The Neurorelational Framework (NRF) “translates” what matters in early brain development into three clinical steps:

Three Core Concepts:  
- Stress Resilience versus Toxic Stress  
- “Serve & return” levels of high quality engagement  
- Development of brain networks and circuits

Harvard Child Development:  

Assess & Intervene:  
- Step 1: Adaptive vs. toxic stress (roots to a tree)  
- Step 2: Age appropriate vs. low levels of relational engagement (trunk of a tree)  
- Step 3: Improve individual differences in sources of vulnerabilities (triggers) & resilience (toolkits) in brain networks (branches of a tree)

Two Guiding Principles:

- Stability with Flexibility  
  - We have an agenda for the day and we will do our best to follow it!  
  - If something comes up that we didn’t expect we will do our best to adjust to the changes!

- Open Learning System  
  - Cycling through our excitement and discouragement in learning together  
  - Scribe for taking notes and feedback!
Professional Culture

- Who is your client?

- Professional and parenting culture of behavioral approach to challenging behaviors

Interdisciplinary Dilemma: Who is our Client?

Who do you “scoop” up?

- What baby/child traditions do we have?
  - Mental health: “child psychotherapy
  - Behavioral health – child’s problematic behaviors
  - Early intervention – child’s disabilities

- What parent traditions do we have?
  - Early intervention & mental health, the “strength–based” & “family focused” approaches

- What relational traditions do we have?
  - Infant Mental Health practices

Step #1: How do we identify stress & stress recovery?

A. Recognize what stress recovery looks like

B. Recognize three primary stress responses

C. Recognize four toxic stress patterns
### Stress & Stress Recovery

#### Individual Differences

<table>
<thead>
<tr>
<th>Who We Are At Our Best!</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heart Under Coordination</strong></td>
</tr>
<tr>
<td>Responsive Engagers/Feelers</td>
</tr>
<tr>
<td>Body: Calm, alert, relaxed</td>
</tr>
</tbody>
</table>

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### Who We Are At Our Best!

- **Heart**
  - RESPONDS
  - We build trust

- **Hand**
  - DIRECTS
  - We guide

- **Head**
  - REFLECTS
  - We collaborate

---

### Who We Are At Our Worst!

- **Heart**
  - DEFERS

- **Hand**
  - DEMANDS

- **Head**
  - DETACHES
  - Shut down

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At Our Best & Our Worst

<table>
<thead>
<tr>
<th>Heart Under Coordination</th>
<th>Hand Under Coordination</th>
<th>Head Under Coordination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsive Engagers</td>
<td>Directive</td>
<td>Reflective Thinkers</td>
</tr>
<tr>
<td>Heart Under Stress</td>
<td>Hand Under Stress</td>
<td>Head Under Stress</td>
</tr>
<tr>
<td>Defers too much</td>
<td>Demands too much</td>
<td>Detaches too much</td>
</tr>
<tr>
<td>Over accommodates</td>
<td>Dominates and controls</td>
<td>Dismisses and ignores</td>
</tr>
<tr>
<td>Body Under Stress</td>
<td>Body Under Stress</td>
<td>Body Under Stress</td>
</tr>
<tr>
<td>Hypervigilence</td>
<td>Crying, Anger, Rage</td>
<td>Shut Down, Glazed</td>
</tr>
<tr>
<td>Fear, Anxiety</td>
<td>Hyperactivity, Mania</td>
<td>Depression, Dissociation</td>
</tr>
</tbody>
</table>

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Commonly Used Words for “Oppositional Behavior”

- Aggressive
- Attention-Seeking
- Defiant
- Distracting
- Lacking Motivation
- Manipulative
- Non-compliant
- Resistant
- Willful
- Withdrawn

Connie Lillas, PhD, MFT, RN
infantmentalhealth@earthlink.net
www.the-nrf.com
In our culture, we are taught...

- That children are doing these behaviors “on purpose” and that...
- Rewards and punishments/consequences are how to help these behaviors...
- And, if these are not working, then parents are to blame!

Parents are not...
- Setting firm enough limits
- If you do have limits, then...
- You do not have enough consequences
- If you do have consequences, then...
- You are not consistent enough with following through with consequences
  OR
  - You are not sensitive enough to reading the child’s cues
  - Not empathic enough

Three Versions of Challenging Behaviors!

