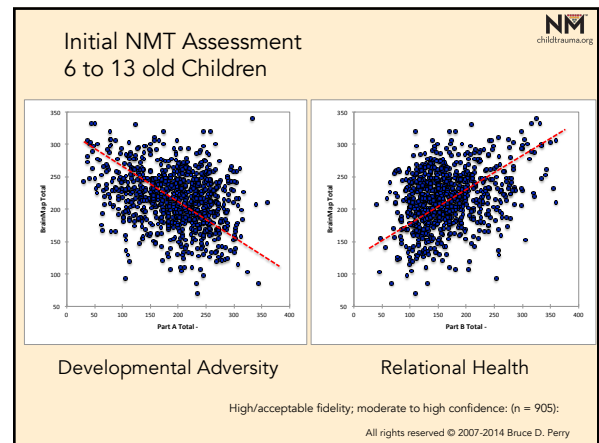
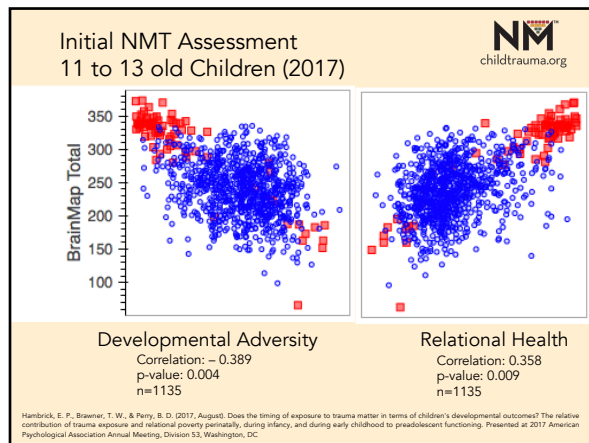
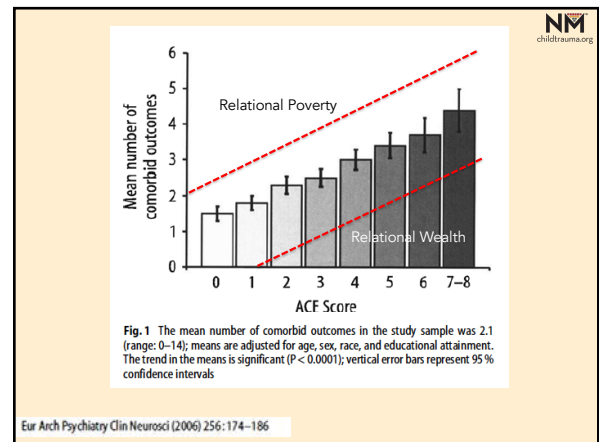
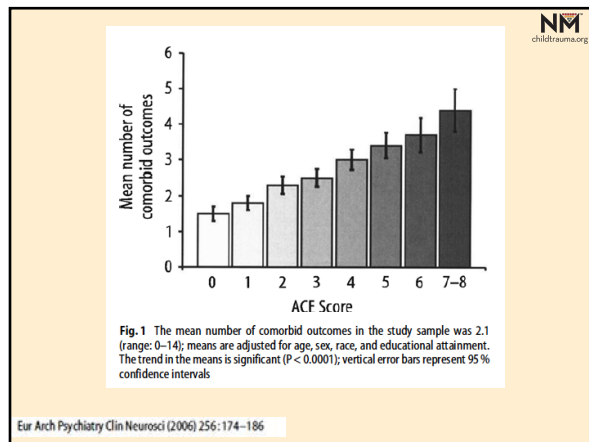
### The enduring effects of abuse and related adverse experiences in childhood

#### A convergence of evidence from neurobiology and epidemiology

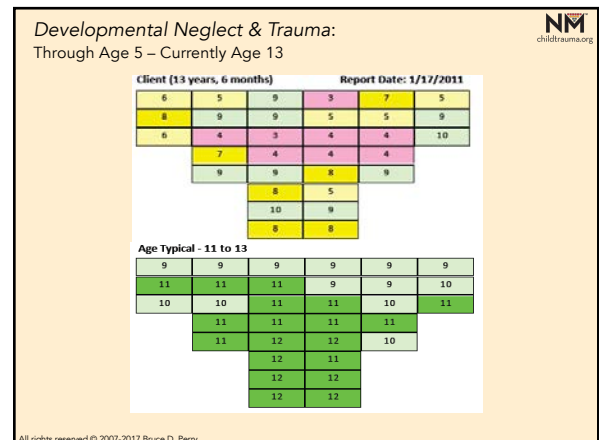
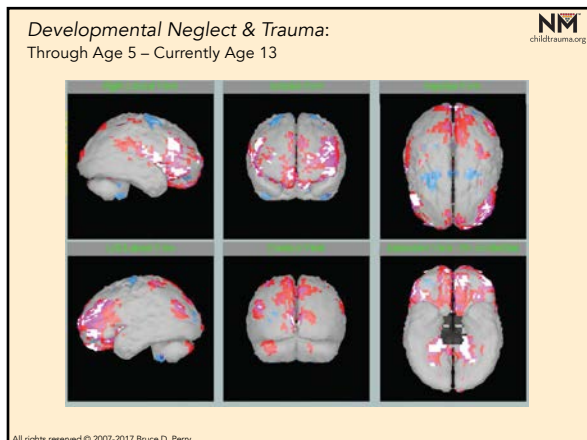
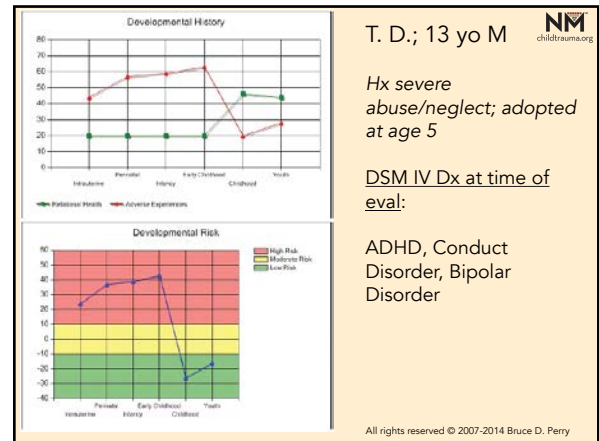
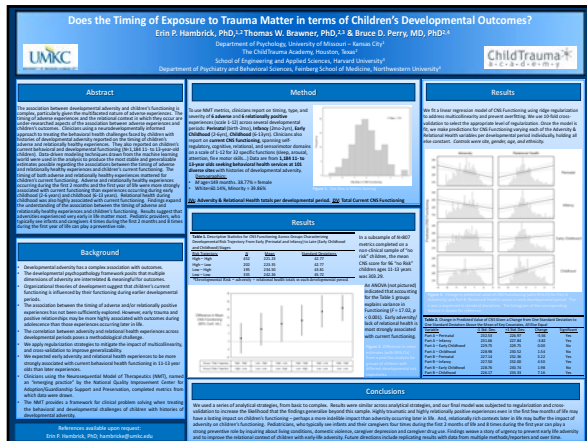
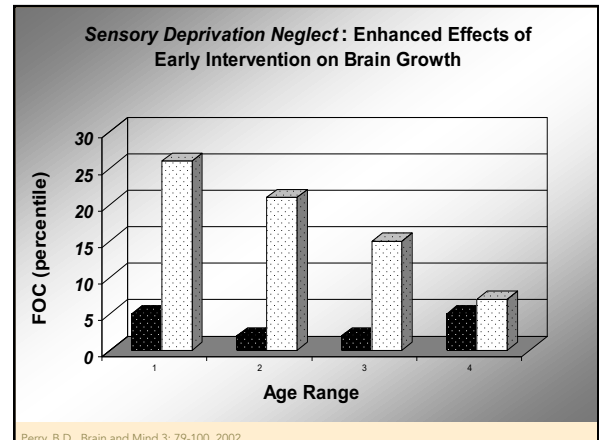
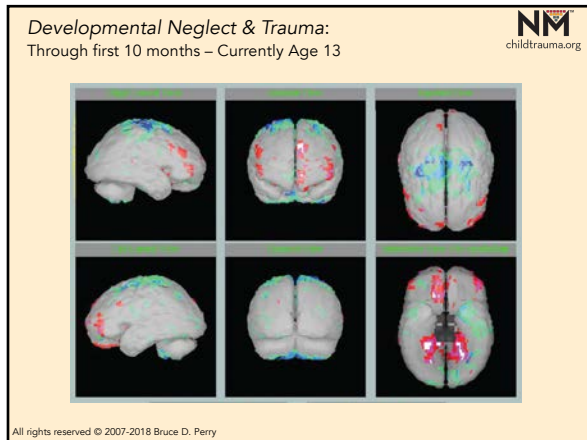
Table 4 Summary of the convergence between neurobiological effects of childhood maltreatment with ACE study epidemiological findings

