



# Irritability in Preschool Children:

**Diagnostic and management considerations**

Brandene Lorrain MD, FRCPC

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# Disclosures

Brandene Lorrain:

- Has no affiliations with any pharmaceutical companies
- Co-owns and manages ElmTree Clinic
- Trainer and Mentor for NeuroRelational Framework

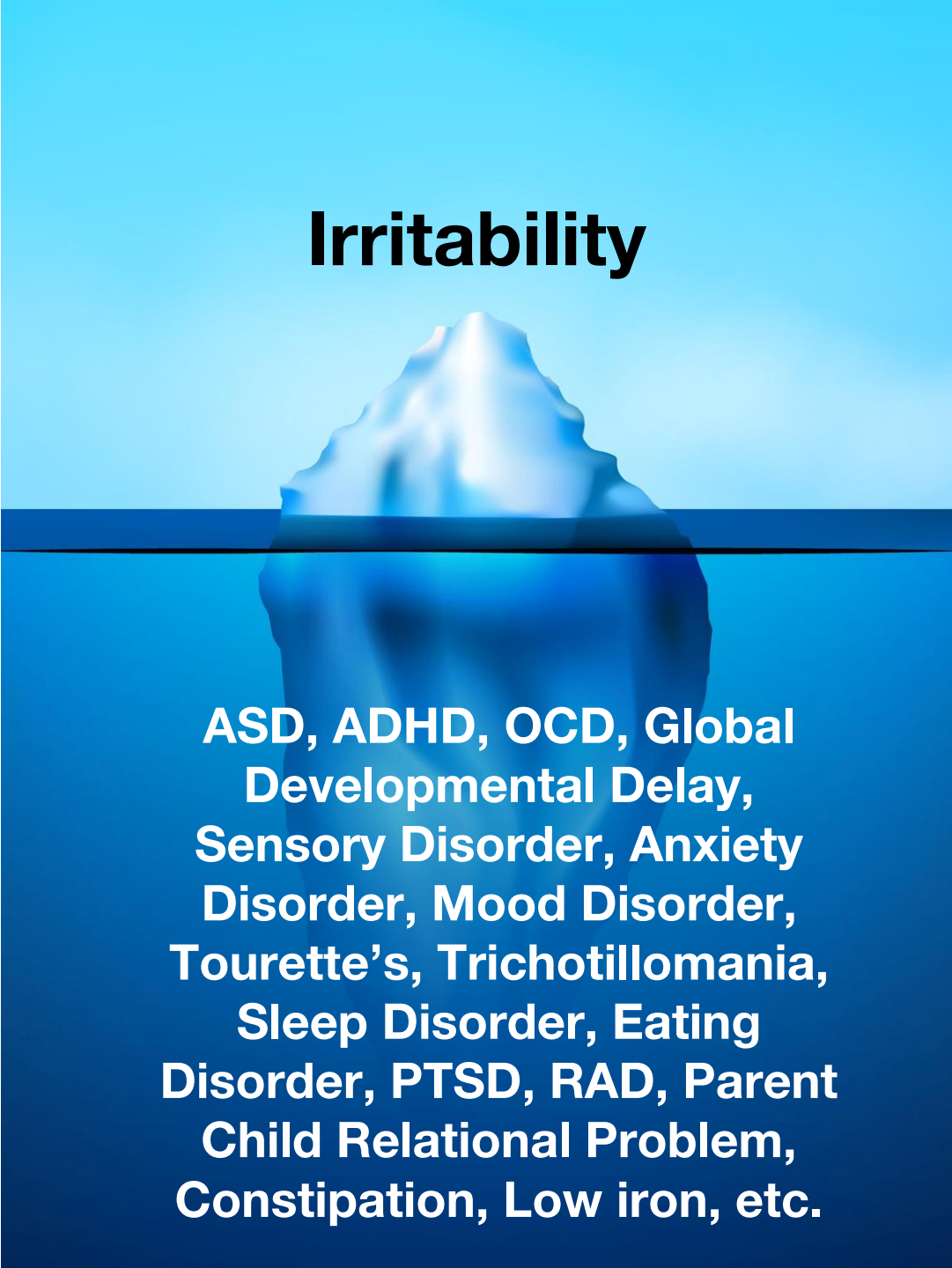


# Objectives

- Discuss possible causes of irritability
- Reframe irritability as a stress response
- Recognize stress recovery, 4 stress responses, and 4 toxic stress patterns
- Discuss strategies to help with stress responses
- Discuss medication options to help with stress responses



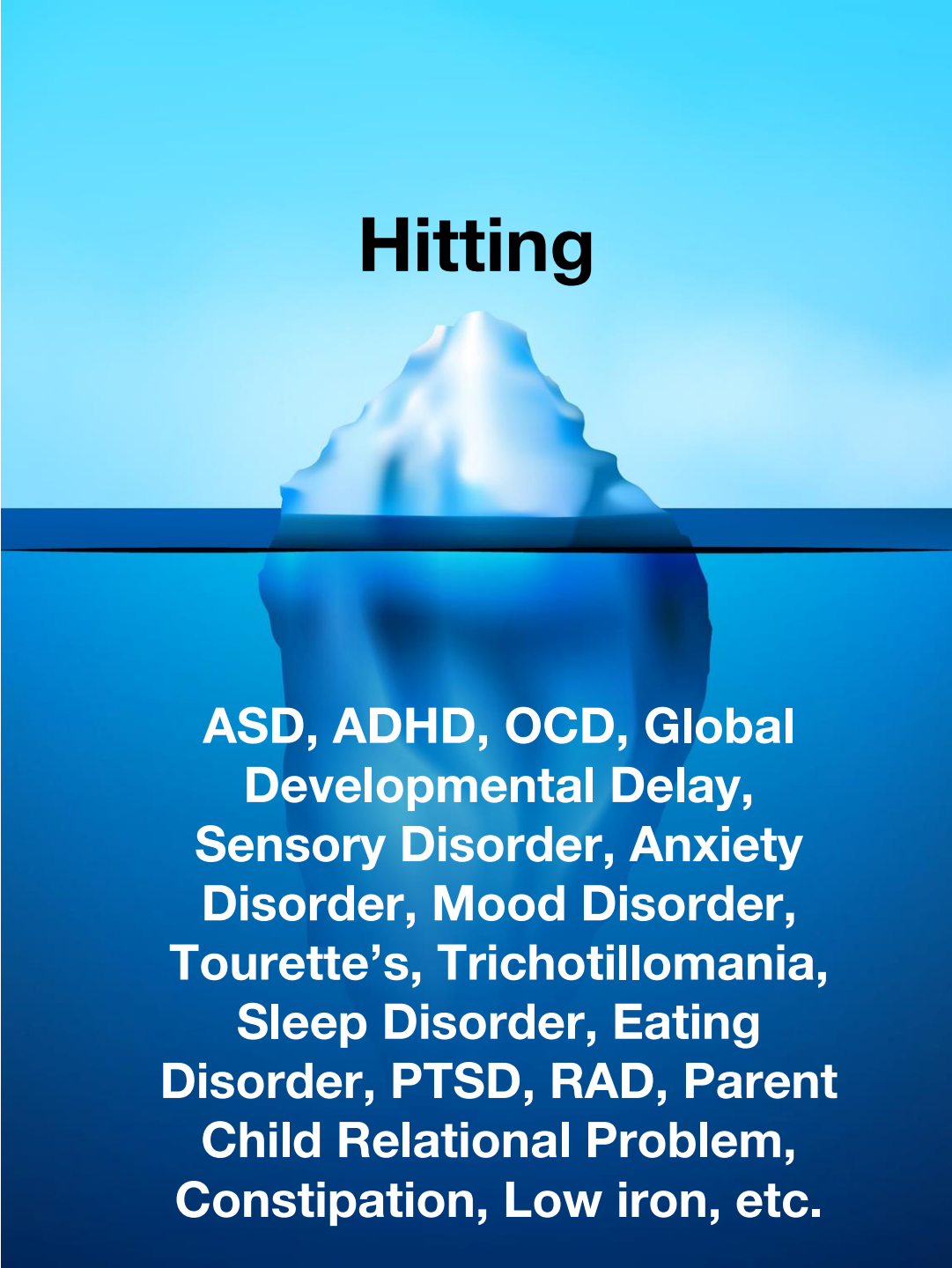
# **Irritability**



**ASD, ADHD, OCD, Global  
Developmental Delay,  
Sensory Disorder, Anxiety  
Disorder, Mood Disorder,  
Tourette's, Trichotillomania,  
Sleep Disorder, Eating  
Disorder, PTSD, RAD, Parent  
Child Relational Problem,  
Constipation, Low iron, etc.**



