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Technical issues with the Recording?

- Clear browser cache using these instructions
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- Use a hardwired Internet connection
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Still having issues?

- Call 866-782-9924 (M-F, 8 AM-8 PM ET)
- Email customerservice@OccupationalTherapy.com

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Early Co-regulation in Infants and Young Children

Teresa Fair-Field, OTD, OTR/L

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CONTINUED

Learning Outcomes

- Define and describe co-regulation to parents and treatment team members in understandable terms.
- Identify causes of disrupted or atypical co-regulation.
- Select assessment tools and treatment strategies using case study presentations that impact co-regulation and self-regulation.

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CONTINUED

What is
Co-Regulation
vs.
Self-Regulation?

3

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Co-regulation is:

- ‘continuous unfolding of individual action that is susceptible to being continuously modified by the continuously changing actions of the partner’ (Wikipedia, 2018)

4

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Key Concepts

- Modulated by actions of a partner

'borrowing' regulation off of someone else's regulated body

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Self-regulation is:

Self-regulation is the ability to monitor and control our own behavior, emotions, or thoughts, altering them in accordance with the demands of the situation. It includes the abilities to inhibit first responses, to resist interference from irrelevant stimulation, and to persist on relevant tasks even when we don't enjoy them.

(Cook, J. L. & Cook, G., 2009)

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Key Concepts

- Matching our bodies to the environment or task
- Inhibition
- Filtering
- Task persistence (Grit)

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Progression of Regulation

Infants
- Not regulated
- Regulation begins with temperature and sleep

Co-regulation
- Parents
- Caregivers
- Forward and back trial of self-regulation

Self-regulation
- Early childhood
- Testing resources
- Emerging self-awareness
- Self-advocacy

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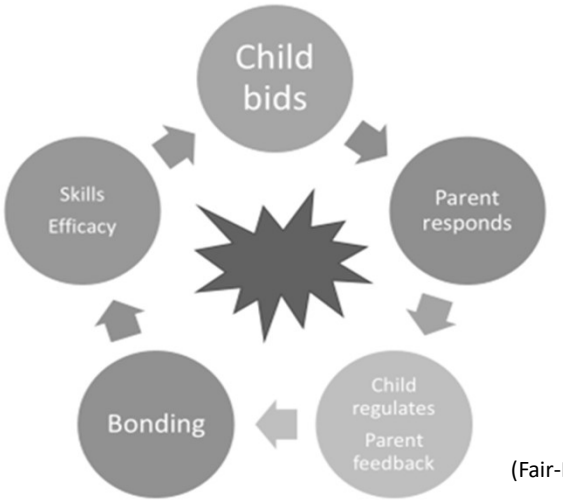
CONTINUED

Figure 1: Dynamic co-regulation



(Fair-Field, 2017)

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Differentiating Typical

- Able to participate in a group with similar aged peers.
- Can join play in progress.
- Able to adjust behavior to cues.
- Able to lead or follow.
- Collects information from the environment.
- Changes gears relatively easily.
- Recovers relatively quickly.

- Struggles to join or remain in a group.
- Disrupts play in progress.
- Struggles to turn off a behavior, even when prompted.
- Appears to be on his/her own plan, or only lead the action.
- Upset when having to change gears (i.e. 'transition')
- Takes a long time to recover.

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Factors affecting Regulation

- Genetics
- Environment
- Neurological development
- Adverse Childhood Experiences (ACEs)
- Intrauterine Exposures
- Prematurity
- Allergies / Digestion / Physical Symptomatology
- System maturation
- Accommodation / Strategy / Exposure

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CONTINUED

Indicators of Poor Regulation

Poor sleep	Poor sleeping well into toddlerhood.
Poor body awareness	Leaners, pushers, pullers, crashers
Movement seeking	Swinging, jumping, falling, spinning
Touch avoiding	Preferring to initiate even loving touch
Oral motor seeking	Unusual oral behavior Prolonged mouthing
Eating and feeding	Bottle strikes Difficult taste, texture progress

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CONTINUED

ACEs and (Co-)Regulation

Effects of early childhood experiences

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Adverse Childhood Experiences
(ACEs)

- Personal experience of abuse, neglect, trauma
- Proximity to an unstable parent or close family member (substance abuse, mental illness, domestic violence)
- Sudden departure of a close family member (divorce, death, incarceration, abandonment)

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Disrupted neurodevelopment

(Lynch, Ashcraft, & Tekell, 2017)

- Impedes typical maturation of the CNS
- Difficulties with discrimination, praxis, and modulation
- Layered upon 'at risk' systems due to pre-natal/intrauterine exposures

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What is the relationship between attachment and sensory modulation?

