Neurosequential Model Core Slides
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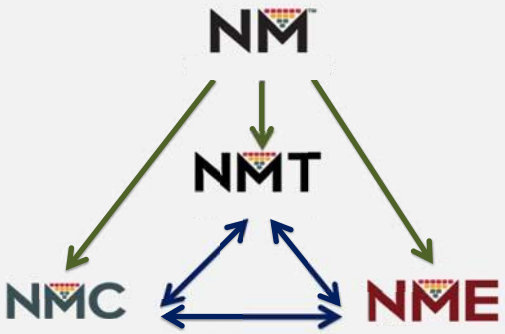

"You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete."

- Buckminster Fuller

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

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.

The NMT is both an 'evidence-based' and an 'evidence-generating' practice.

The web-based, standardized assessment elements allow the collection of aggregate data to facilitate the ongoing monitoring of a range of individual and program outcomes.

The model is designed to allow iterative modifications to improve program and treatment plan elements.

The 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.

NEUROSEQUENTIAL NETWORK™

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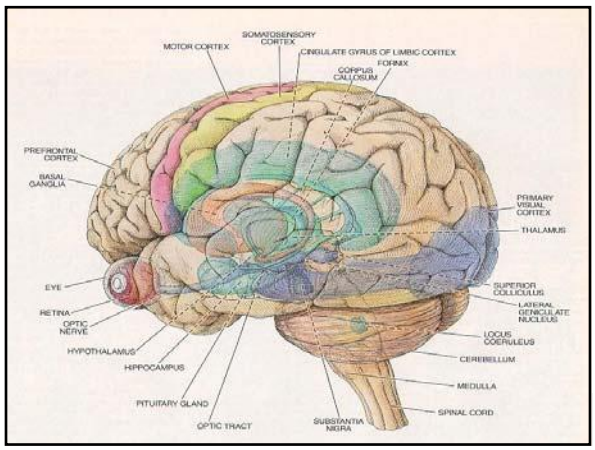
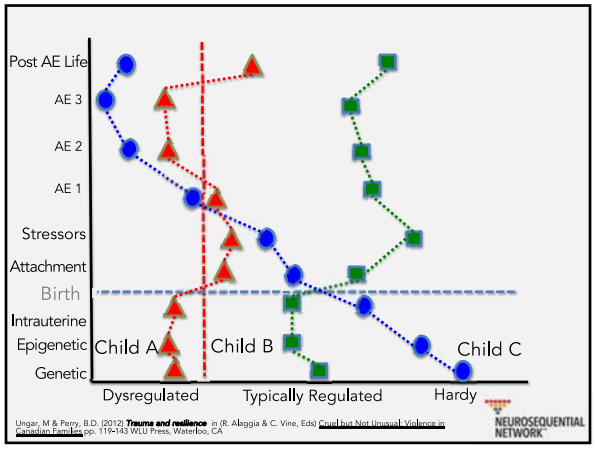


<u>The Neurosequential Model</u>

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).



<u>The Neurosequential Model</u>

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.

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

<u>Neurosequential Model</u>

It is important to understand mechanisms underlying current functioning.

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

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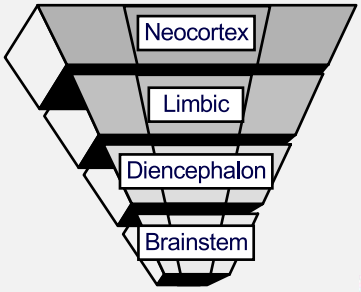
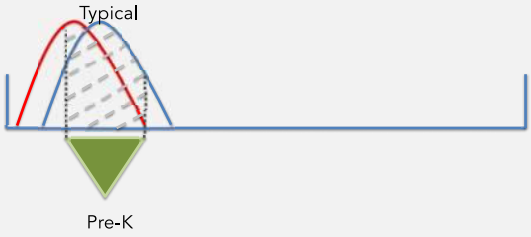
SEQUENTIAL DEVELOPMENT
Sequential Vulnerability



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

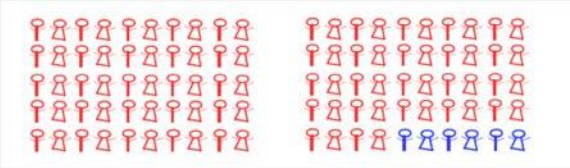


Developmental lag – the younger you are, the easier it is tolerate the "lag"

BECAUSE WE HAVE MINIMAL EARLY IDENTIFICATION AND INTERVENTION

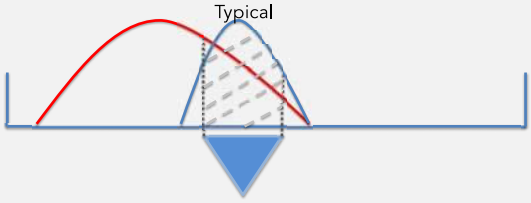
Children Who Start Behind Stay Behind

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



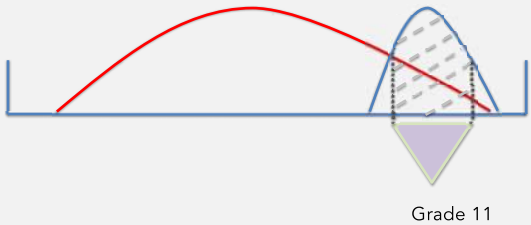
First Graders **Fourth Graders**

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



Developmental lag – as you get older, the skills "lag" becomes viewed through various lens – (e.g., ADHD, oppositional defiant, "reading" disorder)

Age Targeted Programs (Education, Mental Health, Caregiving):
Youth



Developmental lag – and, ultimately, these skill "lags" can result in- and are viewed as - 'anti-social' or even criminal.

Heuristic *(/hjʊˈrɪstɪk/; Greek: " ύ ", "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.

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NM is not "On the Shelf"

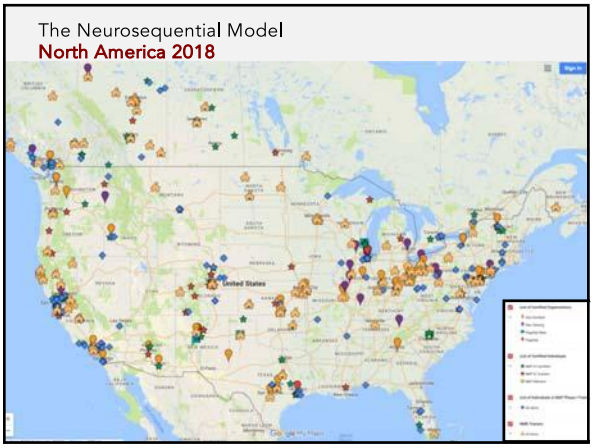
86% of clinical research is never used in direct patient care (Balas & Boren, 2000)

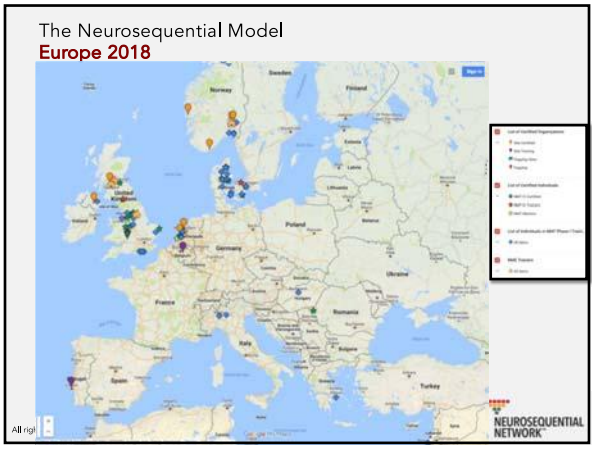
It takes an average of 17 years for the 14% of research that influences clinical practice to get there (Morris, Wooding & Grant, 2011)

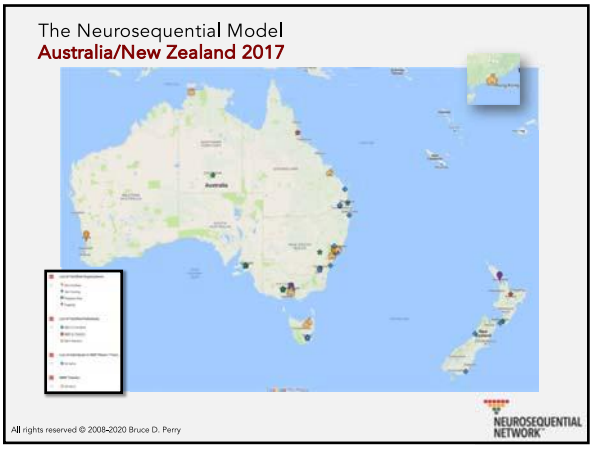
NMT was first manualized in 2008 when the NMT Certification Process was developed

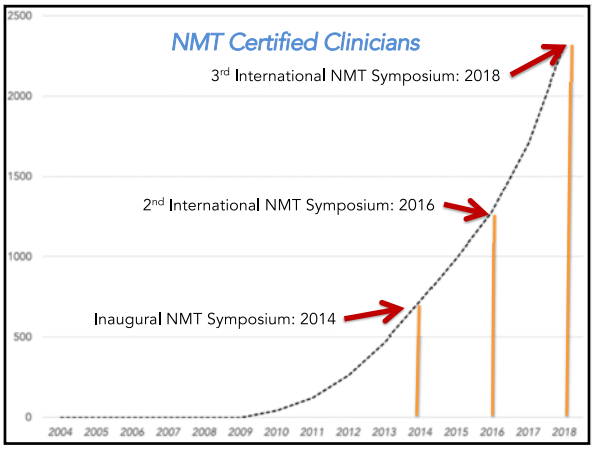
Since then….
- 60,000 metric reports
- over 3000 Phase I trained clinicians
- 10 Flagship sites in three countries (US, Canada, Australia)
- 100 + Phase I NMT Certified Sites and Programs
- 28 countries

