

Sleeping, Feeding and Crying

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Objectives

Participants will be able to describe

- normal and abnormal sleep patterns in infants and toddlers
- normal and abnormal feeding patterns for infants and toddlers
- normal and abnormal crying patterns for infants and toddlers

Why is sleep important?

Healthy sleep habits promote:

optimal functioning

(health, development, learning)

positive mood

(happier baby or toddler, happier parents, family well-being)

Babies can be helped to develop good sleep habits:

establish healthy sleep habits early can prevent sleep problems

Sleep Requirements

Age	Total Sleep Ferber, 1985	Total Sleep Ferber, 2010	# Naps Ferber, 2010
1 week	16 ½	16	varied
1 month	15 ½	14	varied
3 months	15	13	4→3
6 months	14 ¼	12 ½	3→2
1 year	13 ¾	11 ¾	2→1
3 years	12	11 ¼	1→0

INFANT BEHAVIOR DIARY

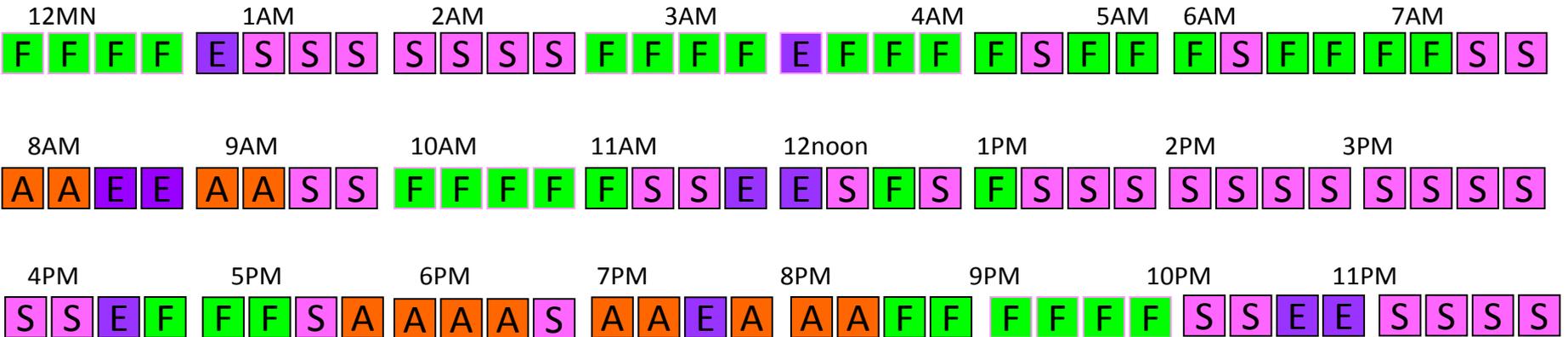
Brown Center for the Study of Children

8-Week-Old Infant

During each 15 minute period of the day you are to indicate the main activity of your baby.

The baby behaviors you will record are: F=Fussing C=Crying S=Sleeping E=Eating A=Awake

Month Day Year



Where baby falls asleep (S=swing, A=arms, B=parents' bed, Ba=bassinette, C=crib, CS = car seat)

Place above the block designating onset of a sleep episode

Best 5 minutes of the day _____

For Office Use Only:

Total Hours Fussing 8 ¾ Crying 0 Sleeping 9 ½ Awake 3 ¼ Eating X7

Sleep Patterns Chart

DAY / TIME	12 a.m.	2	4	6	8	10	12 p.m.	
Monday	sleep		sleep	U			D	nap U
Tuesday					U			
Wednesday					U		D	U
Thursday					U		D	U
Friday					U		D	U
Saturday					U		D	U
Sunday					U		D	U
Monday				U			D	U
Tuesday					U		D	U
Wednesday					U		D	U
Thursday					U		D	U
Friday					U		D	U
Saturday					U		D	U
Sunday					U		D	U