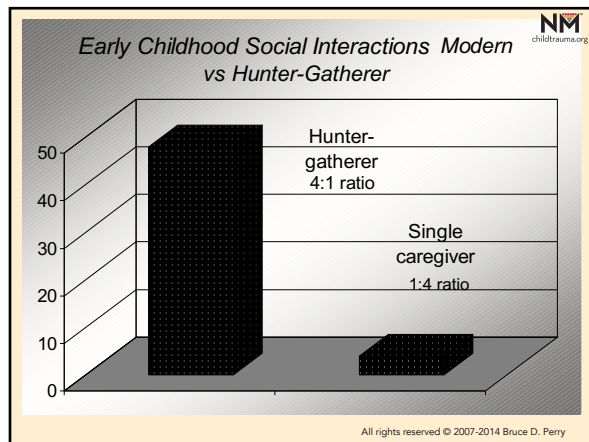
Area of function or dysfunction studied	Demonstrated neurobiological defects from early trauma	ACE study findings
Anxiety, panic, depressed affect, hallucinations, and substance abuse	Repeated stress & childhood trauma → hippocampus, amygdala & medial prefrontal cortex atrophy and dysfunction that mediate anxiety & mood problems	Tables 2 and 3 Unexplained panic, depression, anxiety, hallucinations & alcohol & other drug problems
Smoking, alcoholism, illicit drug use, injected drug use	Repeated stress & childhood trauma → increased locus coeruleus & norepinephrine activity, decreased by heroin & alcohol	Table 3 Increased smoking, alcohol and other drug use
Early intercourse, promiscuity, sexual dissatisfaction, perpetration of intimate partner violence	Repeated stress & childhood trauma → amygdala defects; role in sexual & aggressive behavior and deficits in oxytocin with impaired pair bonding	Tables 3 and 5 Risky sexual behavior, anger control, risk for aggression against intimate partners
Memory storage and retrieval	Hippocampus role in memory storage and retrieval; hippocampal & amygdala size reduction in childhood trauma; deficits in memory function	Table 4 Impaired memory of childhood and number age periods affected increases as the ACE score increase
Body weight and obesity	Repeated stress & distress, via glucocorticoid pathways, leads to increased intra-abdominal & other fat deposits	Table 2 Increased obesity
Sleep, multiple somatic symptoms, high perceived stress	Repeated stress & distress, via several pathways, leads to increase in other physical problems	Tables 2 and 5 Increased somatic symptoms and disorders, including sleep problems
Co-morbidity/Trauma spectrum disorders	Multiple brain and nervous system structure and function defects, including monoamine neurotransmitter systems	Fig. 1 The graded relationship of the ACE score to psychiatric and physical symptoms or disorders, including multiple co-occurring problems (comorbidity)

Eur Arch Psychiatry Clin Neurosci (2006) 256:174–186





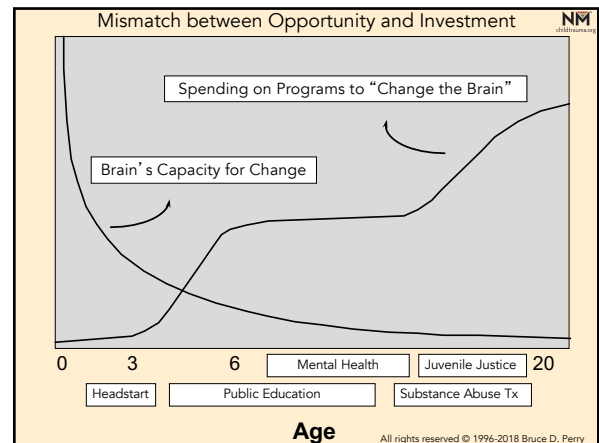
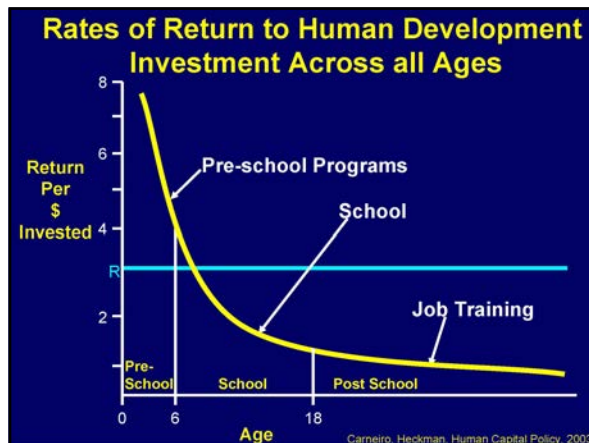




**Creating Policy and Practice that Capitalize on Biological Gifts**

Democracy, public education, suffrage, civil rights – and, ultimately, early childhood investment and communities rich in relational health

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People not programs change people!

The effective agents of change in any successful program, project or system are human beings.

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Yet successful programs provide the people, process and "program" elements that put the "right" people together in "right" ways at the "right" time.

The effective agents of change in any successful program, project or system are human beings.

