Crying is a common, normal occurrence in a healthy infant. However, crying is one of the primary reasons parents seek health care for their infant child (Barr, 1990a). Many parents find inconsolable crying to be particularly difficult because the use of soothing techniques to comfort the infant seems futile. Parents also may view infant crying as a negative reflection on their ability to parent, increasing their distress. Primary care professionals have a responsibility to prepare parents with information and strategies to help them understand and manage both their infant’s crying and their own frustration with crying. Knowledge of the infant crying literature ensures that parents will have accurate, evidence-based information.

**CRYING EPIDEMIOLOGY**

**Typical Crying Patterns**

Every infant cries. Most infants follow a universal crying pattern during the first few months of life. Crying progressively increases after birth and peaks at 6 weeks of age, thereafter declining until 3 months of age (Brazelton, 1962). There is a marked tendency for peak crying to concentrate in the evening (St. James-Roberts & Halil). From 3 months to 1 year of age, a lower level of crying continues (St.James-Roberts & Halil). Numerous cross-cultural studies have replicated this typical crying pattern (Alvarez, 2004; Barr, 1990b; McGlaughlin & Grayson, 2001; St.James-Roberts, Bowyer, Varghese, & Sawdon, 1994). However, non-Western infants exhibit a lesser amount of crying compared with Western infants (Barr, Konner, Bakeman, & Adamson, 1991; Brazelton, Robey, & Collier, 1969). This literature suggests that the crying pattern of early infancy is a result of innate programming and maturation, but that environment influences other aspects of infant crying, such as the amount of crying.

There is little daily stability in crying frequency and duration within and between individual infants (St. James-Roberts & Halil, 1991; St. James-Roberts & Wolke, 1988). Cry durations range from 20 minutes to 3½ hours, with longer durations occurring at 6 weeks of age (Baildam et al., 1995; Brazelton, 1962; St.James-Roberts & Halil). Due to the considerable variation in infant cry characteristics, it is impossible to define what is normal and abnormal crying behavior.

**Colic**

Colic is a variant of normal crying behavior (Barr, 2001). Some infants simply cry more than others. Colicky infants exhibit a crying amount that is on the upper end of the normal spectrum. However, colicky infants follow the same universal crying pattern as do non-colicky infants (Barr, 1998; St.James-Roberts & Halil, 1991). Few infants continue to exhibit colic behaviors beyond 3 months (6%).
and 6 month of age (3%) (von Kries, Kilies, & Papousek, 2006).

There is no single definition of colic. The earliest and most widely used definition of colic is the “rules of three,” which requires the infant to cry at least 3 hours a day, 3 days per week, for 3 weeks (Wessel, Cobb, Jackson, Harris, & Detwiler, 1954). Depending on the definition used, colic occurs in up to 28% of infants across all categories of gender, race, and socioeconomic status (Clifford, Campbell, Speechley, & Gorodzinsky, 2002; Keefe & Froese-Fretz, 1991; Lehtonen & Rautava, 1996; Lucassen et al., 2001). Low birth weight infants appear to have twice the risk of developing colic compared with normal weight infants (Sondergaard, Skajaa, & Henriksen, 2000).

Colic is a clinical diagnosis of exclusion. Several theories exist to explain colic, but there is no evidence to support either medical or physiologic causes of colic. Gastrointestinal disorder theories are the most prominent in the literature, especially excessive gas. However, on X-ray, there was less gas at crying commencement and more gas at crying completion (Illingworth, 1985), and the use of simethicone to treat gas is not superior to placebo in reducing colicky crying (Garrison & Chris-takis, 2000; Lucassen, Assendelft, Gubbel, van Eijk, & Douwes, 2000). Gastroesophageal reflux is another theory. The use of anti-reflux medications, such as ranitidine, to treat gastroesophageal reflux is not superior to placebo in reducing colicky crying (Heine, 2006; Jordan, Heine, Meehan, Catto-Smith, & Lubitz, 2006).

Food allergy or sensitivity is another proposed cause of colicky crying (American Gastroenterological Association, 2001). Nevertheless, about 5% of infants who cry excessively, spit up, and/or are constipated benefit from a food elimination diet or a change to a hypoallergenic formula (Heine, 2006; Rautava, Helenius, & Leh-ptonen, 1993). In one study, administration of Lactobacillus reuteri, a probiotic, reduced the median amount of crying from 159 minutes per day on day seven to 51 minutes per day on day 28 in 95% (n = 39/41) of breastfed colicky infants (Savino, Pelle, Palumeri, Oggero, & Miniero, 2007). Although this finding is promising, there is not enough evidence to support a change in practice.

