The Impact and Treatment of Children Born Addicted Due to Maternal Prenatal Use/Abuse of Opioids

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Rising Rates of Childhood Trauma and Complex Trauma

- Each year approximately 5 million children experience some form of traumatic experience
- More than 2 million of these are victims of physical and/or sexual abuse
- Millions are living in a terrorizing atmosphere of domestic violence, impact of parental drug and alcohol abuse, community violence

- Perry, 1994; Posttraumatic Stress; 1995; Orfale, et al., 1995; O'farley, 1995

Number of Foster Children in U.S. Rises

- After dropping sharply between 2005 and 2012, the number of children in the US Foster Care system has increased for the third year
- Federal data released: Major factor is worsening substance abuse by parents
- 32.2% of 2015 foster care cases were due to parental substance abuse
- A rise in parental abuse of opioids and methamphetamine was a major factor. So pervasive, that family placements are an issue
- 427,910 foster children in 2015
- Largest increases in Florida, Georgia, Indiana, Arizona and Minnesota

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What Are Opioids?

- Heroin
- Various pain prescription drugs:
  - Oxycodeone, Hydrocodone, Fentanyl
- Centers for Disease Control and Prevention (CDC) – identified opioid abuse as an epidemic.
- In 2014 – approximately 26,000 adolescents had used heroin within past year
- 18,000 adolescents had a heroin use disorder

Opioid Epidemic Locally and Nationally

- Use of opioids is resurging from 1980's
- Over 63,000 deaths in 2016 from drug overdoses
- About 2/3 involved an opioid
- US saw a 21% increase in opioid-related deaths from 2015-2016
- Hudson Valley region 340 opioid-involved overdoses in 2016; 15% increase
- Over 2 million people addicted on opioids; dramatic increase in number of deaths of children from ingesting opioids in home
- $485 million from 21st Century Cures Act distributed to States

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NAS Varies from Child to Child

- The syndrome is variable in both expression and intensity between infants (Jansson, 2010)
- Drug (prescription and nonprescription) use late in pregnancy increases chances of NAS and can cause dependence in fetuses and newborns
- Use of methadone or other anti-addiction medication can also cause NAS
- Any opioid used by mother during pregnancy can produce NAS in infant
- Opioid exposed infants are actually poly-drug exposed, contributory effect of other licit and illicit substances, including alcohol and nicotine
- This adds to variability and severity of NAS

Neonatal Abstinence Syndrome (NAS)

- "Constellation of signs and symptoms of infant neurobehavioral dysregulation that occurs in the immediate neonatal period." Central and autonomic nervous system regulatory dysfunction
- NAS affects nearly 11 in every 1,000 births
- Sudden withdrawal of opioids from mother (at cutting of umbilical cord) can cause increased production of neurotransmitters
- Opioids are Mu receptor agonists in Autonomic Nervous System
- Results in disruption of nervous system and overstimulates bodily functions

Neonatal Abstinence Syndrome (NAS)

- Dose of methadone shows no correlation with severity of NAS for the infant
- One study showed male babies are more vulnerable in infancy and childhood and had longer initial hospital stays and more intensive treatments (Jansson, et al., 2010)
- Possibility that the male brain has a higher affinity for methadone than that of female brain in research with animals

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NAS

- Degree of withdrawal is variable from infant to infant
- Symptoms usually appear within 48 to 72 hours after birth; can last for months
- Onset of NAS depends on which opioid used during pregnancy:
  - Heroin use = NAS within 24 hours of birth
  - Methadone use = NAS within 48 hours of birth
  - Benzodiazepines or barbiturates = NAS later than 48 hours
- Requires Neonatal Intensive Care (NICU) for average length of 25 days
- Creates disruption in nervous system
- Symptoms can last for months, can cause long hospital stay
- Symptoms can be severe, lasting up to six months after birth

Hospitals Vary in Treatment

- Two babies born 15 months apart – two different treatments – South Carolina
- First: infant put in special-care nursery for two weeks
- Nurses hesitant to let mother hold baby
- Second infant started on medicine before showing NAS and mother allowed to keep infant in same room and encouraged breast feeding. Hospital stay was just a week

Research Needed

- No gold-standard treatment being used
- A ‘scattershot’ approach
- Monitoring and treatment of NAS varies depending on institution and philosophy of physicians
- $1 million NIH grant to identify practices toward a national standard for evidence-based treatment

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Diagnostic Testing Needed

- Typically blood and urine drug screens from mother and baby
- If drug exposure was not recent, tests no as sensitive
- Meconium accumulates drugs in-utero for approximately the last 5 months of pregnancy
- Good option for diagnostic testing, along with maternal history and maternal urine testing

Monitoring NAS Symptoms

- Lipsitz Tool (77% sensitivity) - uses a value above four indicating significant withdrawal
- Finnegan scoring system assesses neonatal withdrawal. Gives number rating to symptoms in four areas:
  - CNS Irritation
  - Respiratory distress
  - Gastrointestinal distress
  - Vegetative symptoms
- Score higher than 8 is clinically significant; with testing every 8 hours recommended

Infant Pharmacologic Treatments for NAS

- Approximately half of infants born to opioid-addicted mothers will require some form of pharmacologic approach
- Once pharmacologic treatment initiated, hospital stay will vary, and usually in NICU
- Medications: Methadone, Buprenorphine, Morphine and Phenobarbital; Diluted Tincture of Opium
- The most commonly used is Methadone (synthetic opiate)
NAS Treatment Cont’d

- If infant has two Finnegan scores above 8, started on Methadone therapy to reduce score
- If methadone therapy not sufficient, then phenobarbital therapy concurrently added (for sedation more than managing symptoms), and maintained on phenobarbital once off of methadone for 48 hours

Other Pharmacologic Options

- Management of NAS usually involves opiate derivative such as diluted morphine - diluted tincture of opium
- Clonidine has also been trialed
- Treatment of NAS using pharmacologic methods varies greatly (Sarkar & Donn, 2006)
- AAP guidelines now recommend oral morphine and methadone as first-line therapies. Clonidine also suggested as first-line therapy or adjunctive therapy
- AAP (1998) initially recommendation tincture of opium as preferred choice of treatment for opiate withdrawal

Critically Ill Children

- Opioid tolerance develops during critical illness
- Results more frequently from prolonged intravenous infusions of short-acting opioids
- Treatment options include:
  - Slowly tapering opioid doses
  - Switching to longer-acting opioids
  - Specifically treating symptoms of opioid withdrawal

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Side Effects of Clonidine and Phenobarbital

- Clonidine — Used for high blood pressure, anxiety, Tourette's, ADHD, anxiety, insomnia, addiction-related withdrawal
- Side Effects — Drowsiness, dizziness, irritability, running or stuffy nose, sneezing, cough, hallucinations, depression
- Phenobarbital — Used for seizures, on short-term basis for insomnia
- Side Effects — excitement, irritability, dizziness, nausea, constipation, headache, memory/concentration loss, vomiting, loss of appetite

Neonatal Abstinence Syndrome (NAS)

- NAS occurs in infants born to opiate-dependent mothers.
- Symptoms include:
  - CNS Symptoms (e.g. hyper-irritability, tremors, high-pitched cry, convulsions)
  - Neurodevelopmental problems: short attention span, hyperactivity, sleep disturbances at 12-34 months
  - Behavioral impairments rather than physical birth defects

Signs and Symptoms of NAS in Newborn Babies

- Hyperirritability/Overstimulation of the CNS:
- Difficulties with tone and movement; tremors, jitteriness, increase in muscle tone, hyperactive deep tendon reflexes, tight muscles, seizures
- Increased wakefulness, insomnia, anxiety
- Irritability, restlessness
- High-pitched crying
- Respiratory symptoms — apneas
Additional Symptoms

- Gastrointestinal symptoms: uncoordinated and/or excessive, constant, sucking, poor feeding, vomiting, loose stools, dehydration
- Can lead to difficulties in feeding, resulting in weight loss or failure to thrive
- Autonomic Signs: increased sweating, high temperature, frequent yawning, frequent sneezing, increased heart rate, increased blood pressure, nasal congestion, blotting of skin
- Other signs: poor weight gain, increased REM sleep

Difficulties with state regulation. Difficulty maintaining a quiet alert state which is needed to interact with their caretakers, and be able to feed and grow.

