11th Annual Early Childhood Mental Health Conference
September 10-12, 2020.
Hope in Relationships: Bridging Science to Practice.

Infants Social-Emotional Development

Barbara J. Deloian, Ph.D., CPNP, IBCLC

1

Disclaimer

I have no conflicts of interest to disclose

I am a certified NCAST (Nursing Child Assessment Satellite) Instructor but have no financial agreement with the Parent-Child Relationship Program

2

Presentation Objectives

Discuss the implications of **early regulation and experiences** on infant and young children's physical, cognitive, language, and social-emotional development

Describe the significance of **maternal regulation** on the infant's ability to develop and regulate their social-emotional development

Analyze factors that affect an **infant's ability to self-regulate** during the first year of life and the caregiver's role supporting their social-emotional development

3

Foundations of Social-Emotional Development

Responsive caregiving supports infants in beginning to regulate their emotions and to develop a sense of predictability, safety, and responsiveness in their social environments.

An infant's early relationships are so important, that research experts have broadly concluded that, in the early years, "nurturing, stable and consistent relationships are the key to healthy growth, development and learning"

Children's Hospital Colorado First 1,000 Days

(National Research Council and Institute of Medicine 2000, 412).

4

Foundations of Social-Emotional Development Include:

- The child's experience, expression, and management of emotions
- The ability to establish positive and rewarding relationships with others
- Both internal and external experiences
- The ability to identify and understand one's own feelings
- The ability to accurately read and comprehend emotional states in others
- To establish relationships with others
- To regulate one's own behavior and develop empathy for others
- To establish and maintain relationships.
-

(Cohen, et al, 2005; National Scientific Council on the Developing Child 2004)

5

Why Does Social-Emotional Development Matter

- " Neuroscience suggests that the neural mechanisms underlying emotion regulation may be the same as those underlying cognitive processes."
- Emotion and cognition work together, jointly informing the child's impressions of situations and influencing behavior, attention, decision making, learning, and persistence.
- Young children who exhibit healthy social, emotional, and behavioral adjustment are more likely to have good academic performance in elementary school (Cohen and others 2005; Zero to Three 2004).

(Bell and Wolfe 2004; Barrett, et, al, 2007; Cohen, et, al, 2005; National Research Council and Institute of Medicine 2000; Zero to Three, 2004)

6

How Do We Support Responsive Caregiving?

- Responsive caregiving that supports and infant's beginning ability to regulate their emotions and to develop a sense of predictability, safety, and responsiveness in their social environments.
- Create needed "nurturing, stable and consistent relationships" that are the "key to healthy growth, development and learning" (National Research Council and Institute of Medicine 2000, 412).
- High-quality-quality relationships that will increase the likelihood of positive outcomes for young children (Shonkoff 2004).
- AND
- Experiences with family members and teachers that provide an opportunity for young children to learn about social relationships and emotions through exploration and predictable interactions.

7

One of the Foundational Developmental Goals for Young Infants:

Regulation

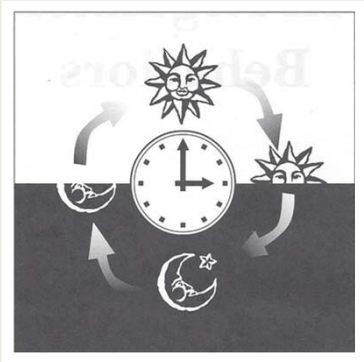
Physiological, neurological, behavioral and Emotions processes "that modulate a wide Variety of functions to keep them within adaptive Ranges." (Neurons to Neighborhoods, p. 26

8

Beginning Rhythms

Self Regulatory Behaviors

The emerging process of sleep/wake behavior is the beginning of "Self-Regulation."



Barnard & Thomas, 2014)

9

Key Concepts

Rhythms

A regular and repeated pattern – basic to life.

Synchrony

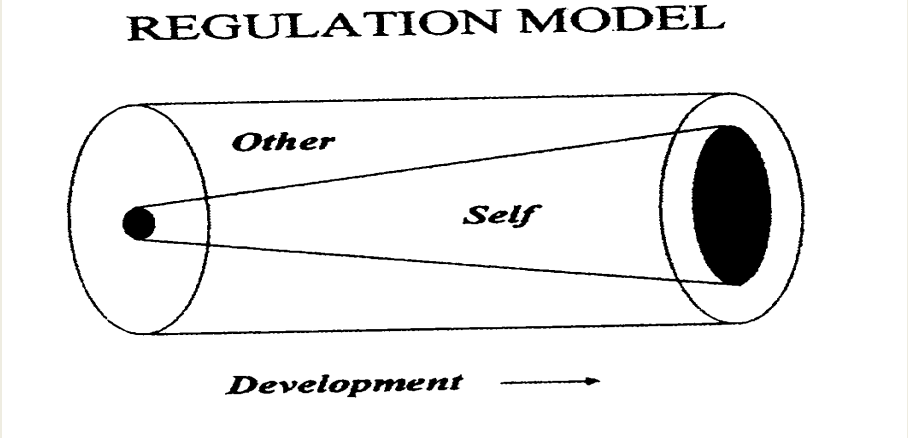
Two events occurring at the same time.

