


## Using Baby Behavior to Support Informed Infant Feeding Decisions: Part 1

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## Disclosures



- I have nothing to disclose.
- Acknowledgement
  - Parts of this work has been funded at least in part with Federal funds from the U.S. Department of Agriculture, Food and Nutrition Service. The contents of this publication do not necessarily reflect the view or policies of the U.S. Department of Agriculture, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.
  - USDA WIC Special Projects Grant 2006-2009
  - USDA WIC Special Projects Grant 2011-2014

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## Webinar Structure

<b>Part 1</b> <ul style="list-style-type: none"><li>■ Baby Behavior background and scale up</li><li>■ Baby Behavior basics<ul style="list-style-type: none"><li>▫ States and Cues</li><li>▫ Infant Crying</li><li>▫ Infant Sleep</li></ul></li><li>■ Answering your questions</li></ul>	<b>Part 2</b> <ul style="list-style-type: none"><li>■ Newborn behavior and early breastfeeding challenges</li><li>■ Our communication "style"</li><li>■ Baby Behavior: Application in health care</li><li>■ Answering your questions</li></ul>
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### Relevant Research and Projects

- Qualitative Projects (2003-2009)
  - Barriers to Compliance with Infant Feeding Guidelines among Low-income Women (*JHL* 2006)
  - Sources and Acceptance of Feeding Advice among Low-income Women (*JHL* 2009)
  - "Just in Case": A Qualitative Study of Maternal Request for Hospital Formula (2008-2009)
- USDA WIC Special Projects Grant (2006-2009)
  - California FitWIC Baby Behavior Study
- California Baby Behavior Campaign (2010-2011)
- Expansion to other states (2011- present)

UCD Human Lactation Center, 2009

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### The Problem



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### Barriers to Compliance with Infant Feeding Guidelines (*JHL*, 2006)

- Why do so many WIC mothers supplement or stop breastfeeding in the early pp
- Mothers did report pain or breastfeeding challenges
- However, the majority reported "insufficient milk" or that their babies were "not satisfied"
  - Using qualitative methods, we asked, how did you know?



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### Focus Groups: Barriers to Compliance with Infant Feeding Guidelines

- Mothers believe babies cry because of hunger (formula and cereal prevent hunger)

*"When I gave formula, the baby no longer cried and slept, and that is when I decided not to give him breast milk."*



Heinig et al. J Hum Lact. 2006; 22: 27-38.

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### Focus Groups: Barriers to Compliance

- Mothers believe babies wake because of hunger

- *"The baby sleeps better with formula."*
- *"From the time she was maybe 3 or 4 months old, I started putting a little cereal in her bottle, and it was like at night. It would help her; she would be full and sleep through the night."*



Heinig et al. J Hum Lact. 2006; 22: 27-38.

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### Infant Behavior and Feeding Practices:

- Mothers felt compelled by their infants' behavior to ignore feeding guidelines
  - Supplementation of breastfeeding with formula (or breastfeeding cessation)
  - Increased use of formula (exceeding guidelines)
  - Addition of cereal
  - Addition of other foods and fluids
  - Use of medications
- Inappropriate feeding and overfeeding are necessary to address infant "hunger"

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Theoretical Approach

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### Coping with Stress

- If people believe there is a solution –  
**Problem Management**
  - Seek information
  - Identify solutions
  - Attempt and evaluate solutions
- If people don't believe there is a solution –  
**Emotional Regulation**
  - Reinterpret goals
  - Disengage, detach
  - Denial of consequences
  - Anger, aggression

Glanz J Occup Med 1992; 34: 1071-8.

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Understanding Babies is the Key!

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### Infant Behavior Research

- Infant behavior has been explored and documented for more than 30 years
  - Brazelton, 1973
  - Barnard 1978, 1987, 1993 (NCAST)
- Focus is on healthy full term infants
- Current education is excellent but complex and time consuming, WIC and other providers/supporters have infrequent brief contacts with participants – our work is translational

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Challenge #1:  
Determine what specific information is needed.