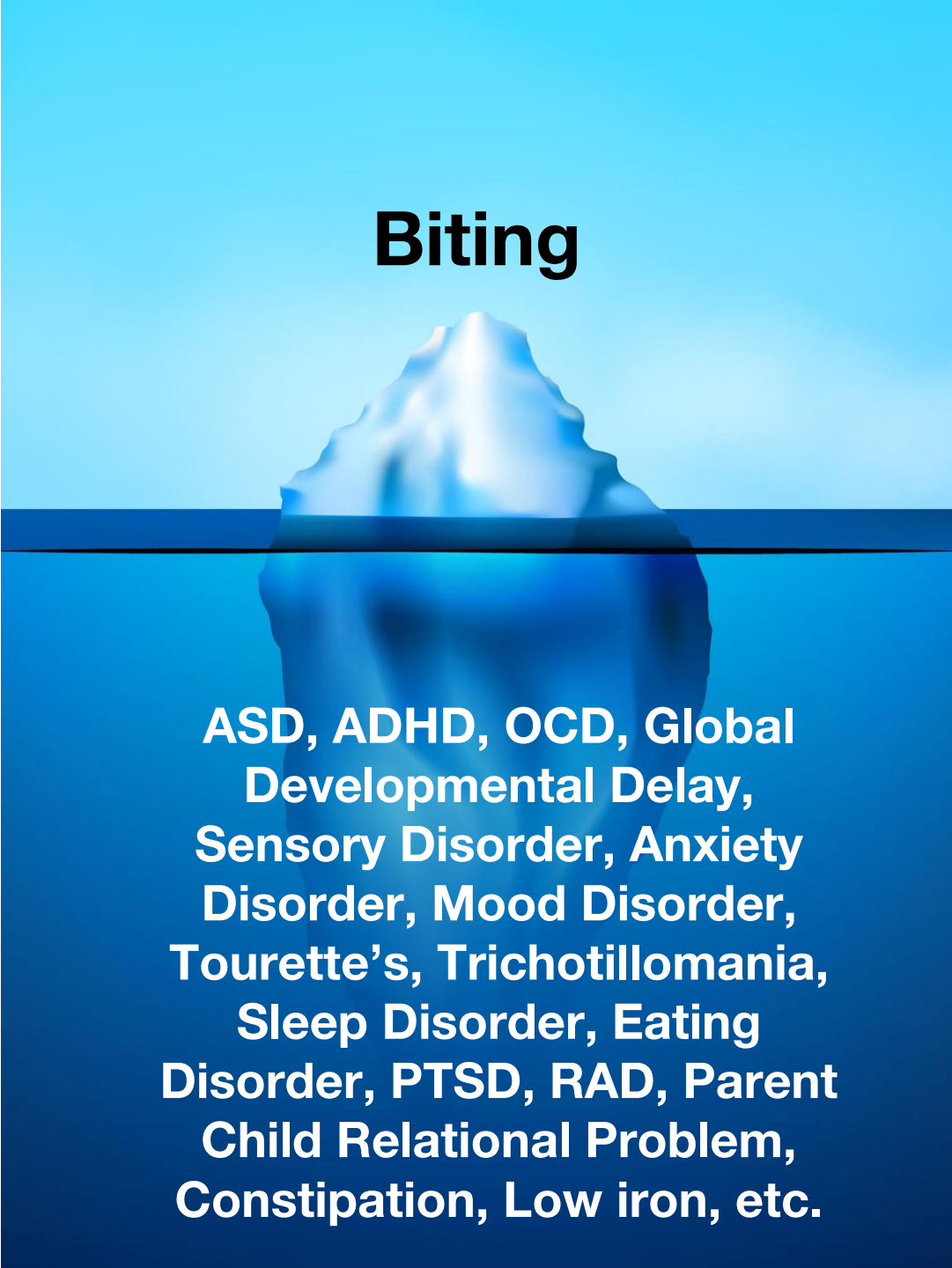
# Hitting



**ASD, ADHD, OCD, Global  
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# Biting



**ASD, ADHD, OCD, Global  
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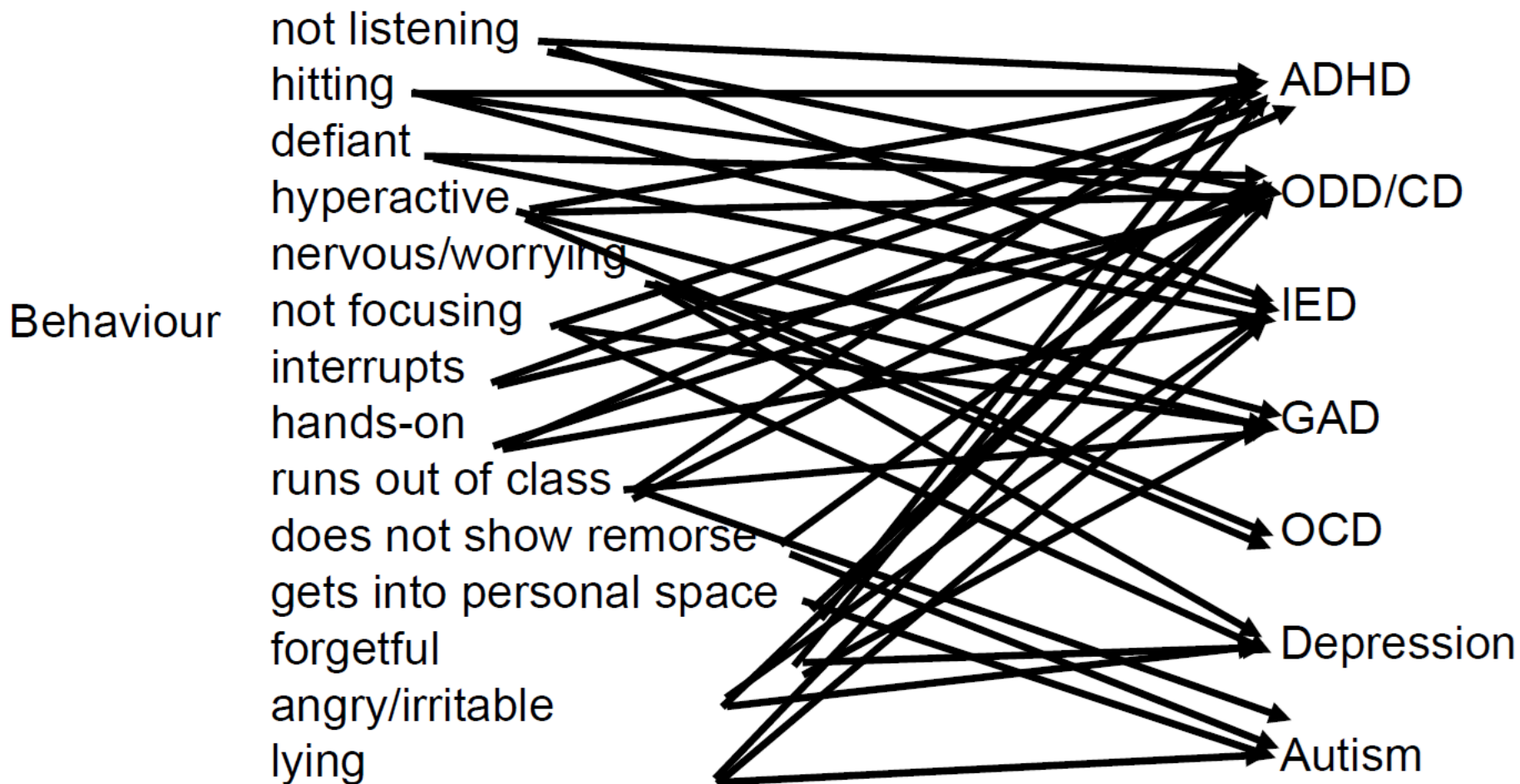
# **Kicked Out of Daycare**

A graphic of an iceberg floating in water. The tip of the iceberg is above the water line, and the much larger base is submerged below the water line. The water is a deep blue, and the sky above is a lighter blue.