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## NIMH Research Domain Criteria

### RDoC

- Focus on genetic, epigenetic, neural network and related biomarkers along with "symptoms"
- The major RDoC research domains:
  - Negative Valence Systems
  - Positive Valence Systems
  - Cognitive Systems
  - Systems for Social Processes
  - Arousal/Modulatory Systems

### DSM

- "a diagnostic system limited to clinical presentation could confer reliability and consistency but not validity"
- Minimal focus on mechanism – fundamentally "descriptive" and symptom focused

## The Challenge of "Diagnosis" in Mental Health

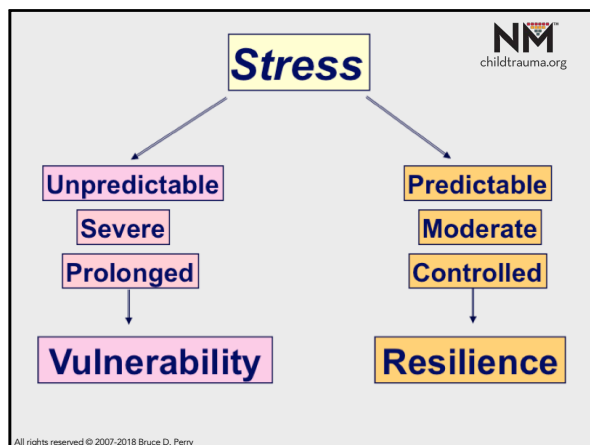
### Brain

- 84 billion unique neurons
  - 5 times as many glia
  - each neuron 5000 - 20,000 synaptic connections
  - 100s of neurotransmitters
- Hundreds of major neural networks
- Thousands of functions
- 90 % of children/youth in public MH Clinics have 1 of 8 "diseases" – often "co-morbid"

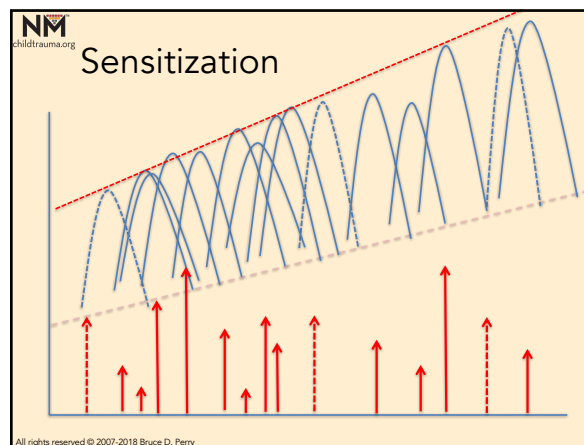
### Heart

- 2 billion heart cells
- Dozens of major sub-systems
  - Nerve, muscle, vessels
- A handful of major "main" functions
- Hundreds of distinct cardiac "diseases"

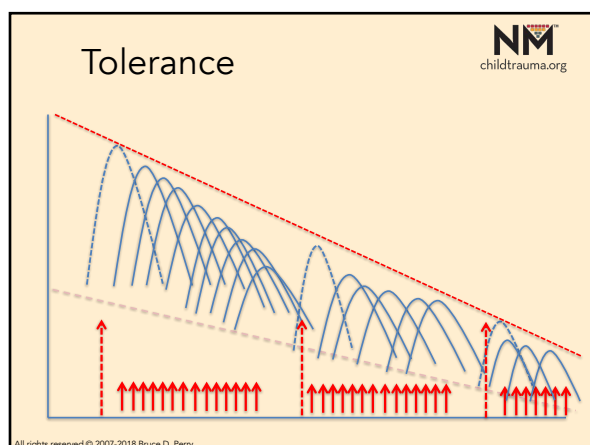
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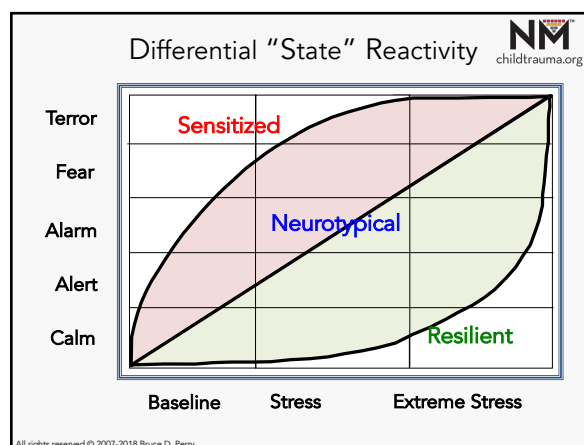
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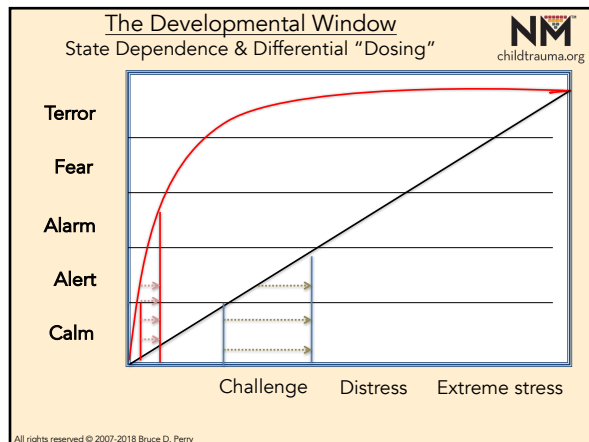
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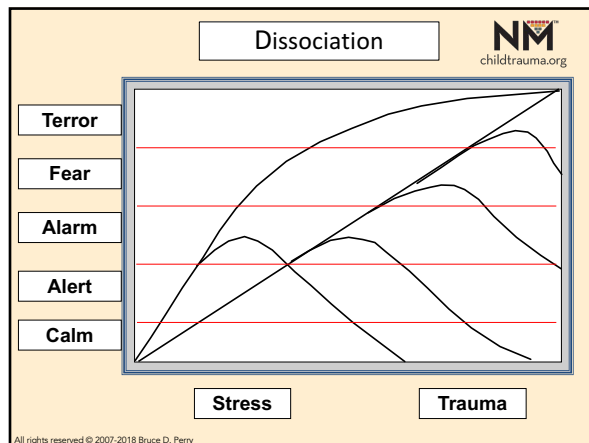
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**Responses to Stress, Distress, Trauma**

- **Heterogeneity of response patterns**
- Adaptive changes in *cognition*
- Adaptive changes in *affects*
- Adaptive changes in *behavior*
- Adaptive changes in *neurophysiology*
- Adaptive changes in *physiology*

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**DISSOCIATIVE/AROUSAL BALANCE**

Dissociation	Arousal
Females	Males
Young Children	Older Children
Torture/Pain	Observer
Inescapable Helplessness	Action Active Role

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**All Brain Functioning is "State" Dependent**

The brain is a rhythmic, dynamic organ.

All functioning of the brain will vary depending upon the "state."

Asleep or wakeful the brain will have varying activation in cognitive, social, emotional, motor and all other brain mediated functions.

Both sleep and wakefulness also have various states which involve shifts in the activity of key neural networks.

Novelty, transition and threat will all shift internal state.

