

A REGULATION-FIRST Neurobehavioral Model for Supporting Children with FASD/PSE and Their Caregivers

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PRESENTERS



ALEX LUNDY
• Vice President of Programs



RYAN CONLEY
• Director, HRC



SHELBY WEITZEL
• Social Worker
Casey Family Programs



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CASEY FAMILY PROGRAMS

WE BELIEVE:

- Every child deserves a safe, supportive and permanent family.
- Every family will thrive with the support of a caring community.
- Every community can create hope and opportunities for its children and families.
- Every one of us has a role to play in Building Communities of Hope.



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PSE IN WASHINGTON STATE

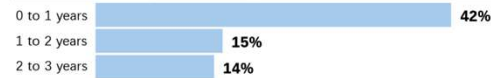
FIGURE 6
Involvement with Child Protective Services Before Age 3
SFYs 2017 – 2023

CHILD PROTECTIVE SERVICES INTAKE

Apple Health Comparison Group



Potential Prenatal Substance Exposure



Diagnosed Prenatal Substance Exposure

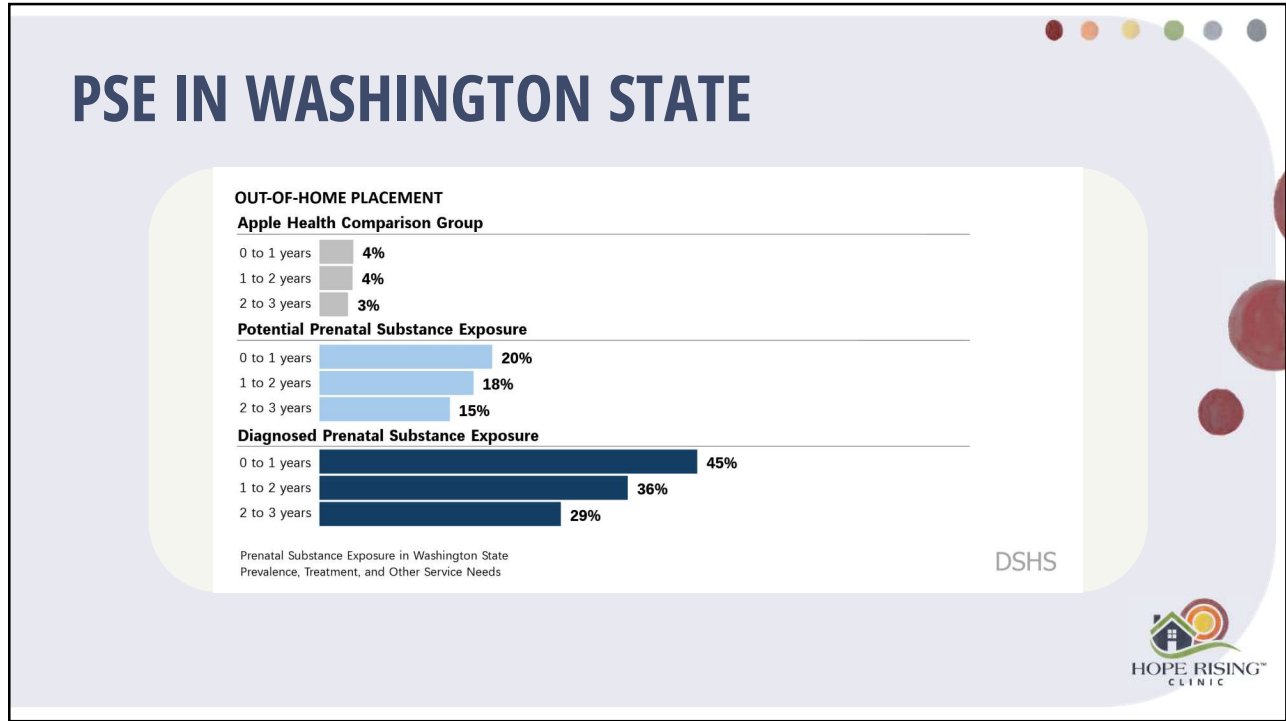


Prenatal Substance Exposure in Washington State
Prevalence, Treatment, and Other Service Needs

