

National Quality Improvement Center

QIIC • AAG

Adoption & Guardianship  
Support and Preservation



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**Illinois NMT  
Presentation**

**February 28, 2018  
2:00-3:00 pm CST**

# AGENDA

## **Stephanie Hodge Wolfe**

- *QIC-AG Site Consultant for Texas, Illinois, Wisconsin and Tennessee*

## **Emily Paine-Gibbons, DCFS and Theresa Lawrence, The Baby Fold**

- *NMT and It's Advantages*

## **Q&A**

## **Christine Feldman**

- *Site Implementation Manager, Illinois QIC-AG Project*

# NMT and It's Advantages

By Emily Paine-Gibbons, DCFS and Theresa Lawrence, The Baby Fold

# Overview

- What is NMT
- What has been learned through this process?
- How has the information learned been used?
- What was the perceived impact on the QIC-AG target population?
- What are the trainees thoughts on future implications of the use of NMT in their sites?



Thank you to the National  
Quality Improvement Center for  
Adoption and Guardianship  
Support and Preservation for  
providing this training  
opportunity!



# The Child Trauma Academy Neurosequential Model of Therapeutics (NMT)

Taken from Bruce Perry and The Child Trauma Academy

# Neurosequential Model



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

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



## 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).*



# What is NMT?

- The Neurosequential Model of Therapeutics is a “trauma-informed,” developmentally-sensitive, approach to the clinical problem solving process.
- It is not – and does not specifically imply, endorse or require – any single therapeutic technique or method.

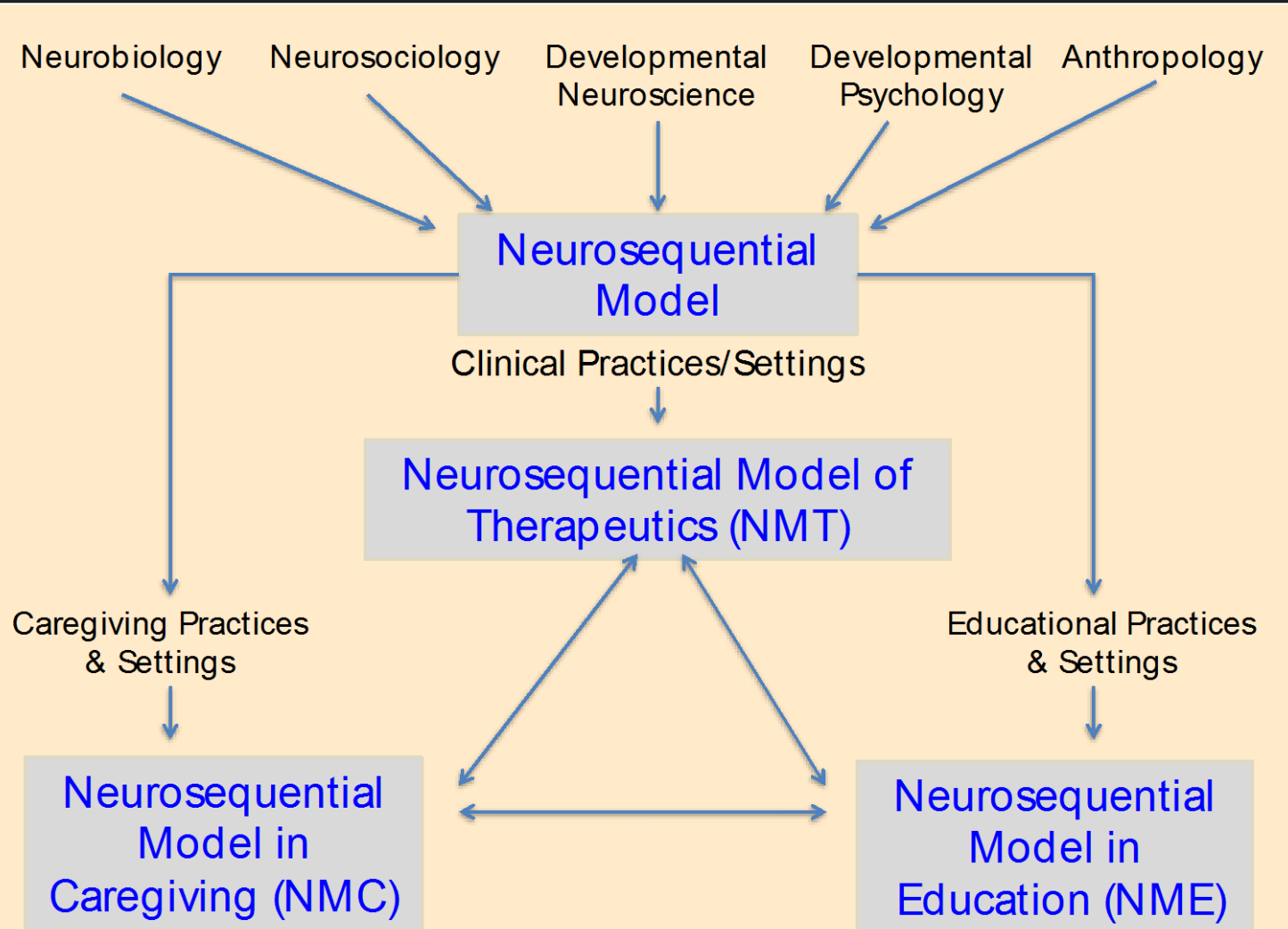
# Neurosequential Model of Therapeutics

NMT is an approach that has:

- ❑ Considered what science tells us about the brain in general and the developing brain in particular.
- ❑ Considered what science tells us about the developing brain when exposed to chronic trauma or deprivation.
- ❑ Considered which therapies work and when for children who experience abuse and neglect.
- ❑ Is an overarching developmental and relational approach directly informed about the brain, trauma and deprivation to target areas of vulnerability
- ❑ CTA has introduced and is examining outcomes related to NMT in a range of settings



# The Neurosequential Model





# Neurosequential Model of Therapeutics

- Developed a set of '*brain-region/neural network-specific questions to target the functioning and development of each of the four major regions of the brain*'
- Its purpose is to assist in analysis of child's developmental strengths and vulnerabilities and suggest reparative approaches towards greater regulation that may be essential, therapeutic or enriching (Perry, 2006, 49)

# NMT Clinical Practice Tools (NMT Metrics)

1. Is not a stand-alone evaluation or assessment.
2. Should not be used out of context of broader assessment and formulation.
3. Is a supplement not a replacement to clinical problem solving and planning.
4. Can inform information gathering, analysis, action and review but not appropriate for stand-alone evidence in court.
5. Final decisions and recommendations must be based on clinical expertise and judgement.