Bruce D Perry, MD, PhD © 2010-2016

**Brain Functioning by State**

	Sense of Time	Extended Future	Days Hours	Hours Minutes	Minutes Seconds	Loss of Sense of Time
Primary secondary Brain Areas	NEOCORTEX Subcortex	SUBCORTEX Limbic	LIMBIC Midbrain	MIDBRAIN Brainstem	BRAINSTEM Autonomic	
Cognition	Abstract	Concrete	Emotional	Reactive	Reflexive	
Mental State	CALM	ALERT	ALARM	FEAR	TERROR	

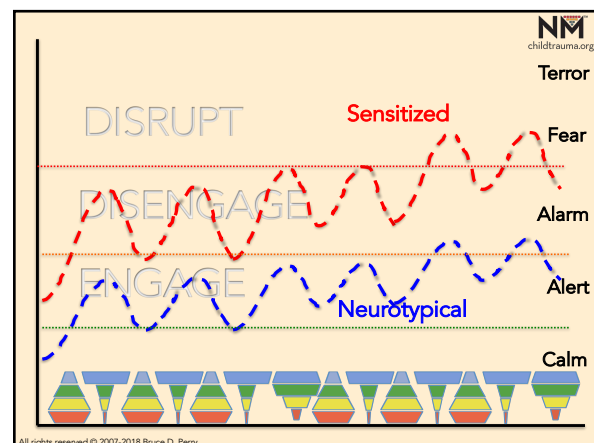
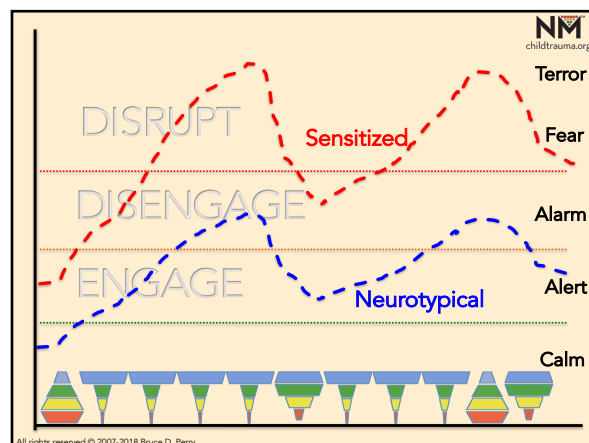
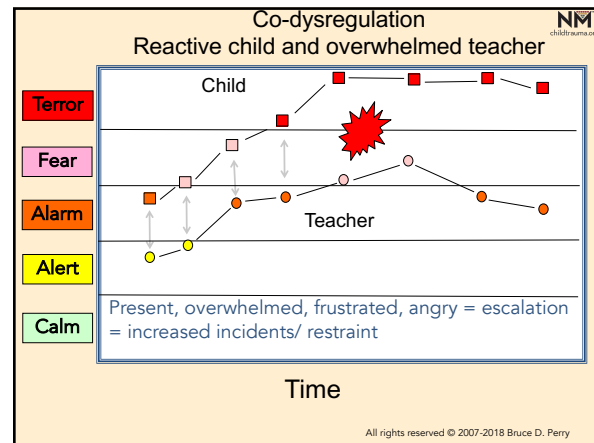
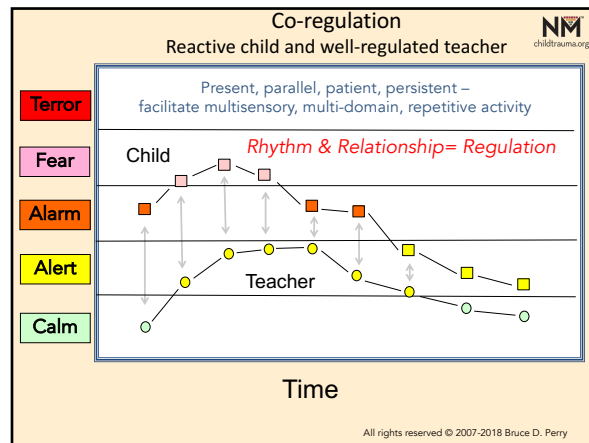
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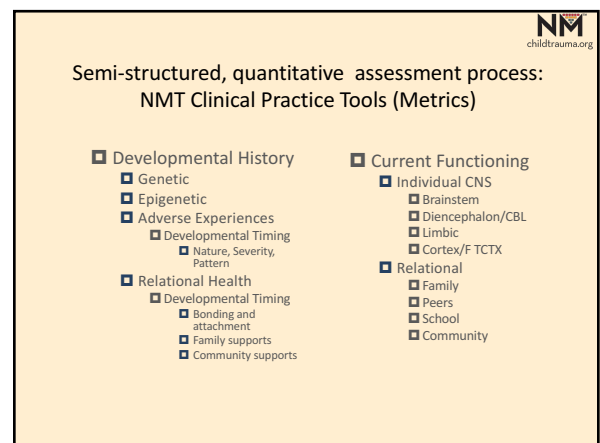
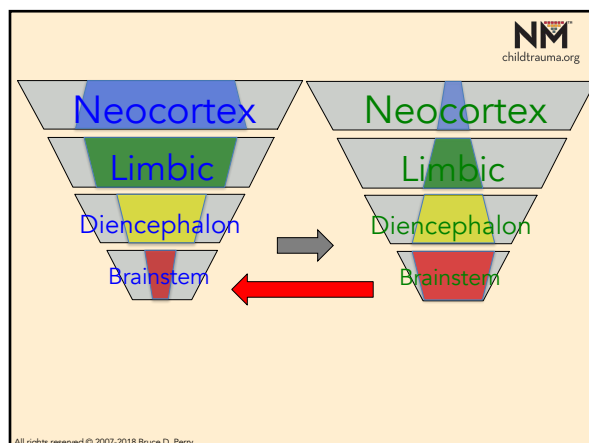
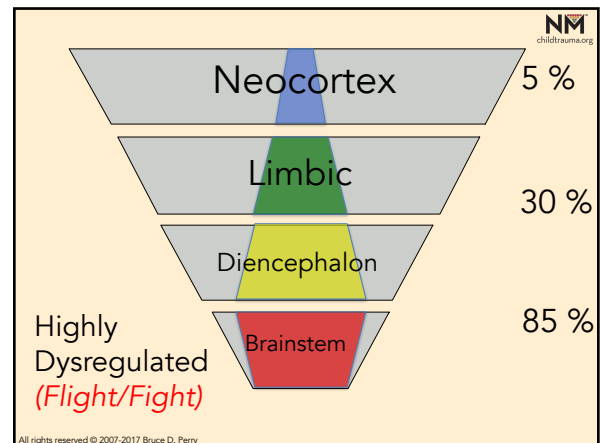
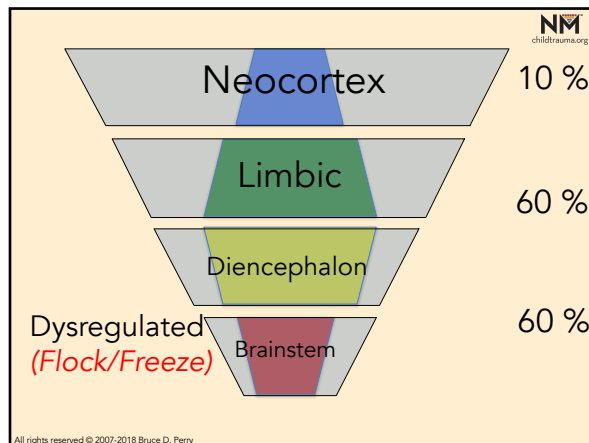
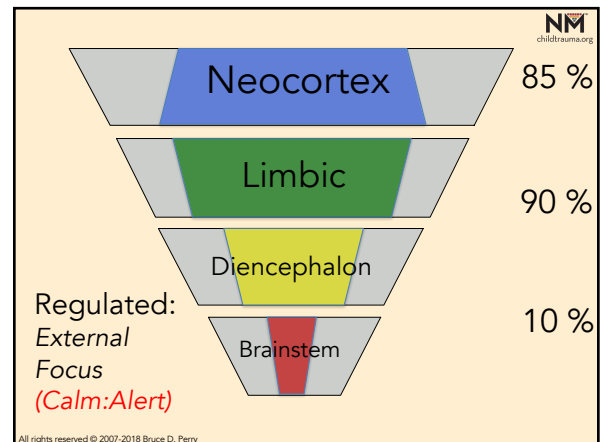
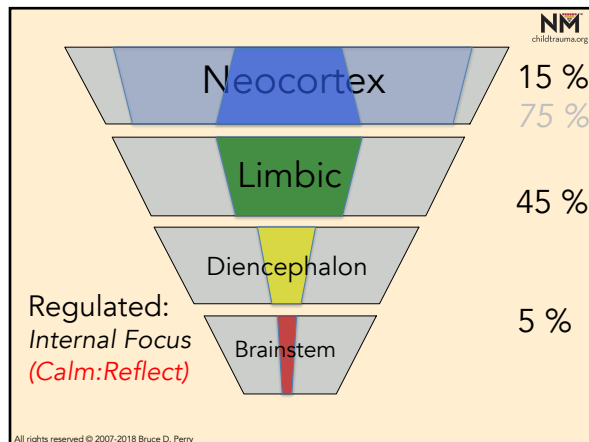
Flock, Freeze, Flight, Fight Continuum					
Traditional Fight/Flight	Reflect	Flock	Freeze	Flight	Fight
Primary secondary Brain Areas	NEOCORTEX Subcortex	SUBCORTEX Limbic	LIMBIC Midbrain	MIDBRAIN Brainstem	BRAINSTEM Autonomic
Cognition	Abstract	Concrete	Emotional	Reactive	Reflexive
Mental State	CALM	ALERT	ALARM	FEAR	TERROR