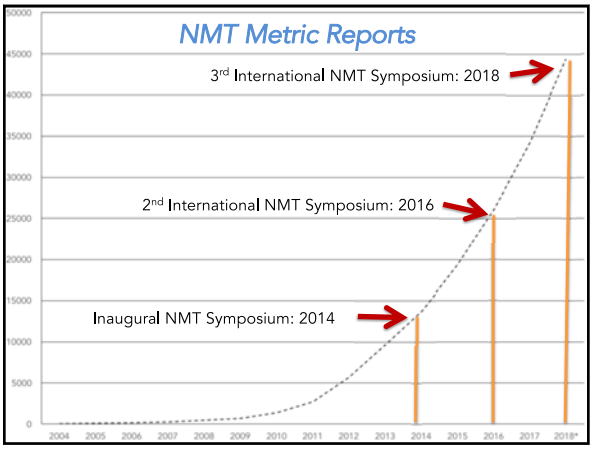
NEUROSEQUENTIAL NETWORK











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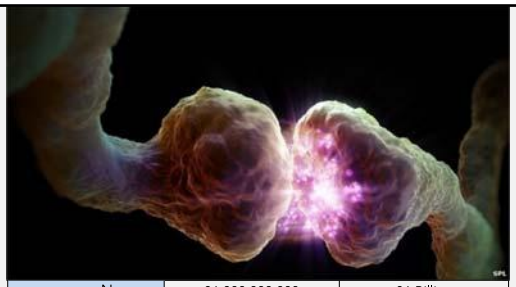
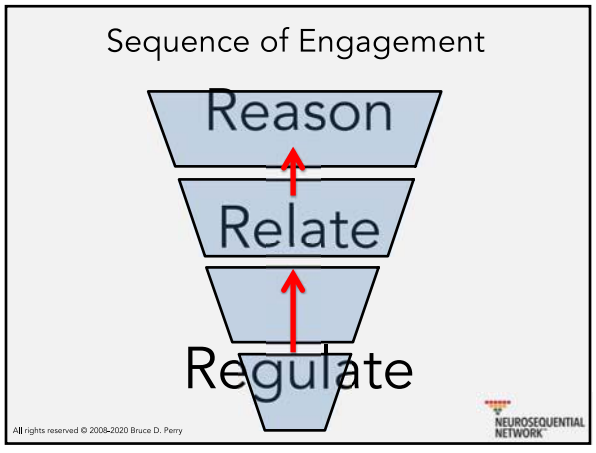
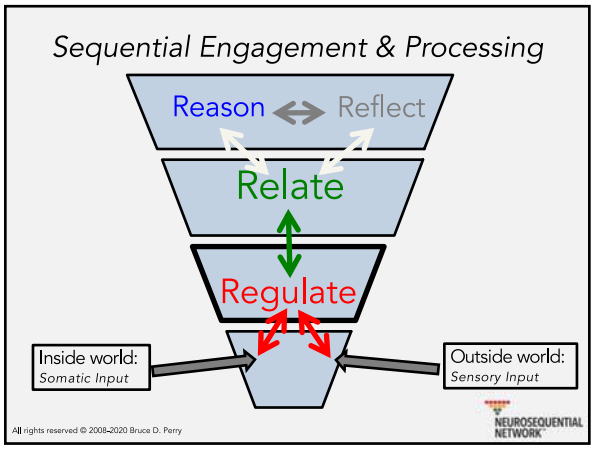
Cumulative Clinicians, Teachers, Caregivers Exposed to the Neurosequential Model	YEAR	Web, Webinars, Books, Live Training
	2004	6,000
	2005	20,000
	2006	40,000
	2007	80,000
	2008	120,000
	2009	180,000
	2010	250,000
	2011	300,000
	2012	350,000
	2013	400,000
	2014	500,000
	2015	600,000
	2016	800,000
	2017	900,000
	2018	1,000,000

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	44	1100	440	11000
2011	120	3000	1200	30000
2012	264	6600	2640	66000
2013	462	11550	4620	115500
2014	726	18150	7260	181500
2015	992	24800	9920	248000
2016	1278	31950	12780	319500
2017	1708	42700	17080	427000
2018	2318	57950	23180	579500
	Total Direct	200,100	Total Indirect	2,001,000



Neurons	86,000,000,000	86 Billion
Glia	111,800,000,000	111 Billion
Synaptic boutons	430,000,000,000,000	420 TRILLION
Synaptic proteins	8,603,956,000,000,000,000	8.4 QUADRILLION
Polarizations/minute	2,581,186,800,000,000,000	2.5 QUADRILLION/minute





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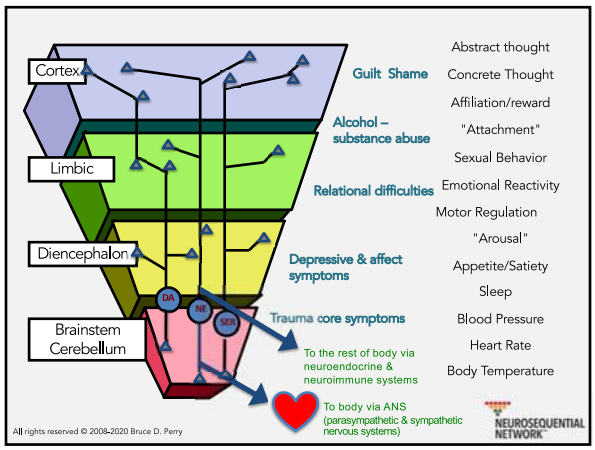

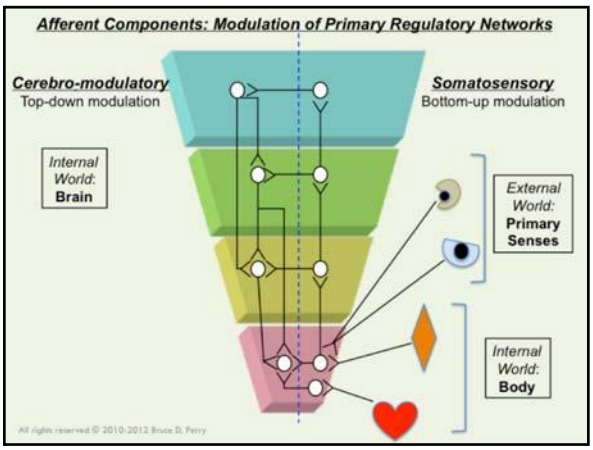

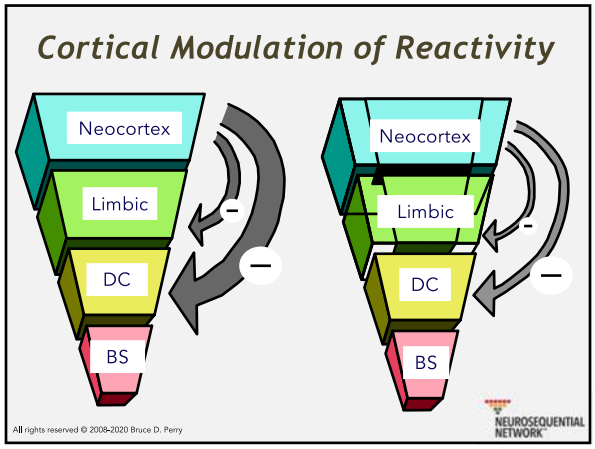

"Self-regulation" (SR)

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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NEUROSEQUENTIAL NETWORK

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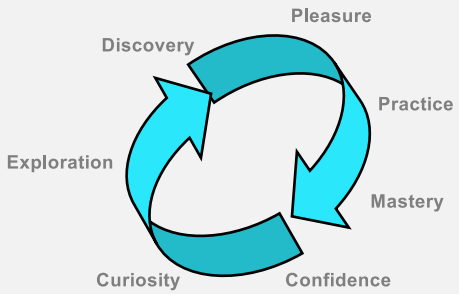
Creating the Relational 'Space' for Optimal Development, Learning & Healing
(or How do you like those P's?)

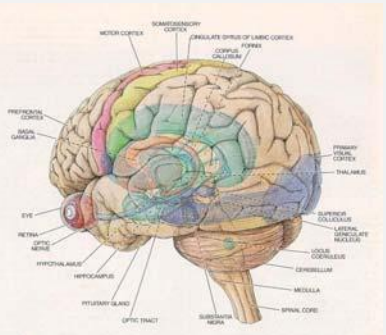
- Present,
- Parallel,
- Patient &
- Persistent *in* Providing
- Patterned, Predictable, Positive *doses of*
- Protected (safe) experience

The Cycle of Learning



It all starts with a sense of safety

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



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.

Poverty of Relationships

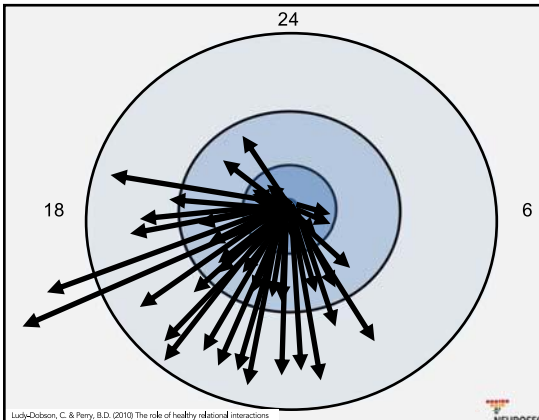
The compartmentalization of our culture has resulted in material wealth yet poverty of social and emotional opportunity.

NEUROSEQUENTIAL NETWORK™

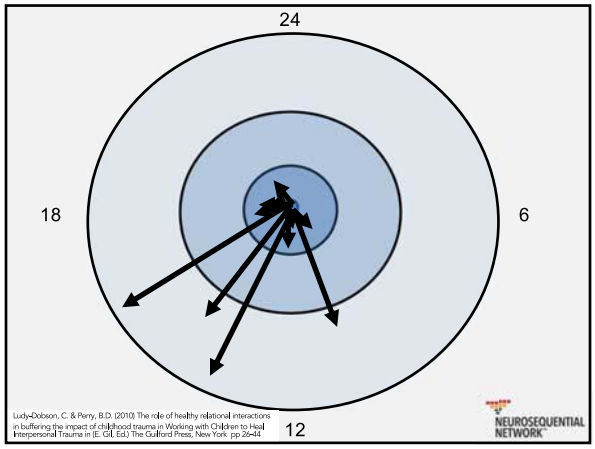
So What? Why does this matter?

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



Lusky-Dobson, C. & Perry, B.D. (2010) The role of healthy relational interactions in buffering the impact of childhood trauma in Working with Children to Heal Interpersonal Trauma in (E. Gil, Ed.) The Guilford Press, New York pp 26-44



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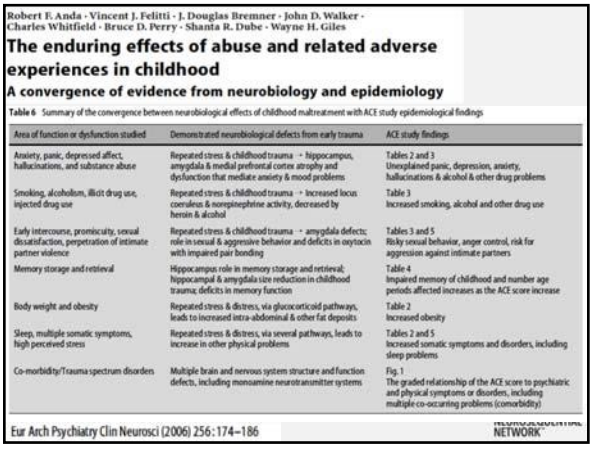
On Becoming Humane

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.