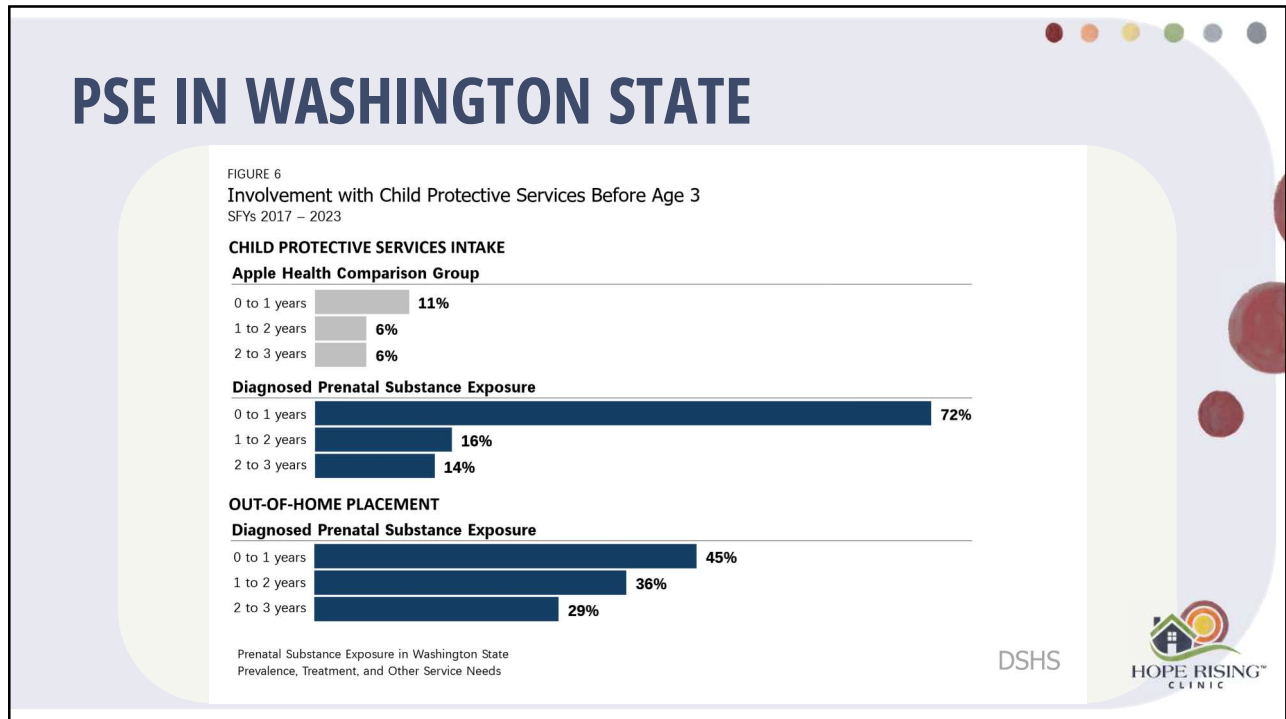
DSHS



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SESSION OVERVIEW



Discuss How A Regulation-First Neurobehavioral Approach Is Effective For Children With FASD/PSE



Share A Clinical Model That Illustrates Neurobehavioral, Caregiver-Centered Support In Practice



Offer Practical Accommodations That Reduce Stigma And Strengthen Caregiver-Child Relationships



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PRENATAL SUBSTANCE EXPOSURE



A Fetus Is Exposed To Alcohol, Opioids, Stimulants, Cannabis, Nicotine, or Other Substances



Substances Alter Fetal Brain Development Affecting Neural Pathways, Stress-Regulation Systems, And Long-Term Developmental Outcomes



Lange, S., Probst, C., Gmel, G., Rehm, J., Burd, L., & Popova, S. (2017).

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FETAL ALCOHOL SPECTRUM DISORDER

- A Brain-Based, Whole-Body Disability Caused By Prenatal Alcohol Exposure**

DIFFERENCES MAY INCLUDE

- Cognitive – Behavioral – Learning - Executive Function**
- Sensory – Emotional Regulation**

Felicchia, R. J., Veziris, C. R., & Mattson, S. N. (2025).



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FETAL ALCOHOL SPECTRUM DISORDER

ALCOHOL IS A TERATOGEN


- Level of Damage Depends On The Type, Duration, Quantity, And Timing of Exposure**

Examples Include...