**ASD, ADHD, OCD, Global  
Developmental Delay,  
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# “traditional” **medical** view of child behaviour



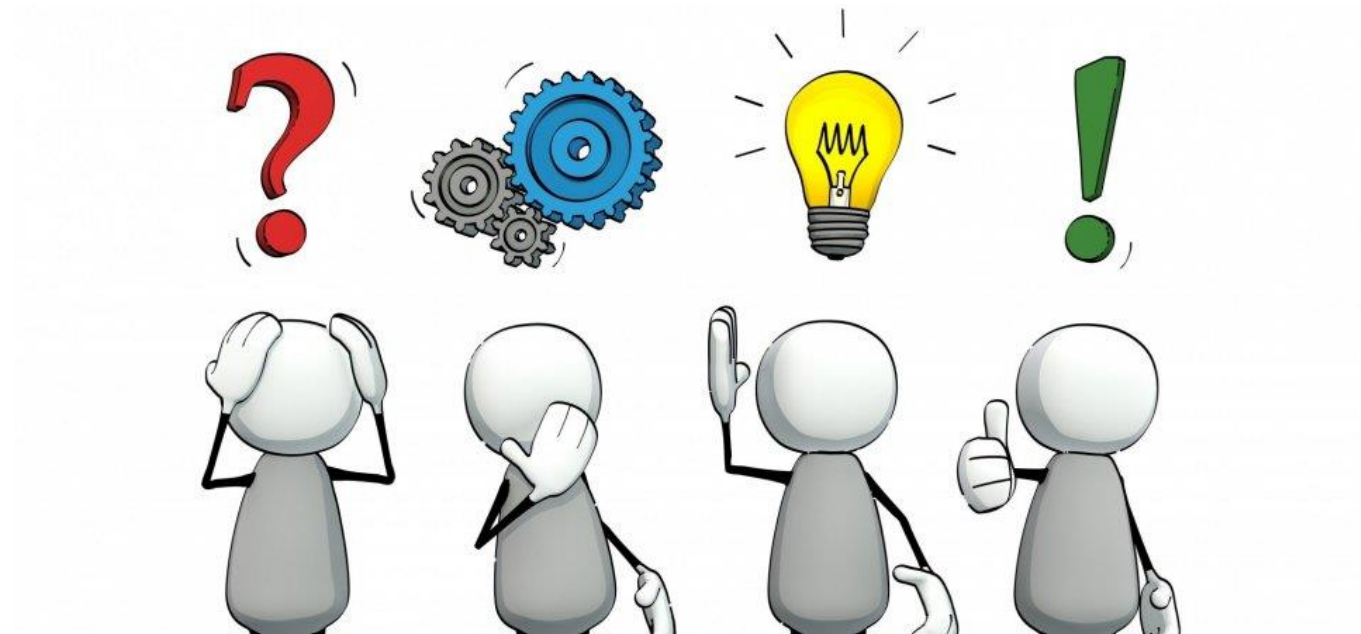


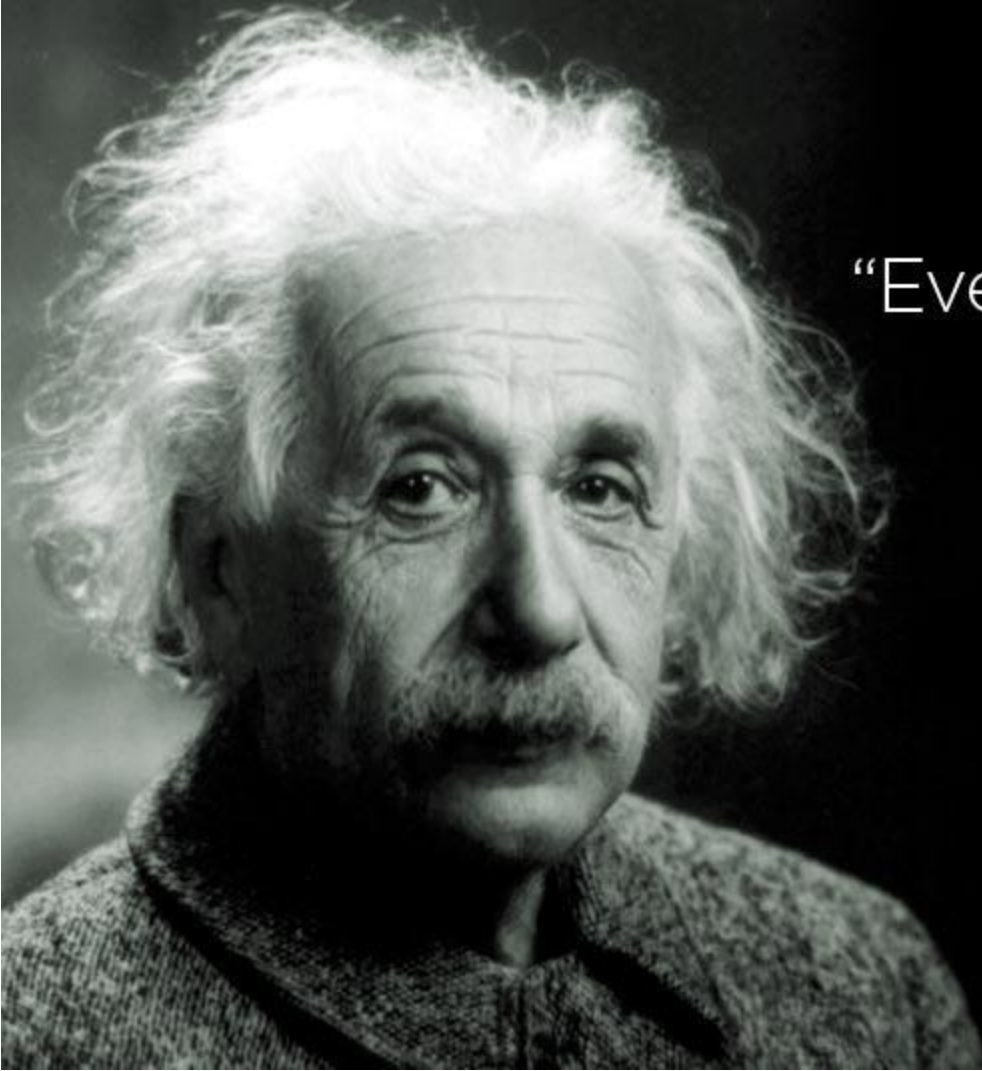


Irritability is a transdiagnostic and  
transdisciplinary problem



# Are we at risk of losing our ability to think?





“Everything should be made  
as simple as possible.  
But not simpler.”

*Albert Einstein*



# Stress

What is stress?

Isn't stress bad?

Don't we all have too much stress?

What is the definition of it anyway?

What is this toxic stress thing we hear about?



# NeuroRelational Framework (NRF)

- Neuro

- neurodevelopmentally sensitive

- Relational

- caring relationships are essential for brain development and healing

- Framework

- assessment & intervention practice
- within a promotion, prevention, and treatment continuum



# What is Healthy Stress Recovery?

- Healthy sleep



- Mostly green zone during the day
- Efficient recovery back to green zone when stressed



# Deep sleep is restorative...





# How well does your child sleep?

- Can your child fall asleep on their own (without parent laying with them)?
- Can your child stay asleep the whole night (if older than 1 year)?
- Does your child's quantity of sleep meet minimum requirements?  
(10 to 13 hours in 24 hours for a 2 to 5 year-old)
- Does your child have problems with their quality of sleep?
  - wake up refreshed or tired and cranky?
  - wake up frequently at night?
  - complain of pain in their legs or moving frequently?
- Does your child snore? Mouth breathe? Nasal congestion? Breath pauses?





## THE NEURORELATIONAL FRAMEWORK'S

STEP 1

# How Well Are You Sleeping?

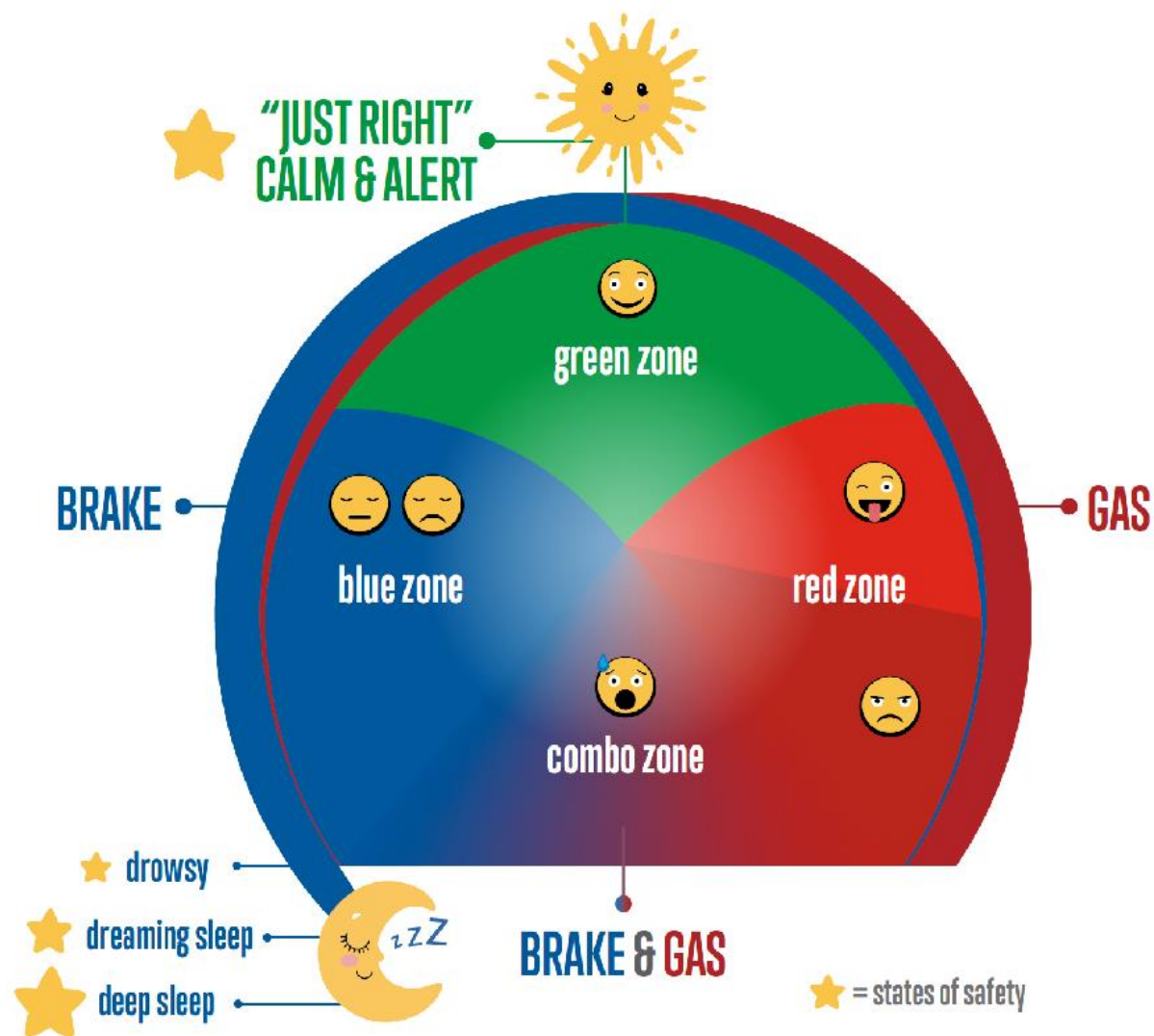
- ☐ Do you have a relaxing bedtime routine every evening?
- ☐ Do you co-sleep with another person or pet? Do you sleep well with a sleep buddy?
- ☐ Can you fall asleep quickly? Does it take you more than 20 minutes to fall asleep?
- ☐ Can you stay asleep? Do you wake up in the night and have trouble getting back to sleep? Are you up for a long time in the night?
- ☐ Do you get enough total sleep every night?
- ☐ Do you wake up feeling refreshed? Or do you wake up feeling tired or unwell?
- ☐ Do you feel tired during the day or sleepy? Does your child look tired during the day? Are they agitated or too active during the day?
- ☐ Are you restless? Leg cramps? Kicking? Moving around a lot in the bed?
- ☐ Do you snore? Do you breathe with your mouth open? Is your nose congested? Do you cough during the night? Do you have breathing pauses?
- ☐ Do you have nightmares, night terrors, sleepwalking, sleep talking, teeth grinding, bed wetting, or pain during your sleep?
- ☐ Do you have electronics in your bedroom? Are you or your child watching screens close to bedtime?