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.



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

The enduring effects of abuse and related adverse experiences in childhood

A convergence of evidence from neurobiology and epidemiology

Table 6 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

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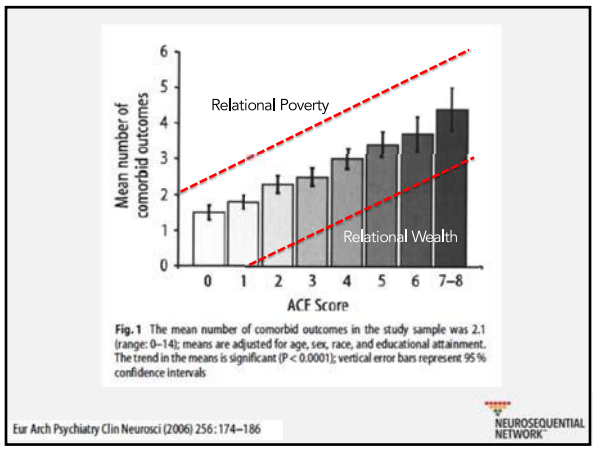


Fig. 1 The mean number of comorbid outcomes in the study sample was 2.1 (range: 0–14); means are adjusted for age, sex, race, and educational attainment. The trend in the means is significant ($P < 0.0001$); vertical error bars represent 95% confidence intervals

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

Archives of Psychiatric Nursing

journal homepage: www.elsevier.com/locate/apnu

Beyond the ACE score: Examining relationships between timing of developmental adversity, relational health and developmental outcomes in children

Erin P. Hambrick, Thomas W. Brawner, Bruce D. Perry, Kristie Brandt, Christine Hofmeister, Jen O. Collins

ARTICLE INFO

ABSTRACT

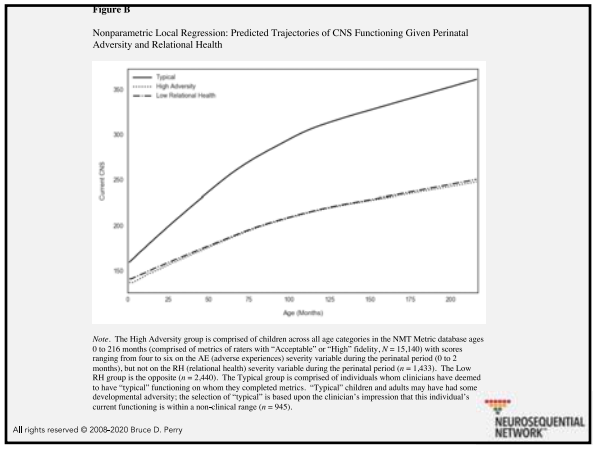
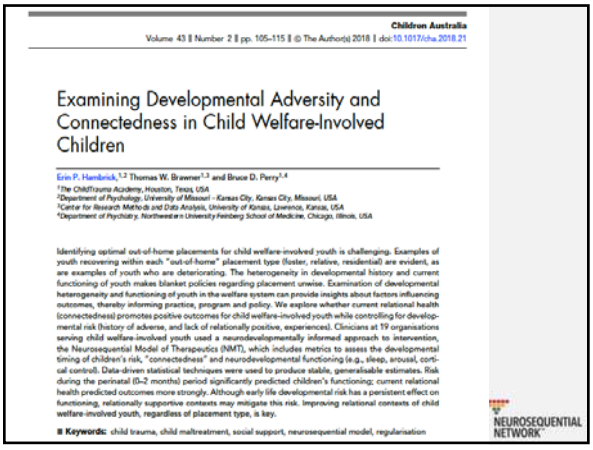


Figure B

Nonparametric Local Regression: Predicted Trajectories of CNS Functioning Given Perinatal Adversity and Relational Health

Note. The High Adversity group is comprised of children across all age categories in the NMT Metric database ages 0 to 216 months (comprised of metrics of raters with "Acceptable" or "High" fidelity, $N = 15,140$) with scores ranging from four to six on the AE (adverse experiences) severity variable during the perinatal period (0 to 2 months), but not on the RH (relational health) severity variable during the perinatal period ($n = 1,433$). The Low RH group is the opposite ($n = 2,440$). The Typical group is comprised of individuals whom clinicians have deemed to have "typical" functioning on whom they completed metrics. "Typical" children and adults may have had some developmental adversity; the selection of "typical" is based upon the clinician's impression that this individual's current functioning is within a non-clinical range ($n = 945$).



Children Australia

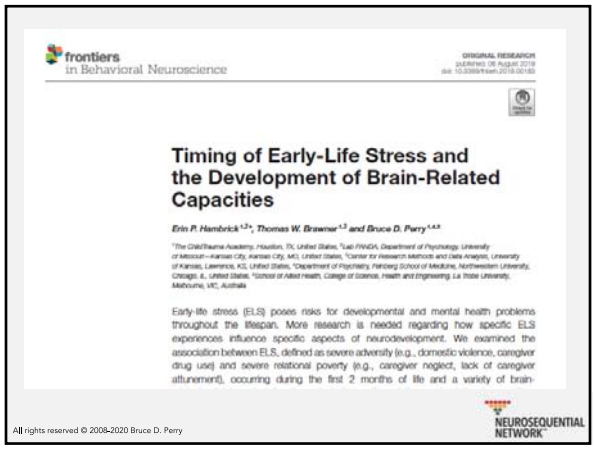
Volume 43 ‖ Number 2 ‖ pp. 105–115 ‖ © The Author(s) 2018 ‖ doi:10.1017/cha.2018.21

Examining Developmental Adversity and Connectedness in Child Welfare-Involved Children

Erin P. Hambrick, Thomas W. Brawner and Bruce D. Perry

Identifying optimal out-of-home placements for child welfare-involved youth is challenging. Examples of youth recovering within each "out-of-home" placement type (foster, relative, residential) are evident, as are examples of youth who are deteriorating. The heterogeneity in developmental history and current functioning of youth makes blanket policies regarding placement unwise. Examination of developmental heterogeneity and functioning of youth in the welfare system can provide insights about factors influencing outcomes, thereby informing practice, program and policy. We explore whether current relational health (connectedness) promotes positive outcomes for child welfare-involved youth while controlling for developmental risk (history of adverse, and lack of relationally positive, experiences). Clinicians at 19 organisations serving child welfare-involved youth used a neurodevelopmentally informed approach to intervention, the Neurosequential Model of Therapeutics (NMT), which includes metrics to assess the developmental timing of children's risk, "connectedness" and neurodevelopmental functioning (e.g., sleep, arousal, cortical control). Data-driven statistical techniques were used to produce stable, generalisable estimates. Risk during the perinatal (0–2 months) period significantly predicted children's functioning; current relational health predicted outcomes more strongly. Although early life developmental risk has a persistent effect on functioning, relationally supportive contexts may mitigate this risk. Improving relational contexts of child welfare-involved youth, regardless of placement type, is key.

Keywords: child trauma, child maltreatment, social support, neurosequential model, regularisation



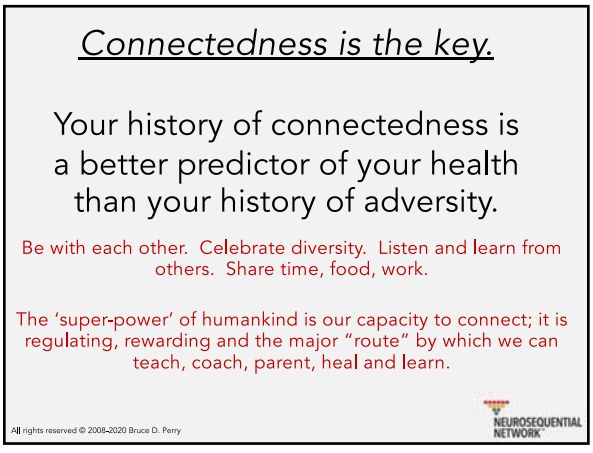
frontiers in Behavioral Neuroscience

ORIGINAL RESEARCH

Timing of Early-Life Stress and the Development of Brain-Related Capacities

Erin P. Hambrick, Thomas W. Brawner and Bruce D. Perry

Early-life stress (ELS) poses risks for developmental and mental health problems throughout the lifespan. More research is needed regarding how specific ELS experiences influence specific aspects of neurodevelopment. We examined the association between ELS, defined as severe adversity (e.g., domestic violence, caregiver drug use) and severe relational poverty (e.g., caregiver neglect, lack of caregiver attunement), occurring during the first 2 months of life and a variety of brain-



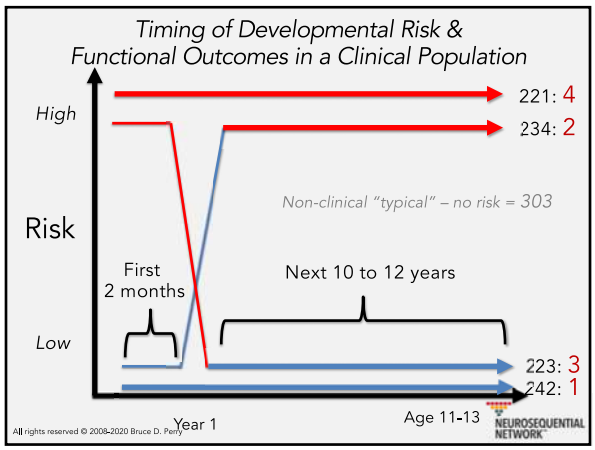
Connectedness is the key.

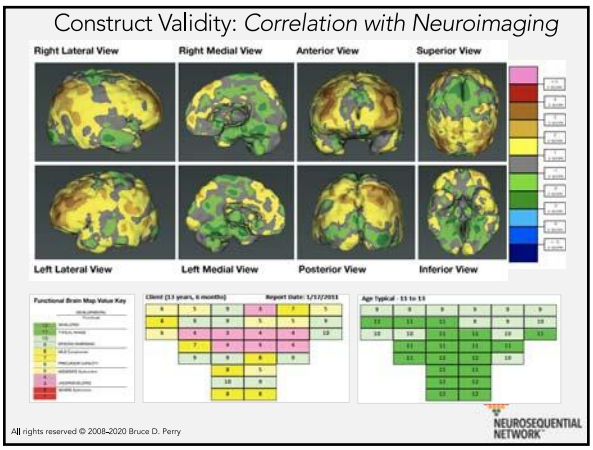
Your history of connectedness is a better predictor of your health than your history of adversity.