- Statistically significant
  - 68 Children ages 3-6 with primary caregiver for 12 m
  - Excluded children receiving tx for either concern
  - Attachment Q set & Short sensory profile
  - Natural environment session of 60-75 min

Whitcomb, D. A., Carrasco, R. C., Neuman, A., & Kloos, H. (2015). Correlational Research to Examine the Relation Between Attachment and Sensory Modulation in Young Children. *American Journal of Occupational Therapy*, *69*(4), 1–8.

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Whitcomb, D. A., Carrasco, R. C., Neuman, A., & Kloos, H. (2015). Correlational Research to Examine the Relation Between Attachment and Sensory Modulation in Young Children. *American Journal of Occupational Therapy*, *69*(4), 1–8.

- Young children who are insecurely attached may struggle with correctly interpreting and responding to sensory stimulation from the environment.
- Children who initially have atypical responses to sensory information may have difficulty forming a healthy attachment to their primary caregivers.

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ACEs effect on (Co-)Regulation

Sensory behaviors as coping mechanism

- poor adaptation skills
- sensory reactions trigger emotional states
- emotional states trigger sensory reactions
- perceived loss of control (remember volitional impact)

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CONTINUED

Autism and (Co-) Regulation

Effects of autism symptomatology

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CONTINUED

- Ben-Sasson, A., Soto, T. W., Martinez-Pedraza, F., & Carter, A. S. (2013). Early sensory over-responsivity in toddlers with autism spectrum disorders as a predictor of family impairment and parenting stress. *Journal of Child Psychology and Psychiatry*, *54*(8), 846–853.
- Question: Does sensory over-responsiveness (SOR) predict parenting stress and family life impairment above and beyond the symptoms of autism alone?
  - P: Children with ASD demonstrating sensory over-responsiveness
  - I: Assessment and observation of parent and child using standardized tools and measures
  - C: Children with ASD (non-SOR group)
  - O: Prediction of parenting stress and family life impairment in the SOR group

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Parent/Child Characteristics

- N=174 toddlers with ASD, mean age of 28.5 mo
- 136 boys (78%), 38 girls (22%)
- 80% non-Hispanic/Latino White
- SOR group vs. Non-SOR = ~2 s.d. below norm
- Social skill severity (low)
- Anxiety and 'externalizing problems' (high)
- Mothers (99%), mean age of 36.17
- 91% married or cohabiting

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Findings

- Significantly higher levels of parenting stress longitudinally (T1=start, T2=1 year, T3=2 years)
- Average levels of parenting stress and family impairment did not change over the period studied, though the 'slope' changed
- Higher SOR showed less change in 'family variables'

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Discussion

- Parenting stress may reduce parents' effectiveness in applying early intervention techniques (Osborne, McHugh, Saunders, & Reed, 2008)
- Parenting stress may lead the parent to over-respond to their child's behavior, *respond in a less co-regulated manner*, and be less effective in applying self- and child-directed coping strategies.
- Greater need to adapt activities and routines to accommodate the child's preferences (greater activity restrictions) and yet less ability to do so.

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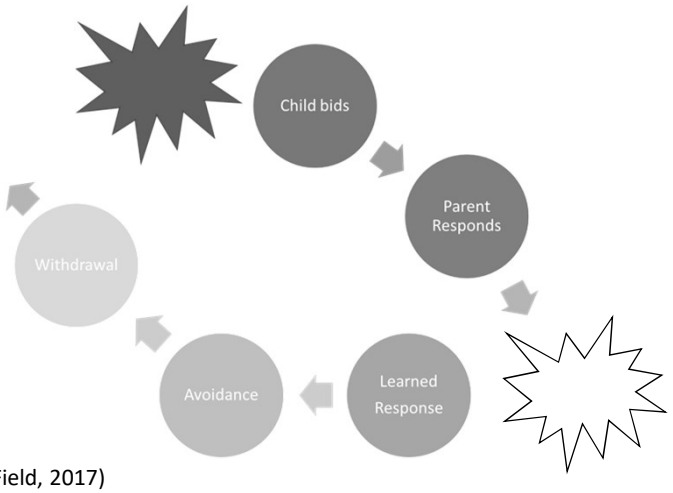
Figure 2: Co-regulation Mismatch