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Challenge #2:  
Messages must be short, effective, and inoffensive

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The FitWIC Baby Behavior Study



3 Year USDA FitWIC Special Projects Grant in partnership with the California WIC Program

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Study Design

- 3-year quasi-randomized educational intervention (8 sites in CA)
- Concept: Create a *clinic environment* supporting positive caregiver-infant interactions
  - Training, social marketing, handouts, classes, activities
  - No mention of specific feeding practices



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Staff Outcomes

- Results from the staff interviews showed that WIC staff enjoyed the Baby Behavior trainings
  - "I enjoyed everything! I remember I was excited about the information; it was all useful and interesting."
- Supervisors also described the positive impact the Baby Behavior intervention had on their staff
  - "Staff felt good about sharing the information. They felt confident sharing the materials and were excited about the information. They were more enthusiastic about interacting with moms. Adding Baby Behavior information to breastfeeding made it all come together – the complete package."

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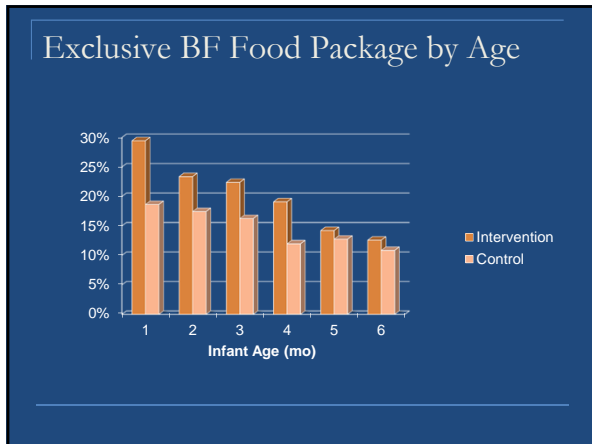
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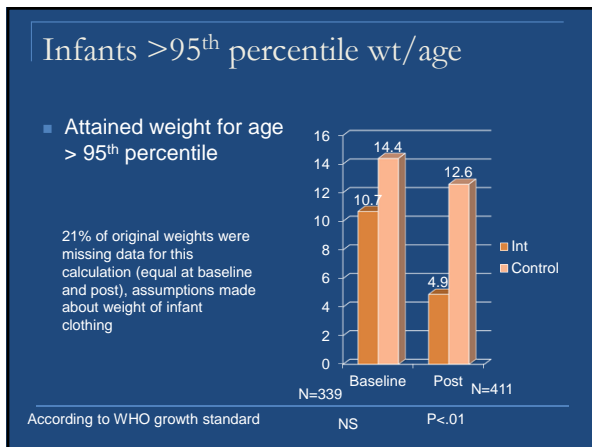
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### Baby Behavior in California

- Statewide scale-up
  - Increases in EBF
  - Decreases in formula distribution
- 39 Other states
- Beyond WIC

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### Our Approach: Another Tool

- Baby behavior information is another “tool” for professionals and parents
- Does *not replace* efforts to support breastfeeding
  - Does not address clinical breastfeeding issues
- Our approach is a *simplified* version of infant behavior education



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### Baby Behavior: Training Highlights

Infant States and Cues, Crying, and Sleep



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### Important Baby Behavior “Secrets”

- Babies are *driven* (by their instincts) to learn, socialize, and connect with people around them
  - They are annoyed when they can't do “their job”
- Babies always have a reason for the things they do
  - We may not like the reason but there is *always* a reason



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Baby Behavior

## INFANT STATES

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### Infant "States"

- State = group of behaviors that occur together
  - Body movement
  - Eye movement
  - Breathing (fast or slow)
  - How much they respond

NCAST Keys to Caregiving

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### Infant States

- Crying
- Irritable
- Quiet alert
- Drowsy
- Active sleep
- Quiet sleep

↑ Increasing intensity

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### Crying

- Tears
- Jerking motions
- Color changes
- Tight muscles
- Rapid breathing
- Generally don't respond



Key message: Crying is stressful for parents but helpful for babies.

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### Irritable

- Lots of body and facial movement
- Irregular breathing
- Eyes open but may not want to interact
- Sometimes fussy
- Sensitive to what's going on inside and around them



Key Messages: Babies are driven to socialize and learn, get irritated by distractions or overstimulation.

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### Quiet Alert

- Little body movement
- Eyes open and wide
- Steady, regular breathing
- Highly responsive
- Wants to learn and play - interactive
- For young babies, requires active effort to control! Tiring.



Key message: Moms feel rested but babies work hard during quiet alert periods.