D Indicates time you put your child down for bed

 Indicates child asleep

U Indicates time your child woke up

 Indicates child awake

Safe Sleep Practices for Infants

- Place baby on back to sleep during naps & at night
- Place baby on firm mattress in safety-approved crib, well-fitting sheet
- Make sure baby's face & head stay uncovered & clear of blankets/coverings during sleep
- Do not allow smoking around baby
- Avoid letting baby get too hot
 - dress baby lightly for sleep
 - set room temperature in range comfortable for light

American Academy of Pediatrics, 2008; Mindell & Owens, 2003

Common Infant/Toddler Sleep Problems

- Day/night reversal
- Takes long time to fall asleep
- Can only fall asleep under special conditions
- Bedtime struggles
- Frequent/prolonged night wakings
- Limited nap times
- Insufficient sleep
- Nightmares

Routine is key

- Routines & regularity reassuring to infants & toddlers
- Establish regular, but not rigid, times for
 - meals
 - naps
 - bedtime

Establish a Bedtime

- Make bedtime an important part of the day
- Choose a time that works for your family
- Bedtime routine
 - in room where child sleeps
 - low lighting
 - quiet, soothing activities
 - no TV/screen time

Positive Sleep Associations

Babies develop sleep associations early, by 8-10 weeks

Consistent, soothing bedtime routine leads to sleep associations, same time, same place, same activities

Limit the bedtime routine to ~30 minutes

The Transition to Sleep

- Eventually end the bedtime routine ends by placing infant in crib on back drowsy, but awake
- No napping 1 ½ - 2 hours prior to bedtime
- If old enough, give baby a transitional object to use to self soothe & be reminded of mom

Benefits of Bedtime Routine

Promotes self soothing

Baby/child learns how to transition to sleep without having to rely on external help

Helps babies maintain sleep

Night-time Awakenings

Normal part of sleep

- Self-soothers
- Signalers

Associated with how the child falls asleep at bedtime

Child will seek the same activities to transition back to sleep in the middle of the night (e.g., rocking, feeding, parent's presence)

Sleeping Through the Night

Sleep through night between 3 to 6 months

- Defined as not waking between midnight & 5 AM
- 25% to 50% of children over 6 months continue to have night wakings (Mindell, et al., 2006)

Night feedings

- Not physiologically necessary after 6 months
- Transition to sleep at bedtime using bottle or breast, want to transition back to sleep in the middle of the night
- Breast fed babies likely to awaken more frequently
- Exclusive breast-feeding parents average 40-45 more minutes of sleep than parents who used supplementation (Doan, et al., 2007)

Common bedtime struggles

- Bedtime refusal, stalling, “curtain calls”
- Set clear limits
- Parental inconsistency can reinforce child’s behaviors
 - Parents may need to change their behaviors to promote child behavioral changes
- Reward system can help increase positive habits

Nightmares

dreams that usually wake the child

- Usually peak between 2 to 6 years old

To reduce likelihood

- Avoid letting child see frightening or over stimulating movies, stories, TV shows
- Reduce child's worries
- Make sure child is getting enough sleep

Response

- Reassurance
- Use of security object
- Nightlight can be helpful

Naps

Choose a regular time for naps

- Anticipate infant's needs
- Being overly tired → increased fussiness & more difficulty falling asleep
- For children taking one nap, nap immediately after lunch helps create clear routine

Sleep in same place for naps & at night

Introduce naps with a shortened version of bedtime routine

Impact of Sleep Problems on Parents

- Fatigue
- Stress
- Decreased sense of competence
- Mental health
- May negatively impact
 - Parent-child relationship
 - Parental relationship
 - Family functioning

Optimize opportunities for sleep

Good nutrition & self-care important

Time to relax

Build time to spend together as a couple

Let family & friends know when you need help

Seek professional help when needed

Infant States



Thoman, *Early development of sleeping behavior in infants*, 1975

The Interactive Baby State

Infants breastfeed and families bond during the Quiet Alert State

De Chateau, *Develop Med Child Neurol*, 1977

Predictable Infant Responses

Variety to awaken

Repetition to soothe

Predictable Infant Responses.