# Semi-structured, quantitative assessment process: NMT Metrics

## □ Developmental History

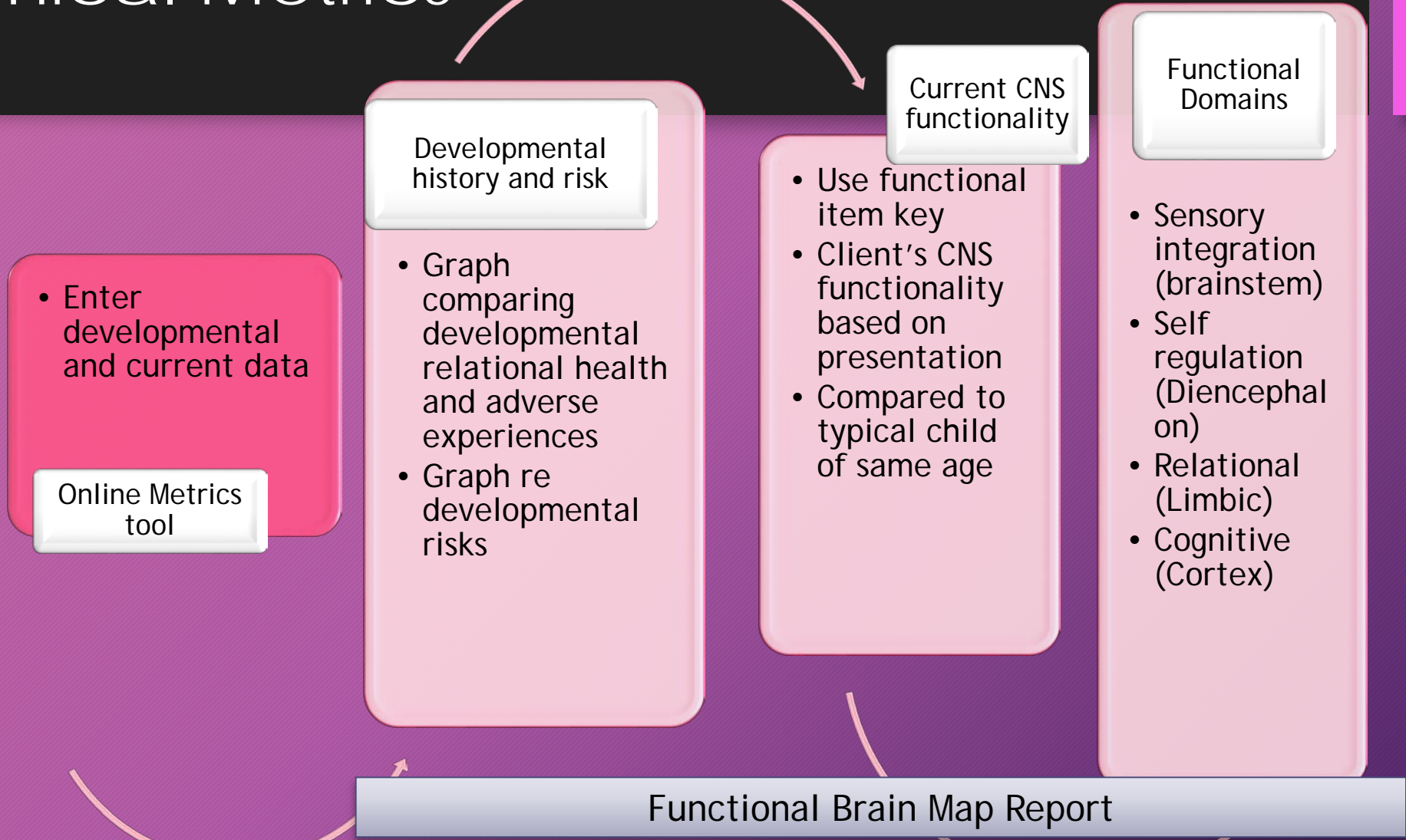
- Genetic
- Epigenetic
- Adverse Experiences
  - Developmental Timing
    - Nature, Severity, Pattern
- Relational Health
  - Developmental Timing
    - Bonding and attachment
    - Family supports
    - Community supports

## □ Current Functioning

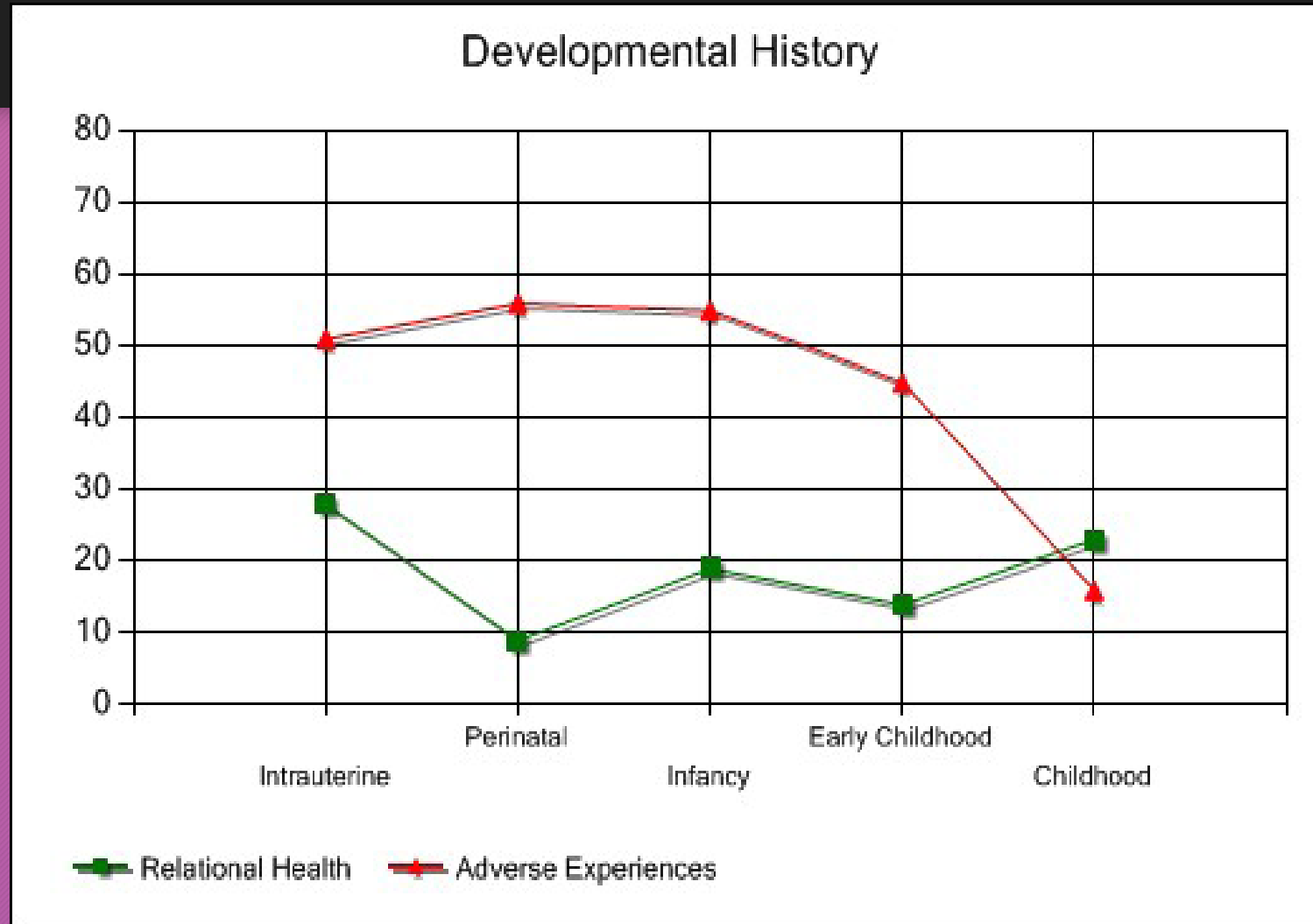
- Individual CNS
  - Brainstem
  - Diencephalon/CBL
  - Limbic
  - Cortex/F TCTX
- Relational
  - Family
  - Peers
  - School
  - Community