- Lead – Pesticides – Radiation – Tobacco - Alcohol**

- FASD Is An Umbrella – No Hierarchy Of Diagnosis Or Ability**

Mattson, S. N., Bernes, G. A., & Doyle, L. R. (2019)
Popova, S., Charness, M., Burd, L., Crawford, A., Hoyme, H., Mukherjee, R., Riley, E., & Elliott, E. (2023)



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PREVALENCE OF PSE & FASD

UNITED STATES


- 1 in 12 U.S. newborns were exposed to substances
- Up to 1 in 20 U.S. school-aged children may have an FASD

WASHINGTON STATE

- 34.9 per 1,000 births exposed to opioids
- 11.2 born with Neonatal Abstinence Syndrome

PSE IS MORE PREVALENT THAN AUTISM

West et al. (2023). CDC (2024). WA DOH; WSU Health Sciences, (2025).




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STATISTICS OF PSE & FASD

-  **Alcohol Exposure Is The #1 Cause of Intellectual Disability**
-  **Children With FASD Are More Likely To Be Expelled, Suspended, or Drop Out of School.**
-  **60% of Children With PSE Have Interactions With The Legal System By Age 13, As Victims or Offenders**

Centers for Disease Control and Prevention (CDC), (2025). Jonsson, (2019)




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BRAIN DEVELOPMENT PSE & FASD IMPACT

Alcohol Is A Teratogen
SUBSTANCES DISRUPT BRAIN DEVELOPMENT
BY ALTERING...

- Synapse Formation
- Myelination
- Neural Connectivity
- Blood Flow

Lange, S., Probst, C., Gmel, G., Rehm, J., Burd, L., & Popova, S. (2017).




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BRAIN-BASED DIFFERENCES OVER TIME


INFANTS & TODDLERS	PRESCHOOL & EARLY CHILDHOOD	SCHOOL-AGE
<ul style="list-style-type: none">• Sleep & Feeding Difficulties• Sensory Sensitivities	<ul style="list-style-type: none">• Impulsivity• Difficulty With Transitions	<ul style="list-style-type: none">• Learning Struggles• Inconsistent Performance

Felicichia, R. J., Veziris, C. R., & Mattson, S. N. (2025).




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SYMPTOMS



PRIMARY
Physical brain-based traits that shape how a person grows and behaves*




SECONDARY
Behaviors demonstrating a disconnect between skills and expectations*









TERTIARY
Social impacts due to a mismatch between skills and expectations*

Felicicchia, R. J., Veziris, C. R., & Mattson, S. N. (2025). Mattson, S. N., Bernes, G. A., & Doyle, L. R. (2019). Olson, H. C., Oti, R., Gelo, J., & Beck, S. (2009). Opini, B. (2019). Reedman, B., Breen, K., & Wu, H. (2024). Wozniak, J. R., Riley, E. P., & Charness, M. E. (2019).




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DEVELOPMENTAL IMPACTS


- Language & Communication
- Eating & Feeding
- Motor Skills
- Learning & Memory
- Sensory Processing
- Adaptive Skills
- Executive Function Skills
- Play Skills & Social Participation

Felicicchia, R. J., Veziris, C. R., & Mattson, S. N. (2025). Kodituwakku, P. W. (2009). Mattson, S. N., Bernes, G. A., & Doyle, L. R. (2019). May, P. A., et al (2024). Popova, S., Charness, M., Burd, L., Crawford, A., Hoyme, H., Mukherjee, R., Riley, E., & Elliott, E. (2023). Wozniak, J. R., Riley, E. P., & Charness, M. E. (2019).




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BEHAVIOR THROUGH A NEUROBEHAVIORAL LENS



Identifies What The Brain Is Capable Of At Any Given Moment



Behaviors Reflect Brain-Based Needs
• **NOT** Willful Defiance

MATCH EXPECTATIONS


REDUCE SHAME

SUPPORT REGULATION

Malbin, D. (2025).


Mattson, S. N., Bernes, G. A., & Doyle, L. R. (2019).

Popova, S., et al (2023).