- **Variety to awaken**

- Skin to skin
- Rubbing
- Patting
- Humming
- Singing
- Talking
- Diaper off
- Cool cloth
- Eye to eye
- Visitors removed
- Others?

Normal Infant Feeding Pattern

- Feeding pattern characterized by closely bunched feedings
- May be followed by extended periods of sleep
- Normal newborn feeding behavior
- Usually starts on second night
- Often interpreted as sign of insufficient milk

Recommended Newborn Feeding Frequency

“During the early weeks of breastfeeding, mothers should be encouraged to have *(at least)* 8 to 12 feedings at the breast every 24 hours, offering the breast whenever the infant shows early signs of hunger...”

AAP Breastfeeding Policy Statement, *Pediatrics*, 2005

Parent Concerns

- 1/3 of children are described as having feeding difficulties at some point prior to age 5 years.
- Parents rank feeding issues as #2 behavioral problem (crying is #1) frequently left unaddressed by their pediatrician.

Picky Eater

- Being picky as a child (“neophobia”) is normal and adaptive with wide temperamental variation (“eats everything” to “only likes three foods”).
- From an evolutionary perspective, for simple survival children should be skeptical about eating any new food.

Picky Eating

- On average, a food is offered 10 times before a child will accept it.
- Children have a more acute sense of taste than adults and should not always be expected to eat what their parents or caregivers are eating.

Developmental Issues

- Normal drop off in growth in the second year of life
- Normal increase in exploration and development (motor and speech)
- More sensitive taste buds
- Development of independence

Growth

- 5% of children are underweight and up to 15% of children less than 5 years old are obese.
- Obesity has changed our perception of toddler size

Developmental First Feeding

- Usually between 5-7 mo
- Solid feeding not essential for nutrition at this age
- A “window of readiness” for solid textures
- May be delayed in preemies

Importance of Self Feeding (8-14 months)

- Self feeding encourages self regulation of caloric intake
- Congruent with psychological development at same ages
 - finding a balance between exploration and attachment
 - Sense of self emerges along with recognition that “I can refuse this” as a way of expressing my self.

Transitional stage of eating

- Balance giving liquids (milk or juice) and increasing solid foods is challenging in the first year—esp. for bottle feeders
- Allowing self feeding is time-consuming, messy, and inefficient in the first year

What 1-Year-Olds Should Eat

number of serving and serving size

<i>Grains, Beans, Legumes</i> <i>4 to 6 servings a day</i>	<i>½ slice of bread, ¼ bagel</i> <i>1 ounce of cereal</i> <i>¼ cup of cooked rice, pasta, peas</i>
<i>Fruits and Vegetables</i> <i>4 to 6 servings</i>	<i>¼ cup of vegetable</i> <i>½ whole fruit or ½ cup chopped or cooked fruit</i>
<i>Dairy Products</i> <i>4 servings</i>	<i>½ cup whole milk</i> <i>½ up yogurt</i> <i>1 oz. cheese</i>
<i>Protein: Meat, Fish, Poultry, Eggs, Tofu</i> <i>2 to 4 servings a day</i>	<i>1 egg</i> <i>2 oz. meat, fish poultry</i> <i>2 ½ oz tofu</i>

Motor Milestones Needed for Feeding

- 14 to 16 months of age
 - Efficient finger feeding
 - Practicing utensil use
- 18 to 24 months of age
 - Able to pick up, dip and bring foods to mouth
 - Increased utensil use (usually not efficient until 24 months)
 - Scoops purees with spoon and brings to mouth

What 2 to 6 Year-Olds Should Eat

number of serving and serving size

<i>Grains, Beans, Legumes</i> <i>6 servings a day</i>	<i>1 slice of bread, ¼ bagel</i> <i>½ cup of cooked cereal</i> <i>1/2 cup of cooked rice, pasta, peas</i>
<i>Fruits and Vegetables</i> <i>4 to 6 servings</i>	<i>1 cup of vegetable</i> <i>1 whole fruit or ½ cup chopped or cooked fruit</i>
<i>Dairy Products</i> <i>2 servings</i>	<i>1 cup whole milk</i> <i>1 cup yogurt</i> <i>2 oz. cheese</i>
<i>Protein: Meat, Fish, Poultry, Eggs, Tofu</i> <i>2 servings a day</i>	<i>2-3 oz. meat, fish poultry</i> <i>½ cup of cooked dry beans</i> <i>1 egg = 1 oz of meat</i> <i>2 tablespoons peanut butter = 1 oz meat</i>