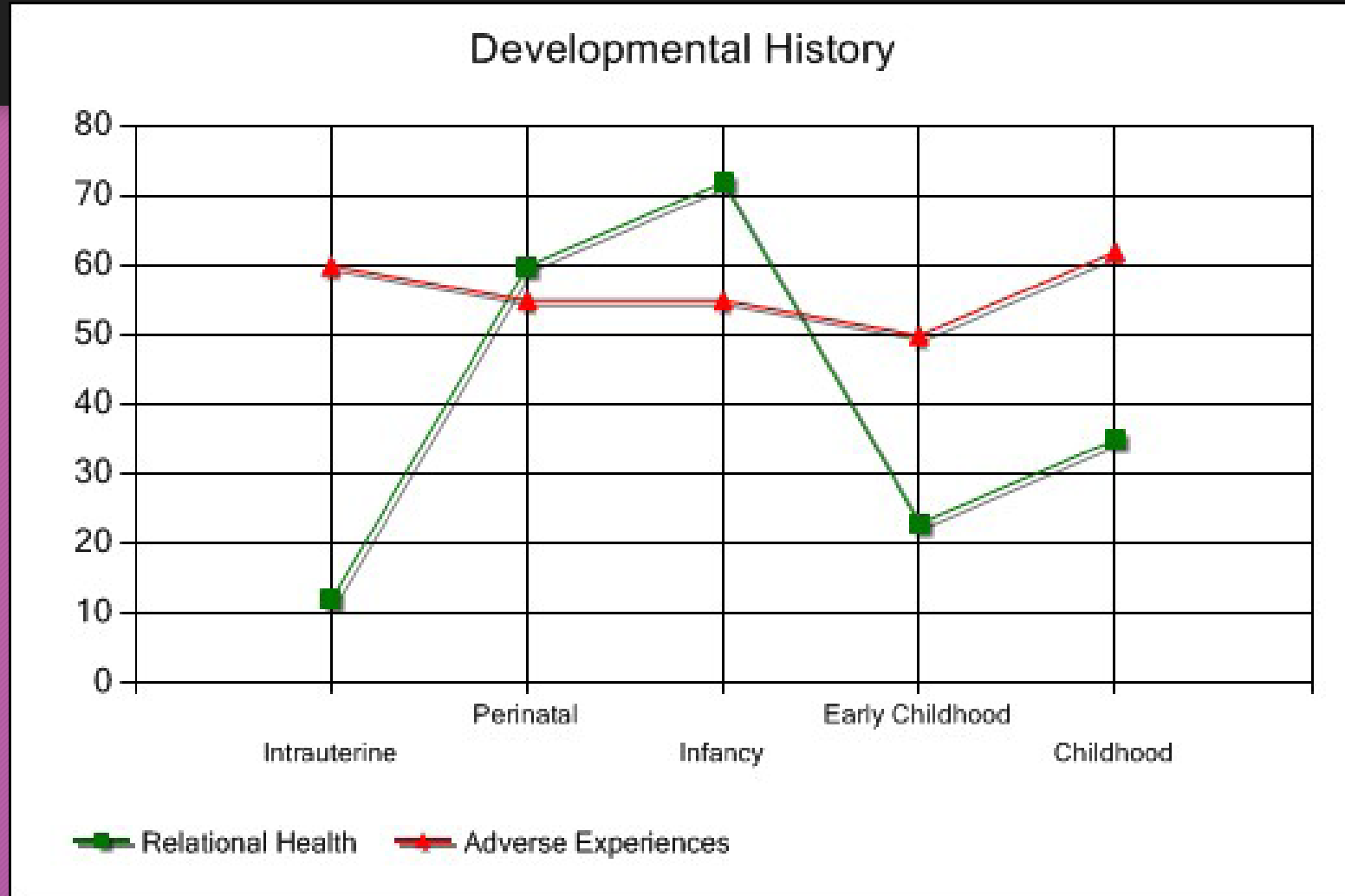
# NMT Clinical Metrics



# 6 year old- NMT metric (Part A & B)

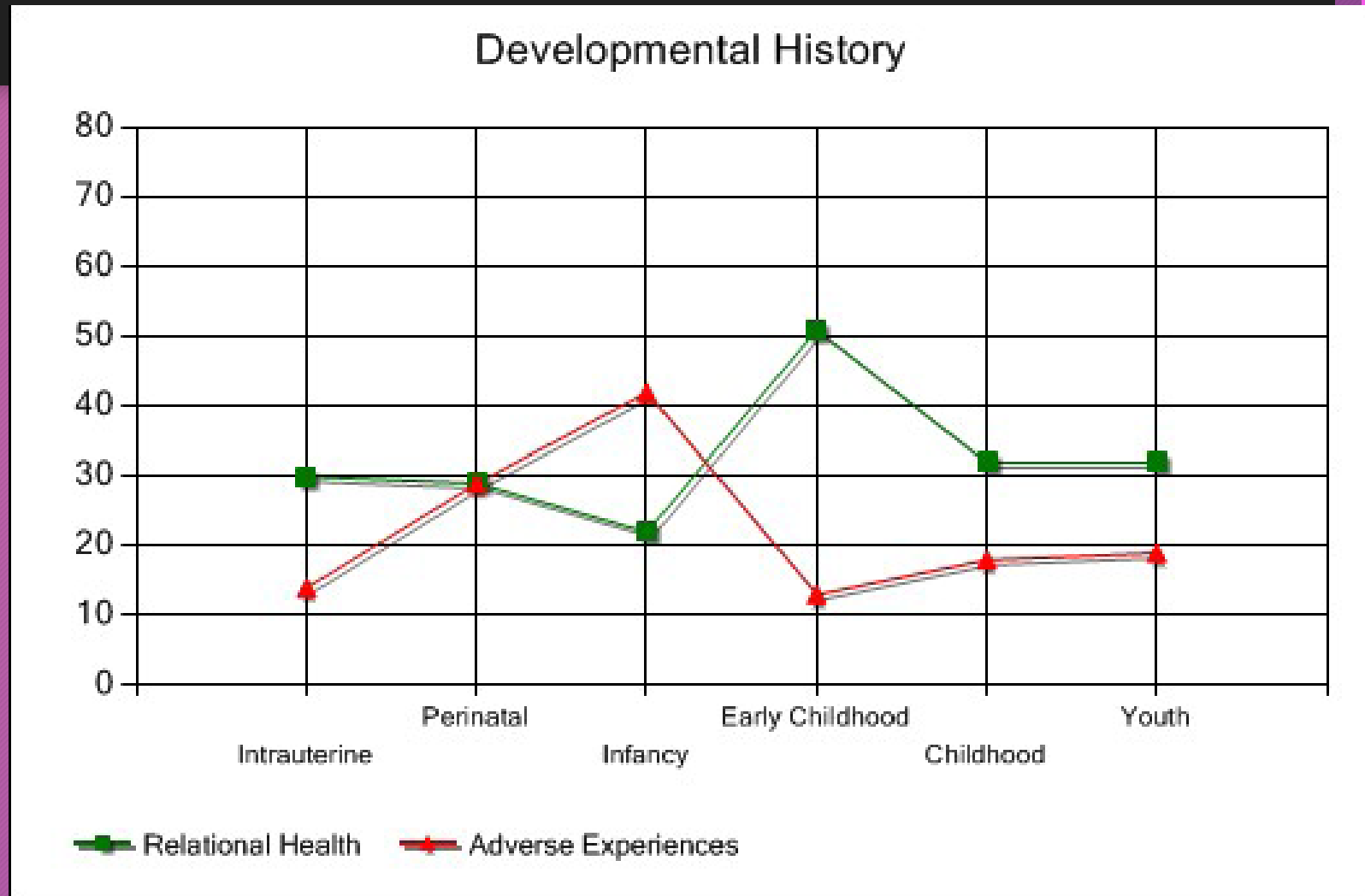


# 12.5 year old – NMT metric (Part A & B)

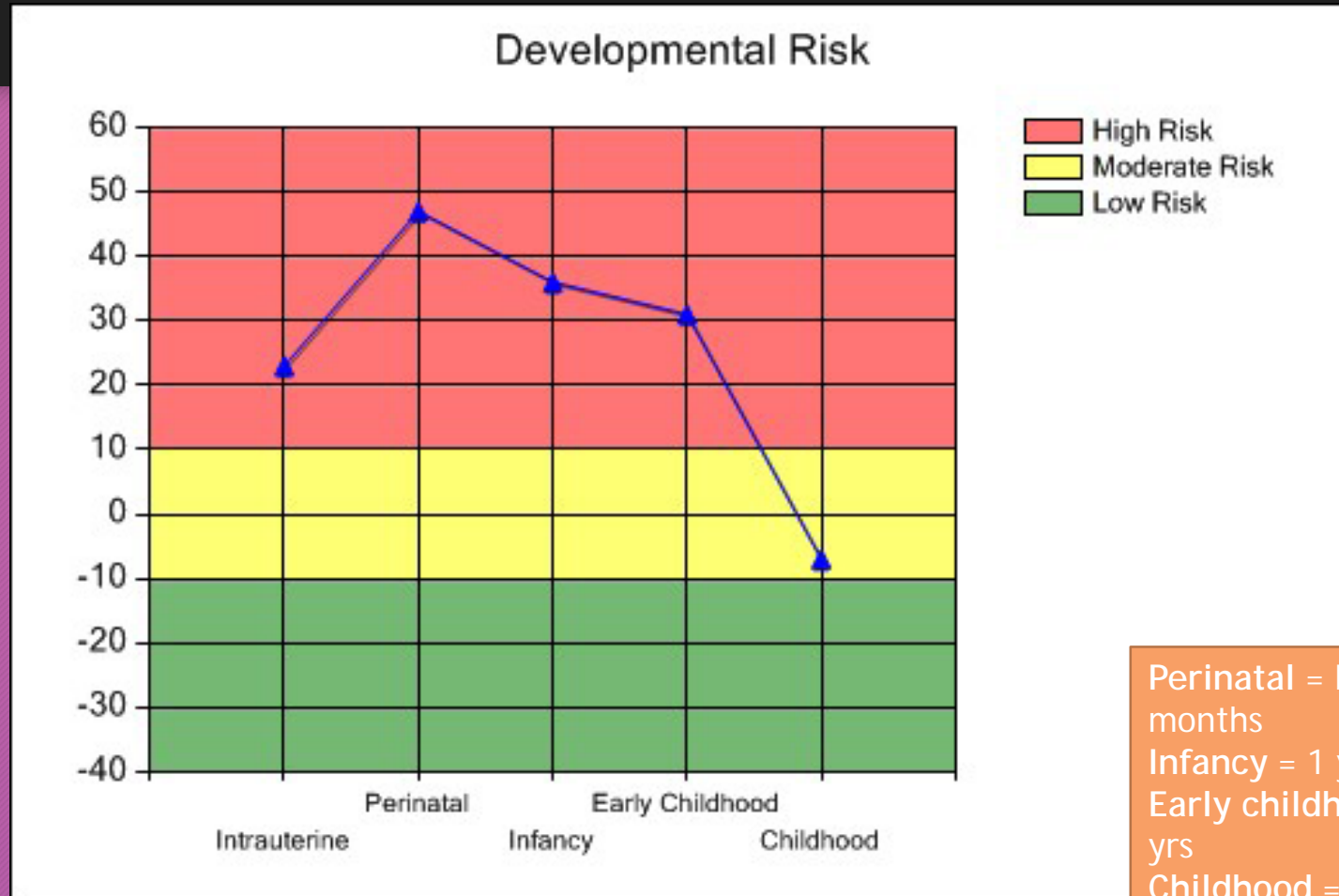




# 13.4 year old - NMT metric (Part A & B)

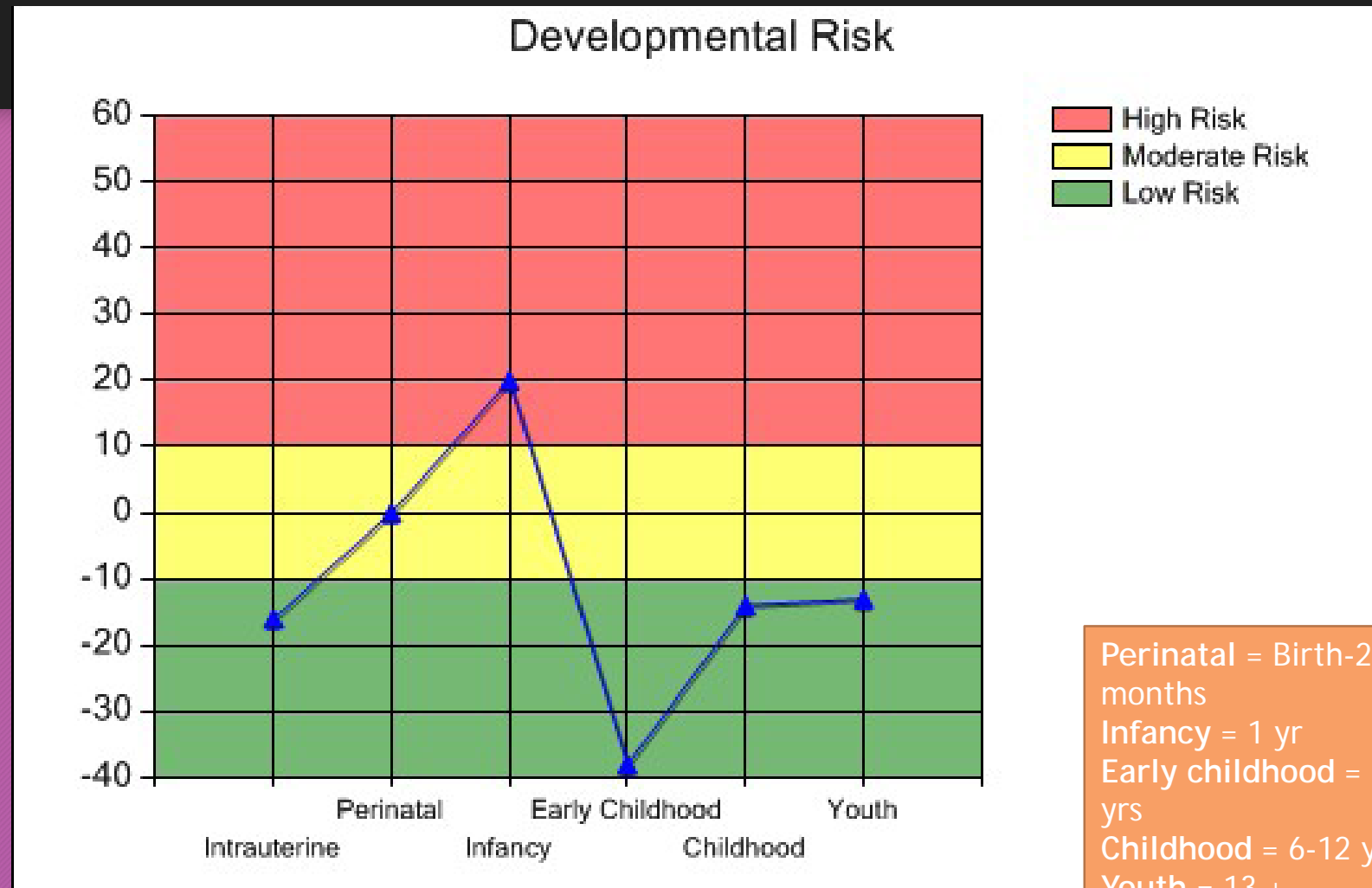