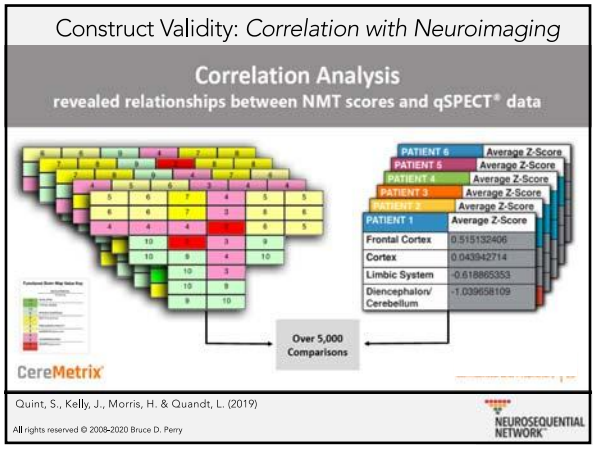
Be with each other. Celebrate diversity. Listen and learn from others. Share time, food, work.

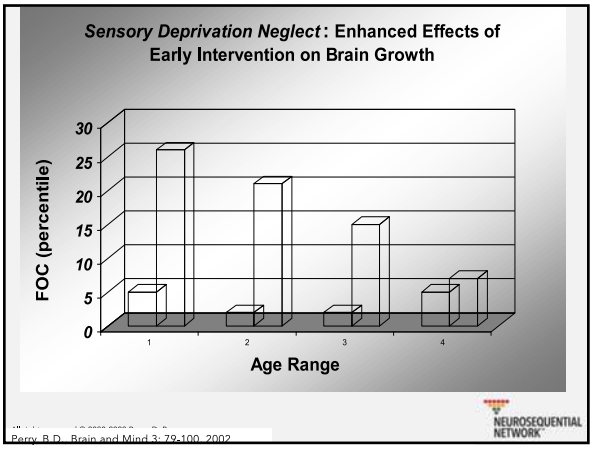
The 'super-power' of humankind is our capacity to connect; it is regulating, rewarding and the major "route" by which we can teach, coach, parent, heal and learn.

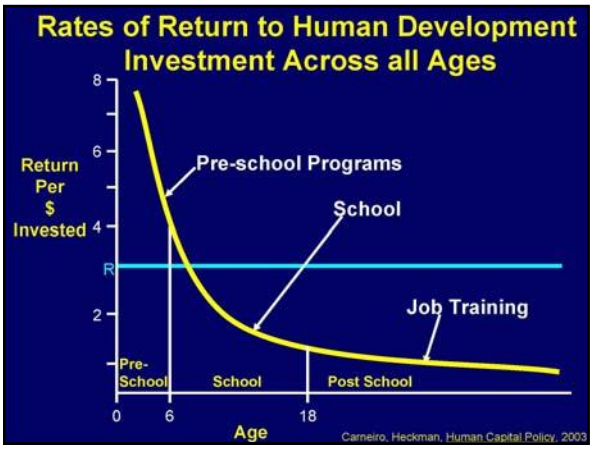
Neurosequential Model Core Slides
"Best Hits" Package











Neurosequential Model Core Slides
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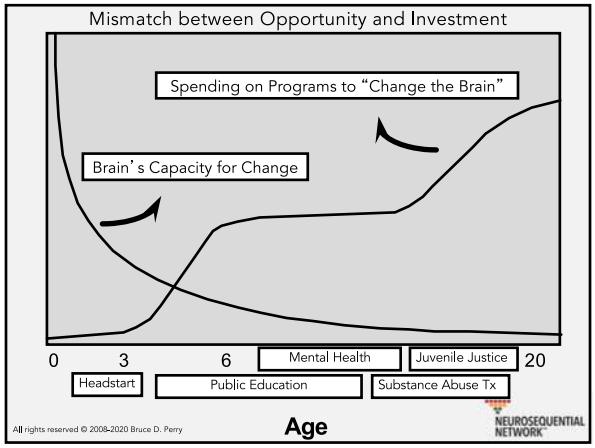

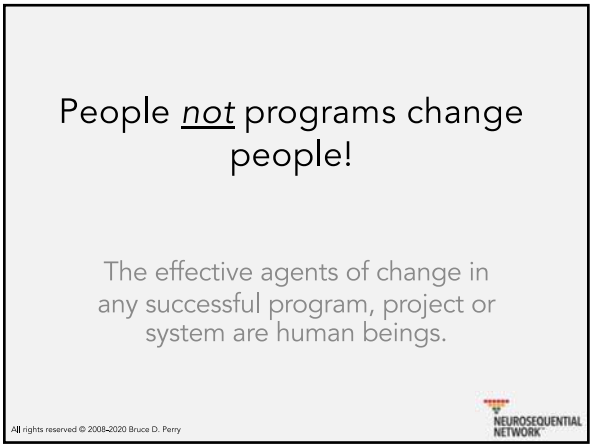

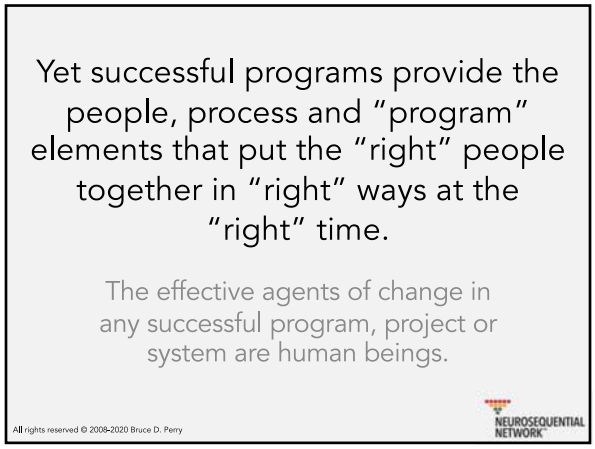

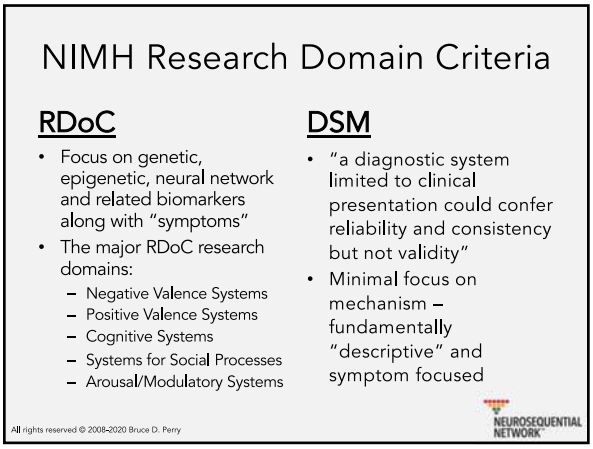

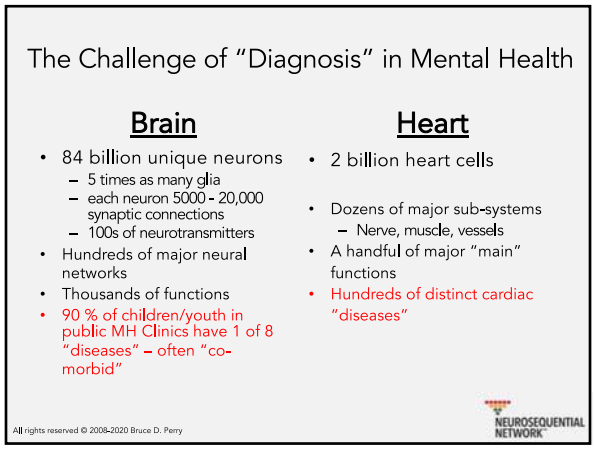

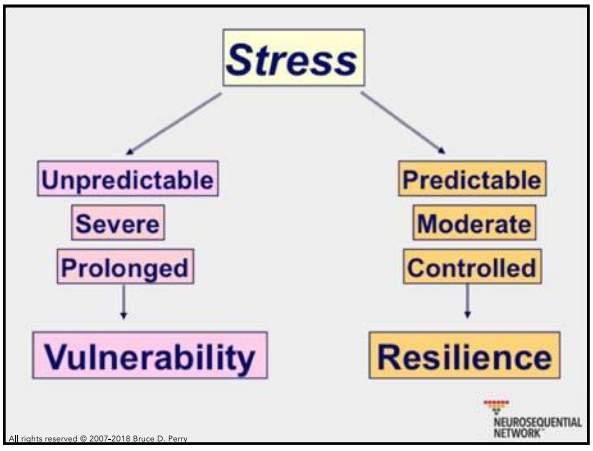

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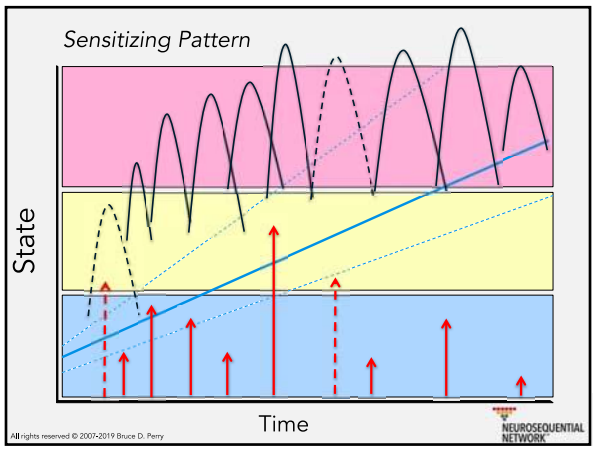
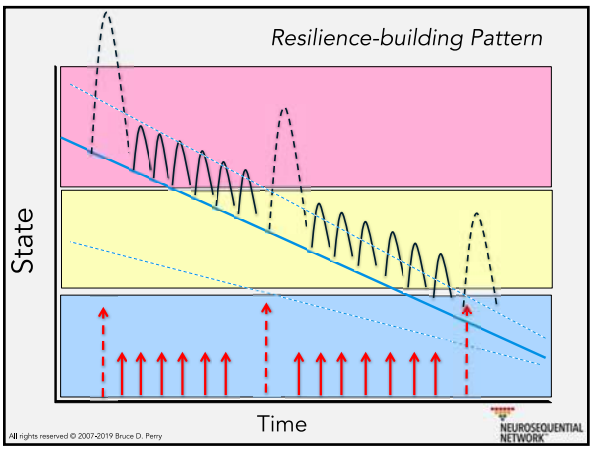
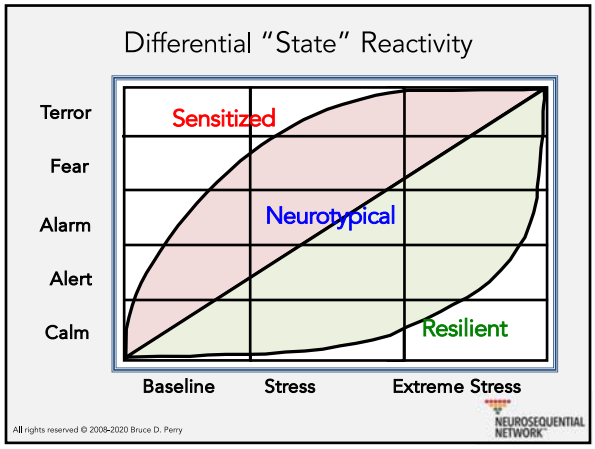
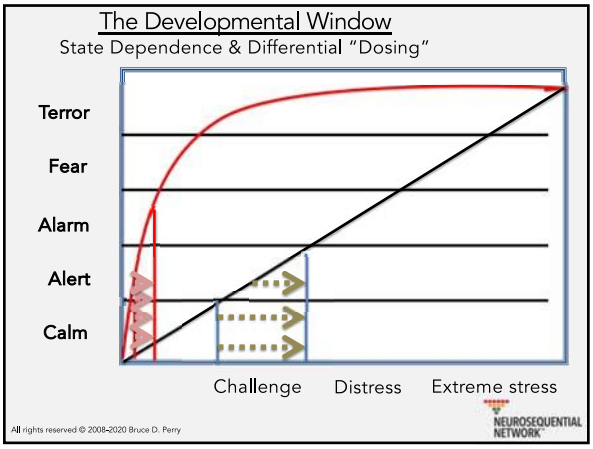