Age-Dependent	0-3 months » 14-20 hrs	12-24 months » 11-14 hrs	7-13 years » 9-11 hrs	26-64 years » 7-9 hrs
Sleep Range	3-6 months » 14-16 hrs	2-4 years » 10-13 hrs	14-17 years » 8-10 hrs	65+ years » 7-8 hrs
Recommendations	6-12 months » 13-15 hrs	4-7 years » 10-13 hrs	18-25 years » 7-9 hrs	



# Sleep-Wake States Arc

SUPPORTS HEALTH



# THE NEURORELATIONAL FRAMEWORK'S Awake States Indicators

These biomarkers are used to describe individual differences. Culture, context, and clusters of biomarkers are critical components to informing the awake states.

<b>RED ZONE</b> Too Fast/Gas Pedal	<b>EYES</b> <ul style="list-style-type: none"> <li>Open, squinted or tightly closed eyes</li> <li>Eyes look quickly around the room or not attending to person or object of focus</li> <li>Pupils are dilated</li> <li>Frequent blinking</li> </ul> <b>FACIAL EXPRESSION</b> <ul style="list-style-type: none"> <li>Wide, open mouth</li> <li>Forced smile</li> <li>Clenched jaw or teeth</li> </ul> <b>VOICE</b> <ul style="list-style-type: none"> <li>High-pitched yelling or screaming</li> <li>Loud, shrill, piercing</li> <li>Out of control laughing</li> <li>Non-Stop talking</li> </ul> <b>BODY POSTURE/GESTURES</b> <ul style="list-style-type: none"> <li>Increased muscle tension</li> <li>Pushing, shoving, biting, and intruding into others' space</li> <li>Kicking, throwing, jumping, climbing</li> <li>Bumps into things, falls</li> <li>Fidgeting or restless (moving one's mouth, fingers, hands &amp; legs, playing with hair or objects)</li> <li>Moving frequently from activity to activity; high levels of multi-tasking</li> <li>Animated gestures</li> </ul> <b>RHYTHM/RATE OF MOVEMENT</b> <ul style="list-style-type: none"> <li>Fast movements</li> <li>Impulsive and/or jerky movements</li> <li>Constant motion</li> </ul> <b>RHYTHM/RATE OF BREATHING</b> <ul style="list-style-type: none"> <li>Fast, shallow</li> </ul>	<b>EYES</b> <ul style="list-style-type: none"> <li>Open, squinted or tightly closed eyes</li> <li>May have direct, intense eye contact</li> <li>May avoid eye contact</li> <li>Eye roll</li> <li>Pupils are dilated</li> </ul> <b>FACIAL EXPRESSION</b> <ul style="list-style-type: none"> <li>Wide, open mouth</li> <li>Anger, disgust</li> <li>Frown, grimace</li> <li>Forced smile</li> <li>Clenched jaw or teeth</li> </ul> <b>VOICE</b> <ul style="list-style-type: none"> <li>High-pitched crying, yelling or screaming</li> <li>Loud, shrill, piercing</li> <li>Hostile or grumpy</li> <li>Sarcastic</li> <li>Non-Stop talking</li> </ul> <b>BODY POSTURE/GESTURES</b> <ul style="list-style-type: none"> <li>Fingers spread out</li> <li>Arching body</li> <li>Increased muscle tension</li> <li>Pushing, shoving, and intruding into others' space</li> <li>Biting, hitting, kicking, throwing, jumping, climbing, spitting, scratching, head banging</li> <li>Threatening gestures (shakes finger, fist, halt hand)</li> </ul> <b>RHYTHM/RATE OF MOVEMENT</b> <ul style="list-style-type: none"> <li>Fast movements</li> <li>Impulsive and/or jerky movements</li> <li>Constant motion</li> </ul> <b>RHYTHM/RATE OF BREATHING</b> <ul style="list-style-type: none"> <li>Fast-deep</li> </ul>
<b>BLUE ZONE</b> Too Slow/Brake	<b>EYES</b> <ul style="list-style-type: none"> <li>Glazed-glassy eyes (looks through rather than at)</li> <li>Looks away for a long time, looks down</li> <li>Does not look around the room</li> <li>Does not look at or towards new events</li> <li>Looks at things more than people</li> <li>Tired eyes</li> </ul> <b>FACE</b> <ul style="list-style-type: none"> <li>Flat/blank</li> <li>Mouth turned down, sad</li> <li>No smiles or hints of smiles</li> <li>Few emotions shown</li> <li>Low tone in the cheeks</li> </ul> <b>VOICE</b> <ul style="list-style-type: none"> <li>Flat</li> <li>Makes few to no sounds</li> <li>Sounds cold, soft, sad, too quiet</li> <li>Monotone</li> </ul> <b>BODY</b> <ul style="list-style-type: none"> <li>Slumped/slouching</li> <li>Low muscle tone, floppy</li> <li>Little or no exploring play or curiosity</li> <li>Wanders aimlessly</li> </ul>	<b>RHYTHM/RATE OF MOVEMENT</b> <ul style="list-style-type: none"> <li>Slow movements</li> <li>Slow to start moving</li> <li>Frozen, no startle response</li> </ul> <b>RHYTHM/RATE OF BREATHING</b> <ul style="list-style-type: none"> <li>Slow, shallow</li> </ul>
<b>COMBO ZONE</b> Fast & Jerky/Gas & Brake	<b>EYES</b> <ul style="list-style-type: none"> <li>Wide open eyes</li> <li>Stares at things</li> <li>Frequent breaks in eye contact</li> <li>Looks around with darting eyes</li> </ul> <b>FACE</b> <ul style="list-style-type: none"> <li>Raised eyebrows</li> <li>Trembling lips or mouth</li> <li>Mouth wide open</li> <li>Nasal flaring</li> <li>Furrowed brow</li> <li>Lip compression, pursed lips</li> <li>Startled expression</li> </ul> <b>VOICE</b> <ul style="list-style-type: none"> <li>High-pitched, nasal, sing-song voice</li> <li>Whimpers, weak voice</li> <li>Wobbly/quivering voice</li> <li>Fast changes in tone or pitch</li> <li>Pleading</li> </ul> <b>BODY</b> <ul style="list-style-type: none"> <li>Tense or rigid posture</li> <li>Winces, cowers, cringes, or hides</li> <li>Trembling hands</li> <li>Clings or grabs others</li> <li>Flails around</li> </ul>	<b>RHYTHM/RATE OF MOVEMENT</b> <ul style="list-style-type: none"> <li>No movement, still body</li> <li>Repetitive movements (rocking, pacing, wrings hands, shakes foot)</li> <li>Fast movements</li> <li>Jerky movements</li> </ul> <b>RHYTHM/RATE OF BREATHING</b> <ul style="list-style-type: none"> <li>Uneven breathing</li> <li>Breath holding</li> </ul>
<b>GREEN ZONE</b> Just Right/Alert	<b>EYES</b> <ul style="list-style-type: none"> <li>Bright, shiny eyes</li> <li>Looks directly at people, objects with a gleam</li> <li>Looks away for breaks, then returns to eye contact</li> </ul> <b>FACE</b> <ul style="list-style-type: none"> <li>Smiles, shows joy</li> <li>Neutral</li> <li>Can express a range of all emotions – appropriate to context</li> </ul> <b>VOICE</b> <ul style="list-style-type: none"> <li>Laughing</li> <li>Fluctuations in tone – appropriate to context</li> <li>Fluctuations in speed – appropriate to context</li> <li>Melodic</li> </ul> <b>BODY</b> <ul style="list-style-type: none"> <li>Relaxed with good muscle tone</li> <li>Stable, balanced and coordinated movements</li> <li>Moves arms and legs toward center of the body</li> <li>Molds body into a caring adult when held</li> <li>Gestures are coordinated with body movements</li> </ul>	<b>RHYTHM/RATE OF MOVEMENT</b> <ul style="list-style-type: none"> <li>Changes smoothly to respond to the environment</li> <li>Moves faster or slower – appropriate to context</li> </ul> <b>RHYTHM/RATE OF BREATHING</b> <ul style="list-style-type: none"> <li>Regular, even breathing</li> </ul>