- Can have problems going smoothly from sleep to awake states, often become irritable and cry

Additional Difficulties/Problems

- Difficulties with reactivity to stimuli. Atypical responses to touch, sound, movement or visual stimulation and can become either over-stimulated and poorly reactive, or "pull down" to avoid the stimulation
- Problems with autonomic nervous system control; gagging, vomiting/diarrhea, skin color changes, fever, fast breathing or hiccupping, indicating inability to smoothly regulate their functioning

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- Difficulty connecting with caretakers due to being resistant to cuddling or soothing; decreased ability to respond normally to auditory or visual stimuli (attachment problems)
- Compounded trauma due to placement in foster care or orphanages
- Complex trauma due to parental low SES, continued drug use, poor parenting skills, parental stress during pregnancy (higher cortisol levels in utero and impact on developing infant's brain)

Impact on Brain Development

- Children who suffer from neglect go through traumatic stress that impairs the development of the right brain
- Results in neuron damage and atrophy

The Stress Response

- Is an important survival mechanism
- Is gradually regulated in an infant over their first year of life by the process of care-giving
What Does a Regulated Stress Response Look Like?

- **Durnal Cortisol:**
  - Fig. 2. Salivary cortisol levels in µg/dL decline significantly across the day in Russian infants and toddlers who are family reared, but not for those who are orphanage reared.
  - Improved caregiving helps to normalize the functioning of the HPA axis (Kreppner et al., 1997).

"Stimulated" Cortisol and the HPA Axis

![Diagram of the HPA axis]

- Threat Response "fight or flight" - neural system not affected, but cortisol is increased, attention is linked to sex steroid

Dysregulated HPA Axis in Children

- Blunted cortisol in response to chronic stress:
  - Compromised immune response
  - Overall disruption of sleep/wake cycle (Gunnar & Vazquez, 2011)
  - Severe chronic stress can create a "toxic" level of cortisol and affect neural development in the hippocampus (Gunnar et al., 2006; Pinedo, Giedd, & Reiss, 1998)
  - Hypo-responsive to mild stressors (Kuypers et al., 1996) and slow, difficult recovery from stress

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What Helps a Child Develop a Well-Functioning Stress Response?

- Consistent, sensitive care-giving is a strong protective factor in infancy, even if there are other stressors in the child's environment (Thompson, Braun, Grossmann, Gunnar, Heimrich, Keller, O'Connor, Spangler, Velanich & Wang, 2003).

- Securely attached pre-schoolers had lower cortisol levels during the adaptation phase of pre-school than insecurely attached children—although they cried during the separation phase (Abart, Gunnar, Lamb & Smith, 2004).

Relational Trauma/Affect Regulation

- The most far-reaching effect of Relational trauma is the loss of the ability to regulate the intensity of affect (Schore, 2003a; 2003b)

- Early trauma and neglect results in a developmentally impaired inefficient orbitofrontal regulatory system (Schore, 2003a; 2003b)

Neurological Impact

- Impairment of the orbitofrontal cortex and the circuits connecting it with subcortical areas can diminish the child's sense of self, leading to disconnection from other people

- Creates a hyperarousal response—higher levels of cortisol; child doesn't deal well with stress

- Child doesn't develop ability to regulate emotional responses

- Impacts the sympathetic Autonomic Nervous System serving right frontal cortex (area involved in attachment)

- Interferes with attachment

- Inability to pick up social cues

- May not develop empathy
Further Symptoms of Neglect

- Extreme lack of exploratory behavior
- Poor emotional regulation — screaming and temper tantrums
- Early sensory and movement deprivation
- Processing disorders: either hyper or hypo sensitive
- Central auditory processing disorders, receptive and expressive language deficits
- Eating disorders — sensitivity to tastes and textures of food
- Lack of pleasure in encountering new circumstances

Development Happens Over Time And Is Influenced By Experience

- Important neural pathways are being strengthened in infants, toddlers, and pre-schoolers LONG before you see the "results"...
- They are shaped by normal day-to-day experiences
- Other neurochemical systems are being shaped by the child’s experiences — how these systems develop will continue to impact the child as they grow

Brain Development

- Brain develops from bottom to the top (from brain stem to the cortex)
- From the inside to the outside
- 50% in the first year
- 25% in the second year
- 25% in the third year
- Development is triggered by the environmental cues, and shaped by interaction with the environment (Use-Dependent Development)
Use-Dependent Neural Development

- "The human brain exists in its mature form only as a by-product of genetic potential and environmental history (Perry, 1996)"
- The intricate, interactive, sensory dance between the child and the child's environment creates internal, molecular responses that organize and form the developing brain and the information that it contains.

Early Relationships Shape Infant Mental Health

- Secure Attachment to a Caregiver is created by:
  - Attention to infant cues
  - Providing opportunities for mutual regulation
  - Repair (Tronick, 1996)
  - Providing a "secure base" (Ainsworth, 1969)
  - Serves to buffer young children from toxic levels of stress

Children are different...

- Children with a more inhibited temperament (difficulty adjusting to new things, stronger tendency to become frightened or upset)
- AND an insecure attachment relationship with their mother
- Showed elevated cortisol levels when placed in new situations (clown, robot, puppets) (Nachmias, Gounar, Mangoldorf, Parelz, & Buss, 1998)
The Polyvagal Theory

- The life work of Stephen Porges, PhD, research psychologist, now at Indiana University
- Transformative power of feeling safe
- The Vagus, 10th Cranial Nerve: Connects brain, heart, gut
- Key concepts: 2 aspects of Vagus & Hierarchy of response to threat

Safety

- Feeling?
- Cognition?
- Represented symbolically?
- First, safety is a physiological state regulated by the autonomic nervous system (ANS)
- Regulates heart rate, blood pressure, digestion
- Sympathetic and parasympathetic branches associated with Fight, Flight, Freeze

Window of Tolerance

Hyperarousal Zone

Hyperarousal Zone

Optimal Arousal Zone

Hypoarousal Zone

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Porges: 2 ways to help children

- "Alter caregiving environment so that it will appear and be safer for children and less likely to evoke mobilization or immobilization responses.
- Intervene directly with children
  - Exercising neural regulation of brainstem structures
  - Stimulating neural regulation of Social Engagement System
  - Encouraging positive behavior." (2011, p. 19)

Polyvagal Theory concepts

- Neuroception
- Social Engagement System
- Both ventral and dorsal vagal circuits
- Hierarchical response to threat
  1. Safety: Calm, relaxed, optimal arousal within Window of Tolerance
  2. Danger: Mobilization, hyperarousal, Fight/Flight
  3. Life threat: Immobilization, hyporarousal, Freeze

Neuroception

- Nervous system’s capacity to evaluate one’s environment and consequently risk (internal and/or external) without awareness
- Happens in microseconds
- Expressed in neuroendocrine, cardiovascular and immune systems
- Maternal anxiety/stress/depression during pregnancy significantly associated with challenges in infant orientation and ANS stability
- Greater activation of right hemisphere, elevated levels of cortisol and norepinephrine
- Results in being toxic to fetal and infant brain (Sandman & Davis, 2012), impacts ANS, regions mediating positive social relational behavior