- Giving in too much! Expecting too much! Ignoring too much!
Continuum of Behavioral Approaches

- See handout
- Eight methods
- Five to eight more recommended

Confidentiality Pledge

- We are honored to share a family's struggles
- We respect the journey
- We commit to keeping privacy to this day, in this room, for these families
- We use the descriptive terms such as “the toddler in the Red Zone” to keep a collegial conversation alive

Step #1C: How do we identify toxic stress patterns?
Recognize stress responses that are too frequent, too quick / intense, too long

4 Toxic Stress Patterns
1. Over reactivity: Stress responses that occur too frequently and too quickly
2. Repeated reactivity: Inability to adapt to "normal" challenges and transitions
3. Extended reactivity: Prolonged stress responses that take too long to recover (more than 10 to 20 mins)
4. Dampened reactivity: Inability to recover from stress response back to baseline health (healthy sleep cycle, healthy awake state)
It is rarely the case that there is a single cause to the symptoms we see.

- The meaning of behavior is based upon multiple causality, rather than singular causality, as multiple causes usually underlie the "behavioral problems" that are identified as the presenting problem

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Working Bottom-Up and Top-Down

Figure 2.1 — A developmental hierarchical progression of brain systems.

Working Bottom-Up & Top-Down

Triggers and Toolkits

Connie Lillas, PhD, MFT, RN
infantmentalhealth@earthlink.net
www.the-nrf.com
Step #3: Assess for Sources of Vulnerability and Resilience Across Four Brain Systems

Guiding Principles

- There is no one-size fits all
- Assess on a “Macro” level the links with systems of care
- Assess on a “Micro” level functional needs that help guide the triage
- Distinguish between developmental age and chronological age
- Begin treatment at the earliest point in the breakdown

Four Brain Systems: Executive, Relevance, Sensory, Regulation

Bottom-Up Progression

Motor planning
Plan & sequence
Theory of mind
Language

Child Welfare
Nutrition
Sleep/awake cycle
Stress & Stress Recovery

Developmental Disabilities

Functional behaviors representing brain systems

- Regulation
  - States of Arousal
  - Reactions to all sources of sensory information (including vestibular, proprioception, pain, temperature)

- Sensory
  - Emotions, memories, & meanings

- Relevance
  - Ability to initiate and shift as well as inhibit and sustain motor (includes attention) activity and behavior according to the context

- Executive
  -

Connie Lillas, PhD, MFT, RN
infantmentalhealth@earthlink.net
www.the-nrf.com
### List of Symptoms & Dx

**Symptoms**
- Impulsive; inattentive at times
- First year of life could only be soothed by being carried in a sling
- Allergies
- Aggressive towards infant brother since birth
- Not learning from consequences
- Time-out’s have increased over 1 year
- About ready to be kicked out of pre-school for choking a playmate
- Red zone behavior at home and school
- Precocious speech
- Difficulty going to sleep
- Unaware of where his body is in space

**Diagnostic Categories**
- ADHD
- Trauma Symptoms
- Sensory Modulation Disorder
- Autism
- Anxiety Disorder
- Allergies

---

### "Micro" Level Overview, Toddler in the Red Zone

**History & Early Symptoms**

- **Regulation:** Balance of 24-hour Sleep/ Awake Arousal
- **Difficulty going to sleep**
- **Red zone behavior at home and school**

- **Sensory:** Balance of Processing & Modulation of Sensations
- **Precocious speech**
- **First year of life could only be soothed by being carried in a sling**

- **Relevance:** Balance of pos/neg Emotions, Memories, & Meanings
- **Aggressive towards infant brother since birth**
- **About ready to be kicked out of pre-school for choking a playmate**
- **Time-out’s have increased over 1 year**

- **Executive:** Balance of initiating and sustaining thoughts, behaviors, & actions
- **Impulsive; inattentive at times**
- **Not learning from consequences**

---

### "Micro" Level Overview, Toddler in the Red Zone

**History & Early Symptoms**

- **Regulation:** Balance of 24-hour Sleep/ Awake Arousal
- **Allergies**

- **Sensory:** Balance of Processing & Modulation of Sensations
- **Sensory Modulation Disorder**

- **Relevance:** Balance of pos/neg Emotions, Memories, & Meanings
- **Trauma symptoms**
- **Anxiety Disorder**