# 6 year old- NMT metric – (Part A & B)



Perinatal = Birth-2 months  
Infancy = 1 yr  
Early childhood = 2-5 yrs  
Childhood = 6-12 yrs  
Youth = 13 +

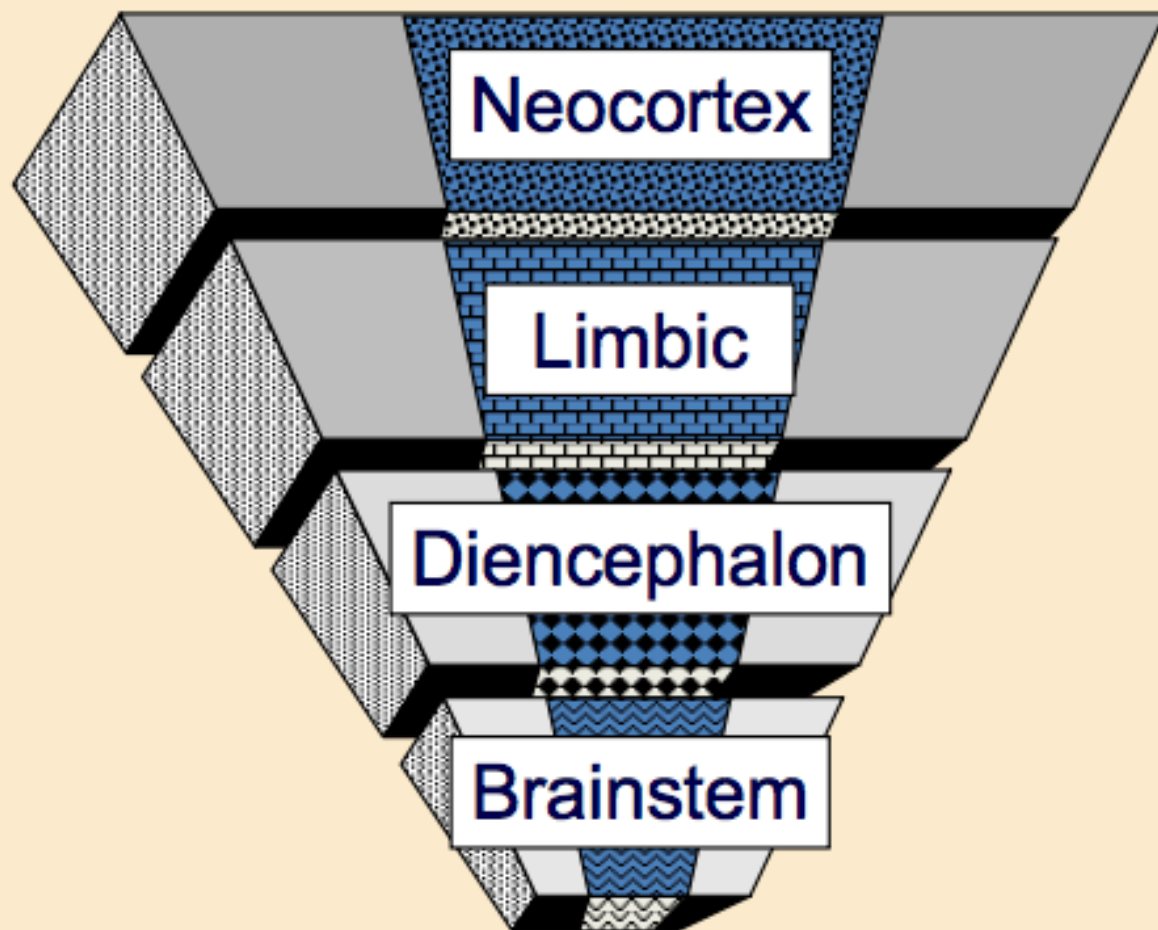
# 13.4 year old – NMT Metric (Part A & B)