Infants and caregiver's relationships can promote/enhance or deter mutual responsiveness and mutual regulation

(Barnard & Thomas, 2014)

10

Sameroff & Fiese, 2000



Slide provided by Joy Browne, 2013

11

Regulation

Principle: ***Self-regulatory behaviors of eating, sleeping, walking, moving, reacting, and responding are affected by both internal and external factors.***

An individual's ability to control bodily functions, manage emotions, and maintain focus and attention.

Regulation parallels development, with caregivers early in life supporting the infant's developing self-regulatory abilities and over time the child increases their own ability to self-regulate

(Committee on Integrating the Science of Early Childhood Development, 2000)

12

Principle:

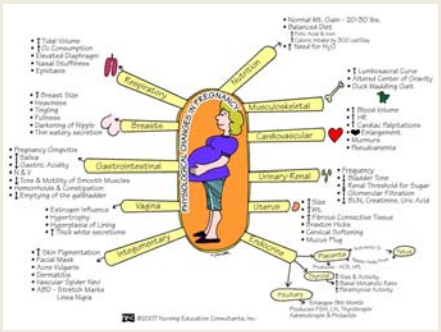
During pregnancy, the fetus experience the mother's rhythms and patterns, and the mother comes to know her baby through his or her movement and activity. The mother's self-regulation is the basis for mutual regulation in pregnancy. Mutual regulation is pregnancy refers to the process of mother and baby adjusting and adapting to changes in each other

MUTUAL REGULATION DURING PREGNANCY – Maternal and Fetal Regulation

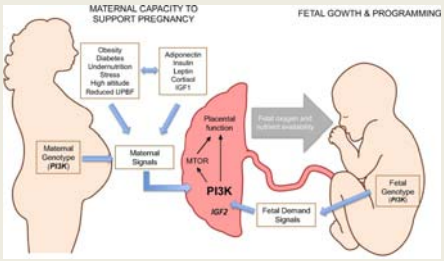
Beginning Rhythms Page 27

13

Rhythms and Regulation
The Fetus and Newborn



Beginning Rhythms Pages 20-22

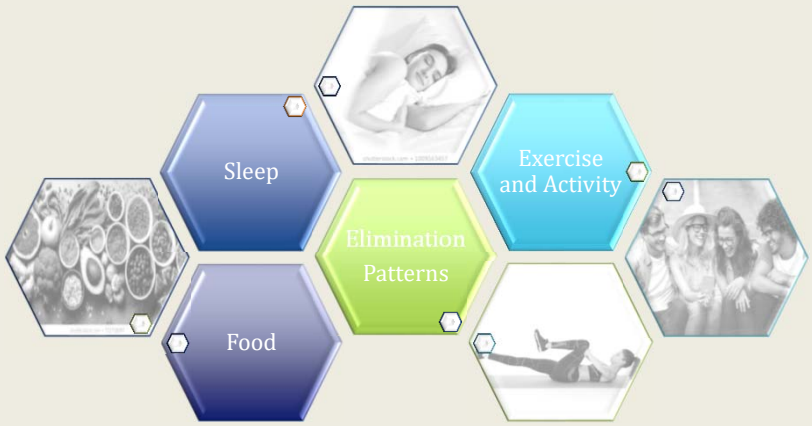


Beginning Rhythms Pages 23-25

Maternal hormones and their effect on the baby's brain in the womb.

14

Prenatal Routines – Why to They Matter



15

Looking at Fetal and Newborn Sleep/wake Patterns

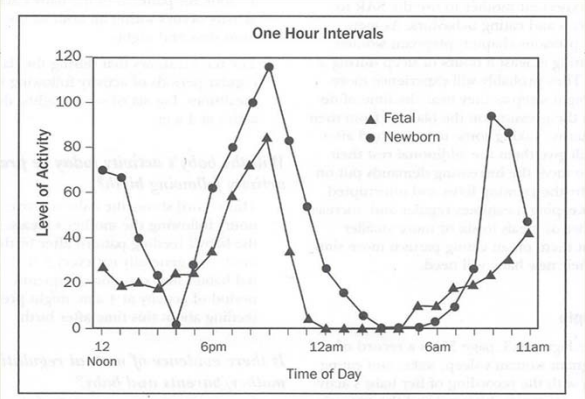


Figure 4.2 Comparison of Fetal Activity Patterns with Newborn Wake and Sleep Cycle in 60 Minute Intervals for One Subject (reprinted with permission by Leake, 1990)