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Adaptive Response	REFLECT	FLOCK	FREEZE	FLIGHT	FIGHT
Predictable De-escalating Behavior (behaviors of the teacher when the child or classroom is in various states of arousal)	<ul style="list-style-type: none"> <li>Calm sounds</li> <li>Personal space</li> <li>Predictable touch</li> <li>Predictable routine</li> </ul>	<ul style="list-style-type: none"> <li>Quiet voices</li> <li>Eye contact</li> <li>Confidence</li> <li>Rhythmic movement</li> <li>Clear directions</li> <li>Somatosensory activities</li> </ul>	<ul style="list-style-type: none"> <li>Comforting and predictable voice; invited therapeutic touch</li> <li>Singing, humming, music</li> <li>Reflection/ listening</li> <li>Reassurance</li> </ul>	<ul style="list-style-type: none"> <li>Calm, quiet, presence</li> <li>Disengage</li> <li>Turn off lights, white noise</li> <li>Reduce sensory input</li> </ul>	<ul style="list-style-type: none"> <li>Calm affect</li> <li>Disengage but don't disappear</li> <li>Build rapport</li> <li>Individual attention</li> </ul>
Predictable Escalating Behavior (behaviors of the teacher when the child or classroom is in various states of arousal)	<ul style="list-style-type: none"> <li>Loud Noises</li> <li>Close uninvited proximity</li> <li>Unpredictable touch</li> <li>Changes in daily routine or schedule</li> </ul>	<ul style="list-style-type: none"> <li>Frustration or anxiety</li> <li>Communication from a distance (like yelling)</li> <li>Complex directions</li> <li>Ultimatums</li> </ul>	<ul style="list-style-type: none"> <li>Raised voices</li> <li>Raising hands/point finger, sudden movement</li> <li>Threatening tone</li> <li>Chaos in classroom, disorganization of materials</li> </ul>	<ul style="list-style-type: none"> <li>Frustration of teacher</li> <li>Yelling, chaos</li> <li>Collective dysregulation of peers</li> </ul>	<ul style="list-style-type: none"> <li>Physical restraint, grabbing, shaking</li> <li>Screaming</li> <li>Intimidating stance</li> </ul>
"Mediating" Brain Region	NEOCORTEX Cortex	CORTEX Limbic	LIMBIC Midbrain	MIDBRAIN Brainstem	BRAINSTEM Autonomic
Cognition	ABSTRACT	CONCRETE	EMOTIONAL	REACTIVE	REFLEXIVE
CLASSROOM "STATE"	CALM	ALERT	ALARM	FEAR	TERROR
CLASSROOM CHARACTERISTICS	Reflection and consolidation of new information is actively taking place or while testing, efficient retrieval of content is possible.	Active teaching can take place; students are internalizing new content and, "mind wandering" to efficiently store new content.	Learning new content is difficult; students are either disengaging or acting out; increases in individual self-regulatory behavior seen.	Learning is impossible. Engaging students difficult. Many demonstrate "freeze" responses that appear oppositional/defiant; increased acting out.	Aggression, reckless behavior; openly defying rules and authority, full "fight/flight" or "shutdown."

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## NMT Brain Mapping Process

- The key indicator of brain organization and neurophysiological status is function
- By creating a simplified construct – the brain map – assessment of key brain-mediated functions can help “localize” neurodevelopmental vulnerabilities and strengths
- This “localization” helps direct developmentally-sensitive interventions

## Neurodevelopmental Risk

- The NMT process involves assessing the timing, nature and intensity of adverse events
- The timing, nature and quality of “buffering” relational health is assessed as well
- An estimate of “developmental risk” is obtained at various times during development by combining the AE and RH scores

## Current Relational Health

- A major factor in healing appears to be the nature, quality, intensity and stability of a person’s relationships
- The NMT assessment process includes a simple metric that looks at current relational health
- The score on this metric is a key indicator of outcome – good relational stability predicts positive outcome – and poor relational health predicts poor outcomes

Abstract Cognition	Math/Symbolic	Perform	Modulate Impulsivity	Verbal	Values/Beliefs
Speech Articulate	Commun Language	SS/Mot Integrate	Time Delay Grat	Self Image Awareness	Concrete Cognition
Relational Attach	Attune	Reward	Affect Mood	Psychosex	Memory Learning
	Neuroend Hypothal	Dissociate Response	Arousal Response	Primary Sensory Int	
	Fine Motor	Feeding Appetite	Sleep	Coordinate LMF	
		Suck/Swal Gag	Attend Track		
		Temp Metabolic	EOEM		
		Cardio	Autonomic Regulation		

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Abstract Cognition	Math/Symbolic	Perform	Modulate Impulsivity	Verbal	Values/Beliefs
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		Suck/Swal Gag	Attend Track		
		Temp Metabolic	EOEM		
		Cardio	Autonomic Regulation		