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THIS WORK MATTERS



FAMILY IMPACT

- High Levels Of Stress
- Strained Attachment Between Caregiver And Child


CHILD IMPACT

- Dysregulation Misinterpreted As Intentional
- Dysregulation Becomes A Cycle

THERAPY IMPACT

- Inconsistent Access To Skills Across Environments
- Most Approaches Demand Compliance and Forced Structure

Felicicchia, R. J., Veziris, C. R., & Mattson, S. N. (2025). Greene, R. W. (2016). Ilchena, C., et al (2023). Lange, S., et al (2017). Malbin, D. (2025). Mattson, S. N., Bernes, G. A., & Doyle, L. R. (2019). May, P. A., et al (2024). Mohamed, Z., et al (2020). Olson, H. C., Oti, R., Gelo, J., & Beck, S. (2009). Popova, S., et al (2023).



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REGULATION-FIRST WHY IT MATTERS

DYSREGULATION

A physiological state when the nervous system is temporarily overwhelmed because the demands of an environment have exceeded internal resources.

DYSREGULATED BEHAVIORS ARE **MISLABLED**

- defiant
- manipulative
- oppositional
- attention-seeking

Dana, D. (2018). Perry, B. D. (2006). Porges, S. W. (2025).



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REGULATION-FIRST WHY IT MATTERS

REGULATION MUST COME FIRST

- A child **cannot** reason, learn, or build skills while dysregulated

ADULT REGULATION SHAPES CHILD REGULATION

- Children with FASD/PSE **depend** on a calm adult nervous system

Dana, D. (2018). Porges, S. W. (2025).



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SENSORY PROCESSING & REGULATORY SYSTEMS

Sensory Processing Differences Impact Behavior

- "Acting out"
- "Ignoring"
- "Having a meltdown"

Sensory Experiences Trigger Trauma Responses

- Sounds
- Tastes
- Smells
- Visual Cues
- Touch
- Textures

Alotaibi, H. M., Alduais, A., Qasem, F., & Alasmari, M. (2025). Brandes-Aitken, A., Powers, R., Wren, J., Chu, R., Shapiro, K. A., Steele, M., Mukherjee, P., & Marco, E. J. (2024). Dana, D. (2018). Dunn, W. (2014). Porges, S. W. (2025).



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CHANGING THE NARRATIVE AND BECOME A DETECTIVE...

GET CURIOUS RATHER THAN BLAME - ASK "What if?"

"What if my child is not being disrespectful right now?"

- What If They **Can't** Access The Language Needed To Form A Complex Thought Or Use Mannered Words?

Many Challenging Behaviors Come From Skill Gaps

- **Not Refusal**

Adults Need To Shift From A Won't To Can't Mindset

Bath, H. (2008). Brandes-Aitken, A., Powers, R., Wren, J., Chu, R., Shapiro, K. A., Steele, M., Mukherjee, P., & Marco, E. J. (2024). Dana, D. (2018). Greene, R. W. (2016). Kodituwakku, P. W. (2009). Malbin, D. (2025). Porges, S. W. (2025). Pollastri, A. R., Wang, L., Eddy, C. J., & Ablon, J. S. (2023). Siegel, D. J., & Bryson, T. P. (2012).



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CHANGING THE NARRATIVE AND BECOME A DETECTIVE...

WON'T TO CAN'T

- **Willful** Non-Compliance
- **Not Listening**
- **Purposeful** Behavior
- Task **Refusal**
- **Can't Understand** The Request
- **Can't Process** At Typical Speed
- **Can't Control** Impulses
- **Can't Figure Out** Where To Start



Bath, H. (2008). Felicicchia, R. J., Veziris, C. R., & Mattson, S. N. (2025). Heath, G. H., Fife-Schaw, C., Wang, L., Eddy, C. J., Hone, M. J. G., & Pollastri, A. R. (2020). Mattson, S. N., Bernes, G. A., & Doyle, L. R. (2019). Pollastri, A. R., Wang, L., Eddy, C. J., & Ablon, J. S. (2023). Siegel, D. J., & Bryson, T. P. (2012).




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“I forget that many of our clients have trauma history...
Instead of trying to teach them coping skills,
I should let them feel **safe first.**”
HRC occupational therapist




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THE HOPE RISING CLINIC MODEL REGULATION-FIRST APPROACH



**NEUROBEHAVIORAL
FOUNDATION**

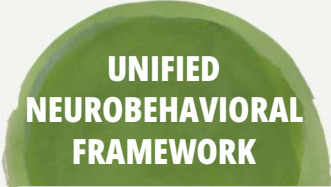
- Behavior Reflects Brain State
- Connection Drives Change
 - Mutual Caregiver-Child Regulation
 - Regulation Before Expectations
 - Flexibility Over Perfection
- Stabilizing Arousal Enables Engagement



Dozier, M., Roben, C. K. P., Caron, E., Hoyer, J., & Bernard, K. (2018). O'Byrne, E., McCusker, C., & McSweeney, S. (2023). Perry, B. D. (2006). Siegel, D. J., & Bryson, T. P. (2012).