(Fair-Field, 2017)

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CONTINUED

Prematurity and (Co-) Regulation

Effects of extremely low gestational age

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CONTINUED

- Sansavini, A., Zavagli, V., Guarini, A., Savini, S., Alessandroni, R., & Faldella, G. (2015). Dyadic co-regulation, affective intensity and infant's development at 12 months: A comparison among extremely preterm and full-term dyads. *Infant Behavior and Development*, *40*, 29–40.

Defining Prematurity

- Late preterm: 34-36 wks GA (60% of preterm)
- Moderate preterm: 32-33 wks GA (20%)
- Very preterm: 28-31 wks GA (15%)
- Extremely preterm/ELGA: <28 weeks (5%)

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CONTINUED

- Sansavini, A., Zavagli, V., Guarini, A., Savini, S., Alessandroni, R., & Faldella, G. (2015). Dyadic co-regulation, affective intensity and infant's development at 12 months: A comparison among extremely preterm and full-term dyads. *Infant Behavior and Development*, *40*, 29–40.

- Purpose: To investigate the quality of co-regulation and affective intensity during spontaneous play interaction in 20 mother–infant ELGA dyads compared to 20 full-term (FT) dyads at 12 months (corrected age for ELGA infants)

- P: 20 mother-infant ELGA dyads at 12 mo. corr. age
- I: Observation, videotape, and coding of play
- C: 20 full term dyads at 12 mo.
- O: Describe dyadic co-regulation patterns

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CONTINUED

- Sansavini, A., Zavagli, V., Guarini, A., Savini, S., Alessandroni, R., & Faldella, G. (2015). Dyadic co-regulation, affective intensity and infant's development at 12 months: A comparison among extremely preterm and full-term dyads. *Infant Behavior and Development*, *40*, 29–40.

Revised Relational Coding System (Fogel et al., 2003)

- Symmetrical: mutual focus/shared attention, actions directly affect one another, are able to 'innovate' a theme or topic together; actions and emotions are simultaneous or sequential.
- Asymmetrical: one partner innovates the theme, while the other observes but does not respond in kind. Either demonstrating or expecting. Shared attention still present.
- Unilateral: one partner attempts to keep a mutual focus whereas the other is developing their own new theme or topic.
- Disruptive: one initiating partner disturbs the action of the other passive partner who appears annoyed or displeased. The initiating partner does not adjust their behavior relative to the feedback.
- Unengaged: No shared attention, not involved or interacting though opportunity is present.

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- Sansavini, A., Zavagli, V., Guarini, A., Savini, S., Alessandroni, R., & Faldella, G. (2015). Dyadic co-regulation, affective intensity and infant's development at 12 months: A comparison among extremely preterm and full-term dyads. *Infant Behavior and Development*, *40*, 29–40.

- Less frequent symmetrical co-regulation
- More frequent unilateral patterns (initiated by the parent)
  - Unilateral-demanding patterns were most prevalent

- Unilateral-following : one partner observes, available, but the other is not attending.
- Unilateral-initiating : one partner initiates, but the other does not respond
- Unilateral-demanding : one partner actively attempts to engage, moving into personal space, the other does not respond despite

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Disordered Sensation

Effects of the sensory system on co-regulation

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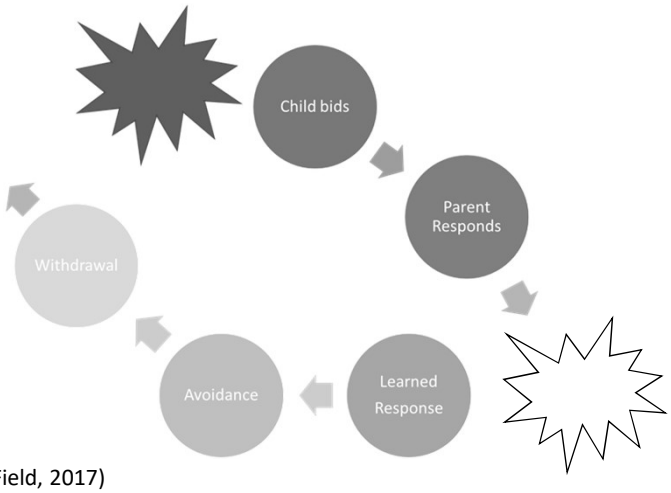
CONTINUED