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Social Engagement System (SES)

- We seek cues in faces and voices of others and form trusting relationships with those who emit cues of safety, and conversely feel threatened by lack of positive cues
- How does this develop??
- Begins with early interactions with caregivers
- Infant’s limited behavioral repertoire
- Parent's Social Engagement System: responsive facial expressions, vocalizations, listening & head gestures
- Child's SES activated, down regulates defensive states and enables feelings of safety
- Capacity and flexibility of SES requires exercise

Social Engagement System

Regulation of muscles of face and head to signal caregiver and to perceive engagement behaviors of others

- Make eye contact
- Vocalize with an appealing intonation & rhythm
- Display contingent facial expressions
- Modulate inner ear muscles to distinguish familiar voice from background sounds
- Reduces social distance

Muscle tone reduced in response to neuroception of danger: Life threat externally or internally (illness)

- Eyelids droop
- Voice loses inflection
- Positive facial expressions decrease
- Awareness of sound of human voice becomes less acute
- Sensitivity to others’ social engagement behavior decreases

Face-Heart Connection

- Two different vagal circuits from two different areas of brain stem: back of skull – abdomen – heart – lungs
- Voice box – stomach – ears
- Homeostasis of Sympathetic Nervous System active
- Integrated with nerves that supply muscles for locking, facial expressions, vocalizing, listening, chewing, sucking, swallowing, breathing, and gesturing with head
- Nervous system can be calmed or aroused by facial expressions and vocalizations of another person via heart regulation (vagal brake)
- These personal expressions are the most important signals of safety—not words, reassurances

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The Vagal Brake

- Central Nervous System mobilizes body and increases heart rate
- Ventral vagus inhibits the influence of the CNS (Sympathetic) on the heart
- Called the Vagal brake

5 Physiological States

- Calm, relaxed, optimal arousal within Window of Tolerance/Social Engagement System active
- Mobilization, hyperarousal, Fight/Flight
- Immobilization, hypoarousal, Freeze
- Play
- Immobilization without fear or 'Rest Digest'

Physiological state is not just a correlate of emotion, but a fundamental part of emotion and mood, so it must be considered and treated when helping clients

Neuroception of Safety

- Children with NAS do not feel safe
- May have compromised attachment
- Cannot maintain attachment for comfortable communication
  - Emotional regulation
  - Social engagement
- Physiologically optimal arousal state
- Caregivers may have difficulty providing child the required level of attunement and co-regulation due to own anxiety, dysregulation, difficult life circumstances
"Polyvagal" Play a Neural Exercise

- Requires reciprocal interaction and constant awareness of the action of others (2011, p. 278)
  - Reciprocal movement
  - Proximity & touch
  - Synchronous face to face interactions
  - Play provides repeated practice opportunities for the Social Engagement System to efficiently down-regulate sympathetic activation
  - Begins in parent led baby games
  - Play as practice in using social cues to regulate physiological state
  - Instead of reacting defensively, can form trusting relationships

Immobilization without Fear

- Also called "Rest and Digest"
- Parent & Baby in close body contact that inhibits movement, but they are not afraid
- Unless baby is asleep, also gentle face to face and vocal exchanges, rocking, singing, feeding
  - Vagal vagus stimulated
  - Oxytocin secreted
  - Supports health, growth, restoration, optimizes ability to rest, relax, sleep, enables feelings of trust love, safety

Long Range Impact of NAS

- Research is inconclusive due to studies having small sample sizes, lack of controls for confounding factors.
- Possible increased developmental delays and behavior problems can be result from mother's drug use during pregnancy, infant's treatment after birth or something unrelated.
- New research with March of Dimes studies into number of affected infants, how they fare developmentally and academically into childhood.
- Beginning evidence of impact on cognitive and behavioral development.
- Physiological brain changes.
- Reduction of self-regulatory abilities.
- Irritability

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ACES (Adverse Childhood Experiences)¹

- In this Narrative, ACES is used generically to refer to overlapping sets of traumatic and adverse childhood experiences and home environment factors that substantially increase a child's risk for serious, lifelong medical and mental illnesses.
- As the number of ACES increases, the negative outcome of interest (e.g., mental, medical, social, fiscal) increases in a graded (roughly stepwise) fashion.
- This cumulative "ACES-effect" occurs at multiple levels from biological markers of stress within a person to population-based markers of health such as rates of childhood asthma in a neighborhood.

The ACES are Among Many Childhood Traumas and Adversities Measured by the National Child Traumatic Stress Network N=10,991²

- The original ACES (in red) are among the most commonly reported traumas in studies that look at additional traumas.
- Over 40% of the children and adolescents served by the NCTSN experienced 4 or more different types of traumas and adversity.

ACES Study -- Impact with Opioid Exposure

- In Utero Trauma (drug exposure, possible parental abuse/violence)
- Environmental Risk Factors Raise the Infant's ACES
- Chronic poverty
- Poor nutrition
- Inadequate or no prenatal health care
- Sexually transmitted diseases (to infant at birth)
- Domestic violence
- OTH abuse or neglect
- Alcohol and other drug abuse within family
- Homelessness, transient or inadequate living arrangements
- Unemployment
- History of parent incarceration
- Low educational achievement (child or parent)
- Poor parenting skills
- Discrimination based on race, gender, or culture

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How the ACES Work

Adverse Childhood Experiences

- Abuse and Neglect (e.g., psychological, physical, sexual)
- Witness Violence (e.g., domestic, school, violence against pets)

Intermediate Child Development

- Neurobiological Effects (e.g., thinning brain, brain hormone dysregulation)
- Psychosocial Effects (e.g., poor self-esteem, poor academic performance)

Long-Term Consequences

- Disease and Disability
  - Alzheimer’s, Diabetes, PTSD
- Drug and Alcohol Abuse
- Heart Disease
- Cancer
- Chronic Lung Disease
- Suicide

Additional Stress on Infant/Child

- Living in family with drug abusers is a significant risk factor.
- Chaotic home environment.
- Stabilization of home environment is essential for improving outcomes for infant/child and family.

How ACES Cross Generations

Generation 1

Child

Adolescent

Adult

Generation 2

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Cumulative ACES & Mental Health

Impact of Cumulative ACES & Social Dysfunction
- Lower educational, occupational attainment.
- Increased social service costs.
- Increased medical costs.
- Shortened life span.
- Increased risk for HIV, teen pregnancy, maternal depression.
- Intergenerational transmission of ACES to offspring.

Implications of Cumulative ACES
- "Dose-Effect"—Increasing ACES increases the number of problems.
- Child maltreatment victims have 2-7 times higher risk of being re-victimized in the future compared with non-victims.
- Preventing future ACES in previously traumatized children is an important intervention.
- Systems that serve traumatized children—e.g., child protection, juvenile justice, mental health—should include trauma screening & prevention interventions.

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Synergy

A principle finding of recent work is the extent to which two or more adverse experiences interact so that the risk of a psychological disturbance following is multiplied, often many times over.


Synergistic ACES Increase Complex Adult Psychopathology

- People who experience one ACE are statistically likely to experience two or more ACES.
- Synergy is the interaction of two or more ACES so that their combined effect is greater than the sum of their individual effects.
- Complex Adult Psychopathology is defined as having diagnoses crossing 2 or more DSM diagnostic categories (Mood, Anxiety, Substance Abuse or Impulse Control).