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THE HOPE RISING CLINIC MODEL TRANSDISCIPLINARY APPROACH




**UNIFIED
NEUROBEHAVIORAL
FRAMEWORK**

- OCCUPATIONAL THERAPY
- MENTAL HEALTH
- FAMILY SUPPORT SPECIALIST




**WHOLE-CHILD
UNDERSTANDING**

- SENSORY PROCESSING
- EXECUTIVE FUNCTIONS
- SOCIAL EMOTIONAL LEARNING



**MULTIFACETED
INTERVENTION**

- BEHAVIORAL THERAPIES
- EDUCATION
- CAREGIVER EDUCATION & COACHING



Bruder, M. B. (2010). Dozier, M., Roben, C. K. P., Caron, E., Hoyer, J., & Bernard, K. (2018). King, G., Strachan, D., Tucker, M., Duwyn, B., Desserud, S., & Shillington, M. (2009). Park, K., & Carta, J. (2025). Perry, B. D. (2006). Shelden, M. L., & Rush, D. D. (2013).

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THE HOPE RISING CLINIC MODEL MULTIDISCIPLINARY ASSESSMENT

TARGETED ASSESSMENT GUIDES TARGETED INTERVENTION

KEY AREAS

Attachment

Sensory Processing

Emotional Modulation

Executive Function Skills

Lange, S., Probst, C., Gmel, G., Rehm, J., Burd, L., & Popova, S. (2017). Mattson, S. N., Bernes, G. A., & Doyle, L. R. (2019). Wozniak, J. R., Riley, E. P., & Charness, M. E. (2019).

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THE HOPE RISING CLINIC MODEL CAREGIVER EDUCATION PROGRAM

- **FOUNDATION FOR SHARED UNDERSTANDING**
- **CAREGIVER REGULATION BEFORE INTERVENTION**
- **MINDSET SHIFT**


Bruder, M. B. (2010). Ilchena, C., Slayen, C., Rennie, S., Cheung, K., Gaulke, T., & Theule, J. (2023). King, G., Strachan, D., Tucker, M., Duwyn, B., Desserud, S., & Shillington, M. (2009). Olson, H. C., Oti, R., Gelo, J., & Beck, S. (2009). Park, K., & Carta, J. (2025). Petrenko, C. L. M. (2015). Shelden, M. L., & Rush, D. D. (2013).

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THE HOPE RISING CLINIC MODEL PRIMARY SERVICE PROVIDER MODEL

- **BUILD STRONG THERAPEUTIC RELATIONSHIPS**
- **TRUST ENHANCES ENGAGEMENT**
- **ALIGNED INTERVENTIONS**
- **FLEXIBILITY TO ADAPT INTERVENTIONS OR PIVOT APPROACH**

Bruder, M. B. (2010). Felicicchia, R. J., Veziris, C. R., & Mattson, S. N. (2025). King, G., Strachan, D., Tucker, M., Duwyn, B., Desserud, S., & Shillington, M. (2009). Olson, H. C., Oti, R., Gelo, J., & Beck, S. (2009). Park, K., & Carta, J. (2025). Shelden, M. L., & Rush, D. D. (2013).



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THE HOPE RISING CLINIC MODEL THERAPEUTIC PROCESS

- **UNIFIED TREATMENT APPROACH**
- **EXPERIENTIAL PLAY THERAPY**
- **OCCUPATIONAL THERAPY**
- **BUILDING CAREGIVER CONFIDENCE**
- **SHARED FRAMEWORK AROUND REGULATION**

Bruder, M. B. (2010). Perry, B. D. (2006). Shelden, M. L., & Rush, D. D. (2013).



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REGULATION BEYOND EMOTIONS

REGULATION HIERARCHY (INTERNAL/SELF)

1. Physical Homeostasis
2. Secure Attachment & Relationship With Caregiver(s)
3. Communication Skills To Express Needs And Feelings
4. Learn To Identify Internal States (Interoception)
 - How To Care For Biological Needs

Dana, D. (2018). Dunn, W. (2014). Porges, S. W. (2025).