# NRF Green Zone

## GREEN ZONE Just Right/Alert

### EYES

- ☐ Bright, shiny eyes
- ☐ Looks directly at people, objects with a gleam
- ☐ Looks away for breaks, then returns to eye contact

### FACE

- ☐ Smiles, shows joy
- ☐ Neutral
- ☐ Can express a range of all emotions – appropriate to context

### VOICE

- ☐ Laughing
- ☐ Fluctuations in tone – appropriate to context
- ☐ Fluctuations in speed – appropriate to context
- ☐ Melodic

### BODY

- ☐ Relaxed with good muscle tone
- ☐ Stable, balanced and coordinated movements
- ☐ Moves arms and legs toward center of the body
- ☐ Molds body into a caring adult when held
- ☐ Gestures are coordinated with body movements

### RHYTHM/RATE OF MOVEMENT

- ☐ Changes smoothly to respond to the environment
- ☐ Moves faster or slower – appropriate to context

### RHYTHM/RATE OF BREATHING

- ☐ Regular, even breathing





# Video: GREEN ZONE





# NRF Positive Red Zone

## RED ZONE Too Fast/Gas Pedal

### EYES

- ☐ Open, squinted or tightly closed eyes
- ☐ Eyes look quickly around the room or not attending to person or object of focus
- ☐ Pupils are dilated
- ☐ Frequent blinking

### FACIAL EXPRESSION

- ☐ Wide, open mouth
- ☐ Forced smile
- ☐ Clenched jaw or teeth
- ☐ Giddy

### VOICE

- ☐ High-pitched yelling or screaming
- ☐ Loud, shrill, piercing
- ☐ Out of control laughing
- ☐ Non-Stop talking



### BODY POSTURE/GESTURES

- ☐ Increased muscle tension
- ☐ Pushing, shoving, biting, and intruding into others' space
- ☐ Kicking, throwing, jumping, climbing, twirling
- ☐ Bumps into things, falls
- ☐ Fidgeting or restless (moving one's mouth, fingers, hands & legs, playing with hair or objects)
- ☐ Moving frequently from activity to activity; high levels of multi-tasking
- ☐ Animated gestures

### RHYTHM/RATE OF MOVEMENT

- ☐ Fast movements
- ☐ Impulsive and/or jerky movements
- ☐ Constant motion

### RHYTHM/RATE OF BREATHING

- ☐ Fast, shallow



# Video: Positive Red Zone

Source: <https://www.youtube.com/watch?v=JfS0IA9LXr0>







# Video: Positive Red Zone



Source: Archive YouTube video





# NRF Negative Red Zone

## RED ZONE Too Fast/Gas Pedal

### EYES

- ☐ Open, squinted or tightly closed eyes
- ☐ May have direct, intense eye contact
- ☐ May avoid eye contact
- ☐ Eye roll
- ☐ Pupils are dilated

### FACIAL EXPRESSION

- ☐ Wide, open mouth
- ☐ Anger, disgust
- ☐ Frown, grimace
- ☐ Forced smile
- ☐ Clenched jaw or teeth

### VOICE

- ☐ High-pitched crying, yelling or screaming
- ☐ Loud, shrill, piercing
- ☐ Hostile or grumpy
- ☐ Sarcastic
- ☐ Non-Stop talking



### BODY POSTURE/GESTURES

- ☐ Fingers spread out
- ☐ Arching body
- ☐ Increased muscle tension
- ☐ Pushing, shoving, and intruding into others' space
- ☐ Biting, hitting, kicking, throwing, jumping, climbing, spitting, scratching, head banging
- ☐ Threatening gestures (shakes finger, fist, halt hand)

### RHYTHM/RATE OF MOVEMENT

- ☐ Fast movements
- ☐ Impulsive and/or jerky movements
- ☐ Constant motion

### RHYTHM/RATE OF BREATHING

- ☐ Fast-deep



# Video: Negative Red Zone



Source: [https://www.youtube.com/watch?v=c\\_0bhT98g9Y](https://www.youtube.com/watch?v=c_0bhT98g9Y)



# Video: Negative Red Zone



Source: <https://www.youtube.com/watch?v=nFAsyYnTklw>



# NRF Blue Zone

## BLUE ZONE Too Slow/Brake

### EYES

- ☐ Glazed-glassy eyes (looks through rather than at)
- ☐ Looks away for a long time, looks down
- ☐ Does not look around the room
- ☐ Does not look at or towards new events
- ☐ Looks at things more than people
- ☐ Tired eyes

### FACE

- ☐ Flat/blank
- ☐ Mouth turned down, sad
- ☐ No smiles or hints of smiles
- ☐ Few emotions shown
- ☐ Low tone in the cheeks

### VOICE

- ☐ Flat
- ☐ Makes few to no sounds
- ☐ Sounds cold, soft, sad, too quiet
- ☐ Monotone

### BODY

- ☐ Slumped/slouching
- ☐ Low muscle tone, floppy
- ☐ Little or no exploring play or curiosity
- ☐ Wanders aimlessly

### RHYTHM/RATE OF MOVEMENT

- ☐ Slow movements
- ☐ Slow to start moving
- ☐ Frozen, no startle response

### RHYTHM/RATE OF BREATHING

- ☐ Slow, shallow





# Video: Blue Zone



Source: Archive YouTube video



# Video: Blue Zone



Source: <https://youtu.be/OwaxFAC6rzk>



# NRF Combo Zone

## COMBO ZONE Fast & Jerky/Gas & Brake

### EYES

- ☐ Wide open eyes
- ☐ Stares at things
- ☐ Frequent breaks in eye contact
- ☐ Looks around with darting eyes

### FACE

- ☐ Raised eyebrows
- ☐ Trembling lips or mouth, scared
- ☐ Mouth wide open
- ☐ Nasal flaring
- ☐ Furrowed brow, worried
- ☐ Lip compression, pursed lips
- ☐ Startled expression, surprised

### VOICE

- ☐ High-pitched, nasal, sing-song voice
- ☐ Whimpers, weak voice
- ☐ Wobbly/quivering voice
- ☐ Fast changes in tone or pitch
- ☐ Pleading

### BODY

- ☐ Tense or rigid posture
- ☐ Winces, cowers, cringes, or hides
- ☐ Trembling hands
- ☐ Clings or grabs others
- ☐ Flails around

### RHYTHM/RATE OF MOVEMENT

- ☐ No movement, still body
- ☐ Repetitive movements (rocking, pacing, wrings hands, shakes foot)
- ☐ Fast movements
- ☐ Jerky movements

### RHYTHM/RATE OF BREATHING

- ☐ Uneven breathing
- ☐ Breath holding



## Video: Combo Zone



Source: Archive YouTube video





# Video: Combo Zone



Source: <https://youtu.be/V5E-0Dix440>



# Three Levels of Stress

## **Positive**

**Brief increases in heart rate,  
mild elevations in stress hormone levels.**

## **Tolerable**

**Serious, temporary stress responses,  
buffered by supportive relationships.**

## **Toxic**

**Prolonged activation of stress response systems  
in the absence of protective relationships.**



# Three Levels of Stress - An NRF Adaptation

## **Positive – Safety (Dr. Lorrain's wisdom)**

**Healthy sleep & 70 to 80% green zone during the day  
3 to 5 neg red, blue, and combo zones per day under 3 to 5 minutes  
Pos red zone 3 times per day for about 20 minutes (energetic play)**

## **Tolerable - Challenge**

**Less Green zone  
Modulated stress responses with stress recovery  
Stress responses are quicker, more intense, more frequent & longer**