Co-Existing Childhood Sexual Abuse & Household Domestic Violence

ACES are Synergistic & Increase Risk of Complex Adult Psychopathology

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- Sexual Abuse
- Domestic Violence
- Synergistic
- Combined Sexual Abuse & Household Domestic Violence

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Co-Existing Parental Substance Abuse & Parental Mental Illness
ACES are Synergistic & Increases Risk of Complex Adult Psychopathology

Prevention/Early Intervention

- Prevention/Early Intervention is an attempt to shift the balance from vulnerability to resilience, either by decreasing exposure to risk factors and stressful life events, or by increasing the number of available protective factors in the lives of vulnerable children.

Good News! There are Options! Non-Pharmacological Treatments

- Environmental stimuli are important to infants in withdrawal.
- However, a small amount of stimulation may cause the infant to experience a hyperactive response or an underactive response.
- The environment needs to be quiet and dark; speak quietly.
- Low noise - <50 dB
- Silence phones
- Have conversations outside of room
- Discourage use of iPods/Radios
- White noise acceptable (if tolerated)

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Handling of the infant should be slow with gentle handling to reduce stimuli.
Stop caregiving tasks momentarily if infant shows signs of stress
Gentle, slow VERTICAL rocking of infant in your arms

Additional Considerations
- Positioning the infant on their back or side mimicking a fetal position
- Pressure applied over the infant's head and body can have a calming effect
- Pacifiers to help self-soothe
- Non-nutritive sucking helps to decrease the stress in the infant and have less erratic, uncoordinated movements
  - Encourages self-soothing
  - Facilitates flexion and neurobehavioral organization

More Considerations
- Small frequent feedings to lessen gastrointestinal upset, especially when showing cues of hunger (i.e. rooting)
- High calorie formula to facilitate weight gain
- Rubbing instead of patting an infant with frequent burping may decrease stimulation and avoid stress
- Do NOT use patting motion as it may cause distress
- Holding and rocking
Use of water beds, rocking chairs are effective in soothing infants
Respect SLEEP. Allow the sleeping infant to rest. Only wake if necessary. Awaken gently.
Apply the 5-second rule
   □ Before touching the infant, speak to them
   □ Containment hold for at least 5 seconds
   □ Safe human touch first
Provide 2-person care whenever possible
   □ 1 to support the infant, 1 to complete the task at hand
   □ Ideally this is a nurse/therapist AND a parent/caregiver
Encourage parents to be present in room, encourage them to hold infant often or Kangaroo (sling pouch)
Having rooming-in
Utilize volunteers and child life specialists when able to help with frequent holding, along with singing, reading to

And More!

Promote flexion/midline position
   □ Discourage arching and extension
Swaddling - Tight swaddling may be effective in containing infant from hypertonic and erratic movements
   □ Mimics fetal position
   □ Helps to promote self-calming behaviors
   □ Ideally with hands free or arms flexed towards face
Swaddled bathing can be less stressful on infants

Finally...

Phototherapy produces some anti-inflammatory effects in infant (reducing interleukin-6, an anti-inflammatory cytokine)
Light therapy can help infants establish normal circadian rhythm.
Use of light therapy with a dark environment, and avoidance of bright colors helps prevent visual overstimulation
Black and white colors are more soothing for NAS infants.

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Breastfeeding Benefits

- Breastfeeding or breast milk for infant even if mother is on methadone or taking buprenorphine
- Methadone is transmitted by breast milk but in low doses
- Buprenorphine has poor availability through oral route thus is also compatible
- Breastfeeding rates are still low among this population despite lack of contraindications

Breastfeeding Continued

- Breastfeeding assists with bonding, decreases stress response of mother and leads to calm interaction with the infant
- May potentially increase maternal loving behaviors and decrease risk of abuse (which is higher with this population)
- Maternal breast milk can decrease length of stay for infant post-birth and be discharged home at an earlier rate

Treatment Options

- Neurosequential Treatment Model (Perry)
- Developmental Play Therapy
- Theraplay
- Filial Therapy/Child Parent Relationship Therapy and other Parent-Child Dyadic Treatments
- Play Therapy (non-directive) and Play-based Directive Techniques

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Neurosequential Model of Therapeutics
(Perry, 2006)
- Neurosequential Model of Therapeutics is not a specific therapeutic technique or intervention; it is a developmentally sensitive, neurobiologically informed approach to clinical work
- Maps the neurobiological development of maltreated children
- Assessment identifies developmental challenges and relationships which contribute to risk or resiliency

- Matches nature and timing of specific therapeutic techniques to the developmental stage, brain region and neural networks mediating neuropsychiatric problems
- Starts with the lowest (in the brain) undeveloped/abnormally functioning set of problems, then moves sequentially up the brain as improvements are seen
- Focuses on a poorly organized brainstem/diencephalon and the related self-regulation, attention, arousal, and impulsivity

- Uses any variety of patterned, repetitive somatosensory activities (for patterned neural activation necessary for re-organization), such as music, movement, yoga (breathing), and drumming or therapeutic massage.
- Once improvement in self-regulation, therapeutic work can move to more relational-related problems (limbic) using more traditional play or arts therapies.
- Ultimately, once fundamental dyadic relational skills have improved, therapeutic techniques can be more verbal and insight oriented (cortical) using any variety of cognitive-behavioral or psychodynamic approaches.
Symptoms of Toddler/Preschooler Exposed to Opiates

- Mental and motor deficits
- Cognitive delays
- Hyperactivity
- Impulsivity
- Attention deficit disorder (ADD)
- Behavior disorders
- Aggressiveness
- Less social responsivity or poor social engagement
- Failure to thrive (socially)
- Short stature

Neuroenhancement Activities: Brainstem

- Pacification:
- Soothing activities in child's preferred sensory modality.
- Rocking, holding, touching, stroking, massage, grooming, brushing hair, painting nails, swinging, cuddling, singing, telling stories, feeding.
- Sensory Stimulation:
- Touching with sand and clay, finger painting, shaving cream play. Making cookies or banana bread for touch and scent; smelling for fun - household smells (orange, lemon, cinnamon, vanilla, lavender, baby lotion, kitty, etc.).
- Texture bags and bins (rough, smooth, silky, slick, hard, etc.).
- Sounds; songs, identification (natural sounds, household sounds, everyday sounds). Tastes from kitchen for fun, identification.
Infant Games: Brainstem

- Stimulation to achieve mutual attention and sense of attunement – can involve any sensory modality
- Needs to involve face-to-face and eye-to-eye contact and mutual enjoyment
- Songs, nursery rhymes, touching games, family rituals, nurturing activities (The Slippery Hand Games, Hills and Valleys Game, This Little Piggy Went to Market, Baker's Man)

Exercise

- Pair up
- Decide who will first be the child
- The child is to keep a straight face as long as possible
- The 'parent' will try to make the child break into a smile, laugh, or no longer have a straight face.
- Can make faces, do silly things, ONLY TOUCH IF THE PERSON GIVES PERMISSION!
- After a few minutes, switch roles and the other person tries out being the 'parent'.