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REGULATION BEYOND EMOTIONS

REGULATION HIERARCHY (EXTERNAL/STRATEGIES)

5. Recognize The Impact Actions Have On Others
6. Prevent/Avoid Actions Or Situations That Commonly Lead To Dysregulation
7. Develop Understanding Of When To Use Tools When Dysregulated
8. Learn To Anticipate When Tools Are Needed To Prevent Dysregulation

Dana, D. (2018). Dunn, W. (2014). Porges, S. W. (2025).



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REGULATION BEFORE ACCESS TO SKILL BUILDING


HOME

SLOW DOWN "10 Second Breath"
 THINK – "Secure your mask first, and then help the other person"

ADJUST DEMANDS "Let's put away just 2 blocks."

MATCH CAPACITY "Let's clean up the red blocks as a team!"

Eun, B. (2019). Mohamed, Z., Carlisle, A. C. S., Livesey, A. C., & Mukherjee, R. A. S. (2020). Petrenko, C. L. M. (2015). Shelden, M. L., & Rush, D. D. (2013). Thomas, M. S. C., Johnson, M. H., Karmiloff-Smith, A., et al. (2021). Vygotsky, L. S. (1978).



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REGULATION BEFORE ACCESS TO SKILL BUILDING

SCHOOL

SLOW DOWN Calming Corner / Sensory Room Or Tools

ADJUST DEMANDS "I wonder if we can start with one word instead of thinking about the whole sentence."

MATCH CAPACITY "Your brain looks full, let's take five to do some wall pushups."

Eun, B. (2019). Opini, B. (2019). Reedman, B., Breen, K., & Wu, H. (2024). Thomas, M. S. C., Johnson, M. H., Karmiloff-Smith, A., et al. (2021). Vygotsky, L. S. (1978).



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REGULATION BEFORE ACCESS TO SKILL BUILDING

COMMUNITY

SLOW DOWN
"Pace With Purpose"
Live Out Loud – Verbalize YOUR Thinking Process

ADJUST DEMANDS
"Less Is More"
Not Every Behavior Requires A Big Reaction

"Share The Load"
Ask For "help" With Small Achievable Tasks
(e.g., "I need your help putting the groceries in the car.")

Brandes-Aitken, A., Powers, R., Wren, J., Chu, R., Shapiro, K. A., Steele, M., Mukherjee, P., & Marco, E. J. (2024). Eun, B. (2019). Ilicena, C., Slayen, C., Rennie, S., Cheung, K., Gaulke, T., & Theule, J. (2023). Thomas, M. S. C., Johnson, M. H., Karmiloff-Smith, A., et al. (2021). Vygotsky, L. S. (1978).



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DEVELOPMENTALLY REALISTIC EXPECTATIONS

MATCH DEMANDS TO DEVELOPMENTAL CAPACITY

- NOT CHRONOLOGICAL AGE


PROVIDE SCAFFOLDING

- VISUAL ROUTINES
- VISUAL & AUDIBLE TIMERS
- CAREGIVER MODELING

ADJUST ENVIRONMENTS vs CHANGING CHILD

- ACCOMMODATIONS
- MODIFY ROUTINES

Brandes-Aitken, A., Powers, R., Wren, J., Chu, R., Shapiro, K. A., Steele, M., Mukherjee, P., & Marco, E. J. (2024). Thomas, M. S. C., Johnson, M. H., Karmiloff-Smith, A., et al. (2021). Vygotsky, L. S. (1978).



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NOTES ON ACCOMMODATIONS & EXPECTATIONS

ACCOMMODATIONS

- Are Dynamic!
- Best When Shared With Others Supporting A Child

We Are NOT Removing Expectations

- Support Matches A Child's Capacity

SEEK SUPPORT TO REFRAME A CHILD'S BEHAVIOR & GUIDE EXPECTATIONS

Shelden, M. L., & Rush, D. D. (2013).



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“My training in the field never touched on sensory systems and the role that plays in regulation. It has been eye-opening to be able to look at certain behaviors not just from a MH perspective but also from an OT perspective.”