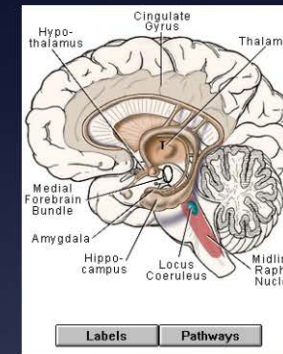
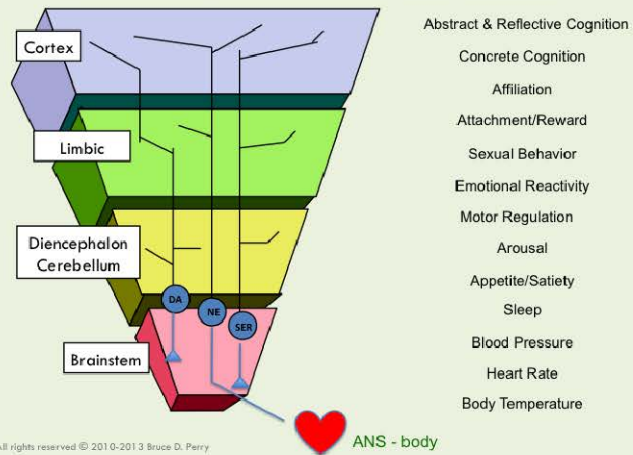
# SEQUENTIAL DEVELOPMENT

## Sequential Vulnerability

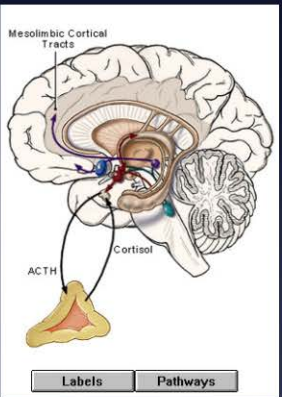
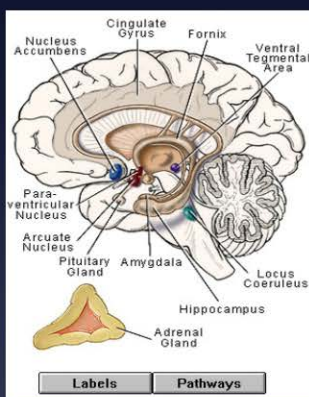


# 1.010: SEQUENTIAL ORGANIZATION

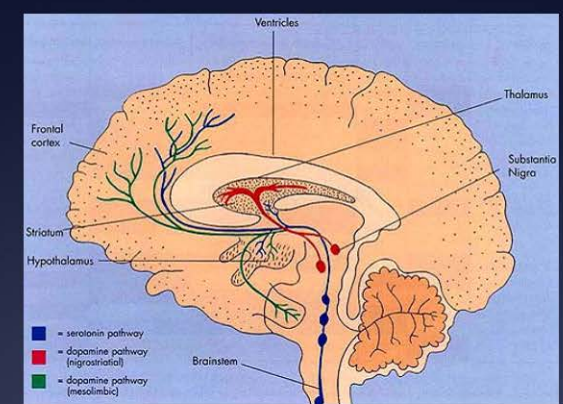
## Efferent Distribution of Primary Regulatory Networks



Noradrenergic systems in the human brain



Stress-response systems in the human brain





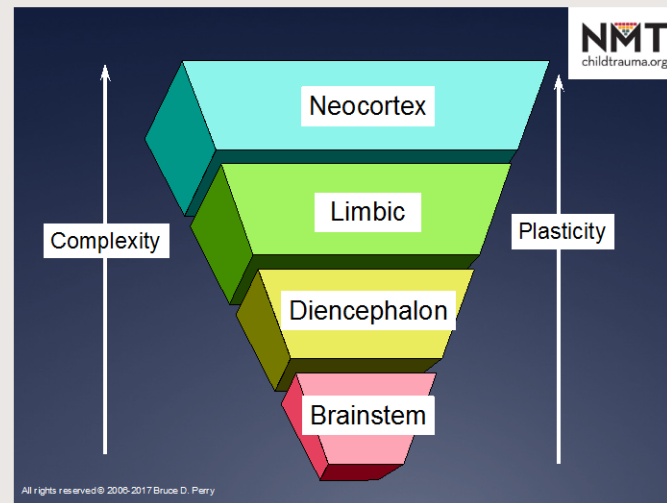
# 1.000: BASIC BRAIN ORGANIZATION

## The Brain Matters



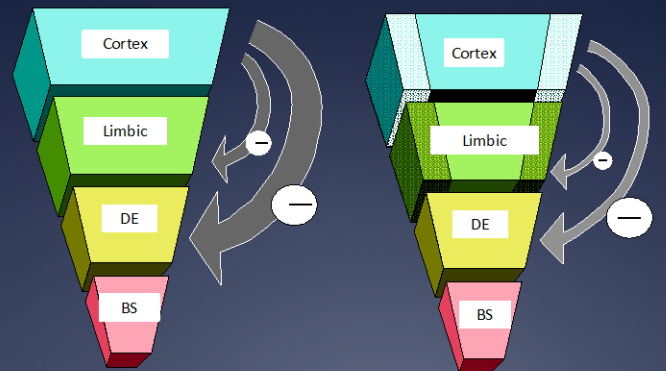
- \* The human brain is the organ responsible for everything we do. It allows us to love, laugh, walk, talk, create or hate.
- \* The brain - one hundred billion nerve cells in a complex net of continuous activity - allows us our humanity.
- \* For each of us, our brain's functioning is a reflection of our experiences.

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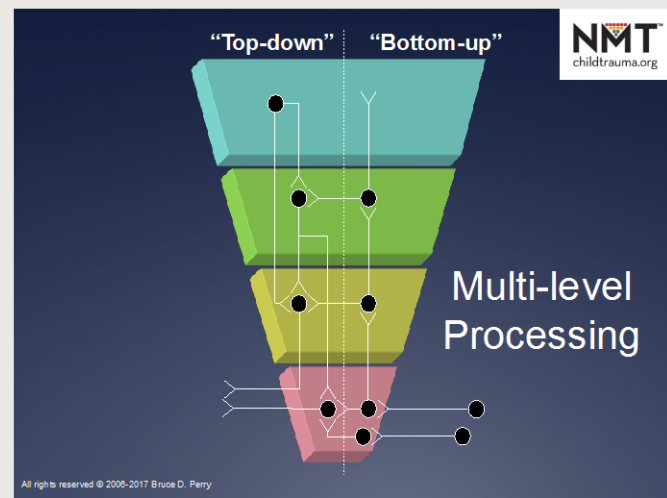


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## CORTICAL MODULATION



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# Functional Brain Map Key (Part C)

Abstract Cognition	Math/Symbolic Cognition	Performance	Modulate Reactivity/Impulsivity	Verbal	Values/Beliefs/Morality
Speech/Articulation	Language/Communication	Somato/Motorsensory Integration	Sense Time/Delay Gratification	Self Awareness/Self Image	Concrete Cognition
Share/Relational	Attunement	Reward	Affect Regulation/Mood	Psycho-sexual	Short-term memory/Learning
	Neuroendocrine/Hypothalamic	Dissociative Continuum	Arousal Continuum	Primary Sensory Integration	
	Fine Motor Skills	Feeding/Appetite	Sleep	Coordination/Large Motor Functioning	
		Suck/Swallow/Gag	Attention/Tracking		
		Temperature regulation/Metabolism	Extraocular Eye Movements		
		Cardiovascular	Autonomic Regulation		