16

Principle

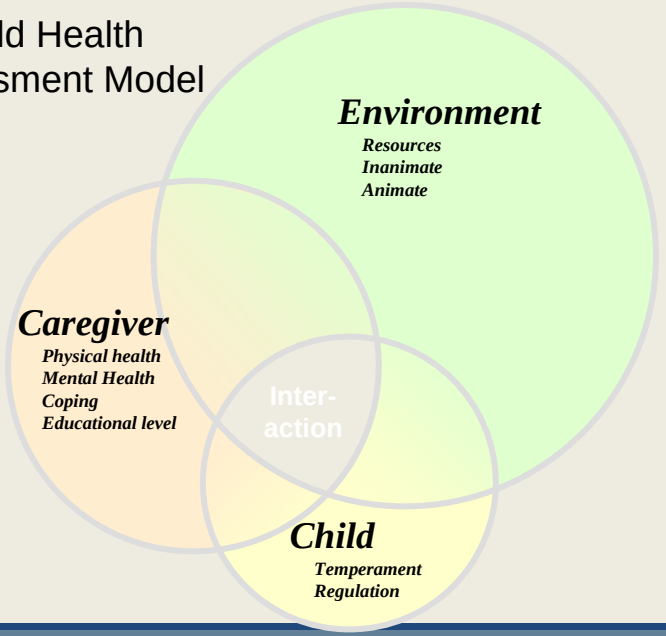
Development of mutual regulation starts in the womb, setting the state for both self-regulation and social emotional development after birth

MUTUAL REGUATION TO SELF-REGULATION IN THE INFANT

Beginning Rhythms Chapter 5

17

Child Health Assessment Model

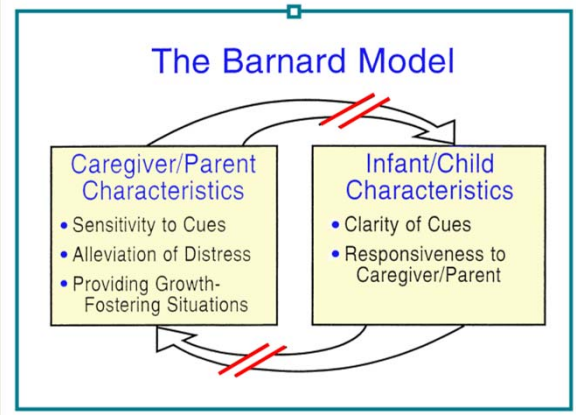


18

Parent-Child Relationship Programs

(Formerly NCAST - Nursing Child Assessment Satellite Training

Kathryn Barnard, PhD, RN



parent-child relationship programs at the Barnard Center

19

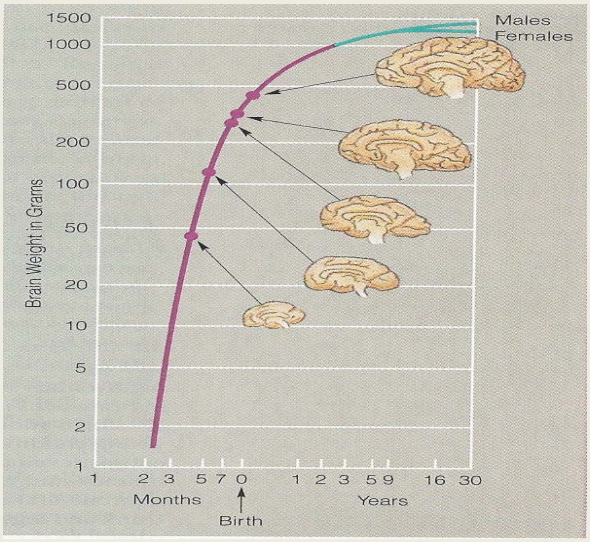
Responsibilities

Paren't/Caregiver	Infant/Child
▪ Sensitivity to infant feeding needs , changes in activity, time out (safety, pacing, time out)	▪ Alertness during feeding/play
▪ Response to infant distress	▪ Clarity of hunger and satiation cues
▪ Provision of social and emotional support	▪ Attention and response to caregiver feeding
▪ Fostering of cognitive growth – talking to them	▪ Smooth state changes during feeding
	▪ Ability to turn away or indicate need for timeout