HRC mental health clinician



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REGULATION FOUNDATIONAL

- Regulation Support
- Sensory Tools

INTERACTION RELATIONAL

- Communication Support
- Mutual-Regulation Prompts

ENVIRONMENT ENVIRONMENTAL

- Environmental Modifications
- Predictability & Routines

Bath, H. (2008). King, G., Strachan, D., Tucker, M., Duwyn, B., Desserud, S., & Shillington, M. (2009). Park, K., & Carta, J. (2025). Perry, B. D. (2006). Shelden, M. L., & Rush, D. D. (2013).

HOPE RISING™ CLINIC

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ADVOCACY

- **ACADEMIC**
- **EXTRACURRICULARS**
- **SOCIAL PARTICIPATION**
- **MEDICAL CARE**
- **COACHING**
- **LANGUAGE**
- **CONFIDENCE**
- **SUPPORT & CONNECTION**


Olson, H. C., Oti, R., Gelo, J., & Beck, S. (2009). Opini, B. (2019). Reedman, B., Breen, K., & Wu, H. (2024). Petrenko, Petrenko, C. L. M., Tahir, N., Mahoney, E. C., & Chin, N. P. (2014).

HOPE RISING™ CLINIC

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“This has really helped me move from feeling like there has to be discipline and correction to a mindset of **problem-solving** and new solutions and **reading my child’s cues** before a behavior happens and there’s full-on escalation.

It felt good to have affirmation that **rewards and consequences don’t work.**”
 HRC caregiver




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REVIEW

1. BEHAVIOR IS BRAIN-BASED
2. REGULATION + RELATIONSHIP
Regulation Comes First
3. CAREGIVER INSIGHT DRIVES CHANGE
Growth Through Support
4. TRANSDISCIPLINARY SUPPORT
STRENGTHENS PROGRESS
5. ADJUST EXPECTATIONS

Felicicchia, R. J., Veziris, C. R., & Mattson, S. N. (2025). King, G., Strachan, D., Tucker, M., Duwyn, B., Desserud, S., & Shillington, M. (2009). Mattson, S. N., Bernes, G. A., & Doyle, L. R. (2019). Olson, H. C., Oti, R., Gelo, J., & Beck, S. (2009).