## **Toxic - Threat**

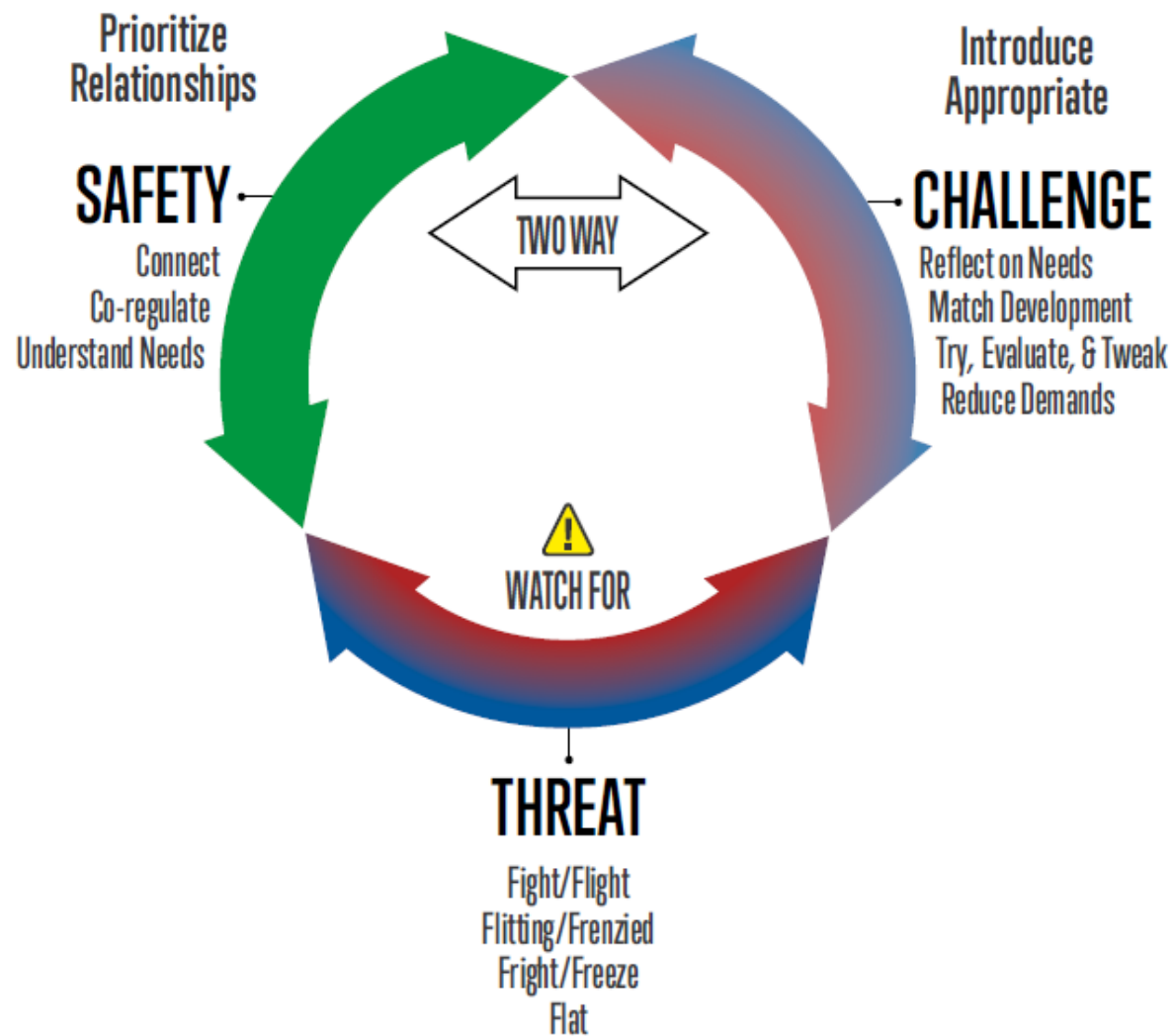
**Minimal Green Zone  
Much less capacity to modulate stress responses  
Fight/Flight, Flitting/Frenzied, Fright/Freeze, Flat/Flop/Faint**



THE NEURORELATIONAL FRAMEWORK'S

# Safety-Challenge-Threat Triad

STEP 1





# How Do We Identify Toxic Stress Patterns?

**1** TOO FREQUENT/  
TOO QUICK  
TOO INTENSE



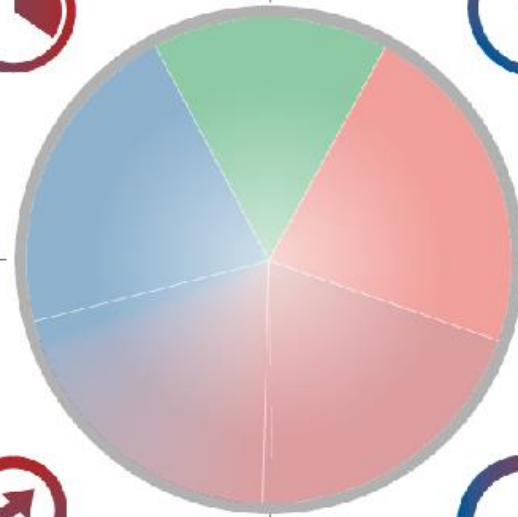
**2** TOO LONG TO  
RECOVER



**3** DOES NOT  
ADJUST TO  
TRANSITIONS



**4** POOR  
RECOVERY TO  
GREEN ZONE





# Self-Regulation & Co-Regulation



<http://sasee.com/>

Put your oxygen mask on first, then help others

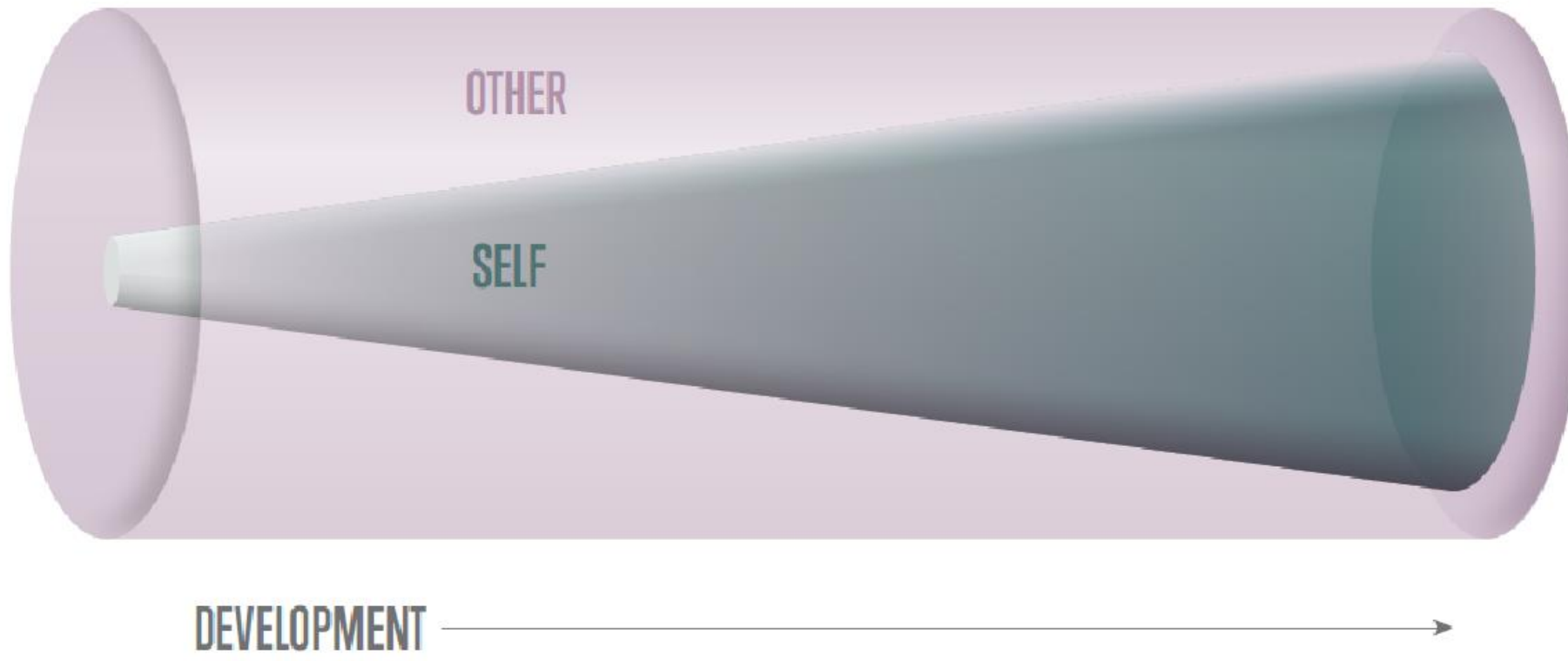
Recognize your own stress responses, get yourself calm, then support your child





THE NEURORELATIONAL FRAMEWORK'S

# Co-Regulation Supports the Development of Self-Regulation



Changing balance between other-regulation and self-regulation as a child develops into an adult. (From "Ports of Entry and the Dynamics of Mother-Infant Interventions," by A.J. Sameroff, 2004, in *Treating Parent-Infant Relationship Problems*, p. 12, by A.J. Sameroff, S.C. McDonough, & K.L. Rusenblum [Eds.], New York: Guilford Press. Copyright 2004 by The Guilford Press. Reprinted with permission.) Found in the Neurorelational Framework Book on page 20. Adapted by C. Lillas 2016



# A Doctor Co-Regulates His Patient



<https://www.youtube.com/watch?v=mROekpzSgEY>





**The most common issues we see,  
Are likely the same ones that you see...**

- . Sleep**
- . Iron Deficiency**
- . Constipation**



# Sleep

- Healthy sleep is critical for all mental and physical health
- Multiple factors impact sleep – important to screen/assess for sleep apnea
- <https://www.youtube.com/@elmtreeclinic/playlists> click sleep
- Babysleep.com website is the best one that we have found for both parents and professionals



# Iron

- Iron is a cofactor in Dopamine production. If iron levels are low, we tend to have restless sleep, struggle to fall asleep, and wake up during the night
- Additionally, iron deficiency is a significant contributor to daytime hyperactivity and restlessness.
- Iron is critical for all brain development, including cognitive function.