Keys Page 47 – 50

20

Self-Regulation The First Year of Life



21

Brain Growth the First Years of Life

TERM INFANT VIDEO
https://www.youtube.com/watch?v=t4ZomIKxRNE

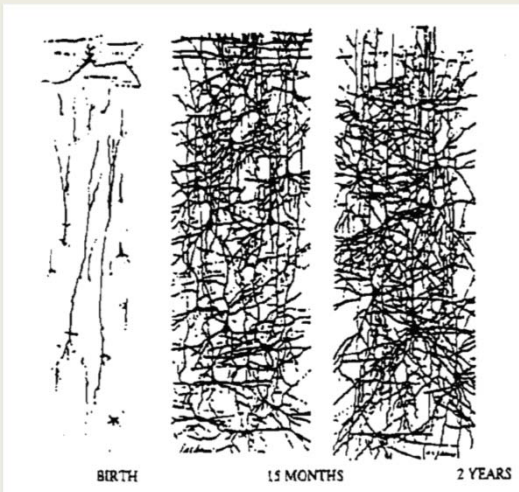
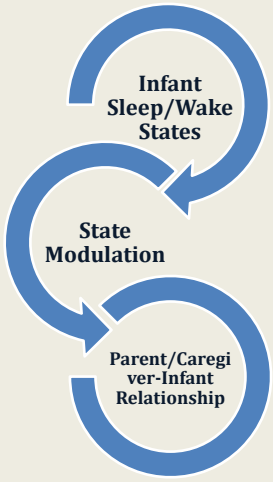


Figure 2 Dendritic growth. (From Dobbing, J. (1975). Human brain development and it's vulnerability. In *Biologic and clinical aspects of brain development* (p. 7). Mead Johnson Symposium on Perinatal and Developmental Medicine. No. 6. Evansville, IN: Mead Johnson.)

22

Biorhythms of the Newborn

Regulators that help the baby adapt to the external environment



- **Infant Sleep/Wake States**
  - Organization of the newborns' states of consciousness
- **State Modulation**
  - Ability of the newborn to maintain and change states
- **Parent/Caregiver-Infant Relationship -**
  - **Sensitivity** of the caregiver in modulating the newborn's *states and* ***responsiveness*** *to changing emotions*

23

Quiet Sleep (Non-REM Sleep)

Active Sleep (REM Sleep)

Drowsy

Quiet Alert

Active Alert

Crying

Significance of Infant Sleep/Wake States

24

Implications of Sleep/Wake States

Quiet Sleep (Non-REM Sleep)

Difficult to awaken, will not stay awake

Active Sleep (REM Sleep)

Less difficult to awaken. Parents may try to feed.

Drowsy

Difficult to determine if awake/asleep. Takes time to awaken

25

Implications of Sleep/Wake States

Quiet Alert

Best state to feed & interact. Infants learn best in this state.

Active Alert

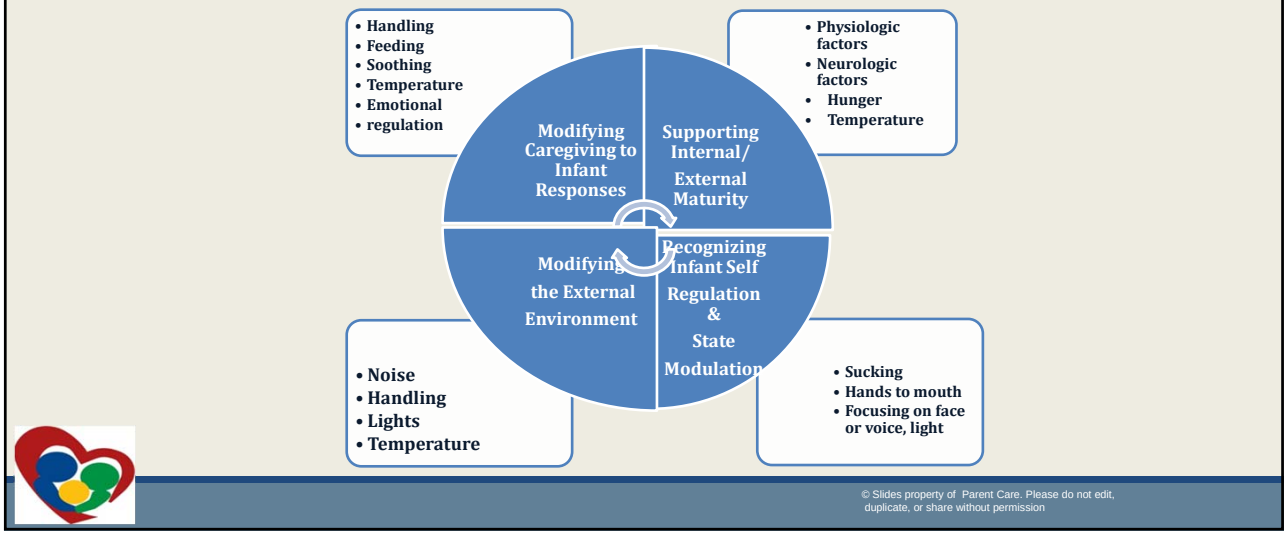
nal for change. Difficult to interact. ies can console self.