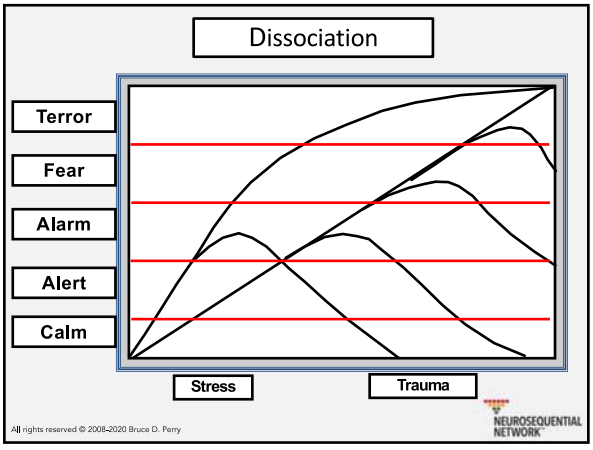






Responses to Stress, Distress, Trauma

- **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

NEUROSEQUENTIAL NETWORK™

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.

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

NEUROSEQUENTIAL NETWORK™

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

NEUROSEQUENTIAL NETWORK™

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)*	• Calm sounds • Personal space • Predictable touch • Predictable routine	• Quiet voices • Eye contact • Confidence • Rhythmic movement • Clear directions • Somatosensory activities	• Comforting and predictable voice; invited therapeutic touch • Singing, humming, music • Reflective listening • Reassurance	• Calm, quiet, presence • Disengage • Turn off lights, white noise • Reduce sensory input	• Calm affect • Disengage but don't disappear • Adult support • Individual attention
Predictable **Escalating** Behavior *(behaviors of the teacher when the child or classroom is in various states of arousal)*	• Loud Noises • Close uninvited proximity • Unpredictable touch • Changes in daily routine or schedule	• Frustration or anxiety • Communication from a distance (like yelling) • Complex directions • Ultimatums	• Raised voices • Raising hands/point finger., sudden movement • Threatening tone • Chaos in classroom, disorganization of materials	• Frustration of teacher • Yelling, chaos • Collective dysregulation of peers	• Physical restraint, grabbing, shaking • Screaming • Intimidating stance
"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 "shut down."

NEUROSEQUENTIAL NETWORK™

Organizational Pressures	*Resource-surplus Predictable Stable/Safe*	*Resource-limited Unpredictable Novel*	*Resource-poor Threatening Inconsistent*
Prevailing Cognitive Capacity	Abstract Creative (IQ = 120)	Concrete Superstitious/Defensive (IQ = 100)	Reactive Regressive (IQ = 80)
Prevailing Affective 'Tone'	CALM	ANXIETY	FEAR
Systemic Solutions	Reflective INNOVATIVE	Concrete SIMPLISTIC	Fear-based REACTIONARY
Focus of Solution	FUTURE Intentional Inflection	SHORT-TERM Serendipitous Inflection	PRESENT Forced Inflection
Policies and Practices	Abstract Conceptual	Concrete Superstitious Intrusive	Restrictive Punitive
Staff & Supervisory Practices	Nurturing Flexible Enriching	Ambivalent Obsessive Controlling	Apathetic Oppressive Harsh

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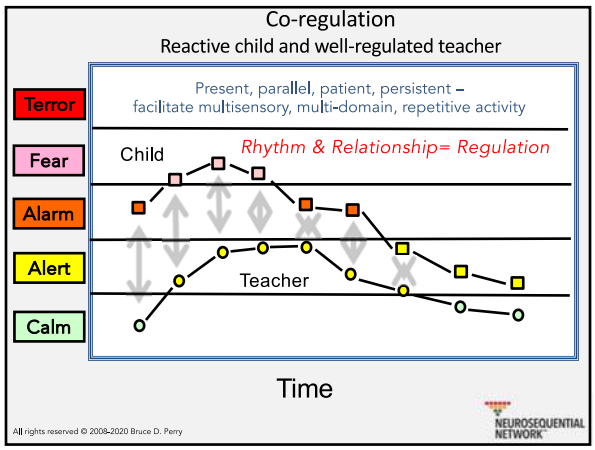

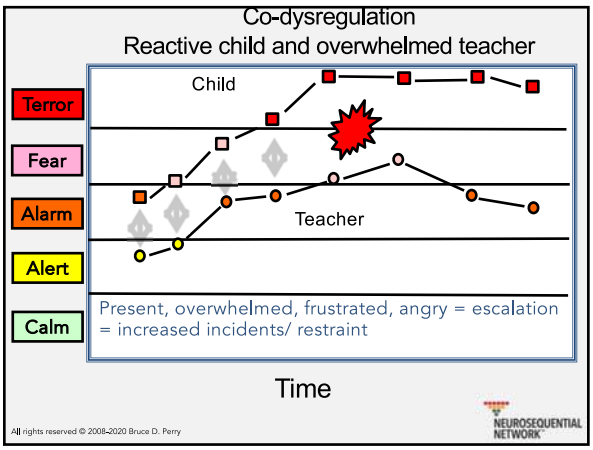

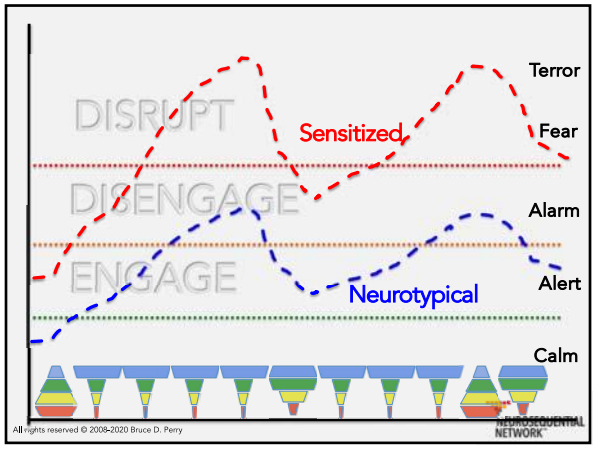

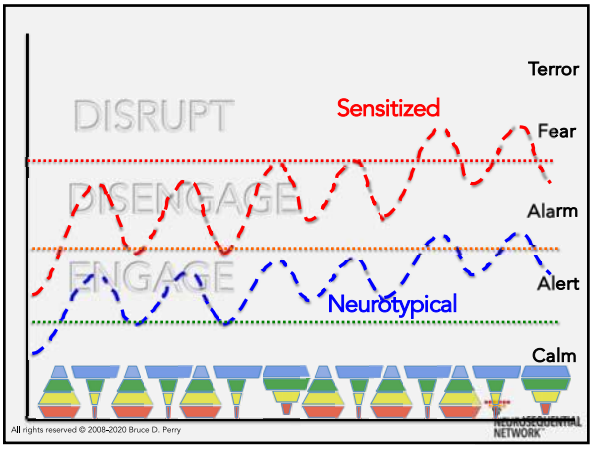

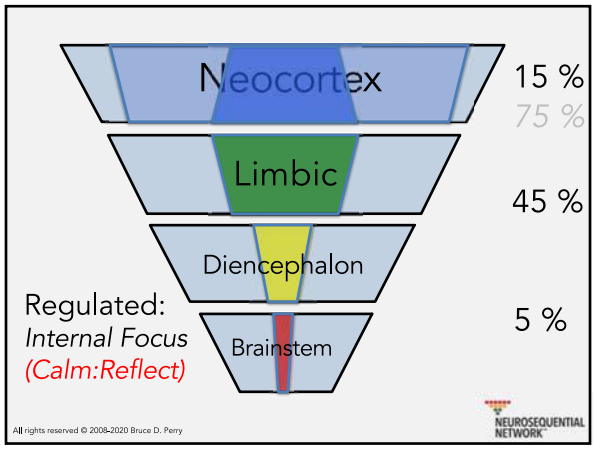

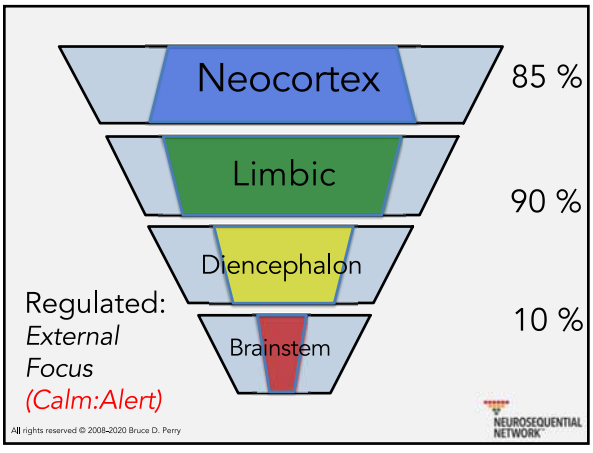

Neurosequential Model Core Slides
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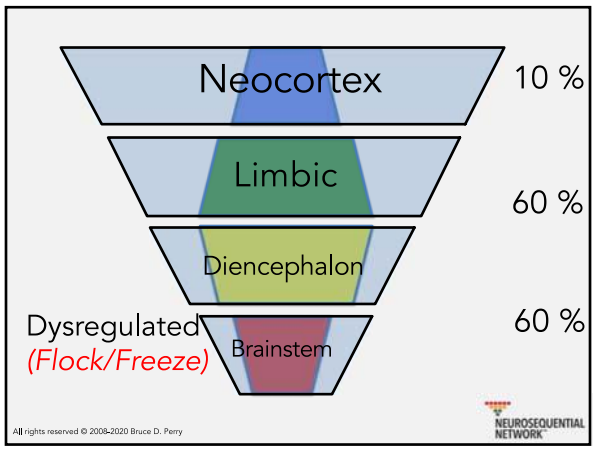