- **Executive:** Balance of initiating and sustaining thoughts, behaviors, & actions
- **ADHD**
Functional Capacities of the Regulation System

1. The capacity for deep sleep cycling
2. The capacity for alert processing
3. The capacity for the adaptive expression of all stress responses
4. The capacity for distinct states of arousal and smooth transitions between them
5. The capacity for connection to visceral cues
6. The capacity for efficient stress recovery
Functional Capacities of the Sensory System

1. The capacity to receive, translate, associate, and elaborate sensory signals within and across sensory modalities in a developmentally appropriate way (sensory processing)

2. The capacity to balance the flow of sensory signals in a way that is appropriate to context (sensory modulation)

Habituation & Sensitization

- Habituation: a decrease in responsiveness after repeated exposure, some lead to preferences
- Preferences: engage, alert, or calm
- Triggers: sensations that provoke a stress response, often lead to sensitization
- Sensitization: an increase in responsiveness after repeated exposure
Memories = Sensory fragments

Modulation Variables

• Is the infant, child, or adult over or under-reactive to sensory information?
• Do mid-range intensities of sensations support optimal arousal or do extremes need to be used?
• Experiment with sensations: begin with low intensity, slow rhythms, and short durations to be safe

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Modulation & Intervention Principle

• “By varying the intensity, duration, and rhythm (parameters) of the flow of sensory information (behavior) one can recover, maintain, and enhance the window of the alert processing state:
  - Duration: long/mid-range/short
  - Intensity: high/mid-range/low
  - Rhythm: fast/mid-range/slow”

• Match or counter to achieve optimal baseline health?

Lillas & Turnbull, Norton Press
Functional Capacities of the Relevance System

1. The capacity to flexibly experience, express, and modulate a full range of emotions in ways that are appropriate to context
2. The capacity to learn from experience by scanning and accessing a full range of memories that are appropriate to the context
3. The capacity to create meanings that accurately reflect self and others
Air traffic controller...

Our “executive” system juggles

Functional Capacities of the Executive System

1. The capacity to express spontaneous, automatic, and consciously controlled behaviors in a flexible and purposeful manner
2. The capacity to integrate the bottom-up influences of emotions with the top-down control of thoughts
3. The capacity to assess, integrate, and prioritize one’s own internal (self) needs in relation to external (context/other) needs
Tools in Toolkits!

**Regulation**
- Medical support for allergies
- Requiring parents to shift to "time-ins" from "time-outs"
- Snacks available in car for when hungry

**Sensory**
- Oral-motor support
- Wrestling (proprioception) for 45 minutes at night
- Sensory diet includes swinging in the backyard
- Not talking when in the red zone
- Showing exaggerated facial features & vocal tones
- Occupational Therapy

**Tools in Toolkits!**

**Relevance**
- Routine for reunion provides immediate contact with Mom
- Separating each boy, spending individual time with each
- "Every other day" rule for who is "first"
- Narrating and mirroring emotions with empathy
- Allowing J control with putting me in timeouts
- Sensory diet includes swinging in the backyard

**Executive**
- Routine for reunion when Mom comes home
- Setting up predictable schedule with Velcro pictures
- Increasing flexibility by requiring J to use co-regulation through relationships
- Clear consequences for hitting
- Expecting J to use words to give feedback on sensory preferences (duration/intensity/rhythm)

"Micro" Level Overview- Vignette Summary

**Toddler in the Red Zone**

**Triggers and Vulnerabilities**
- **Regulation:**
  - Hard to get to sleep
  - Red zone propensity
- **Sensory:**
  - Sound sensitive
  - Unaware of his body in space
- **Relevance:**
  - Procedural memory trauma from time-outs
  - Emotional rigidity
- **Executive:**
  - Difficulty with abrupt transitions

**Tools for Resilience**
- **Regulation:**
  - Once asleep, stays asleep
- **Sensory:**
  - Preference for oral-motor stimulation
  - Able to down-regulate with deep touch pressure, movement, and quiet sound
- **Relevance:**
  - Time-ins useful for introducing co-regulation
  - With increase in green zone, falling in love occurs, empathy increases
- **Executive:**
  - Over time, responds positively to having schedule and knowing what to expect

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infantmentalhealth@earthlink.net
www.the-nrf.com
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Thank You!

Connie Lillas, PhD, MFT, RN
infantmentalhealth@earthlink.net
www.the-nrf.com