Figure 2: Co-regulation Mismatch



(Fair-Field, 2017)

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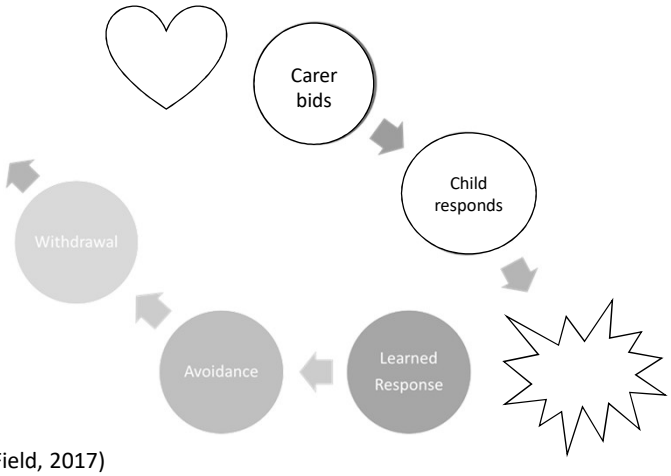
Figure 2: Co-regulation Mismatch



(Fair-Field, 2017)

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Occupational Therapy Scope

Assessment & treatment models to impact successful co-regulation

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Assessing Infant & Parent Sensory Behavior

- Challenge with infants and the very young
  - Lack of standardized assessments
  - Parent questionnaires (Likert scale)
    - Sensory Profile 2 (Dunn, 2014)
      - Infant Sensory Profile 2 (birth to 6 months)
      - Toddler Sensory Profile 2 (7 to 35 months)
    - Sensory Processing Measure (Parham et al., 2007)
      - Preschool measure (2 to 5 yo)
      - Currently collecting normative samples for SPM-2
        - Will assess infants co-regulating with parent assessment
    - Test of Sensory Functions in Infants (DeGangi & Greenspan, 1989)

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Assessment & Treatment

- Assessment
  - Child and
  - Parent/caregiver
- Treatment
  - Caregiver-focused interventions
    - Address the mismatch
  - Child-focused interventions
  - Environmental supports and adaptations

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CONTINUED

Interventions

Smith Roley, S., Singer, M., & Roley, A. (2016, December) *Ayres Sensory Integration® for infants and toddlers*. Retrieved from http://www.instsi.co.za/blikmin_saisi/files//04%20SAISI%20Integration%20for%20Infants%20and%20Toddlers_Article_c%20WEB.pdf

- Fussy Baby
- Sleepy Baby
- Clumsy Baby
- Disorganized Baby

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CONTINUED

Interventions

Smith Roley, S., Singer, M., & Roley, A. (2016, December) *Ayres Sensory Integration® for infants and toddlers*. Retrieved from http://www.instsi.co.za/blikmin_saisi/files//04%20SAISI%20Integration%20for%20Infants%20and%20Toddlers_Article_c%20WEB.pdf

Fussy Baby

- Coaching caregiver to recognize the STOP SIGNS
  - Color changes
  - Looking away from stimulus
  - Fussy
  - Jerky movements

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CONTINUED

Interventions

Smith Roley, S., Singer, M., & Roley, A. (2016, December) *Ayres Sensory Integration® for infants and toddlers*. Retrieved from http://www.instsi.co.za/blikmin_saisi/files//04%20SAISI%20Integration%20for%20Infants%20and%20Toddlers_Article_c%20WEB.pdf

Sleepy Baby

- Difficulty maintaining alertness usually presents as a problem sustaining energy and alertness for feeding.
- Weight gain and developmental milestones may be affected
- Effort required to elicit a reaction
- More intense stimulation that expected
- Baby massage