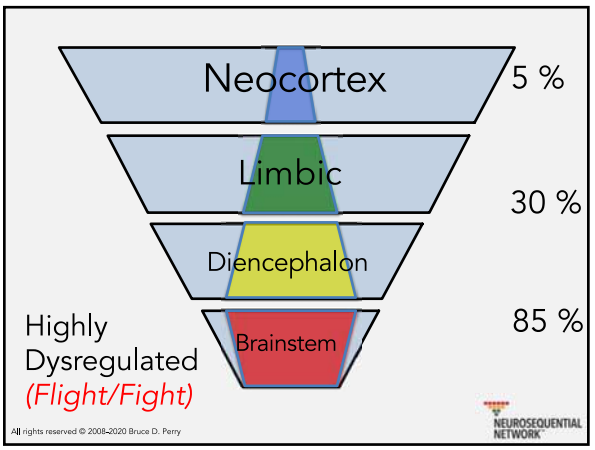

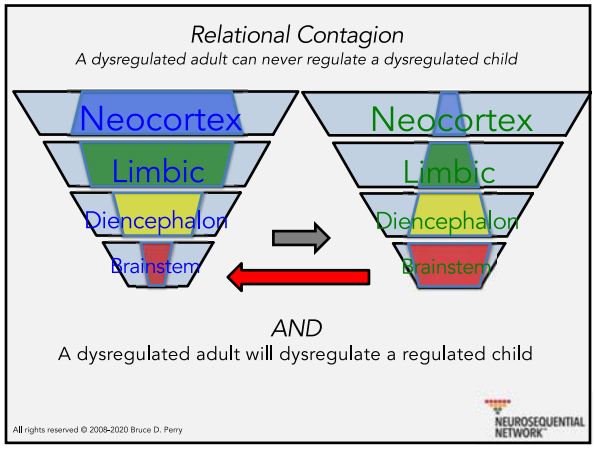

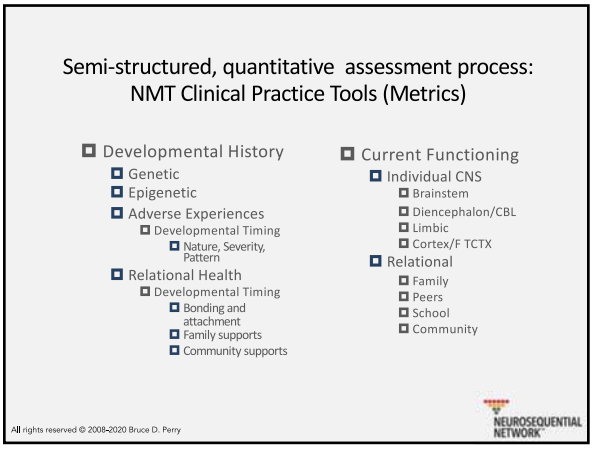

NMT Brain Mapping Process

- 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

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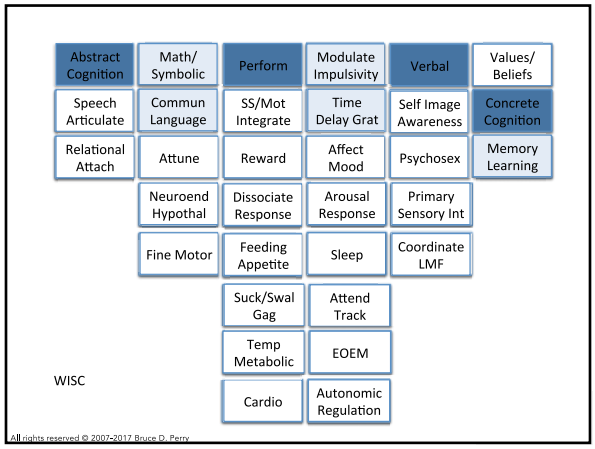
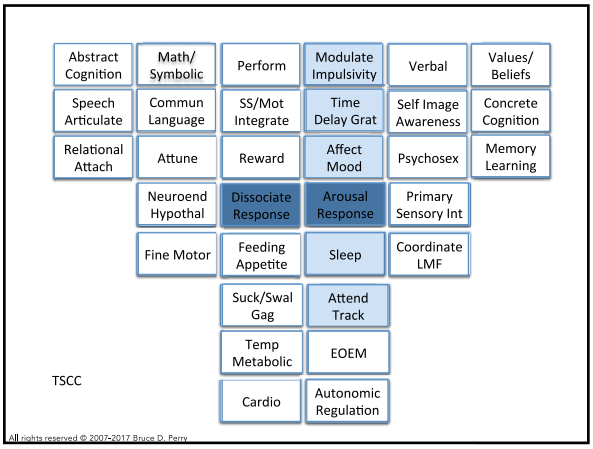
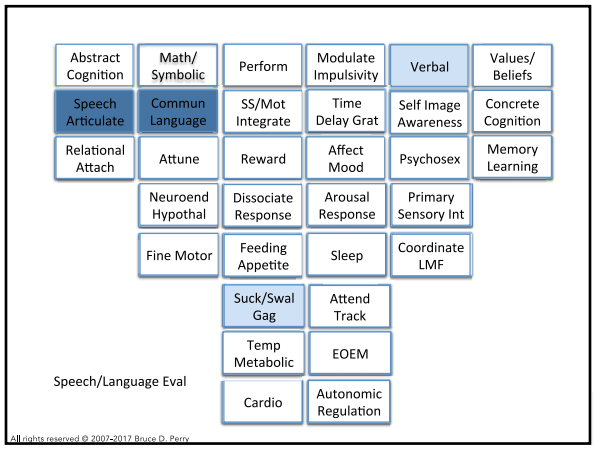
Current Relational Health

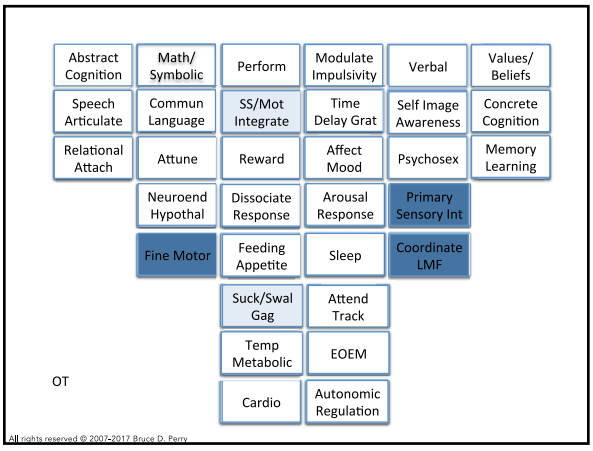
- A major factor in healing appears to be the nature, quality, intensity and stability of a person's relationships
- The NMT assessment process includes a simple metric that looks at current relational health
- The score on this metric is a key indicator of outcome – good relational stability predicts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

NEUROSEQUENTIAL NETWORK









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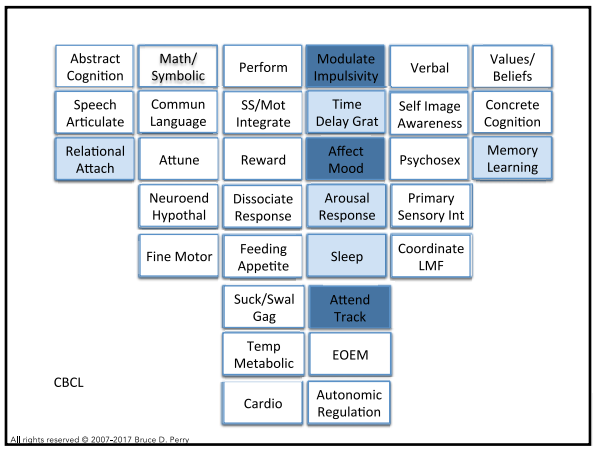