# Functional Brain Maps and Key (NMT metrics – Part C)

4	1	3	1	1	1
7	8	4	2	3	2
3	2	5	3	3	3
	7	3	3	5	
	4	4	5	10	
		10	4		
		4	9		
		6	6		

7	7	7	7	7	7
9	10	9	7	7	8
8	9	10	10	8	10
	10	9	9	10	
	9	11	10	8	
		12	10		
		12	12		
		11	12		

Client (6 years, 0 months)

Age Typical – 6 to 7

DEVELOPMENTAL	
Functional	
12	DEVELOPED
11	TYPICAL RANGE
10	
9	EPISODIC/EMERGING
8	MILD Compromise
7	
6	PRECURSOR CAPACITY
5	MODERATE Dysfunction
4	
3	UNDEVELOPED
2	SEVERE Dysfunction
1	

# Functional Brain Maps and Key (NMT Metrics – Part C)

12	10	10	2	11	8
11	8	10	4	7	11
4	7	2	2	10	9
	8	7	1	2	
	10	6	6	10	
		11	2		
		7	11		
		7	7		

9	9	9	9	9	9
11	11	11	9	9	10
10	10	11	11	10	11
	11	11	11	11	
	11	11	11	10	
		12	11		
		12	12		
		12	12		

Client (12 years, 8 months)

Age Typical – 11 to 13

DEVELOPMENTAL	
Functional	
12	DEVELOPED
11	TYPICAL RANGE
10	
9	EPISODIC/EMERGING
8	MILD Compromise
7	
6	PRECURSOR CAPACITY
5	MODERATE Dysfunction
4	
3	UNDEVELOPED
2	SEVERE Dysfunction
1	



# Functional Brain Maps and Key (NMT Metrics – Part C)

7	7	10	7	7	6
8	9	10	8	8	10
8	10	8	7	9	7
	9	11	8	9	
	11	7	12	10	
		12	8		
		12	12		
		10	9		

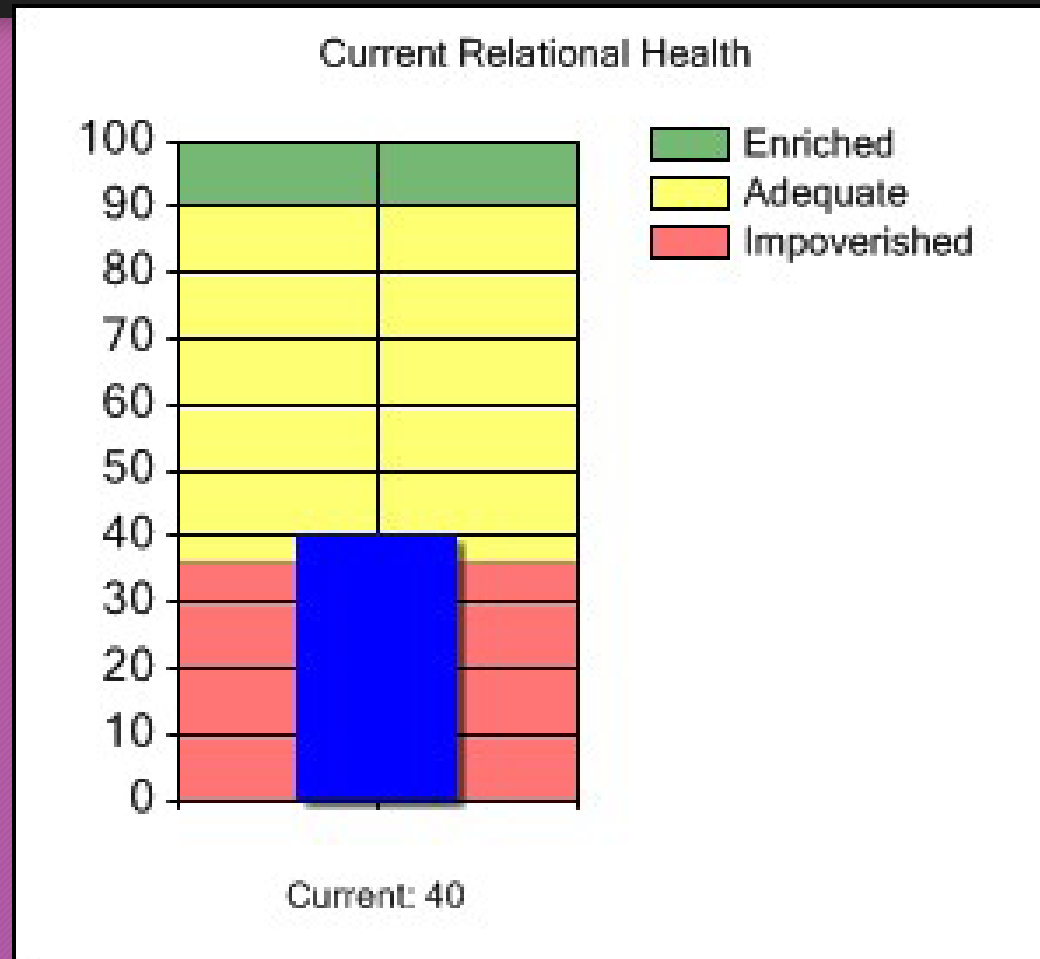
Client (13 years, 4months)

9	9	9	9	9	9
11	11	11	9	9	10
10	10	11	11	10	11
	11	11	11	11	
	11	11	11	10	
		12	11		
		12	12		
		12	12		

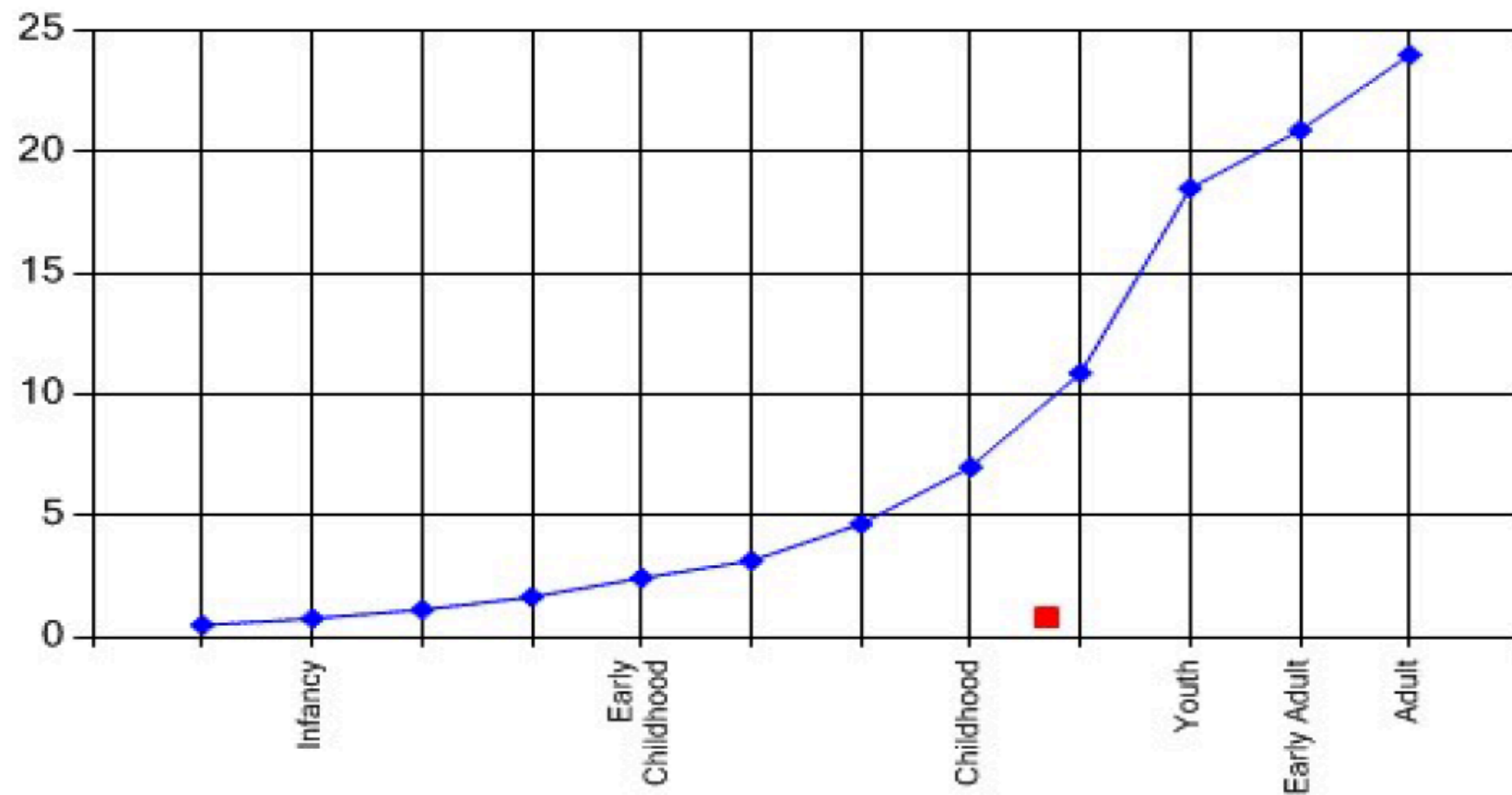
Age Typical – 11 to 13

DEVELOPMENTAL	
Functional	
12	DEVELOPED
11	TYPICAL RANGE
10	
9	EPISODIC/EMERGING
8	MILD Compromise
7	
6	PRECURSOR CAPACITY
5	MODERATE Dysfunction
4	
3	UNDEVELOPED
2	SEVERE Dysfunction
1	