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### Drowsy

- Variable movement
- Irregular breathing
- Opens and closes eyes
- Eyes glazed
- Takes time to react
- Easily startled



Key messages: Some babies get irritated while drowsy. Babies will give signals when they need rest.

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### Active Sleep

- Moves a little every now and then
- Irregular breathing
- Facial twitches
- Rapid Eye Movements (REM)
- Easy to wake



Key messages: Dreaming is important but dreaming babies wake easily.

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### Quiet Sleep

- No body movement
- Rhythmic breathing
- Bursts of sucking
- Startles but does not wake
- Does not respond
- Hard to wake



Key message: Babies also need deeper sleep to rest and recover. The difference between sleep states is obvious.

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## Changing States

### ■ Variety to waken

- Use different positions, touch, words
- Will take longer if very drowsy or in deep sleep
- Can take up to 10-15 minutes for very young or premature infants to wake up enough to eat well

### ■ Repetition to soothe

- Address the child's needs – see if change in position or circumstances helps
- Repeat actions or words over and over
- May take time if infant is very upset

.NCAST Keys to Caregiving

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Baby Behavior

## INFANT CUES

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## Types of Infant Cues

- Young infants try to tell caregivers when they want to interact (**engagement cues**)
- Young infants try to tell caregivers when they want “something to be different” (**disengagement cues**)

Kelly et al. Promoting First Relationships, NCAST Pub 2003

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### Engagement Cues

“I want to be near you”

- Obvious
  - ❑ Looking intently at face
  - ❑ Rooting
  - ❑ Feeding sounds
  - ❑ Smiling
  - ❑ Smooth body movements
- Subtle
  - ❑ Eyes open
  - ❑ Face relaxed
  - ❑ Feeding posture
  - ❑ Raising head
  - ❑ Following voice and face



Kelly et al. Promoting First Relationships, NCAST Pub 2003

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### Disengagement Cues

“I need something to be different”

- Obvious
  - ❑ Turns away
  - ❑ Pushes, arches away
  - ❑ Crying
  - ❑ Choking, coughing
  - ❑ Extending fingers, stiff hand
  - ❑ Falling asleep
- Subtle
  - ❑ Looks away
  - ❑ Faster breathing
  - ❑ Yawning
  - ❑ Hand to ear
  - ❑ Grimace
  - ❑ Glazed look



Kelly et al. Promoting First Relationships, NCAST Pub 2003

Important message: Cues are not specific!

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### Engagement



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## Disengagement



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## Key Messages: Infant States and Cues

- Babies move in and out of states in a predictable fashion – behavior is understandable (not always at birth...but early in life)
- Babies are driven to connect, socialize, and learn from others
- Babies can communicate their needs using cues but they can't be specific (parents must be "detectives")

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What are your questions?

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Baby Behavior  
**INFANT CRYING**

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### Crying: Babies' "Super Power"

- Crying results in a sound that affects the nervous system in most adults
  - Drives adult activity!
- Needs to be stressful in order to motivate caregiver
- Must be loud to rouse sleeping caregivers



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### "Normal" Crying

- ALL infants cry (crying is used to communicate needs)
  - Babies cry more in the first 6 weeks than at any other age
    - Must adapt to new world
    - Will escalate cues until understood
- As parents respond to cues and babies refine their cues, crying lessens – can be mom, dad, or other caregiver



Hiscock H. The Crying Baby. Australian Family Physician 2006; 35: 680-4.

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## Why Do Babies Cry?

- Discomfort/Pain
- Distress
- Hunger
- Fatigue
- Overstimulation
- Frustration
- Unfamiliar sensations
- Distractions
- Fear



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## Caregivers can help crying babies (who offer no hunger cues) by:

- Letting babies suck on their hands
- Showing babies their face
- Speaking softly over and over (repetition)
- Holding, rocking, stroking the baby over and over (repetition)
- Babies will take longer to calm down if they are very young or very upset

Kelly et al. Promoting First Relationships, NCAST Pub 2003

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## Key Messages about Crying

- Infant crying is stressful to everyone
- Parents can be taught to watch for cues to minimize crying and to recognize all the reasons why infants cry
- Parents can be taught soothing techniques though soothing should not be overemphasized
  - Soothing techniques should be tools given to parents as part of an overall strategy to promote positive interactions

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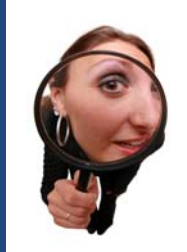
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### Be a Baby Behavior DETECTIVE!