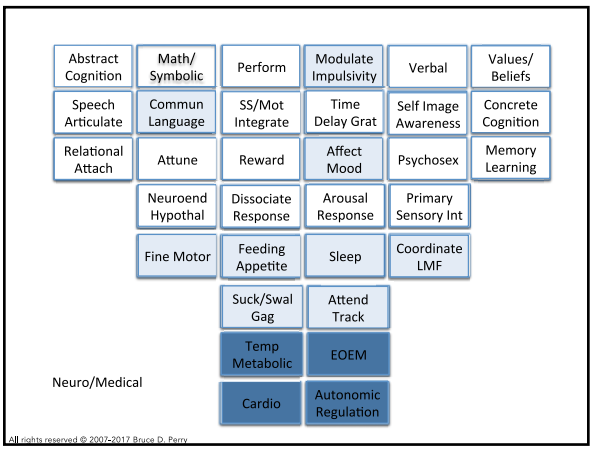

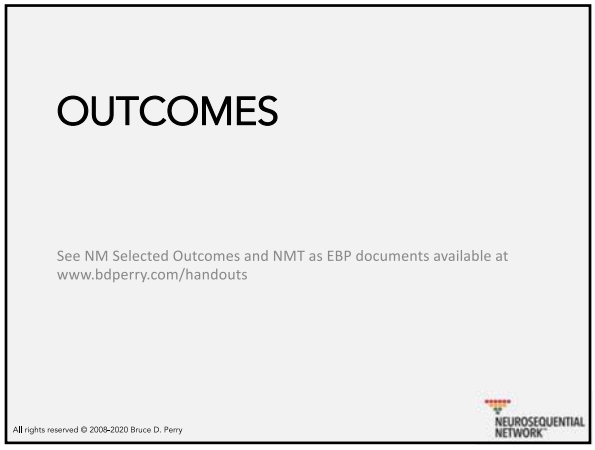

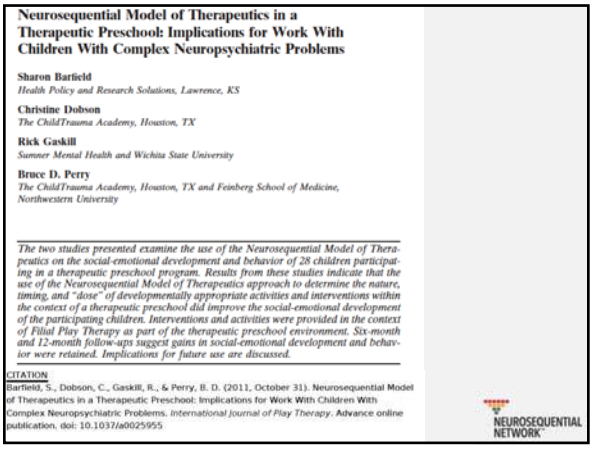

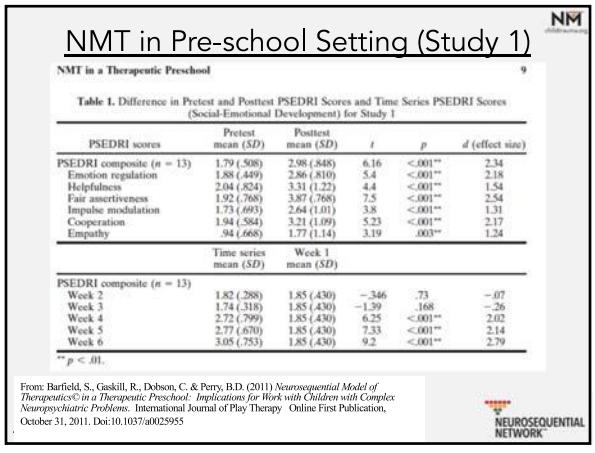

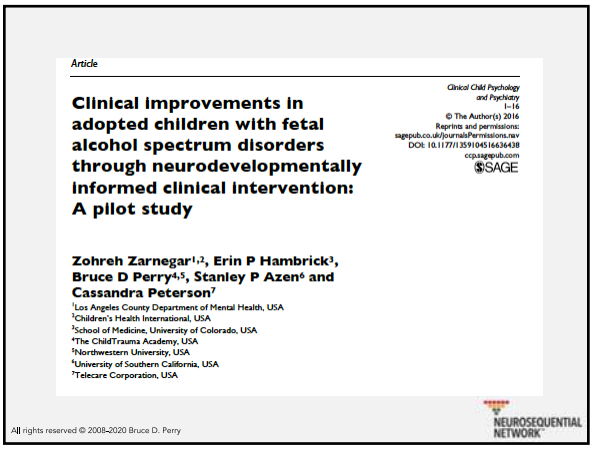

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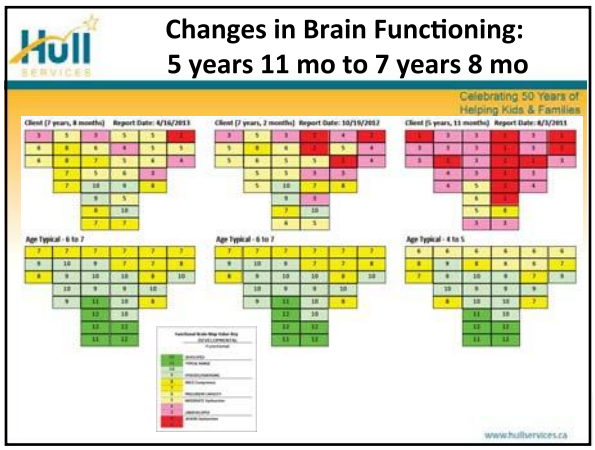

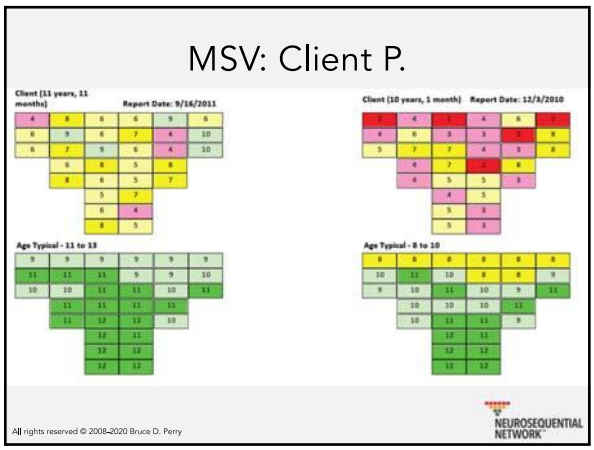

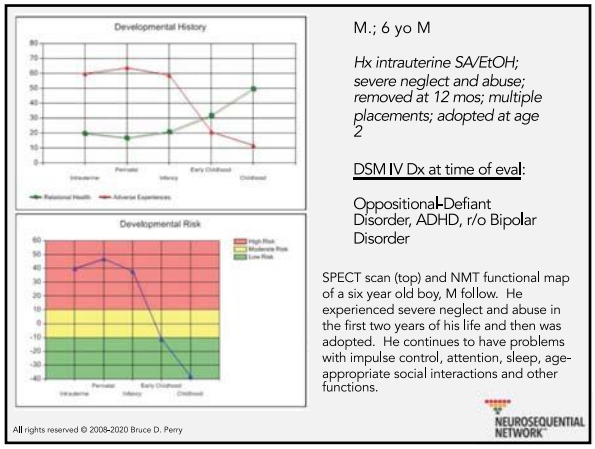

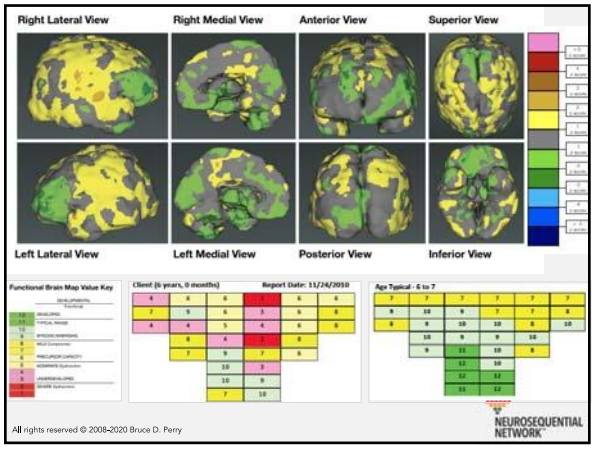

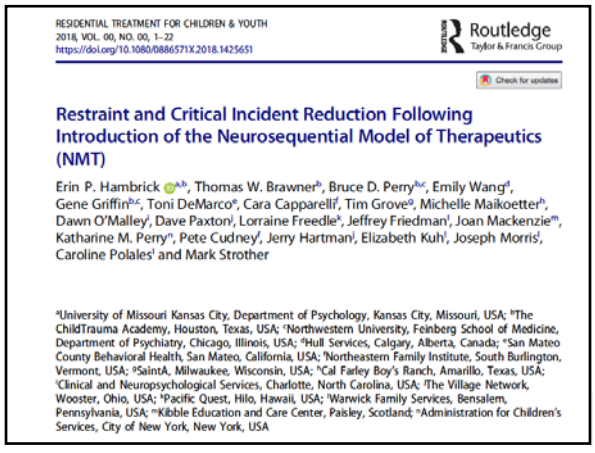

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Restraint and Critical Incident Reduction Following Introduction of the Neurosequential Model of Therapeutics (NMT)

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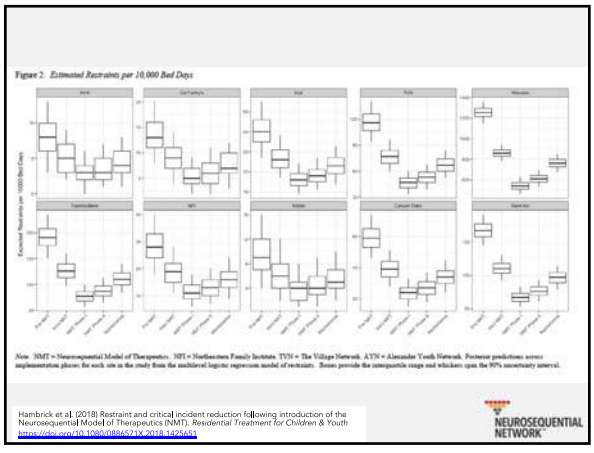

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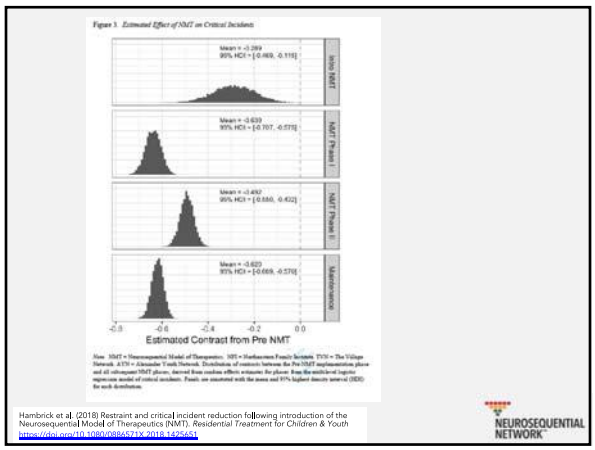

Hambrick et al. (2018) Restraint and critical incident reduction following introduction of the Neurosequential Model of Therapeutics (NMT). *Residential Treatment for Children & Youth*
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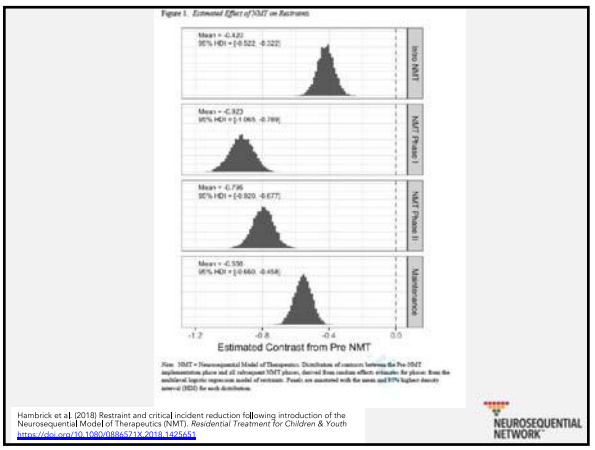

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Economic Benefits with Introduction of NMT