# 13.4 year old – NMT metric (Part D)

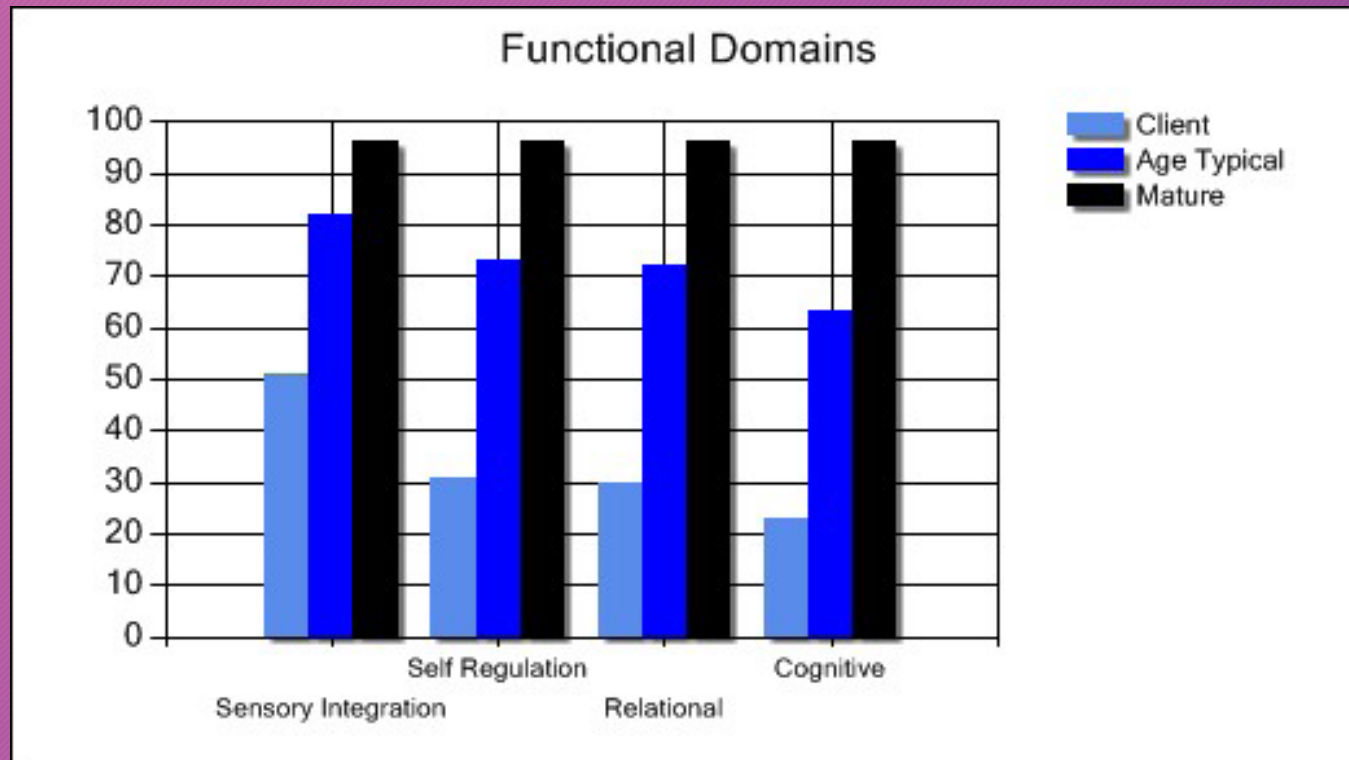


## Cortical Modulation Ratio

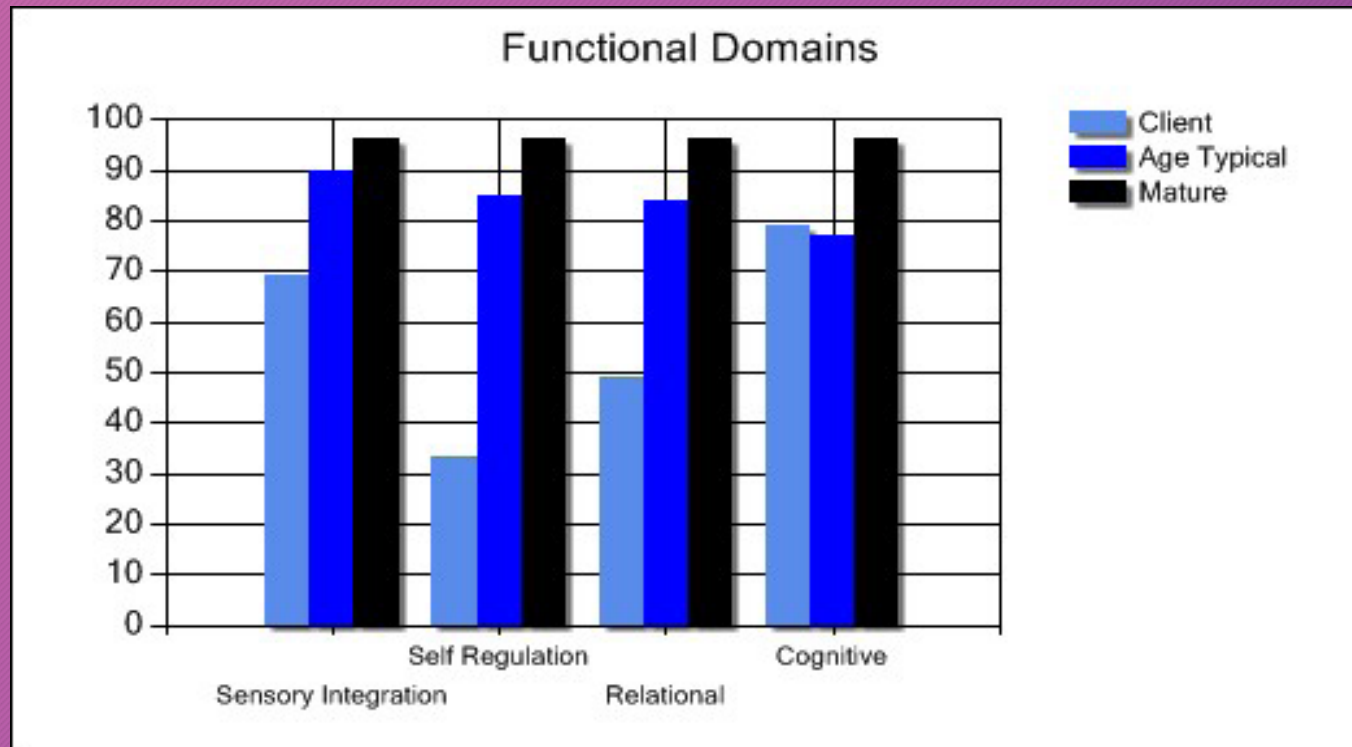




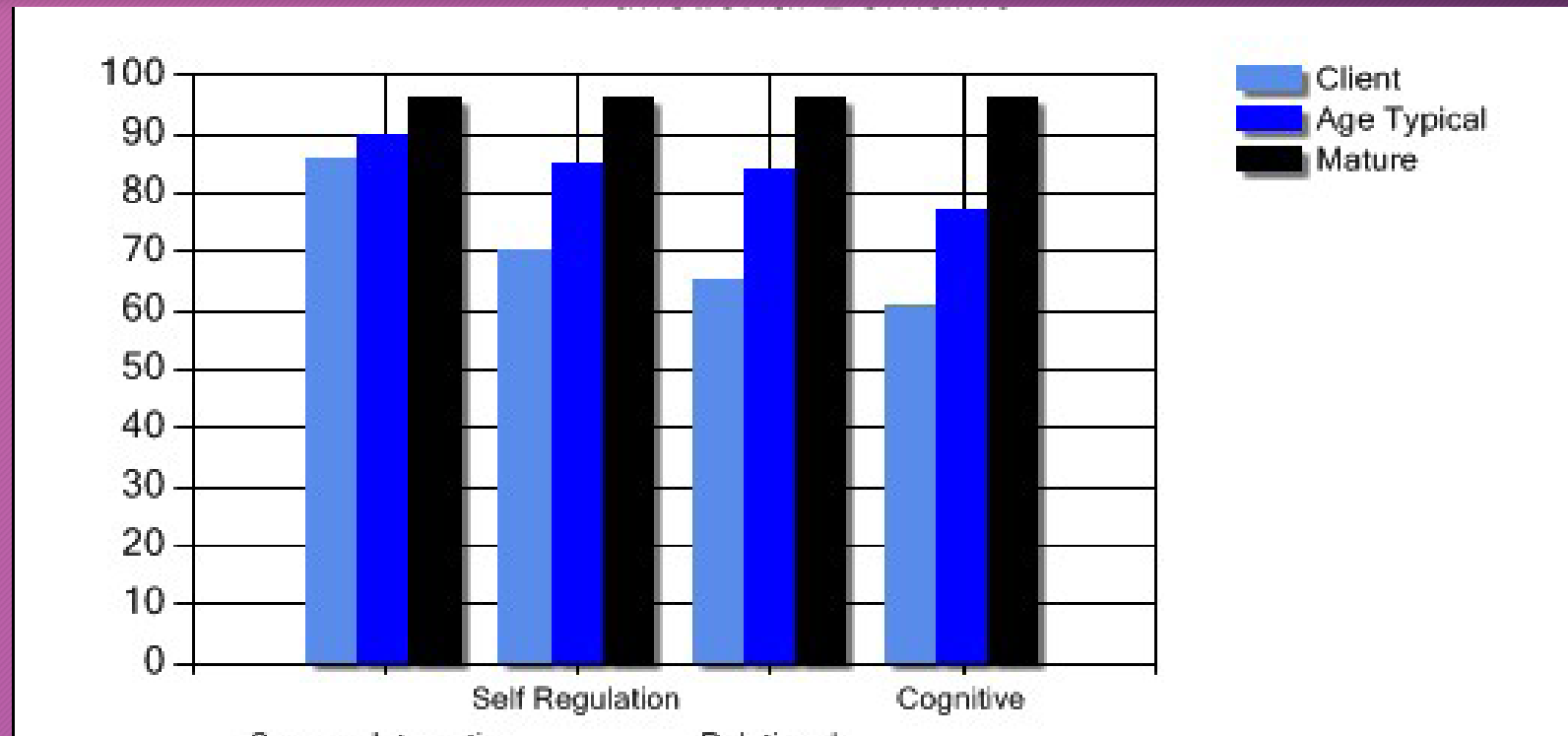
# 6 year old – Functional Domains



# 12.5 year old – Functional Domains



# 13.4 year old – Functional Domains





# Outcomes can be tracked:

**Client (18 years, 8 months)**

**Report Date: 2/7/2011**

10	10	11	7	11	10
12	9	9	5	5	11
6	8	4	5	6	7
	6	4	2	4	
	12	7	6	12	
		10	6		
		6	7		
		5	9		

Time 1: Client X

**Client (19 years, 5 months)**

**Report Date: 10/29/2011**

10	11	11	9	11	10
12	9	11	8	7	12
8	10	8	7	8	9
	9	9	7	11	
	12	11	5	12	
		12	8		
		8	9		
		4	7		

Time 2: Client X

# Outcomes: Multiple times

Christopher 14 yo M

Sandhill Child Development Center

**TIME 1**

5	4	4	3	5	6
8	6	6	4	4	5
4	4	6	6	8	5
	6	4	2	4	
	8	9	9	9	
		11	4		
		8	10		
		8	9		

7/08

**TIME 2**

7	5	5	6	6	7
8	6	7	6	5	6
6	6	8	7	9	6
	8	6	4	6	
	10	10	10	10	
		11	6		
		10	11		
		9	10		

12/08

**TIME 3**

9	6	8	8	7	9
8	7	8	8	8	6
8	10	9	9	10	7
	9	7	7	9	
	11	11	11	11	
		12	11		
		11	12		
		11	11		

10/09

Client: Christopher

**11 to 13**

9	9	9	9	9	9
11	11	11	9	9	10
10	10	11	11	10	11
	11	11	11	11	
	11	12	12	10	
		12	11		
		12	12		
		12	12		

**14 to 16**

10	10	10	10	10	10
12	12	12	10	10	11
11	11	12	11	10	12
	11	11	11	12	
	12	12	12	11	
		12	11		
		12	12		
		12	12		

**14 to 16**

10	10	10	10	10	10
12	12	12	10	10	11
11	11	12	11	10	12
	11	11	11	12	
	12	12	12	11	
		12	11		
		12	12		
		12	12		

Age Typical

Developmental	
Functional	
12	DEVELOPED
11	NORMAL RANGE
10	
9	EPISODIC/EMERGING
8	MILD Comprmise
7	
6	PRECURSOR CAPACITY
5	MODERATE Dysfunction
4	
3	UNDEVELOPED
2	SEVERE Dysfunction
1	

## Neurosequential Model of Therapeutics (NMT) – Recommendations

*“When clinicians are creating the child’s individualized plan of therapeutic activities, the primary objectives are to ensure that the experiences are relevant, relational, repetitive, and rewarding” (Perry, 2006, 49)*



# Neurosequential Model of Therapeutics (NMT) – Recommendations

- Selection and timing of therapeutic activities will depend on assessment
- Usually best to start with simple rhythmic and repetitive activities to help the brainstem neural systems to become well organised and regulated
- As brainstem is more regulated, activities can target higher, more complex parts of the brain
- Over time, more conventional individual therapies become possible, e.g. TFCBT, PCIT

(Perry, 2006)

# Neurosequential Model of Therapeutics (NMT) – Recommendations

- **Essential** = activities crucial to child's future growth in particular area. (Score below 65% of typical age score). Unless functioning in essential area is increased child will lack foundations for future growth and development in this and other areas.