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FINAL CONSIDERATIONS

UNIQUE FAMILY STRUCTURES


TRAUMA HISTORIES

FAMILIES IN CRISIS

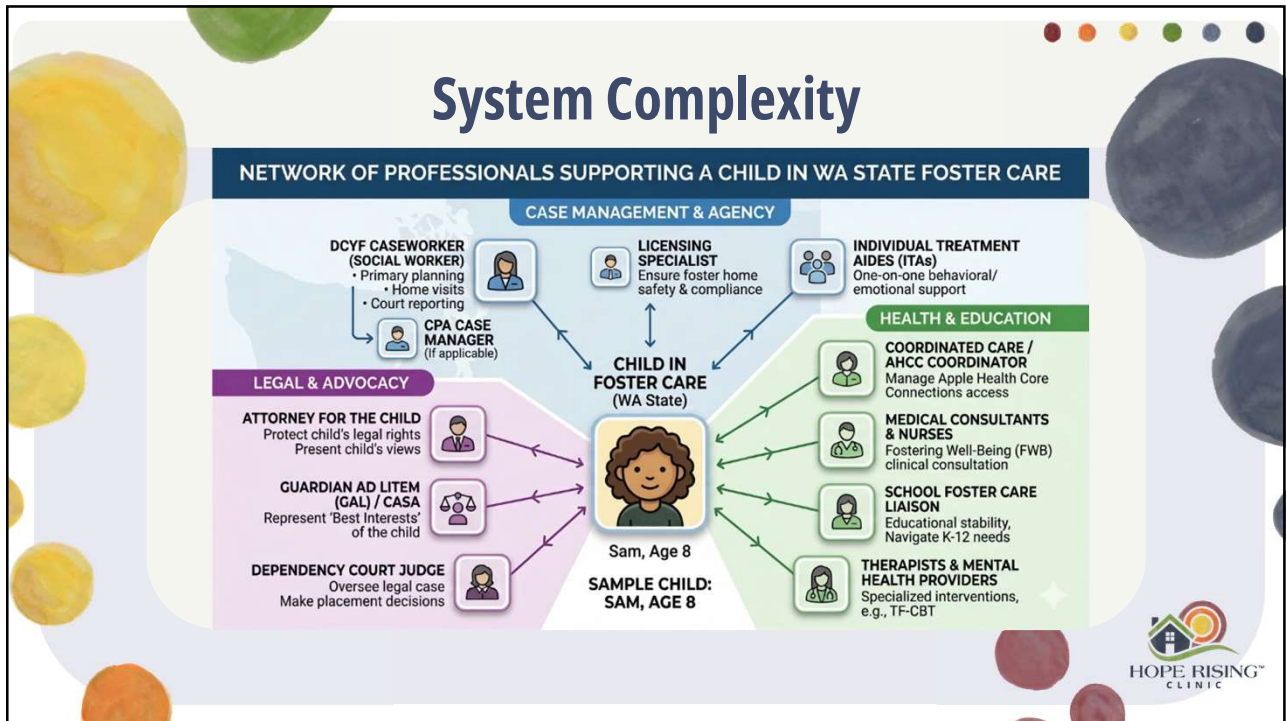
PROVIDER BURNOUT

NEURODIVERSE APPLICABILITY

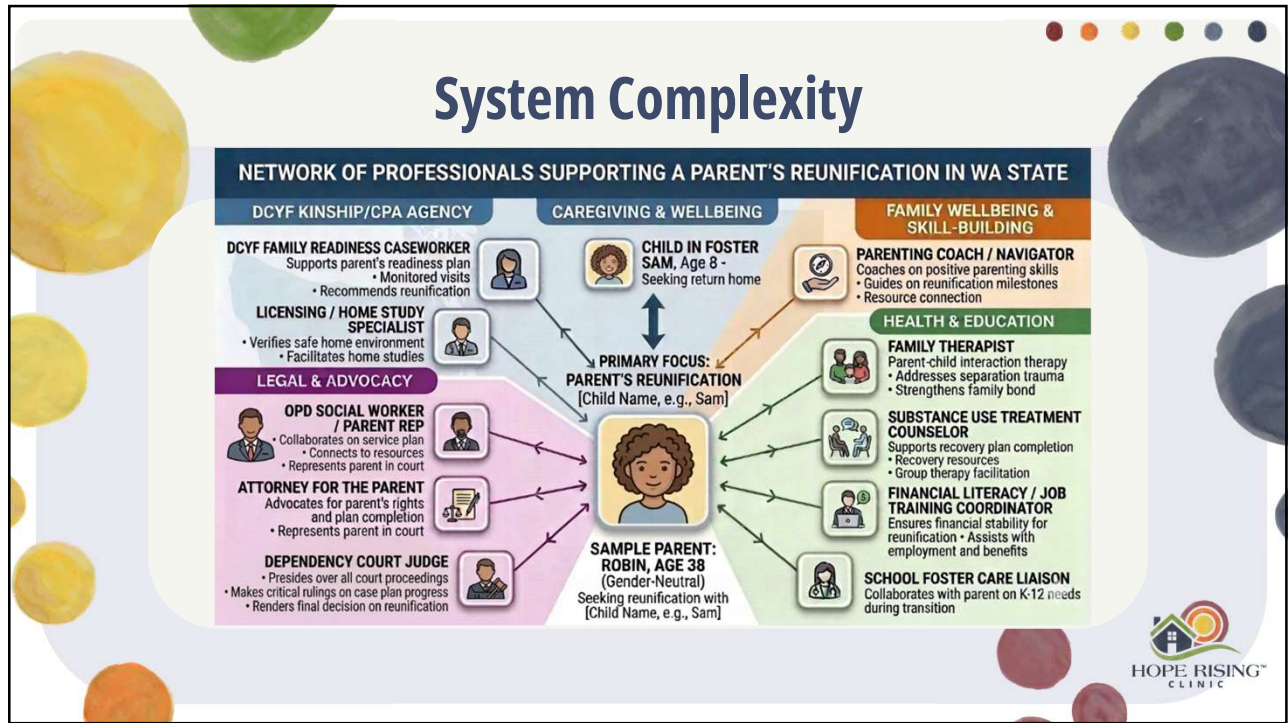
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 Olson, H. C., Oti, R., Gelo, J., & Beck, S. (2009). Petrenko, C. L. M. (2015).



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CONTACT & RESOURCES

HOPE RISING CLINIC.ORG

1909 214TH ST SE—Bothell, WA 98021
(425) 219-4788



Let's Keep in Touch

Scan to share your info
and get early access to
future workshops.



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