Site	Program	Pre NMT (Months)	Pre NMT COST	Intro NMT (Months)	Intro NMT Period Savings	Cont 1 % Baseline (Months)	Cont 1 Period Savings	Cont 2 % Baseline (Months)	Cont 2 Period Savings	Maint. (Months)	Maint. Period Savings	TOTAL SAVINGS
1	NFI	100 (48)	380.0	11.5 (24)	8025.6	0.0 (24)	9120.0	0.0 (24)	9120.0	0.0 (36)	13680.0	39945.6
2	Village Network	100 (12)	5810.0	71.7 (5)	5229.0	29.4 *** (15)	61005.0	1.0 *** (11)	63270.9	15.2 ** (7)	34569.5	164074.4
3	San Mateo	100 (29)	1400.0	25.2 (8)	8384.0	59.3 (13)	7410.0	10.7 (18)	22503.6	4.04 (16)	21494.4	59792.0
4	Cal Farley	100 (25)	3896.0			44.6 *** (11)	24427.9	51.4 *** (12)	23376.0	49.1 *** (29)	58751.7	106555.6
5	SnA	100 (32)	5096.0	118.7 (19)	-18396.6	48.5 *** (13)	33124.0	79.6 (20)	122304.0	103.8 (24)	-6115.2	130916.2
6	Hul	100 (11)	642.0	58.9 (11)	2824.8	33.8 (9)	3755.7	11.4 * (12)	6856.6	45.9 (18)	75576.2	89013.3
7	AYN	100 (30)	16662.0	62.9 *** (17)	104804.0	24.8 *** (19)	237433.5	38.4 *** (18)	185947.9	45.7 *** (36)	238266.6	766452.0
8	Teambuilders	100 (12)	1663.0			23.5 ** (5)	7234.1					7234.1
9	Warwick	100 (8)	45383.0	44.6*** (8)	152486.9							152486.9
10	Kiddie1	100 (12)	2333.0	22.5*** (12)	21556.9							21556.9
TOTAL	**% Pre NMT**	**100.0**	**8326.5**	**51.9 ** **	**284914.6**	**33.0 *** **	**383510.2**	**27.53 *** **	**433379.0**	**37.58*** **	**436223.2**	**1538027.0**

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

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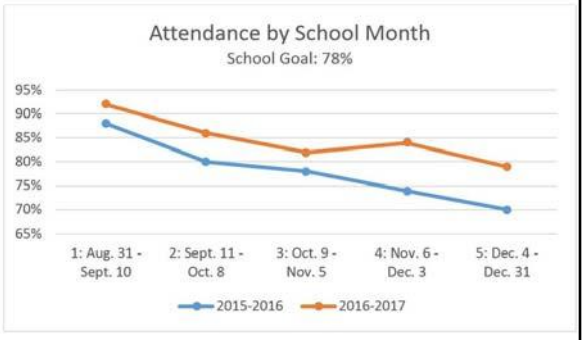
Trauma-Informed Movement in Education (TIME)

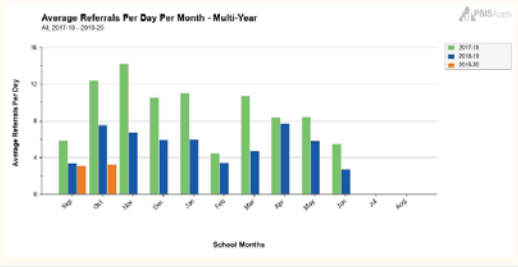
TIME modeled after the ChildTrauma Academy's Neurosequential Model in Education
Long Beach Unified School District and Beach High School

Trauma-Informed Movement in Education (TIME)



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

Focus on Restorative Practices in Discipline



Tigard HS, Oregon

Post Pilot

Tigard High has two new teachers being NME trained **Special Education Teacher** Christy Goodell and **Biology Teacher** Geoff Jarman and two new psychologists being NMT trained Tigard School Psychologist **Lynelle Benit** and District TOSA **Alyssa Anderson**.

Tigard High ARTIC (Attitudes Related to Trauma Informed Care) Survey Data demonstrated an overwhelming positive gain for NME trained staff when compared to non NME trained staff. The mean for all staff improved over the length of the pilot however.

Tigard HS, Oregon

Graduation Rates Increased in 2017-2018

2017-2018 graduation rate increased by almost 4%

Latin-x increase 16%

SPED increase 21%

Econ. Disadv. increase 9%

ELL increase 10%

Tigard HS, Oregon

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)

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."

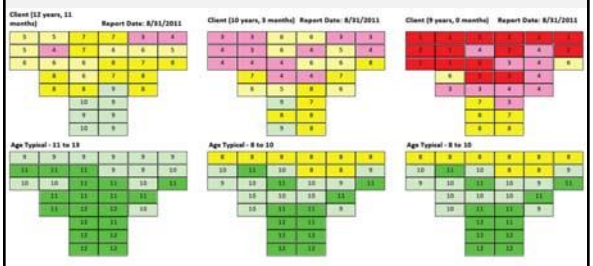
"I, as the principal, am able to have more time to be in classrooms observing and providing feedback to teachers because my staff is equipped to deal with behaviors in the classroom instead of referring kids to the office for me to deal with."

Westerville South HS

- Since NME started in 2017 – 35% increase in attendance
- Graduation rates up from 89.5 to 93.5
- Suspensions decreased by 50%

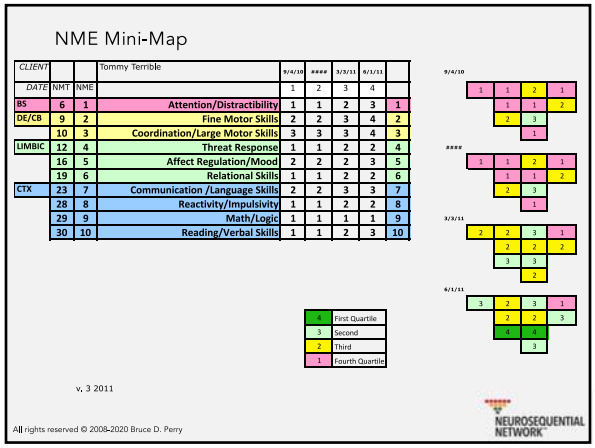
Ohio

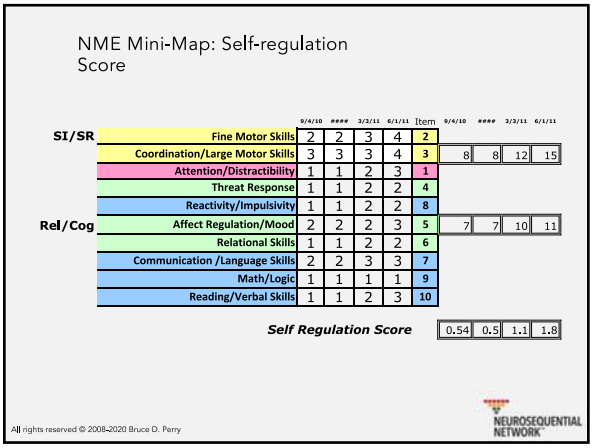
CTA: Client D. s/p Severe Neglect

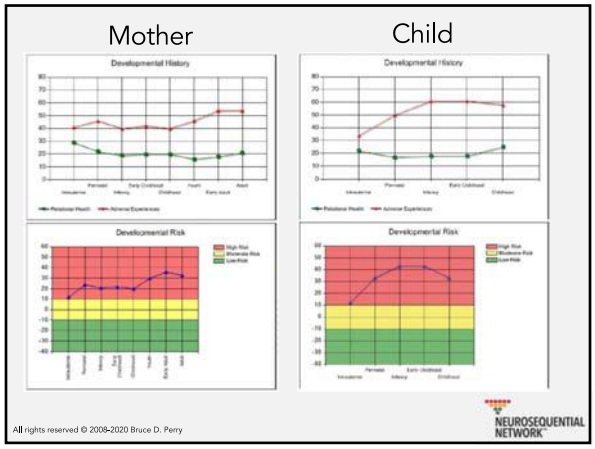


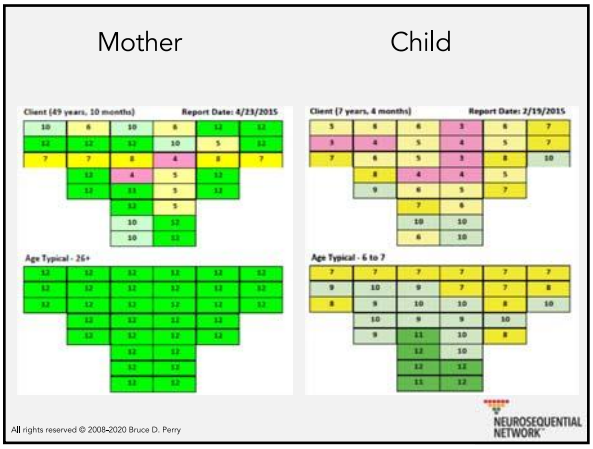
NEUROSEQUENTIAL NETWORK™

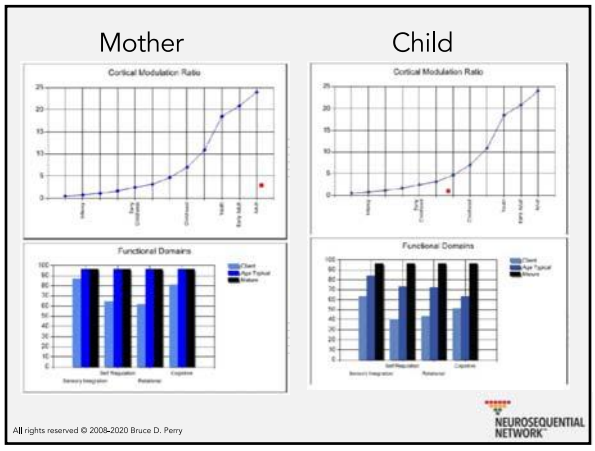
Neurosequential Model Core Slides
"Best Hits" Package

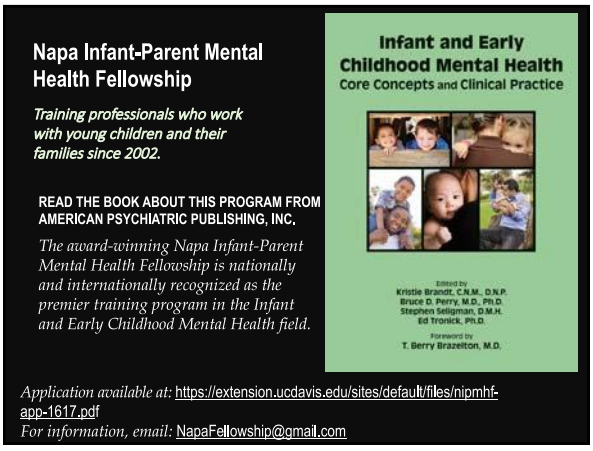












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