Common Problems

- Rigid feeding schedules
- No schedule or structure to the day
- “Over healthy” low fat/vegan/goat’s milk
- Starting solids before infant is ready
- Not allowing self feeding
- Expectations of certain portion sizes
- Desire for certain body habitus

Culture and Feeding

- Think about the meal time rules in your own house growing up. When you are a parent, will you teach your kids the same rules? Why or why not?
- Consider your own beliefs about how children should eat and how mealtime behavior may differ from those of your patients. Which beliefs are “cultural” and which are based in medical science?

Culture and Feeding

- Wonder what role culture plays when feeding is describe by the family as a problem?
 - Start by asking the family to explain the problem as they understand it. Listen to how the mother describes the child' s behavior
 - Ask what other important family members think such as the father and grandmother think about feeding and the child' s behavior

Autism Spectrum Disorder

- Increased incidence of food selectivity
- Difficulty with mixed textured foods, preferring only crunchy or soft
- Oral motor weaknesses with chewing, sucking, tongue movements
- Choking/gagging with trying non-preferred textures

ASD

- Oral motor issues (textures of foods)
- Sensory issues (45-56% have issues with smell and taste of food)
- Rigidity and ritual—need for “sameness”
- Family stresses may not allow feeding issues to be addressed

Allergy Concerns

- If the child refuses entire nutrient groups, consider a food sensitivity or food allergy.
- Usually accompanied by physical manifestation

Concerns

- When the child is underweight/not following growth curve
- Concerns about micronutrient deficiency (Fe, Ca, vitamin D)
- Pattern of pickiness suggests an oral-motor problem or food sensitivity
- When extreme or prolonged

Evaluation

History

Diet

Development

Social

Typical day

Mealtime patterns

Culture

The structure of
mealtimes

Maternal feeding beliefs

Frequency of feedings

The parents expectations
about the type and
amounts of food

Nutritional value of
foods for different age
groups

Evaluation*

- Registered dietician evaluation
- Speech therapy evaluation
 - Can be done via Early Intervention if <3 yrs
 - Need to specify speech therapy for feeding evaluation
- Psychology/social work—family therapy