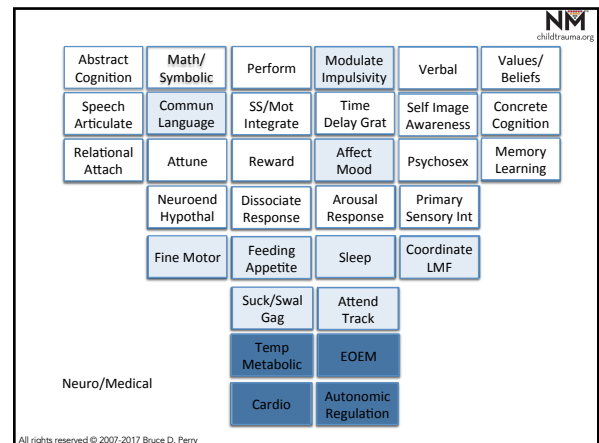
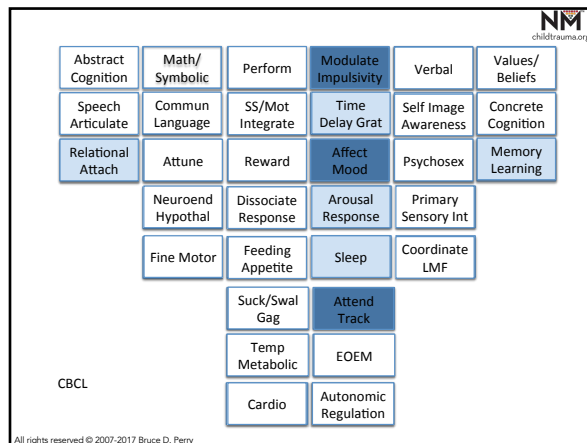
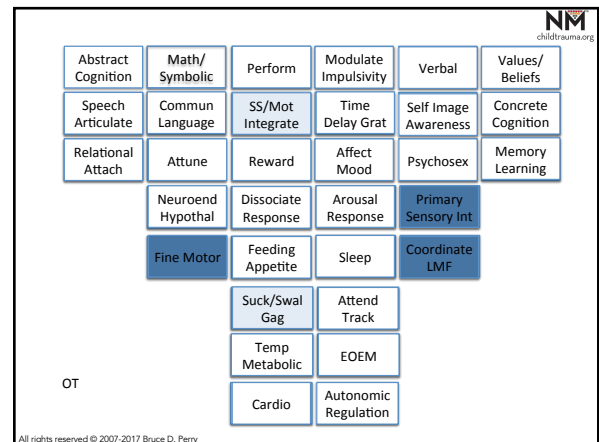
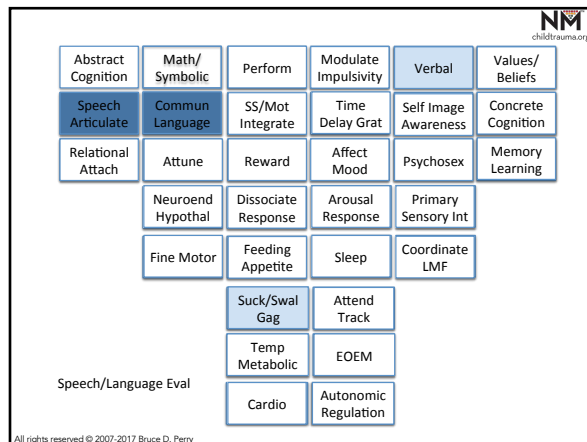
WISC

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Abstract Cognition	Math/Symbolic	Perform	Modulate Impulsivity	Verbal	Values/Beliefs
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		Suck/Swal Gag	Attend Track		
		Temp Metabolic	EOEM		
		Cardio	Autonomic Regulation		

TSCC

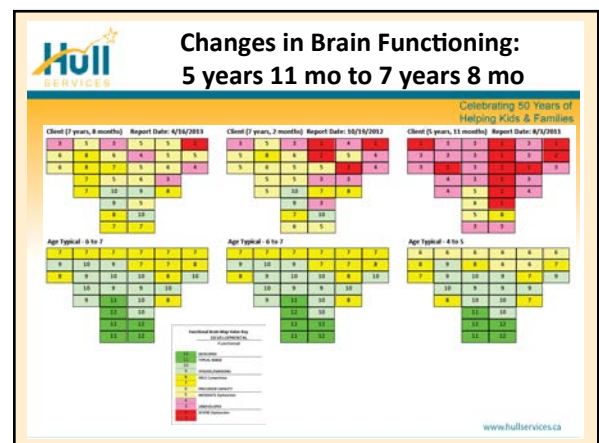
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**NM**  
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Sample Results from Residential Programs and Day Hospital Sites using NMT as a primary practice element

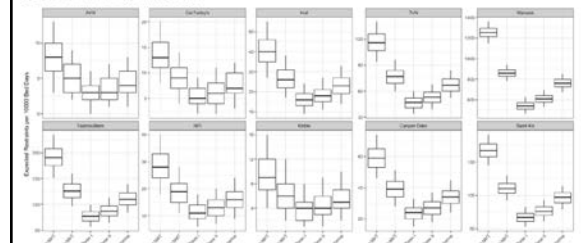
## OUTCOMES



## MSV: Client P.



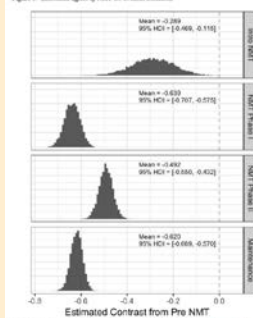
Figure 2. Estimated Restraints per 10,000 Bed Days



Note: NMT = Neurosequential Model of Therapeutics; NFI = Neuroscience Family Institute; VTN = The Village Network; ATN = Alexander Youth Network. Posterior prediction across implementation phases for each site in the study from the multilevel logistic regression model of restraint. Boxes provide the interquartile range and whiskers show the 95% secondary interval.

Hambrick et al. (2018) Restraint and critical incident reduction following introduction of the Neurosequential Model of Therapeutics (NMT). Residential Treatment for Children & Youth <https://doi.org/10.1080/0886571X.2018.1475651>

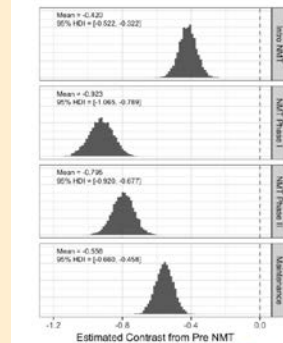
Figure 3. Estimated Effect of NMT on Critical Incidents



Note: NMT = Neurosequential Model of Therapeutics; NFI = Neuroscience Family Institute; VTN = The Village Network; ATN = Alexander Youth Network. Distribution of contrast between the Pre-NMT implementation phase and all subsequent NMT phases, derived from random effects estimates for phase from the multilevel logistic regression model of critical incident. Plots are associated with the mean and 95% highest density interval (HDI) for each distribution.

Hambrick et al. (2018) Restraint and critical incident reduction following introduction of the Neurosequential Model of Therapeutics (NMT). Residential Treatment for Children & Youth <https://doi.org/10.1080/0886571X.2018.1475651>

Figure 4. Estimated Effect of NMT on Restraints



Note: NMT = Neurosequential Model of Therapeutics. Distribution of contrast between the Pre-NMT implementation phase and all subsequent NMT phases, derived from random effects estimates for phase from the multilevel logistic regression model of restraint. Plots are associated with the mean and 95% highest density interval (HDI) for each distribution.