Goals of Developmental Treatment

- Decrease signs/symptoms of withdrawal
- Promote mother/infant bonding
- Help prevent abnormal neurodevelopment
Music Therapy in NICU

- Use of classical music in NICU helps to decrease agitation and assists with sleep
- Live-singing, patting and rocking to match the baby's behavior state
- Series of rhythmic techniques - singing faster with a stronger pat and rock if extremely agitated; then slowly reduce intensity of those stimuli so singing becomes more soothing and a slower tempo, patting becomes a little lighter
- Special pressurized pacifier that plays music.
- Caregiver gradually adjusts pressure level, forcing infant to suck. The more and harder the infant sucks, the longer the music plays

Additional Alternative Approaches

- Aromatherapy - oils such as lavender or mother's scent
- Research (Field, et al 2007) found infants exposed to lavender had decrease in crying, cortisol levels and time to fall asleep.
- Mother also had decrease in cortisol and were more attentive to infant when using lavender-scented bath
- Mother's scent, and vanillin, also decreased crying. Mother should be encouraged to leave personal article of clothing with their scent in child's bed to help decrease agitation and assist with bonding
- Auricular acupuncture is being investigated. Some successful use with adult opioid abuse

John Bowlby, MD
Father of Attachment Theory

"the pattern of interaction adopted by the mother of a secure infant provides an excellent model for the pattern of therapeutic intervention...." (1988, p. 126).
Attachment

- Attachment is "the deep and enduring connection established between child and caregiver(s) in the first three years of life. It is a learned ability, the result of ongoing reciprocal interactions characterized by:
- Protection
- Need fulfillment
- Limits
- Love
- Trust

The Healing Power of Touch to Increase Attachment and Regulation

- Child needs to be held more (hugging, close-eranging infant for first month unless baby 'body-molds' to caregiver)
- Rocking chair - rhythm duplicates pace of heartbeat
- Infant massage
- Carry infant in sling-style carrier, cradle-style with head near heart

Massage Therapy

- Improves weight gain
- Need to adjust gentle touch, stroking, kinesthetic stimulation and other types to infant's age and needs
- Decreases pain/stress response
- Improves sleep/wake cycles
- Improves neurological, sensorimotor and behavioral development
- Improves muscle tone
- Improves bone density
- Improves circulation
- Improves immune function; temperature stability
- Enhances feeding outcomes
- Can help to relieve constipation and gas
- Reduces length of hospital stay

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Benefit of Massage to Parents/Caregivers

- Eases stress about separation
- Provides active parenting role
- Decreases maternal depression
- Increases responsiveness of infant
- Optimizes mother-infant interaction
- Increases sense of maternal competence

Benefits of Slow, Rhythmic Movement

- Longer periods of quiet sleep
- Decreased irritability
- Fewer jittery movements
- Increased visual and auditory responses
- Decreased frequency of apnea
- Decreased bradycardia and hypoxia
- Increased weight gain

Use of the mammatoo adjustable baby rocker; rhythmically moves up and down and side to side; more "natural motion"; plays soothing sounds; adjustable volume. Use unattended with lower extremities free. Remove infant if falls asleep or signs of decerebration. No longer than 50 minutes, twice a day, for 30 minutes per day.

Early Relationships Shape Infant Mental Health

Secure Attachment to a Caregiver is created by:

- Attention to infant cues
- Providing opportunities for mutual regulation
- Repair (Tronick, 1998)
- Providing a "secure base" (Bowlby, 1969)
- Serves to buffer young children from toxic levels of stress

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Attachment and the Brain

- The sight of the mother's face creates a heightened state of excitement and elation in brain due to high levels of endogenous opiates
- This chemical acts directly on reward centers in brain. Social interaction is anticipated as pleasurable
- Parent-infant interaction activates neural firing and birth of new neurons, neural growth and protein synthesis
- Emotional and behavioral regulation pathways are also being built

Benefits of Using Touch – Janet Courtney, PhD, LCSW, RPT-S

- Touch is healing in many ways. It even releases the essential connectivity and calming hormone – oxytocin – an important factor in attachment and bonding (Moberg, 2003)
- Respectful, caring and attuned touch is vital to the development of an inner directed-self thus leading to children's ability to develop close and securely attached relationships with others and to better self-regulate their emotional states
- The attention to touch highlights the therapeutic value of the mind-body connection

Children who have been the recipients of caring and respectful touch know how to give respectful and caring touch to others

Children who receive caring touch develop enhanced empathy for others and importantly toward their peers

Caring and respectful touch focus needs to begin at birth and fine-play activity and infant massage are avenues for an infant to receive essential touch

Populations such as children diagnosed with autism, with sensory processing disorders, and ADHD can especially benefit from touch-based therapies (Courtney, 2012)
Further Benefits of Touch

- Deprivation of sensory stimulation, especially touch, adversely affects health development of child (Young, 1997)
- Child begins at risk of severe developmental deficits; prone to increase levels of physical aggression (Montague, 1996) and emotional disturbances (anxiety, depression, ADHD, sensory integration dysfunction, aggression)
- Touch is critical for development of CNS and brain (Nisbett, 2009)
- Touch helps with sensory integration and self-regulation of affect and behavior and sustained attention (Freed, 2002)

Risk of Maladaptive Parenting

- Not all mothers seeking substance abuse treatment have difficulties parenting
- But as a group, they are twice as likely as non-substance abusing women to lose custody of their children because of child neglect
- Most are at greater risk for maladaptive parenting

Get an Attachment History of Mother

- Mothers with substance use disorders commonly have developmental histories involving insecure attachment
- Parenting interventions may need to address personal unmet attachment issues first before targeting behavior management skills
- Must first improve parent's capacity to recognize and respond sensitively to child's emotional cues
- Without that, interventions for substance using mothers may do little to strengthen mother-child relationship
The Past Can Rule the Present

- Stored memories or psychological "representations" of their early caregiving experiences become the prototype for newly formed relationships
- This influences new mother’s expectations of herself and her child and strongly influences her parenting behavior
- Distortion and denial defences may prevent mother from recognizing and responding sensitively to her own child’s emotional signals (notably crying, clinging, hitting or running away)
- Can result in parental aggression, neglect, poor limit setting

Profile of a Securely Attached Child

- High self esteem
- Independence and autonomy
- Resilience in face of adversity
- Ability to manage impulses and feelings
- Long-term friendships
- Relationships with parents, caregivers, and other authority figures
- Pro-social skills
Additional Components

- Trust, intimacy and affection
- Positive and hopeful belief systems about self, family and society
- Empathy, compassion and conscience
- Behavioral performance and academic success in school

How Insecure Attachment Looks

- Poor sense of self and impoverished view of the future
- Don't seem to know right from wrong
- Jumpy and on edge
- Stare into distance as if in another world
- Fidgety
- Over-excited very easily
- Over-reactive responses to conflicts = aggression
- Memory difficulties
- Inappropriate sexualized behaviors
- Verbally abusive
- Lack of self-awareness
- Unable to describe how feeling

Developmental Play Therapy – Viola Brody, PhD

- Attachment based Play Therapy
- Touch is intrinsically healing
- Early playful touch games – peek-a-boo, patty cake
- Children who missed the critical first-play stages of development can be helped by a practitioner training in Developmental Play Therapy "to go back and pick up what they missed" (Brody, 1995)
Developmental Play

- Safe
- Respectful
- Non-exploitive in tone, requesting the child's permission to touch
- Focusing on child's hands, finger, face, arms, feet and toes
- Involves the presence of the caregiver/parent
- Attunes with the child's lead, rhythm and pace

Exercise

- Pair up again
- With PERMISSION ask your partner if you can touch their back (on top of clothes!) or palm of hand
- With the partner's eyes CLOSED, you trace a shape, letter, number, or simple positive message on the back (or palm) and the 'child' has to guess it.
- Then after a few times, switch roles

Baby Powder Handprints (with Parent/Caregiver)

Supplies:
- Lotion
- Baby powder
- Black construction paper

Example Questions:
- Tell me about your favorite memory of these little, chubby baby hands
- What is your favorite memory about these little, messy toddler hands
- What are your favorite things these big kid hands can do now

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Ann Jernberg, PhD
Creator of Theraplay

"The best way to understand the principles underlying Theraplay is to rediscover the basics of the mother-infant relationship” (1979, p. 4)

Theraplay – For Building Attachment and Lessening Dysregulation

- Ann Jernberg - 1928-1993
- Influenced by:
  - Attachment theory
  - Austin Des Lauriers
  - Viola Brody (Developmental Play Therapy, using touch)
  - Ernestine Thomas