Crying

Limits have been reached. Needs change. More likely to need caregiver to console.

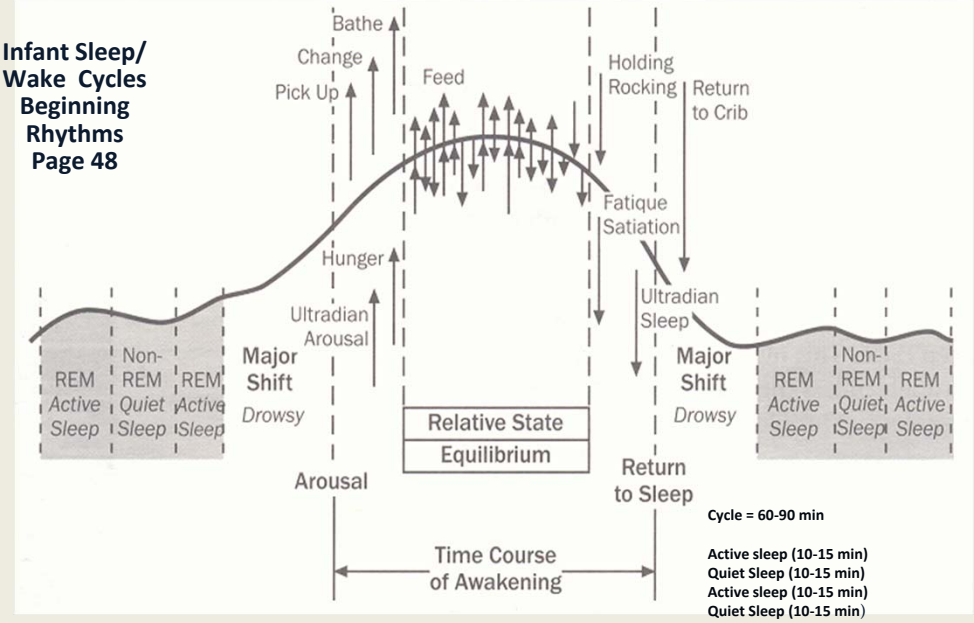
26

The Caregivers Role in Supporting Infant/Child Sleep/Wake States



27

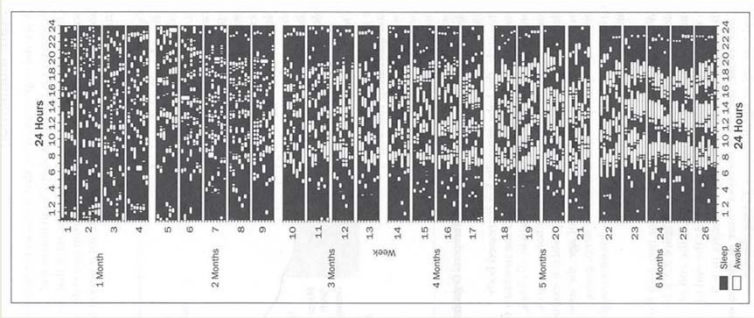
Infant Sleep/ Wake Cycles Beginning Rhythms Page 48



Beginning Rhythms Page 43 and Keys to Caregiving p. 2 - 4

28

State Related Development
Sleep/Wake State Consolidation



Sleep = dark Awake = light

Beginning Rhythms Page 42

29

Developmental Changes
in the Nature of Sleep

- Development changes in the active and quiet sleep (REM sleep occurs in the first month of life – neonatal to infant sleep patterns
- By 3 months here is more quiet sleep (non-REM sleep) than active sleep (less movement such as mouthing, sucking, smiling grimacing)
- By 8 months 75-80 % of infant sleep is quiet (non-REM) sleep
- Sleep continues to develop throughout infant and childhood until after adolescence
- Imposing adult sleep patterns (failing to recognize and respond to behaviors and communication are developmentally inappropriate

Beginning Rhythms Page 60 and Keys to Caregiving Page 2-7

30

Sleep and the Impact on Development and Later Well-being

The importance of sleep to overall health:

- In adults associated with multiple health problems (cardiovascular disease, hypertension, obesity, glucose metabolism and diabetes as well as mood disorders such as depression
- Sleep influences cognitive function and performance
- A major factor as contributor of sense of well-being
- A predictor of parenting stress

Beginning Rhythms 57

31

Brain plasticity

Brain plasticity is the preservation of the capacity to change, adapt, and learn in response to environmental experiences and new needs.