Hambrick et al. (2018) Restraint and critical incident reduction following introduction of the Neurosequential Model of Therapeutics (NMT). Residential Treatment for Children & Youth <https://doi.org/10.1080/0886571X.2018.1475651>

## Restraint and Critical Incident Rates with NMT Certification (Percent Pre-NMT Certification Rate)

Site	Program	Post NMT Cert % Baseline (Months)	Post NMT Cert % Baseline (Months)
1	NFI	0.0* (84)	52.4* (84)
2	Village Network	18.5*** (33)	25.6** (33)
3	San Mateo	34.0 *** (47)	83.1 (47)
4	Cal Farley	48.7*** (52)	52.4*** (52)
5	StA	77.3*** (57)	59.2*** (57)
6	Hull	40.0* (42)	
7	AYN	44.4*** (73)	
8	Teambuilders	23.5*** (5)	12.4*** (5)
<b>TOTAL</b>	<b>% Pre NMT Cert</b>	<b>35.8 ***</b>	<b>47.5 **</b>

\* = p<0.05; \*\* = p<0.005; \*\*\* = p<0.001

## Economic Benefits with Introduction of NMT

Site	Program	Pre NMT Monthly Cost	Pre NMT Monthly Revenue	Pre NMT Monthly Net Cost	Post NMT Monthly Cost	Post NMT Monthly Revenue	Post NMT Monthly Net Cost	Net Savings
1	NFI	100	100	0	100	100	0	0
2	Village Network	100	100	0	100	100	0	0
3	San Mateo	100	100	0	100	100	0	0
4	Cal Farley	100	100	0	100	100	0	0
5	StA	100	100	0	100	100	0	0
6	Hull	100	100	0	100	100	0	0
7	AYN	100	100	0	100	100	0	0
8	Teambuilders	100	100	0	100	100	0	0
9	Warwick	100	100	0	100	100	0	0
10	Warwick	100	100	0	100	100	0	0
<b>TOTAL</b>	<b>% Pre NMT</b>	<b>100.0</b>	<b>8326.5</b>	<b>\$1.9 ***</b>	<b>284914.6</b>	<b>\$303510.2</b>	<b>27.53 ***</b>	<b>\$30379.0</b>

Ten sites  
Three countries (eight states)  
Avg duration of site review = 64 months (range 10-132 months)  
2744 clients served in the 10 programs during the duration of the review period

Conservative economic benefit from just the reduction in restraints  
\$1,538,027  
4,269 restraints (avoided)  
51,228 "person-hours" required for "restraint" re-directed

## NMT in Pre-school Setting (Study 1)

NMT in a Therapeutic Preschool

Table 1. Difference in Pretest and Posttest PSEDRI Scores and Time Series PSEDRI Scores (Social-Emotional Development) for Study 1

PSEDRI scores	Pretest mean (SD)	Posttest mean (SD)	t	p	d (effect size)
PSEDRI composite (n = 13)	1.79 (.508)	2.98 (.848)	6.16	<.001**	2.34
Emotion regulation	1.88 (.449)	2.86 (.810)	5.4	<.001**	2.18
Helpfulness	2.04 (.824)	3.31 (1.22)	4.4	<.001**	1.54
Fair assertiveness	1.92 (.768)	3.87 (.768)	7.5	<.001**	2.54
Impulse modulation	1.73 (.693)	2.64 (1.01)	3.8	<.001**	1.31
Cooperation	1.94 (.584)	3.21 (1.09)	5.23	<.001**	2.17
Empathy	.94 (.688)	1.77 (1.14)	3.19	.003**	1.24
<hr/>					
	Time series mean (SD)	Week 1 mean (SD)			
PSEDRI composite (n = 13)					
Week 2	1.82 (.288)	1.85 (.430)	-.346	.73	-.07
Week 3	1.74 (.318)	1.85 (.430)	-1.39	.168	-.26
Week 4	2.72 (.799)	1.85 (.430)	6.25	<.001**	2.02
Week 5	2.77 (.670)	1.85 (.430)	7.33	<.001**	2.14
Week 6	3.05 (.753)	1.85 (.430)	9.2	<.001**	2.79

\*\* p < .01.

From: Barfield, S., Gaskill, R., Dobson, C. & Perry, B.D. (2011) *Neurosequential Model of Therapeutics* in a Therapeutic Preschool: Implications for Work with Children with Complex Neuropsychiatric Problems. *International Journal of Play Therapy*. Online First Publication, October 31, 2011. Doi:10.1037/a0025955

## Trauma-Informed Movement in Education (TIME)

### Suspensions By School Month

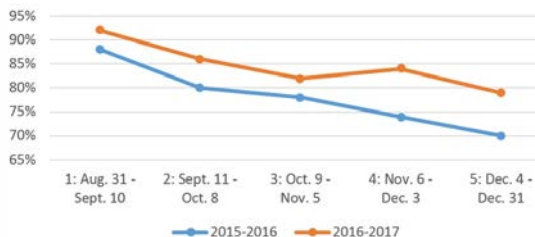


TIME modeled after the ChildTrauma Academy's Neurosequential Model in Education  
Long Beach Unified School District and Beach High School

## Trauma-Informed Movement in Education (TIME)

### Attendance by School Month

School Goal: 78%



TIME modeled after the ChildTrauma Academy's Neurosequential Model in Education  
Long Beach Unified School District and Beach High School

## Introduction of NME Columbus Public Schools (2014-2015)

District	Year	# Office Referrals	# Detention, Suspension or Expulsion
Columbus City-- Ohio Ave. ES	2013-14	917	129
	2014-15	750	83
Columbus City--Livingston ES	2013-14	2719	1043
	2014-15	1017	811
Graham School	2013-14	Not available	88
	2014-15	Not available	38
The Charles School	2013-14	Not available	97 (3 expulsions)
	2014-15	Not available	90 (0 expulsion)

## Introduction of NME Columbus Public Schools (2014-2015)

### First Grade teacher in Columbus City Schools:

"I would say that I became acutely aware of when I needed regulation and was able to quickly pull in an activity that allowed me to regulate myself which in turn kept my kids calmer. I found myself reacting less to the kids and instead wondering why are they doing this and how can I approach it differently to help them. In my classroom we actually kept data for an ed psych student and we were able to get transitions between activities from 11 to 12 minutes down to under 4 minutes consistently. I just used the tools you gave us and set a system in place where they had specific instructions and expectations and after less than a day they made a significant cut in time and in about a week we met our goal. I can also say that I gained about a half hour of instruction time each day from bathroom breaks. Once we started doing the rhythm activities in the hallway our bathroom breaks went from about 25 minutes to 15 minutes.

The NME training explained how to address behavioral disruptions that weren't punitive to the child but still helped the child to make better choices. Once I changed my approach with [male child in class] and gave him acceptable choices his office referrals significantly decreased (I seriously think it was about 3 or 4 a week to less than 1 a week) and I wasn't stressed out by his behaviors. I think you gave me the reminder that I can't control my students' behavior but I can teach them appropriate ways to deal with their thoughts and feelings. It's not about having a silent, seemingly perfect class. It's about building relationships with my kids and giving them the tools and space to become the wonderful little people that they are."