Foundational Theory & Research Support for Theraplay

- Attachment Theory-Bowlby, Ainsworth, Main, Fonagy
- Affect Regulation Theory-Schore
- Polyvagal Theory-Porges
- Interpersonal Neurobiology-Gieseg
- Neuroaffective Developmental Psychotherapy-Susan Hart, Denmark
- Neurosequential Development-Perry
- Development of Emotional Circuits-Panksepp
- Intersubjectivity-Trevarthen, Hughes (Dyadic Developmental Therapy)
- Positive Psychology-Frederichson
- SAMHSA recognized as an Evidence-Based Treatment
Theraplay Promotes a Neuroception of Safety

- 1. Activation of child's Social Engagement System (SES) through presentation of visual and acoustic features of therapist's SES (Engagement)
- 2. Interactive Play with Mobilization + SES (Playful Challenge)
- 3. Down regulating Rest & Digest activities involving SES (Nurture)
- 4. Theraplay guidance between up and down regulating activities within client's window of tolerance (Structure)


Polyvagal Processes in Theraplay

<table>
<thead>
<tr>
<th>Stage</th>
<th>Polyvagal Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sensory pathway</td>
<td>Sensory activation of nervous system</td>
</tr>
<tr>
<td>2. Descending pathway</td>
<td>Descending inhibition of nervous system</td>
</tr>
<tr>
<td>3. Autonomic nervous system</td>
<td>Autonomic nervous system regulation of safety and stress</td>
</tr>
<tr>
<td>4. Parasympathetic nervous system</td>
<td>Parasympathetic nervous system regulation of safety and stress</td>
</tr>
</tbody>
</table>

Window of Tolerance

- Hypersensory Zone
- Sensorimotor Zone
- Emotional Regulation Zone
- Cognitive Regulation Zone
- Adaptive Regulation Zone
- Reflective Regulation Zone

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Benefits of Parents in Treatment

- Child feels safer and therefore, more comfortable, with parent present
- Therapist initially can guide child-parent interaction and shift to child-therapist interaction when child is feeling safer
- Parents also may be anxious themselves or out of concern for child; treatment also creates neuroception of safety and widened window of tolerance for parent
- Parents' direct participation makes psychoeducation an experiential process
- After working as co-therapist with Theraplay therapist, parent is a more informed transitional figure for transfer of child's new skills to situations outside the therapy session

Techniques of Theraplay

- Four basic principles:
  - Structuring - setting rules and limitations
  - Challenging - encouraging children to go beyond their current performance levels
  - Intruding - promoting cues to encourage healthy attachment
  - Nurturing 'parent' activities/gestures (e.g., hug, cuddle, singing)

Theraplay Dimensions

The Theraplay therapist creates sequences of interpersonal play and care between the child and his/her caregivers, using the model of a healthy parent-young child relationship

- STRUCTURE: Therapist Responsibility for Predictability, Organization, Outer Regulation. Parent limits or reduces the amount of stimulation to which the child is exposed.
- ENGAGEMENT: Felt Safety/Inner State Regulation, Social Engagement System, Attachment Experiences. Can also help increase stimulation the child is getting. Parent provides excitement, surprise in order to maintain an optimal level of aliveness and interaction.
NURTURE: Self worth, Stress Reduction, Down regulation. Helps to maintain or reduce child’s level of arousal. Parent is soothing, calming and comforting.

CHALLENGE: Competence, Confidence, Self-Efficacy. Increases the amount of stimulation child is experiencing. Encourages the child to move ahead, strive and become more independent.

PLAY: Social Joy, Reciprocity, Up Regulation.

Exercise: Eye Signals

- Pair up
- Hold hands and stand facing each other
- Decide who is the leader
- Using only eye signals (NO WORDS), indicate what direction and NUMBER of steps you will both take.
- For example, when you wink your left eye two times, both of you take two steps to your left.
- Or use tilt of head to indicate direction
- To make it more difficult you can add signals for forward and backward movement (head back for backward, head forward for forward)

The Mothers and Toddlers Program (MTP)

- Adjunct to outpatient substance abuse treatment
- 12 weekly attachment-based individual parenting therapy sessions for one hour each
- For children birth to 36 months
- Prior to first session mothers complete baseline assessment, including measures of reflective functioning (Parent Development Interview; Working Model of the Child Interview); psychiatric symptoms (depression) and substance use
- Mother and children complete brief, videotaped, structured interaction to assess maternal sensitivity and responsiveness to child’s cues, and child’s responsiveness to mother

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Erickson's Psychosocial Development Stages

- Basic Trust vs. Mistrust (Birth-24 months)
- Learned from the consistency of parent/caregiver
- Basic needs: food, warmth, physical contact, safety, stability
- Results in internalized sense of safety and that one's needs will be met. Can I trust the world?
- Abuse and neglect are obstacles to this foundation need

Developmental Stages

- Autonomy vs. Shame and Doubt (1-3 years)
- Able to explore one's individuality within limits
- Limits should protect and not suppress
- Choices and Boundaries
- Results in feeling that one has control, a sense of free will, sense of regret and sorrow
- Unfavorable outcome can lead to insecurity
- Initiative vs. Guilt (3-6 years)
- A time for initiative, experimentation, creativity
- Praise and encouragement are necessary for success
- Parent/caregiver accepts curiosity and their need to know and to question
- Disapproval and criticism are obstacles

School-Age (6-11 years)

- Industry vs. Inferiority
- Internal sense of self; external view of self
- Mastery, doing things well
- Need to find competence both academically and socially
- Increased motivation for school and extracurricular activities
- Unfavorable outcome leads to inadequacy, inferiority, and low self-esteem

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Potential Symptoms in School-Age Children as Result of Opioid Exposure

- Impaired Verbal performance, reading, and arithmetic skills
- Poor mental and motor development
- Memory and perception problems
- ADHD characterized by - weak executive functioning; problems with planning; organizing time and materials; shifting from one situation to another; and learning from past mistakes.

Additional Symptoms in School-Age Children

- Developmental delays
- Speech problems, including: challenges in producing speech sounds correctly or fluently, difficulty with voice or resonance
- Language Disorders - trouble understanding others (receptive language), or sharing thoughts, ideas, feelings (expressive language)
- Impaired self-regulation

More Symptoms

- School absence, school failure, and other behavioral problems
- Depressed respiration or hypoxia
- Reduced decision-making abilities and behavior regulation
- Poor response to stressful situations
- Poorly developed sense of confidence or efficacy in task performance
- Depressive disorder
- Substance use disorder
Basic Process For Teachers and Therapists

- Be spontaneous and in contact with the child
- Sensory activities before structured activities
- Establish the relationship first
- Avoid overstimulation, allow time to calm down, help self-regulate

Sensory Activities to Try

- Play with soaps and lotions
- Play with shaving cream on plastic
- Let the child use hand lotions
- Let the child carry pots or bags of flour
- Have a quite place where the child can get away from environment
- If sand is a problem, use rice or beans
- If finger paint is a problem, use shaving cream or pudding

- If pencils are a problem, use larger crayons
- If play dough is a problem, use home-made play dough or potter's clay
- If chairs are a problem, use beanbag chairs, rugs, sitting or playing on the floor
- If masks are a problem, use paper plates that a child can hold in front of their face

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What is Affect Dysregulation?