In addition to the essential role of REM sleep and sleep cycles in early development of the sensory systems, sleep cycles with REM and NREM sleep are critical for the preservation of brain plasticity.

This involves the continual activation and preservation of three cellular components: nerve growth factor and brain-derived neurotropic factor. These processes depend on sleep cycles for the lifetime of the individual and start in response to REM sleep in late fetal and early neonatal life.

32

Long term memory and learning

Sleep essential for the creation of memory and long-term memory circuits, and for the maintenance of brain plasticity over the lifetime of the individual

Sensory inputs registers during wakefulness – experiences

Consolidation of short-term memories takes place during NREM quiet sleep

During REM sleep memories are transferred to make permanent connections in the cortex and other areas

Long term memory and retained learning are processed through complete sleep cycles

Euston, Tatsuno and McNaughton 2007

33

Keys to Caregiving Chapter 3

How to Read You Baby
PIPE – Partners in Parenting Education
http://www.howtoreadyourbaby.org/training/

Significance of Infant/Child Behavioral Communication

34

Infant Behaviors and Communication

POTENT ENGAGEMENT **Time to play, time to eat**	Babbling, feeding sounds, giggling Mutual gaze or smile Reaching out, grasping Turning head
POTENT DISENGAGEMENT **Time for nap or bedtime, time out, need for a break, need for a change, burp, new activity**	Crying, fussing, pulling away, whining Back arching, pulling away, waking away Saying "no' Coughing, choking spitting, Vomiting, spitting up Waking away Going from alert to sleep state Tray pounding Throwing toy, food

Keys to Caregiving Page 28

35

Infant Behaviors and Communication

SUBTLE ENGAGEMENT	Eyes bright and wide, head raising Facial brightening, quieting Open hands, flexed fingers Hunger posture
SUBTLE DISENGAGEMENT	Eye blinking, eyes clenched Facial grimace Frown, dull eyes or face Leg kicking, leg straightening Tongue show, turning head, Yawn, whimper Increased sucking noise or movement Fast breathing Gaze aversion Hiccoughs Hand to back of neck or behind head

Keys to Caregiving Page 28 - 29

36

Infant Behaviors and Communication

Subtle Behaviors	• Very easy to miss (e.g. a brief glance away) • Provide clue to need for early caregiver support
Potent Behaviors	• You can't miss it (e.g. big smile, walking away) • The exact meaning may be difficult (e.g. need for time out, diaper change, hunger, I'm bored)
Clustering of Cues	• Clusters of potent and subtle - a combination of engaging and disengaging, potent, and subtle cures that occur around a specific situation such as feeding and naptime or bedtime (i.e. Looking at you and crying at the same time)
Mixed Behaviors	• Mixed messages combine both engagement and disengagement behavioral communication cues. • Often very hard to understand • Engaging and disengaging together • In order to decipher, look for the dominant types of behaviors seen • Crying, reaching out, turning away, rubbing eyes, yawns and hiccups, color changes, sucking and chewing

Keys to Caregiving Page 26 - 29

37

Principle
The newborn's ability to develop self-regulating behaviors depends on having regular and predictable biorhythms and sensitive caregivers

SELF-REGULATION DURING THE FIRST YEAR OF LIFE (SLEEPING, FEEDING, AND SOCIAL EMOTIONAL DEVELOPMENT)

Beginning Rhythms Chapter 6

38

Infant Self Regulation
Birth to 3 Months - Fourth Trimester

Feeding
- Inconsistent feeding schedule – sleep routine
- Subtle hunger and satiation cues
- Non-nutritive sucking
- Poorly established suck-pause sequence

Sleeping
- Commonly falls asleep after eating

Crying
- Crying is the means of communication – often the result of stimulus overload

Evolving Developmental Skills
- Uses gaze aversion when overstimulated
- Focuses on faces
- Smiles reflexively
- Establishes eye contact

Social Emotional Behaviors
- Enjoys and needs a great deal of physical contact and tactile stimulation
- Molds and relaxes body when held
- Draws attention to self when distressed
- Prefers people over objects
- Responds with smile when socially approached

Beginning Rhythms Page 56, 61-63

39

Caregiver and Environmental Strategies
Birth to 3 Months - Fourth Trimester

- Begin to develop consistent sleep routines – time of day
- Baby wearing – physical contact and closeness provide physiologic regulation
- Swaddling precautions **only to 2 months when needed** - as infant develops skill to roll over (integration of tonic neck reflex)
- Attending quickly to infant cues leads to infant trust that needs will be met
- Facilitate self consoling by allowing hands near mouth
- Put to sleep once asleep - don't wake a sleeping baby
- Use consistent sleep location as much as possible
- Use transitional object/self soother
- Safe sleep