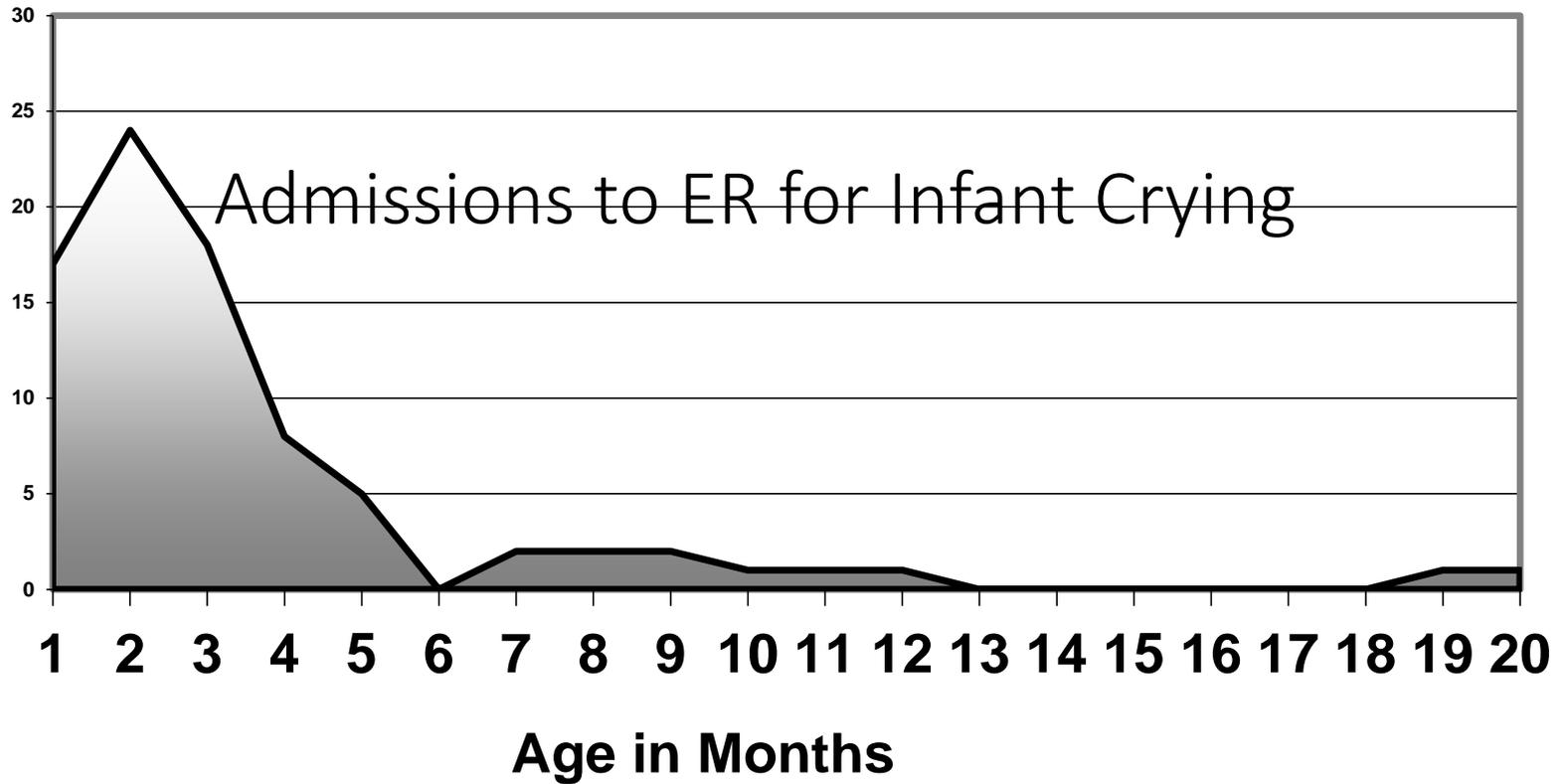
Medical Workup

- Swallow evaluation: Oro-pharyngeal motility
- GERD evaluation
- Nutritional labs: CBC, iron studies, prealbumin, vitamin D, lead

Feeding Clinics

- Multidisciplinary clinics
 - Carrie Tingley-The Pediatric Feeding Disorders Program provides multidisciplinary assessments and individualized treatment for children from birth to 8 years of age with a broad range of feeding disorders.
 - UNM CDD- The NM SAFE Program (Supports and Assessment for Feeding and Eating) conducts multidisciplinary team feeding evaluations of children and adults with developmental disabilities, for the purpose of improving health and preventing aspiration. The SAFE team includes a registered dietitian, physical therapist, physician and speech pathologist with expertise in swallowing disorders.
- May have different focus/specialty
 - Premies, cerebral palsy, ASD

33% had diagnosis of colic/crying



Who are fussy babies?

All Babies Cry

Crying as a Regulatory Function

- Increases lung capacity at birth
- Increases motor activity
- Helps regulate temperature
- Triggers attachment system/social interaction

Normal Crying Curve

6 weeks



12 weeks

- Peaks at 4-6 weeks
- First documented in Brazelton's practice
- Replicated 15 times
- Across cultures

Barr, Konner, Bakeman, & Adamson, 1991; Brazelton, 1962; St. James-Roberts, Bowyer, Varghese, & Sawdon, 1994

Definitions

- Excessive crying: more than average amount of crying
- Colic: excessive crying plus sudden onset, more aversive acoustical qualities, physical signs, more inconsolability (Lester et al, 1990)
- Persistent crying: crying past “cry curve” months (past 4 months)
- FBN Fussy Baby: any baby from birth to one year whose parent feels is difficult for him/her to console, feed, or help sleep