- A severe and persistent inability to control one's emotions and mood states
- It is often accompanied by explosive and unpredictable episodes of out of control behavior (behavioral dysregulation)
- Affect dysregulation often accompanies depression, ADHD, conduct disorder, and anxiety disorders (including PTSD)

Influences on Affect Regulation

- Constitutional Factors
  - Brain Functioning
  - Health status - Neonatal/Adolescent Syndrome
- Life Events
  - History of exposure to stress or trauma
- Caretaking Environment
  - Attachment
  - Responsiveness
  - Removal from bio-parent/Foster care placement
- Learning History
  - Language Skills
  - Coping Skills
  - Problem-solving Skills

Manifestations of Affective Dysregulation

- Low threshold for distress
- High-intensity emotions
- Difficulty de-escalating
  - Agitation
  - Impulsivity
- Aggressive Behavior
  - Self-Harm

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Skill Sets in Which We See Problems of Dysregulation:

- Overall coping abilities
- Emotional literacy
- Impulse Control
- Attention
- Anger management
- Stress/anxiety management
- Social relatedness
- Attachment
- Narrative building
- Cognitive processing
- Self-esteem
- Inability to self-soothe and calm oneself

Disorders of Dysregulation

- ADHD
- ODD/CD
- PTSD
- Bi-Polar Disorder
- Anxiety Disorders
- PDD's
- Attachment-Based Difficulties

Why Does Self-Regulation Matter?

- Long term studies show good outcomes for strong self-regulators.
- Strong self-regulation as a child leads to more favorable outcomes as a college student (Mischel, 1989).
- Similar results studying preschoolers through age 32 (Caspi & Moffitt, 2011).
- Improvements to self-regulation during childhood leads to better adult outcomes (Caspi & Moffitt, 2011).
- (Yiyan & Yinpr, 2010)
Executive Functioning and Self Control/Regulation

- (Dawson, 2009) Working memory, planning/orientation, organization, time management, meta-cognition, response inhibition, emotional control, sustained attention, task initiation, goal-directed persistence, and flexibility.


- (Yeager & Yeager, 2013)

Dimensions of Executive Functioning

- Three dimensions of Executive Functioning that are most often studied, and considered the "foundational" Executive Functioning:
  - Working memory (also called updating)
  - Inhibitory control (also called response inhibition)
  - Cognitive flexibility (also called shifting)

A fourth function, planning, is cited as critical to goal-directed behavior.

(Yeager & Yeager, 2013)

How to Explain Executive Functioning to Children

| Working Memory | Remembering to do the right thing at the right time |
| Response Inhibition | Stopping yourself from doing the wrong thing |
| Shifting Focus | Making yourself stop thinking about one thing so you can start thinking about (and then do) something else |
| Goal Orientation | Making a good plan for what you are going to do and then following your plan and getting it done on time |

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Learning Process — “Cone of Learning”
Dr. Edgar Dale, Ohio State University

- Students retain 5-15% of what they read or hear
- Students retain 10-20% of what they see
- Students retain 40-50% if information is presented both visually and verbally
- When discussion is added, students retain 60-70% of what was discussed
- Students retain up to 90% when they engage in a personal experience (active learning combines all the above teaching techniques)
- Learning is more effective when increasing number of the five basic senses are involved

Lists

- Checklists work!
- A checklist is at the point of performance
- Motivation (consequences) can be built-in to the list
- IMPORTANT!
- The natural progression of EF development is from external to internal
- Internalization is a gradual process, continuing through late adolescence
- Internalization occurs at differing rates (may need external support longer) (Yates & Yates, 2013)

Additional Supports

- Use a planner
- Set time limits
- Use a rewards chart
- Use a soft voice to give direction
- Emphasize repetition
- For Teachers: Say the student’s name and make eye contact when speaking to retain engagement
Helping to Foster Internalized Language toward Self-Regulation

- Internalized language is an integral part of executive functions.
- Self-directed language provides the child with a mental tool that opens up the internal 'space' between an initial stimulus and one's response
- (Yaege & Yaege, 2013)

Helping Children Improve Impulsive Responding

- Model the use of "stop and think" strategies by verbalizing your own self-instructions
  - What do I have to do
  - How should I do it
  - How did it go

Reducing Impulsive Responding: Problem-Solving

- 1. Define the Problem
- 2. Brainstorm Ideas
- 3. Consider consequences of different ideas
- 4. Choose a solution
- 5. Practice enacting solution
- 6. Enact solution
- 7. Evaluate success of actions taken
- 8. Modify plan, if needed

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Use of the Healing Powers of Play and Play Therapy

- Why is play important?
  - Play is a child's natural language
    - Birds fly...fish swim...children play!
    - Play is fun!
    - Toys are the child's words and play is their language

Empirically-based Evidence

- Evidencebasedchildtherapy.com - research conducted
- SAMHSA approved as evidence-based: Theraplay; Filial Therapy; Adlerian Play Therapy; Child-Parent Relationship Therapy.

Definition and Goals of Play Therapy

Play therapy is a method of therapy with children that uses both play and verbal communication to understand and help the child

- feel empowered
- use their defenses adaptively
- develop and use decision-making and coping skills to promote a sense of mastery
### The Therapeutic Powers of Play. 20 Core Agents of Change. 2nd Edition.
(Scheufer & Drewes, 2014)

- The process of play allows for:
  - Externalization
  - Containment
  - Miniaturizing the problem ("shrinking")
  - Projecting: Safe enough distance
  - Managing
  - Emotional Discharging and Self-regulation
  - Managing: Transformation
  - Gradual Exposure: Facing fears at unique pace

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### Attunement in Play Therapy

- "Presence, attunement and resonance are the way we clinically create the essential condition of trust. As our clients feel this healing love without fear, as they come to the neuroceptive evaluation of safety, trust is created within their subjective experience" (Siegel, 1999)
- The therapist is:
- Observer
- Sensitive
- Consistently Supportive
- Unique

---

### Play and Self-regulation

- Cooperative play with peers provides additional opportunities for developing advanced executive functions such as planning, working memory, behavioral inhibition, self-monitoring and cognitive flexibility.
- They talk with one another before the play begins to plan what form the play will take and what role each child will play.
- They utilize their working memory to hold that plan in mind. They must mentally keep track of a complex set of roles and rules.
- They must execute their own behavior to stay in role, inhibit behaviors that do not follow the plan, and at the same time shift focus as their imaginary situation evolves.

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Scaffolding: Mediators

- Mediators can be auditory, visual and/or physical
- Present at the point of performance:
  - Memorable
  - Concrete and tangible
  - Immediately understood (ear and lips)
  - Meaningful for the child
  - Ones that work!
- (Yaeger & Yaeger, 2013)

Kesty “Presence & Play”
IJPT 25, 1, 2016

- Proposes model of play therapy integrating
  - Emotional brain system of PLAY (Panksepp, 2008, 2012)
  - Polyvagal play in the autonomic nervous system (Porges, 2011)
  - Resonant therapeutic relationships employing presence and mindfulness (Frederickson, 2009)

Constancy Play

- Hide and seek games
- Peek-a-boo or ‘don’t look’
- Hiding things including objects and intangibles as pretend objects
- Naming games of repeatedly saying child’s name or therapist’s name to establish identity
- Mirror play
- ‘Catch’ me – child runs and therapist is supposed to catch child
Traditional Childhood Games

- **Game**
  - Executive Function Required

- **Mother May I?**
  - Response Inhibition; Working Memory

- **Red Light, Green Light**
  - Response Inhibition

- **Statues**
  - Response Inhibition

- **Freeze Tag**
  - Response Inhibition

- **Simon Says**
  - Working Memory; Response Inhibition

(Yaeger & Yaeger, 2013)

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Play Therapist as Facilitator

- The play therapist can support EF development by:
  1. Recognizing signs of EF-related difficulties
  2. Planning interventions that engage the child’s interest, and enhance the child’s confidence
  3. Providing scaffolding that guides and supports behavior at the “point of performance”
  4. Sequencing interventions in response to the child’s level of performance, building on previous successes
  5. Adjusting the level of help in response to the child’s level of performance
  6. Gradually the child is able to perform independently

(Yaeger & Yaeger, 2013)

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The P.L.A.Y. Formula

- **Play intervention introduces skill in an engaging and memorable way**

- **Link the skill to everyday life to enhance understanding and motivation**

- **Assign ways to practice the skill**

- **Yahool! Reinforce and celebrate success**

(Yaeger & Yaeger, 2013)

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Neurosequential Model Continued:

Midbrain

- Narrative: Dramatic storytelling by adults. Reading books and poems with rhyme and rhythm, especially Dr. Seuss and nursery rhymes.