Beginning Rhythms Page 56, 61-63, 72-76

40

Infant Self Regulation
3 to 6 Months

Feeding
- Smooth circular body movements – feeding behaviors
- Increased head and trunk control
- Easily distracted during feeding, especially breastfeeding
- Breastfed infants still require night feedings (8 -10 feedings a day)

Sleeping
- Gradually develops consistent sleep/wake pattern depending on feeding routine
- Increasing awake time – night or daytime – baby boredom

Crying
- Infant cry becomes more recognizable – hunger, boredom, need for comfort

Developmental Skills
- Heightened social responsiveness – eye contact, smiles, infant engagement in social activity and games
  - NOTE: Preference for toys over caregiver
- True social smile
- Laughs while socializing, cries if play is disrupted
- Stops unexplained crying when caregiver attends to them
- Vocalizes in response to adult talk and smile
- Discriminates strangers from familiar people

Social-emotional Development
- Socializes with anyone
- Demands social attention
- Vocalizes pleasure and displeasure
- Becomes more aware
- Enjoys social play

Beginning Rhythms Page 56, 61-63, 72-76

41

Caregiver Strategies
3 to 6 Months "Sleep Gate"

- Continues to benefit from baby wearing
- Use consistent nap time – ideally in same location as for nighttime
- Consistently place infant in crib while awake after feeding to promote putting self to sleep
- Start consistent daytime naps (play, feeding, nap) then nighttime routine.
- Begin to use transitional object (use safe sleep precautions)
- Play/activity stations – 10–15-minute rotations helps with baby boredom
- Floor time and other physical activity during awake times helps to promote consistent sleep patterns for naps and bedtime
- Note overstimulating days or activities – and adjust to infant needs

Beginning Rhythms Page 56, 61-63, 72-76

42

Infant Self Regulation
6 to 9 Months

Feeding/Sleeping
- Beginning purees – new textures, flavors, smells
- Infants thrive on consistent feeding and sleep routines by supporting the emerging sleep/wake cycle development
- Falls asleep after short periods of crying
- Emerging sleep/wake pattern and nighttime sleep

Crying
- Development of object permanence – awareness that parent/caregiver is still present even though they cannot be seen
- Distress/crying – continues to indicate need for emotional attention

Developmental Skills
- Emotional contentment – through daily routines feeding, play, dressing, diaper changes, social games
- Ability to initiate social contact
- Lifts arms to be picked up
- Looks at self in mirror, smiles

Social-Emotional Behaviors
- Recognizes parent visually
- Repeats enjoyable activities and loves to be imitated
- Cries or shouts for attention or in response to another infant's cries
- Begins to imitate - claps when does something he/she likes
- Displays stranger anxiety
- Explores adult features

Beginning Rhythms Page 56, 61-63, 72-76

43

Caregiver Strategies
6 to 9 Months

- Beginning new foods takes 20 to 40 exposures for even initial acceptance
- Safety check room – cords, climbing. What can be reached from the crib
- Consistent daily routines for feeding, naps, bedtime sleep and play help Infant:
  - anticipate what will happen next – and thus decrease crying as they develop the ability to (Even if infant does not appear to be tired)
- Responding quickly to infant needs leads to their development of feelings of security and trust
- Predictable bedtime routine and transitional object
- Should fall asleep after short crying, use the boring visit
- Development of object permanence – support with peek-a-boo

Beginning Rhythms Page 56, 61-63, 72-76

44

Infant Self Regulation
9 Months to 12 Months

Feeding
- Beginning soft solids and table foods –

Sleeping
- Health issues may disrupt previously consistent routines – nighttime sleep
- Period of rapid brain growth again as object permanence evolves - may resume night awakening

Crying/Playing
- Ability to entertain self evolves
- Learning to play actively with a variety of toys – grasp release – throwing and dropping objects

Developmental Skills
- Separation anxiety becomes prominent -
- Developing a sense of humor – notice incongruences
- Mom or caregiver in sunglasses, with hat

Social Emotional Behaviors
- Shows like-dislike for certain people, objects, places
- Lets only primary caregiver meet needs
- Extends toy to show others
- Tests parental/caregiver reactions during bedtime and feeding
- Engages in simple imitative play
- Explores environment enthusiastically – checking in
- Enjoys turn-taking games