- Baby Tanya is 3 weeks old
- 10-15 minutes after nearly all feedings she becomes fussy, arches her back, and stiffens her hands and legs



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### Be a Baby Behavior DETECTIVE!

- Baby Marcus is 3 months old
- During his sister's 4<sup>th</sup> birthday party, Marcus shuts his eyes, stiffens his body, and cries loudly



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### Be a Baby Behavior DETECTIVE!

- Baby Luz is 5 months old
- Every evening from 6 to 8pm, Luz becomes quite fussy, she closes her eyes, tightens her face, and cries unless she is constantly held and rocked



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### Be a Baby Behavior DETECTIVE!

- Baby Elena is 6 weeks old
- Despite being fed an hour ago, Baby Elena begins to cry, she draws her fists toward her chin and her legs toward her body, she moves her head from side to side



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What are your questions?

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Baby Behavior

### INFANT SLEEP PATTERNS

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### Parents' Perceptions of Infant Sleep

- "Good" babies sleep through the night
- If babies do not sleep through the night, they will "wake constantly"
- Goal becomes to "fix" the infant's sleep "problem," not to address expected sleep deprivation



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### Infant Sleep States

- Active sleep (REM) is considered to be important for brain development
  - Babies dream and blood flow increases to the brain bringing nutrients to active brain cells
  - Images stimulate brain function
- Quiet sleep is deep sleep
  - No dreaming
  - Little or no movement
  - Important for the brain to rest and recover



Peirano et al. J Pediatr 2003; 143: 70-9.

❖ Infants "cycle" through active sleep, quiet sleep, and waking.

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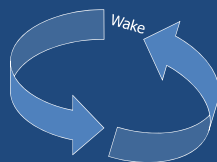
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### Infant Sleep Cycles

- Infant sleep cycles are 60 minutes long (adult cycles are 90 minutes long)
- Infants sleep 13-14 hours per day from 2-12 months – but not all at once!
  - Initially, newborns will wake with each cycle (every 1-2 hours)



Peirano et al. J Pediatr 2003; 143: 70-9.

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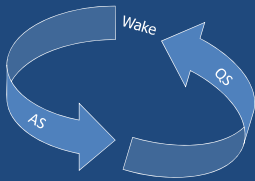
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### Newborn Sleep/Wake Cycle



Newborns start sleep in Active Sleep (AS) (dreaming for 20-30 mins) and move to Quiet Sleep (QS)

Infants in active sleep may wake up easily when put down, because active sleep is a light sleep

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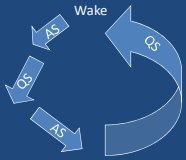
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### 2-Month-Old Infant Sleep/Wake Cycle



At 2-3 mo, infants begin with shorter periods of Active Sleep (AS) then move into Quiet Sleep (QS); they start to have ONE longer quiet sleep period at night

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### 3-4 Month-Old Infant Sleep/Wake Cycle



By the time babies are 3-4 months, they have more regular sleep patterns. Around the same time, they start to fall asleep in quiet sleep just like adults do. Sleep periods stretch out at night.

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### Infant Sleep Patterns

- As infants get older, they can link cycles together:
  - $\leq 2$  mo (links 2 cycles: 2 hrs)
  - 3 - 4 mo (links 4 cycles: 4 hrs)
  - $\geq 6$  mo (links several cycles: 6-8 hrs)
- So, infants will sleep longer and will not be as easy to wake as they get older



Peirano et al. J Pediatr 2003; 143: 70-9.

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### Reasons for Excessive Waking

- Baby's body is immature
- Baby is not getting enough to eat
- Overstimulation during day
- Illness or injury
- TV in room (or other intermittent stimulation)
- Caffeine or meds
- Change in routine

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What are your questions?

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But wait, there's more...

- Newborn behavior and early breastfeeding challenges
- Our communication "style"
- Application in health care settings



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For More Information

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- Website  
<http://lactation.ucdavis.edu>



Blog: [www.secretsofbabybehavior.com](http://www.secretsofbabybehavior.com)  
Thank you!!

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