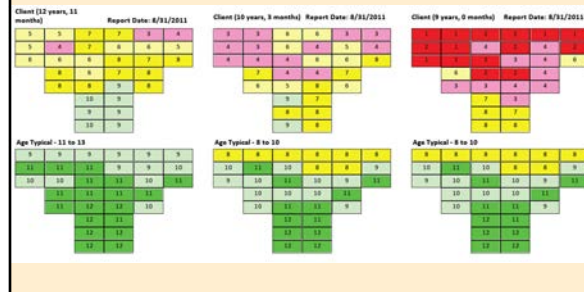
## Introduction of NME Columbus Public Schools (2014-2015)

### Elementary Principal in Columbus City Schools:

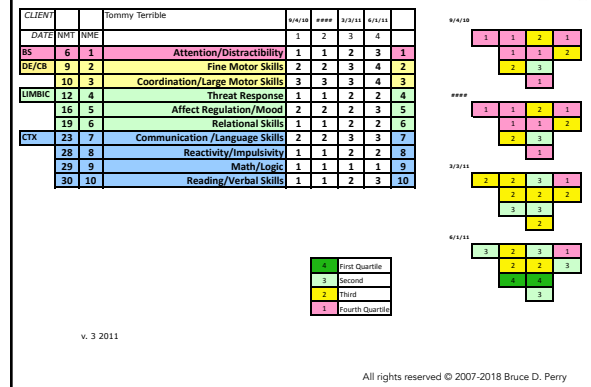
"We have decreased our discipline referrals by almost 50% in one year. This means kids are in the classroom more and are developing self-regulation strategies that will help them be successful not only in school but in life."

"I, as the principal, am able to have more time to be in classrooms observing and providing feedback to teachers because my staff is equipped to deal with behaviors in the classroom instead of referring kids to the office for me to deal with."

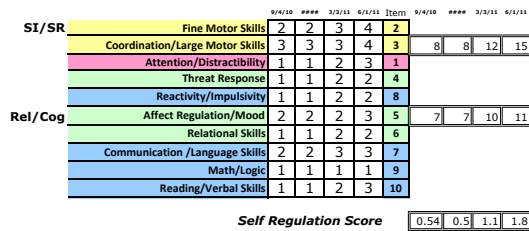
## CTA: Client D. s/p Severe Neglect



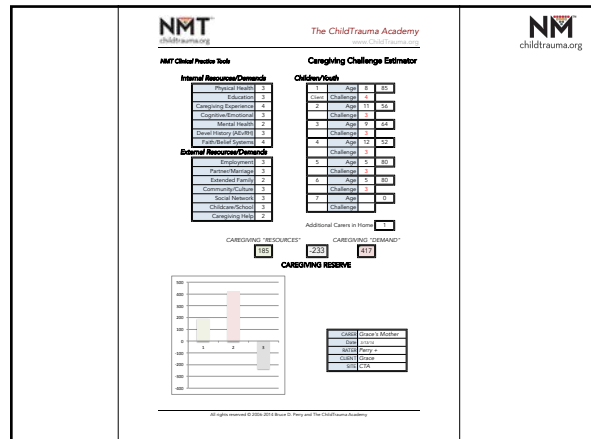
## NME Mini-Map



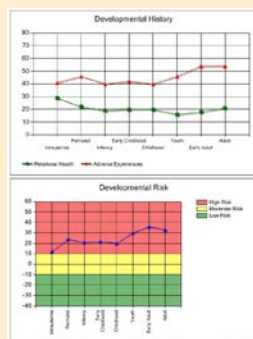
## NME Mini-Map: Self-regulation Score



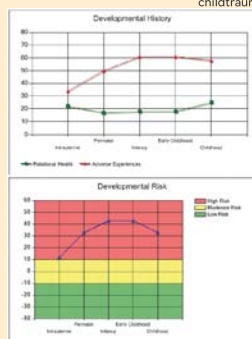
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## Mother

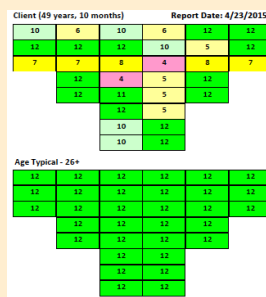


## Child

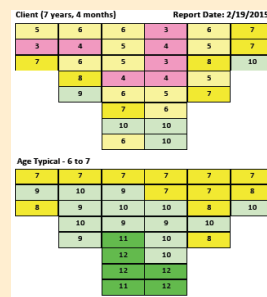


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## Mother

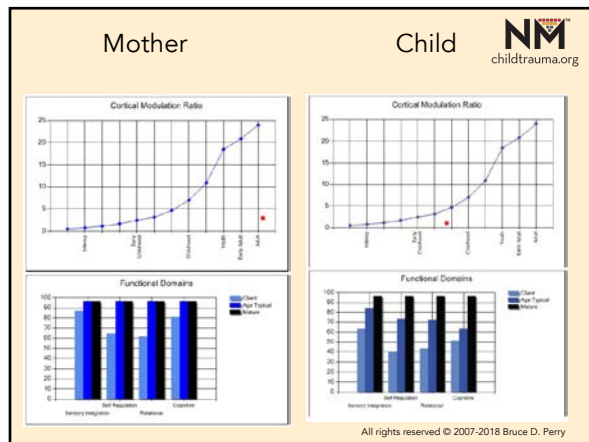


## Child



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**Beyond Point and Level Systems:  
Moving Toward Child-Centered Programming**

Wanda K. Mohr, PhD, APRN, FAAN  
University of Medicine and Dentistry, New Jersey

Andres Martin, MD  
Yale University

James N. Olson, PhD  
University of Texas-Pernian Basin

Andres J. Pumariega, MD  
Temple University

Nicole Branca, MSN, APRN  
University of Medicine and Dentistry, New Jersey

Many residential treatment facilities and child inpatient units in the United States have been structured by way of motivational programming such as the point and/or level systems. On the surface, they appear principles. In this article, the authors argue that the assumptions upon which point and level systems are based do not hold up to close empirical scrutiny or theoretical validity, and that point and level system programming is actually counterproductive with some children, and at times can precipitate dangerous clinical situations, such as seclusion and restraint. In this article, the authors critique point and level culturally, and developmentally appropriate treatment, and the authors explore the resistance and barriers to changing traditional ways of "doing things." Finally, the authors describe a different approach to providing treatment that is based on a collaborative problem-solving approach and upon which other successful models of treatment have been based.

American Journal of Orthopsychiatry  
2009, Vol. 79, No. 1, 8-18

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Nothing influences lifelong health and well-being, or development of the brain, more than the quality of relationships and other experiences before age 6. NEURONS TO NEIGHBORHOODS

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For information, email: [NapaFellowship@gmail.com](mailto:NapaFellowship@gmail.com)

**Infant and Early Childhood Mental Health  
Core Concepts and Clinical Practice**

Edited by  
Kristie Brandt, C.A.M., D.N.P.  
Bruce D. Perry, M.D., Ph.D.  
Stephen Seligman, D.M.A.  
Ed Tronick, Ph.D.  
Foreword by  
T. Berry Brazelton, M.D.

why empathy is essential—  
and endangered

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Maia Szalavitz

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

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