Wessel's Rule of 3s for Colic

- Rule of 3s
 - More than 3 hours/day
 - More than 3 days/week
 - More than 3 weeks
- No single known cause

Colic is Not Linked to:

- Birth order
- Gender
- Feeding style
- SES
- Colic can occur in healthy babies, in spite of excellent parenting

Excessive Crying Plus:

Sudden onset

- Unpredictable

Cry quality

- Higher pitch, reaches peak quickly
- Like a pain cry

Physical signs

- Clenched fists
- Grimace/flushing
- Gas/distention

Inconsolable

Lester, Boukydis, Garcia-Coll, & Hole, 1990

How Long does Colic Last?

Begins early:

- 100% by 3 weeks

End varies:

- 50% by 2 months
- 80% by 3 months
- 90% by 4 months

Different pathways to excessive crying

- Immaturity of GI tract
- Cow's milk/lactose intolerance
- Sensory thresholds
- Transient regulatory problem
- Abnormal sensitivity of CNS
- Prenatal influences
- Parent/child relationship distress

Underlying Medical Reasons

- Reflux
- Milk Protein Allergy
- Serious Infection (rare)

GERD in an Excessive Crier

- Crying that is worse around feeding
- Frequent spitting up that seems uncomfortable
- Refusing feeding
- Trouble with weight gain
- Back arching (right)
- Coughing, choking, gagging
- Breathing difficulty

What Stresses Parents the Most

- Prolonged length of cry bouts
- High intensity of cry (high cry to fuss ratio)
- Cry not reduced by extra carrying
- Resistance to soothing which makes parents feel out of control

St. James Roberts, 2007

Crying, Colic, and Parental Perceptions

“The actual duration of crying at a given moment seems to be *less relevant* than the parent’s perception of the crying of their infant in the long term.”

Reijneveld et al, 2004, p. 1342

Cultural Context of Crying

- How does culture perceive crying?
 - Positive
 - Negative
- What strategies are used in various cultures?
 - Distal caregiving
 - Proximal caregiving

Why worry about fussy babies?

- Risk for child behavior/development problems
- Risk for parent-child relationship problems
- Risk for child abuse
-
- Risk for family stress and maternal depression

Risks to Behavior & Development

Severe colic/persistent excessive crying in infancy past 5 months has been linked to the following child outcomes:

- Motor, language, and cognitive delays
- Behavioral problems (“temper tantrums”)
- Negative reactivity (“fussiness”)
- Sleep disorders
- Feeding problems
- Hyperactivity

DeGangi et al., 2000; DeSantis et al, 2005; Kries, Kalies, & Papousek, 2006; Papousek & von Hofacker, 1998; Rautava et al., 1995; Savino et al., 1995; Wake et al., 2006; Wolke, Rizzo, & Woods, 2002

Risks to Behavior & Development

- Infant cry, sleep, & feeding problems associated with externalizing behavior and ADHD across 22 longitudinal studies, particularly in families with multiple risks
- 75% of babies seen in Brown University colic clinic demonstrated some degree of atypical sensory processing between 3-8 years of age
- Hours of fussing—not crying—were associated with less efficient skills in sensory processing, coping, and externalizing behaviors

Maternal Depression

In mother

- frequent crying
- appetite change
- sleep problems
- *moderate to high anxiety*
- *panic attacks*
- feeling unable to cope, worthless, despair, guilt
- sluggishness that interferes with childcare
- expression of little positive emotion with infant
- fear of harming child or self

In infant

- poor eye contact
- unpredictable sleeping and/or eating patterns after 4 months
- constricted affect
- *difficult to comfort or soothe*
- developmental delays

Family Impact

- Disrupted lives
- Criticism and social isolation
- Search for diagnosis
- Maternal depression
- Parental conflict
- Parent-infant relationship distress

Long & Johnson, 2001; Maxted et al., 2005; Wake et al., 2006