Beginning Rhythms Page 56, 61-63, 72-76

45

Caregiver Strategies
9 Months-12 Months

- Consistent and predictable routines continues to build trust
- Environmental activities, visual and auditory stimulation – impact attention, vocal patterns, and parent child interactions – Need for "language nutrition"
- Parent response with consistent and predictable daily routines will help return infant to previous sleep routine
- Adjustments in day-light savings, travel impact sleep – continue routines
- Lack of physical activity – impacts sleep routines (baby carriers and swings)
- Over stimulation still can impact fussiness requiring more caregiver regulation – consoling
- Children still cry to indicate tiredness, need for comforting, hunger, and boredom

(Foster-Cohen, 2007)

46

Supporting Infant Sleep
Twelve to Twenty-Four Months

- Predictable and consistent routines = build trust
- Calm, relaxed environment, transitional object
- Adjustments occur with illness, daylight savings, travel, visitors, active play date, lack of physical activity
  precautions
- Note over stimulating days or activities
- Some fussing occurs with all children

Beginning Rhythms Page 56, 61-63, 72-76

47

Special Resources

PIPE (Partners in Parenting Education)

Related Topics

- Infant Sleep States – Cribside Communication
- Infant Behaviors – Tune In-Tune Out
- Daily Routines - Patterns and Expectations
- Predictability – Love Needs a Safe Base
- Temperament – Each Child is Different
- Play – Baby's First Teacher

How to Read You Baby
PIPE – Partners in Parenting Education
http://www.howtoreadyourbaby.org/training/

48

Key Take Away Points

Social-Emotional Development begins the first year of life and sets the foundation for later life success

Social-emotional development is about establishing early sensitive and responsive parent/caregiver relationships

We have a responsibility to support parents in their role as parents – understanding their infants sleep/wake patterns and behavioral communication so that they understand how to respond sensitively to their child's needs

49

Contact Information

Barbara J. Deloian, PhD, CPNP, IBCLC

Email: bdeloian88@gmail.com

Phone: 720-480-5367

50

References

Barnard, K. E. & Thomas, K.A. (2014). *The Sleep Activity Program: Beginning Rhythms: The Emerging Process of Sleep Wake Behavior and Self Regulation. NCAST Programs: Promoting nurturing environments for young children*. University of Washing, Seattle Washington.

Barrett, L., and others. 2007. "The Experience of Emotion," *Annual Review of Psychology,* Vol.58, 373–403.

Bell, M., and C. Wolfe. 2004. "Emotion and Cognition: An Intricately Bound Developmental Process," *Child Development,* Vol. 75, No. 2, 366–70.

Cohen, J., and others. 2005. Helping Young Children Succeed: Strategies to Promote Early Childhood Social and Emotional Development . Washington, DC: National Conference of State Legislatures and Zero to Three. (accessed on December 7, 2006

Cannela, B.L. (2005). Maternal-fetal attachment: an integrative review. *Journal of advanced nursing*. 50(1). 60-68.

Ednick, M., Cohen, A.P., McPhail, G.L. Beebe, D., Simakajornboon, N., & Amin, R.S. (2009). A review of the effects of sleep during the first year of life on cognitive, psychomotor, and temperament development. *Sleep.* (32(11). 1449-1458.

Feldman, R. (2007). Parent-infant synchrony and the construction or shared timing; physiological precursors, developmental outcomes, and risk conditions. *Journal of Child Psychology and Psychiatry*. 48(3-4). 329-354.

Graven, S. & Browne, J. (2008). Sensory development in the fetus, neonate and infant: Introduction and overview. *Newborn & Infant Nursing Reviews.* 8(4):169-172.

National Scientific Council on the Developing Child. Winter, 2004. "Children's Emotional Development Is Built into the Architecture of Their Brains" Working Paper No. 2 . (accessed on August 1, 2020

Sander, L. (1977). The regulation of exchange in the infant-caregiver system and some aspects of the context-content relationship. Interaction, conversation, and the

development of language. 5(40). 579-593.

Shonnkoff, J.P. & Bales, S.N. (2011) Science does not speak for itself: translating child development research for the public and policy makers. Child development. 82(1), 17-32. Doi: 10.111/j.1467-8624.2010.0538.x.

Spagnola, M. & Fiese, B.H. (2007). Family Routines and rituals. A context for development in the lives of young children. Infants and Young Children. 20(4). 284-299.

Sumner, G. & Barnard, K. (1999). Keys to Caregiving Study Guide. NCAST Publications, Seattle, Washington.

Zero to Three. 2004. Infant and Early Childhood Mental Health: Promoting Healthy Social and Emotional Development. Fact Sheet. May 18, 2004. Washington, DC: Zero to Three. (accessed on August 1, 2020)

51