- Movement: Music, songs, chanting, rhythm poems, nursery rhymes, rhythm bands, marching bands, dance or movement activities (Wave like a tree blown by the wind, pretend you are the rain falling down, Ring around the Rosy, London Bridges Falling Down, etc.)

- Jungle gym, crawling tunnels or tubes, cardboard box tunnels or mazes, balance beams, swings, see saws, slides, merry go rounds. Playing with balls, hoops, ribbons of various sizes.

Limbic System (Latency and Youth)

- Social skills games: sharing games, cooperation games, taking turns (Red Rover, Simon Says, Red Light Green Light, Mother Says, etc.)

- Visits from a dog or cat to learn to touch softly, gently, empathically. Animal assisted therapy.

- Nature Discovery: walks or trips to discover natural world with one's senses (sticks, stones, water, clouds, animals, trees, plants, wind, etc.)

- Creative dance and movement activities with more complex movements

- Art: Drawing, painting, crafts, expression with various materials. Little plays or dramas to act out (with puppets, use of self).

Latency And Youth

- Stick Figures

  - Use paper and tongue depressor sticks and assortment of craft add-ons (beads, sequins, feathers, colored paper, pipe cleaners) to make puppets to create stories.
Collages
  ● Variety of magazines to create theme art. Topics can be: "Who Are You", "How Do You Feel", "Wishes for the Future", "The Problem Is...
  ● Play Doh/Clay/Model Magic/Sculpey
    ● Create an image
      • themselves,
      • something they wish to be,
      • favorite animal

The Three Bs
  ● Be quiet
    ○ To calm down, stop talking
  ● Back away
    ○ To keep from getting more upset, back away
  ● Breathe deeply
    ○ Take one or two deep breaths to release stress

Self-Monitoring for Self-Control
  ● Use of simple frequency count for younger children or with cognitive delays
  ● Behavioral diary for older children, track antecedents of target behavior
  ● Model and rehearse use of self-monitoring
  ● Check child's accuracy against objective observer (parent, teacher, therapist)
  ● Use just ONE behavior and monitor continuously
Use of Play-based Activities for Self-Regulation

Misinterpretation of Affect

- "An inability to read facial expressions leads to a misattribution of emotional states and a misinterpretation of the intentions of others. Thus, there are impairments in the processing of socioemotional information" (Fiehler, 2003b, p. 47)

Treatment Goal: Affect Expression and Modulation/Distress Tolerance

- Identifying emotions/feelings in self and others
- Physiological responses to emotions. How body reacts
- Behaviors related to emotions
- Measuring feelings: how intense
- Start to address feelings vs. thoughts
Gingerbread Person Feelings Map

- Helps with feeling identification within oneself.
- Based on Kevin O'Connor's *Color Your World*.


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Helping Children Understand Emotions in Others: Interactive Activities

- Feelings Charades
Distress Tolerance

Children:
- Do something else
- Imagine
- Soothe Yourself
- Think of something else
- Remind Yourself
- Ask (for hugs, to take a 'time out', etc.)
- Count your breath
- Take a break (go to another space, etc.)

Self-soothe

- Taste
- Touch
- Vision
- Hearing
- Smell
- Movement

Grounding

- Stress balls
- Soothing yourself
  - Think of favorites
  - Picture people you care about
  - Run cool water or warm water over your hands
  - Grab tightly onto your chair as hard as you can
  - Carry a grounding object in your pocket
  - Stretch
  - Play a "categories" game with yourself (TV shows, sports, songs, things that begin with "A")
Therapeutic Jenga

- To help in verbalizing feelings and identify positive coping strategies
- Use Jenga blocks
- Make up small envelope labels with various questions to put on blocks
- Remove block and build tower as high as possible until it falls
- The player may choose to answer the question or ask another player to do so

Jenga Questions

- What is the hardest emotion for you to deal with?
- Name something that recently made you happy? ...angry?
- What is something that scares you now?
- What is something that makes you feel frustrated? Jealous?
- How do you let someone know you are mad?
- What is the most challenging thing you have to do to take care of yourself?

More...

- What is something you do to help get you out of a bad mood?
- Who is the person you like to talk to most, and why?
- What do you do to relax when stressed?
- If you could be someone else, who would that person be, and why?
- What makes you laugh?
- What do most people not understand about your situation?
Mindfulness -- Taking hold of your mind!

- Mindfulness is being in control of your mind rather than letting your mind be in control of you! "Living life with your eyes wide open."
- Full awareness -- being aware of your present moment (i.e. through feelings and physical sensations) without judgment and without trying to change it.
- 2) Attentional Control (Focused Mind): Staying focused on one thing at a time.
- PRACTICE, PRACTICE, PRACTICE!

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Three Steps to Achieve Mindfulness

- OBSERVE
  - Notice the experience in the moment.
  - Wordless Watching! Watch your thoughts and feelings come and go, as if on a conveyor belt.
  - Don't push away your thoughts and feelings. Just let them happen, even when they are painful.
  - Observe both inside and outside yourself.

DESCRIBE

- Wordful watching! Label what you observed with words
- Put words on the experience (i.e. "I feel sad" or "My face feels hot")
- Describe only what you observe (without interpretations, just the facts!)
  Instead of "that person has an attitude", you could describe the person as "rolling his/her eyes, speaking with a loud voice", etc.

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PARTICIPATE

- Try not to worry about tomorrow or focus on yesterday, throw yourself into the present moment fully (e.g. dancing, cleaning, taking a test, feeling sad in the moment)
- Fully experience your feelings without being self-conscious
- Find another activity that helps you escape/avoid your distress in the moment (e.g. distracting mindfully)

HOW SKILLS

- DON'T JUDGE
  - Notice but don't evaluate as good/bad. Stick to the observable facts.
  - Acknowledge the harmful, and the helpful, but don't judge it. Replace "You're a jerk" with "I feel mad when you walk away when we are talking".
  - The goal is to catch the judgments so you have more control over your emotions.
  - Don't judge your judging.

STAY FOCUSED

- Do one thing at a time (e.g. observe, describe, participate).
- Let go of distractions
- Concentrate your mind (the opposite of multi-tasking)
- Stay focused so that the past and the future don't get in your way
Relaxation

- May be resisted by child/teen
- May fear associations:
  - Lights being out
  - Lying down
  - Defenses lowered
  - May feel pressured with 'homework' to practice exercises
  - May need to be done in progressive approximations

Cooked Spaghetti vs. Raw Spaghetti

Helping with Affect Regulation: Use of Breathing

- Regulating Affect Through Deep Breathing and Imagery
- Teach: Inhale deeply through your nose, and slowly exhale through mouth
- Breathe in power into the body
- Imagine "sending" breaths into areas that react to stress, anger, fear
- Breathe in a favorite calming color and "send" it throughout the body

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Five Count Breathing
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Use of Bubbles

- Bubbles for deep breathing
- For metaphor of personal space

Bibliography


Articles of Interest


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