# Iron Indices

- **We routinely do bloodwork** in children from birth to 5 years old with sleep issues
- We check Ferritin, TIBC, iron, iron sats, and CBC.
- We recommend iron replacement if:
  - **Ferritin <50** (Stollery Sleep Clinic treats Ferritin <100)
  - TIBC high
  - Low iron
  - Low iron sats
  - Low Hemoglobin



# Iron Replacement

- Dose - 3 to 5 mg/kg/day. We recommend one dose per day.
- Give with citrus and no calcium or magnesium 1 hour before or after iron.
- [https://elmtreeclinic.ca/handouts/Iron/Iron Handout for Families](https://elmtreeclinic.ca/handouts/Iron/Iron%20Handout%20for%20Families)



# Challenges with Iron Supplementation

- Children often do not tolerate the taste of iron preparations. So, we suggest that parents get a few kinds to try.
- In Edmonton, one compounding pharmacy has made iron into chocolate squares.
- We do not treat with iron unless constipation is already treated, as Iron commonly causes constipation.
- We recommend increasing fluid intake when taking iron.
- Iron also causes the stool to be black. We know this, but parents worry about it, so it's worth mentioning to them.



# Constipation

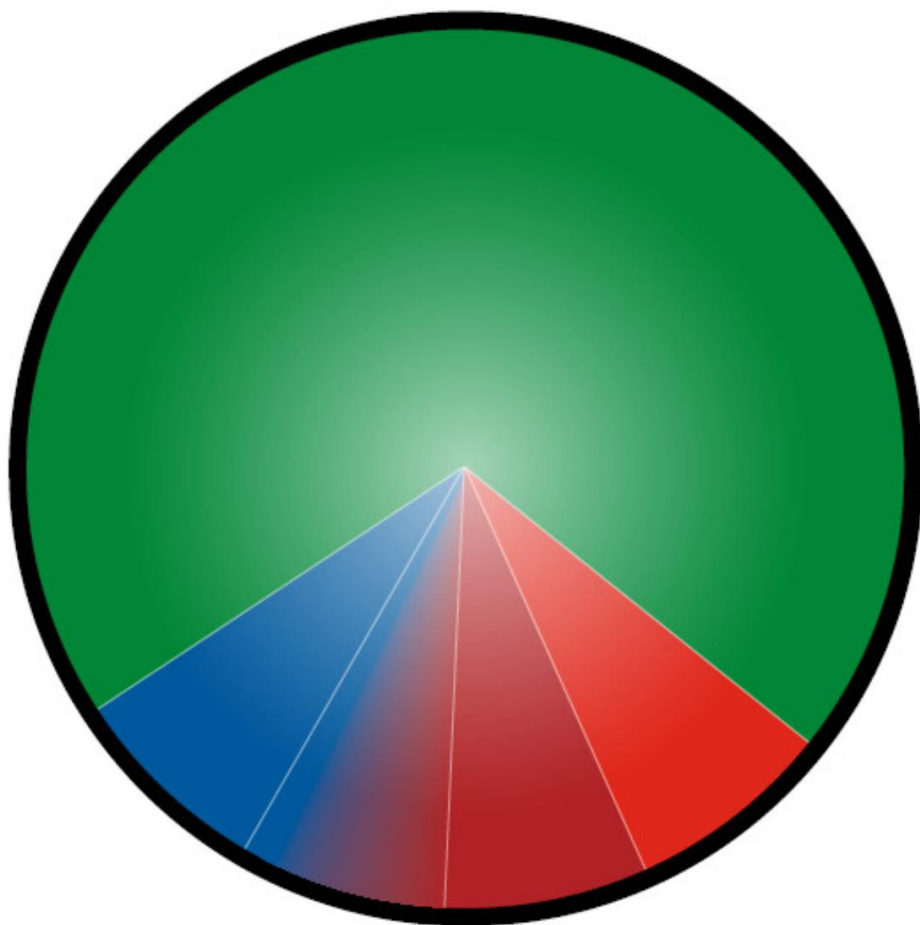
- Constipation could be a whole day workshop
- We highly recommend the work of Dr. Stephen Hodges  
<https://www.bedwettingandaccidents.com/product-page/the-pre-m-o-p>
- Increase fluid and fiber first. We suggest what we call “liquidy foods,” as preschoolers don’t drink enough water
- Most daycares do not encourage enough fluid intake
- We typically suggest PEG3350 if fluids alone are not enough



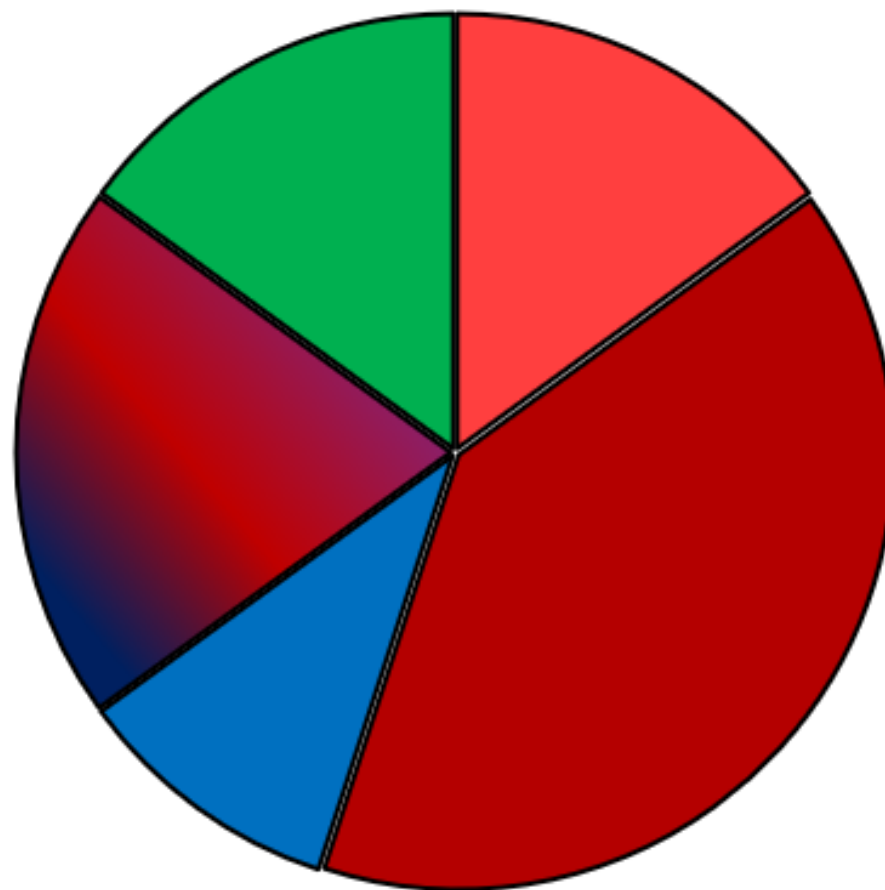
THE NEURORELATIONAL FRAMEWORK'S

## Awake States Pie

ARE YOU IN ADAPTIVE STRESS?