- **Therapeutic** = activities aimed at building in strength and growth in particular area. (Scores within 65 to 85% of typical age are appropriate for more focused treatment). These activities are important for child's continued growth and improvement in area.
- **Enrichment** = activities providing positive, valuable experiences that continue to build capacity in given area. (Scores are at or above 85% of age typical functioning). Activities are designed to enhance and reinforce strengths previously built into area.



# What has been learned through this process?

- 140+ hours of training
- Extensive understanding of effects of abuse and neglect on brain development
- Brain Development, neuroscience, neuroplasticity, and neurodevelopment
- Child Development
- Stress Response, Hyper-arousal, Dissociation, Trauma and PTSD
- Targeted interventions



## *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)

## 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

# How has the information learned been used:

- Educating staff and parents about trauma exposure, current child functioning and interventions that help with brain growth
- Administering Metrics and developing treatment plans
- Better understanding and more complete picture of the child and how trauma has affected their behavior



# What was the perceived impact on the QIC-AG target population?

- Creates hope that the child can develop more adaptable behavior
- Helps parents and caregivers understand the behavior is the result of brain dysfunction/underdevelopment
- Helps parents and caregivers understand that the behavior is not directed toward them
- Confidence parents and caregivers can help create change with simple, repetitive interventions – some with rapid response

# What are future implications of the use of NMT

- Educating staff, parents and caregivers on how trauma affects the brain, the child's development and behaviors so that they have a set of tools and are more prepared to identify issues and use more trauma informed interventions
- Earlier interventions and a more complete assessment with children who enter the child welfare system using NMT metrics
- Better targeted interventions with children displaying disruptive behavior and cognitive delays
- Less disruptions in foster homes, adoptions and guardianships



# Questions?

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# QUESTIONS?

Additional Information on the QIC-AG  
can be found at:

[www.qic-ag.org](http://www.qic-ag.org)



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