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CONTINUED

Interventions

Smith Roley, S., Singer, M., & Roley, A. (2016, December) *Ayres Sensory Integration® for infants and toddlers*. Retrieved from http://www.instsi.co.za/blikmin_saisi/files//04%20SAISI%20Integration%20for%20Infants%20and%20Toddlers_Article_c%20WEB.pdf

Clumsy Baby

- Difficulty with head lag
- Asymmetrical or uncoordinated motor efforts
- Difficulty maintaining balance during sitting, standing, crawling and walking
- Frequent and high intensity swinging, carrying, dancing
- Baby wearing
- High vestibular and proprioceptive input

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CONTINUED

Interventions

Smith Roley, S., Singer, M., & Roley, A. (2016, December) *Ayres Sensory Integration® for infants and toddlers*. Retrieved from http://www.instsi.co.za/blikmin_saisi/files//04%20SAISI%20Integration%20for%20Infants%20and%20Toddlers_Article_c%20WEB.pdf

Disorganized Baby

- Prefer familiar tasks and activities/Repetition
- May become distressed at novelty
- Difficulty negotiating the environment
- Add incremental changes to gradually increase task demands
- Support baby with graded assistance

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Environmental Supports & Adaptations

- Mismatch usually shows up in the environment
- Support caregiver in problem-solving reasonable environmental changes
- If removal of the expectation is the only response, reactivity may increase with age and grow more dominant in interference in family activities

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Whitcomb, D. A., Carrasco, R. C., Neuman, A., & Kloos, H. (2015). Correlational Research to Examine the Relation Between Attachment and Sensory Modulation in Young Children. *American Journal of Occupational Therapy*, *69*(4), 1–8.

‘homeodynamic corridor’

Interplay of the child, the caregiver, the dyad, and the environment

- the child’s sensory modulation
- caregiver’s attentiveness
- development of the parent’s skills as a co-regulator

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CONTINUED

25-month old child and mother

Child Factors

- Hispanic
- Youngest child
- No verbal speech
- Breastfeeding for comfort
- Protracted tantrums
- Aggressive play
- Required nearly constant physical contact
- Unable to soothe to sleep

Parent/Family Factors

- Hispanic
- Married mother of 7
- Visits w/ interpreter
- 3 of 7 with dev delays
- Goals:
  - to wean
  - to leave the room at bedtime
  - to play with sibs without support

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CONTINUED

30-month old child and foster parent

Child Factors

- African-American
- Intrauterine exposure
- History of ACEs
- Avoided loving touch
- Difficult interactions with family dog
- Intolerant of hair care
- Limited intake (not variety)

Caregiver Factors

- White
- Married mother of 2 teen/tween sons
- In adoption process
- Infant sister just joined
- Goals:
  - meet mutual bonding needs
  - build self care routines
  - expand diet

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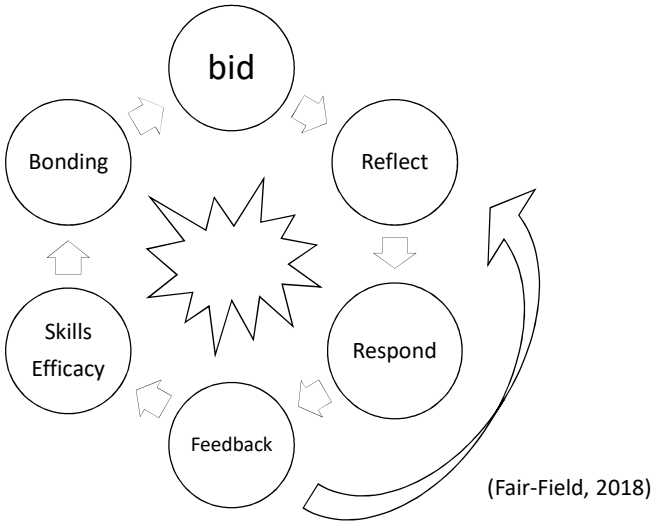
Figure 1: Supported co-regulation



(Fair-Field, 2018)

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Ready for Questions!

- How do you see co-regulation occurring with fostering families or non-parent caregivers?
- Who on your team is addressing bonding and its effects on co-regulation?
- How is your organization capturing at-risk families and identifying ACEs?

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  - Seattle, Washington
  - LinkedIn
  - teresa.otclubhouse@gmail.com

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