## Toxic Stress



■ (+) Red ■ (-) Red ■ Blue ■ Combo ■ Green

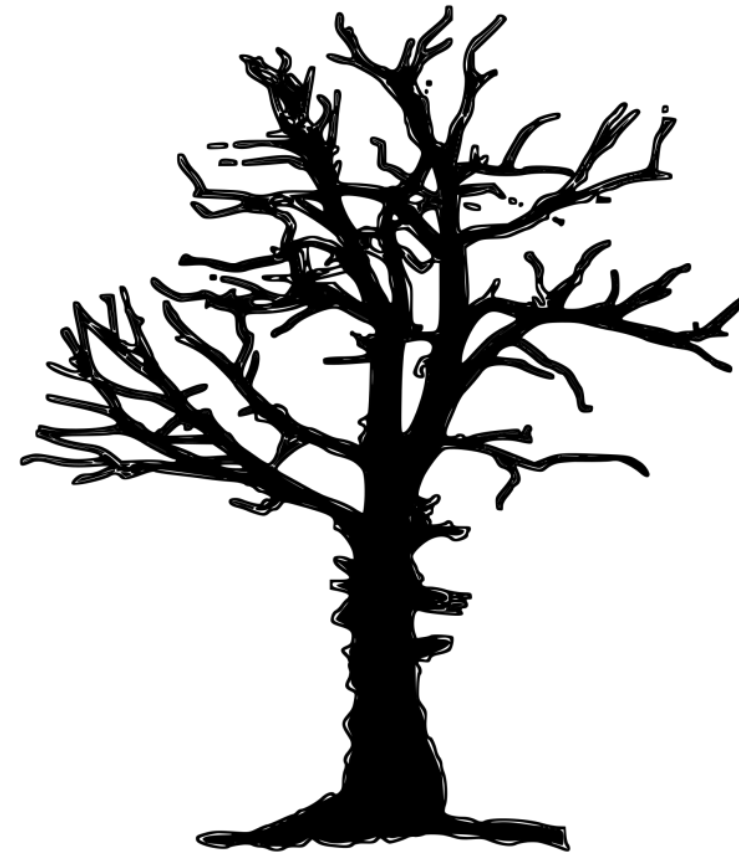




Positive  
procedural  
memories?



Negative  
procedural  
memories?





# Strategies

- See our website. <https://elmtreeclinic.ca/>. The handout section has strategies for almost everything listed under the water on the iceberg. In addition to links to websites that we believe can help families.
- Our YouTube channel. <https://www.youtube.com/@elmtreeclinic>. Videos on psychoeducation and strategies for sleep and anxiety.

# NRF Foundations Manual

[www.NRFcare.org](http://www.NRFcare.org)

Free Starter Kit





# Medications

- Pharmacologically, we are trying to help children get back into green zone **regardless of the underlying etiology**
- We mostly pick meds that help decrease sympathetic nervous system/gas pedal or activate parasympathetic nervous system/brake pedal
- We generally only use meds for children ages 2 to 5 with stress responses that don't seem to respond to the strategies we suggest. (See the handout and video sections on our website)
- We discourage polypharmacy with psychotropic medication in preschoolers



# Clonidine

- Clonidine generally only lasts 3 to 4 hours in this age group, so we tend to dose it every 3 hours
- We start with 1 dose per day. That allows us to see how well the child responds. Also, lets us know how long it lasts
- We overlap doses by about  $\frac{1}{2}$  hour. So, if the dose lasts  $3\frac{1}{2}$  hours, then we give the next dose at the 3-hour mark
- Dose range: 0.003 to 0.008 mg/kg/day. We calculate the whole dose and divide it into 4 - 6 doses per day
- Should not be stopped abruptly, but weaned off for cardiac safety issues





# Intuniv (Guanfacine)

- If swallowed, Intuniv XR will generally last *8 -12 hours*
- Most of our kids can't swallow meds, so we break into 0.25 – 0.5 mg and start with 1 dose in the am
- We tend to overlap doses by about ½ hour. So if the dose lasts 7 hours, we give next dose at the 6 ½ hour mark
- Dose range: 0.05 to 0.12 mg/kg/day



# Medication for Mental Health Disorders

In preschool children, no matter what the underlying etiology - Anxiety, ADHD, OCD, ...

**We still try Clonidine or Intuniv first.**



# Anxiety

- SSRIs only (but not Paroxetine)
- Wait until 3 years old. Seems to have a paradoxical effect if given prior to 3 years old
- BL starts with Prozac 2 mg per day. Dr. Hapchyn starts with Luvox compounded to dose 6.25 mg TID
- SSRIs take a few days to 2 weeks to work at the correct dose
- Minimal side effects usually compared to adults



# ADHD

Generally, we only use medication in 4-year-olds and older, as the prefrontal cortex doesn't start to develop until then.

My current strategy is to try 2.5 mg of Dexedrine for 1 week, then 5 mg of Ritalin for 1 week. Ask parents to check with school and home which worked best with the least side effects.

Then give a weight-based long-acting dose. 0.5 mg/kg/day for Dexedrine and 1 mg/day for Ritalin.

Ex. 30-pound 4-year-old (roughly 14 kg). If Dexedrine worked best, then Vyvanse 10 mg chewable or Adderall 5 mg and 5 mg at 2 pm. If Ritalin worked best, then Biphentin 10 mg (and Ritalin quick release 5 mg later in the day). If swallowing meds, may try Concerta 18 mg.



**To My Patients and Their Families  
and to all My Colleagues**

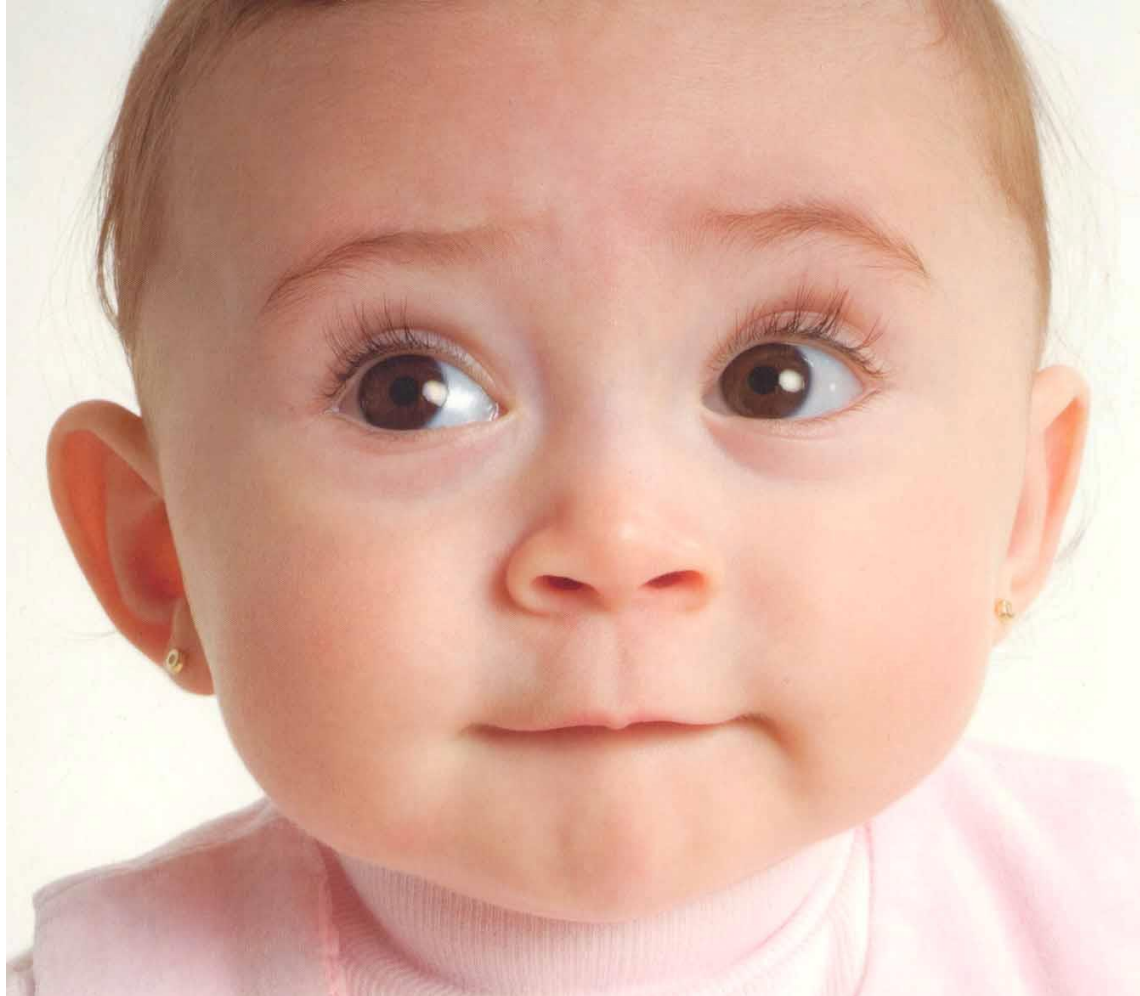


**For all you teach me every day**





# Questions and Comments





# References

- [www.frameworksinstitute.org](http://www.frameworksinstitute.org)
- [www.albertafamilywellness.org](http://www.albertafamilywellness.org)
- [www.developingchild.harvard.edu](http://www.developingchild.harvard.edu)
- <https://www.cssp.org/young-children-their-families/strengtheningfamilies>
- Parkin P, Koroshegyi C, Makam E, et al. Association between Serum Ferritin and Cognitive in Early Childhood. *J Pediatr*. 2020;217:189-191.