Additional colic explanations are under investigation. Some researchers suspect an internal mechanism, such as an autonomic nervous system response, that renders the infant unable or less able to regulate crying once it is started (Barr, Young, Wright, Gravel, & Alkawaf, 1999; DeGangi, Dipietro, Greenspan, & Prges, 1991). Psychosocial factors, like maternal anxiety, as well as maternal and emotional response (Darwin, 1972), and central nervous system maturational processes to colic is the “rules of three,” which requires the infant to cry at least 3 hours a day, 3 days per week, for 3 weeks (Wessel, Cobb, Jackson, Harris, & Detwiler, 1954). Depending on the definition used, colic occurs in up to 28% of infants across all categories of gender, race, and socioeconomic status (Clifford, Campbell, Speechley, & Gorodzinsky, 2002; Keefe & Froese-Fretz, 1991; Lehtonen & Rautava, 1996; Lucassen et al., 2001). Low birth weight infants appear to have twice the risk of developing colic compared with normal weight infants (Sondergaard, Skajaa, & Henriksen, 2000).

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**Crying and Abuse**

Parents report feeling stressed by infant crying, and this stress may result in negative feelings toward the infant (Wilkie & Ames, 1986). In one study of 3259 Netherlands parent-infant (1 to 6 months old) dyads, 5.6% of parents smothered, slapped, or shook their infants to stop their crying (Reijneveld, van der Wal, Brugman, Sing, & Verloove-Vanhorick, 2004). Infant crying is the primary trigger for infant abusive head injury or shaken baby syndrome. The most frequent cause of serious morbidity and mortality from trauma in infants is head injury resulting from child abuse (Bechtel et al., 2004; Billmire & Myers, 1985; Overpeck, Brenner, Trumble, Triflett, & Berendes, 1998; Ventura, Peters, Martin, & Maurer, 1997). Health care providers have an obligation to provide parents with healthy, noninjurious ways to intervene with their crying infant to prevent infant abuse.
What Works: Comforting the Non-colicky Infant

Parents report using a variety of soothing techniques to calm their infant; frequently used techniques include swaddling, holding, carrying, rocking, playing music, offering a pacifier, or some combination of these strategies (van der Wal, van den Boom, Pauw-Plomp, & de Jonge, 1998). Researchers have examined several of these soothing strategies to determine which techniques help to decrease crying.

The literature supports swaddling as a beneficial strategy for reducing cry duration, especially in infants younger than 8 weeks of age (van Skeuwen et al., 2006). Increasing or decreasing stimulation also reduces infant crying (Wolke, Gray, & Meyer, 1994). Data are inconclusive regarding the effectiveness of carrying for reducing crying for infants in all cultures. Massage and supplemental carrying together approached statistical significance (P ≤ 0.06) in the reduction of crying (Elliott, Reilly, & Drummond, 2002). However, supplemental carrying alone has not been associated with a reduction in crying (Elliott et al.; St James-Roberts, Hurry, Bowyer, & Barr, 1995).

In one study, a regimented daily schedule reduced the number of parents seeking help for crying and sleeping problems (St James-Roberts, Sleep, Morris, Owen, & Gillham, 2001). A consistent routine may promote infant self-regulation and decrease crying (St James-Roberts et al., 2001). It appears that all or a combination of these soothing techniques may be helpful for parents to use to calm their crying infant.

Two studies found a significant reduction in infant crying with the implementation of an intervention called REST (Keefe, Barbosa, Froese-Fretz, Kotzer, & Lobo, 2005; Keefe, Froese-Fretz, & Kotzer, 1997). REST for infants consists of regulation (e.g., reading cues), entrainment (e.g., synchronizing infant behaviors with environmental stimuli such as light or noise), structure (e.g., routine), and touch (e.g., soothing techniques such as holding or rocking). REST for parents includes reassurance, empathy, support from the health care provider and time out for the parents (e.g., rest and renewal). The REST intervention decreased both parent stress and infant crying (Keefe et al., 2005; Keefe et al., 1997). Providing crying interventions and parent support are an important part of anticipatory guidance in early infancy to reduce infant crying and improve parent mental health.

What Works: Comforting the Colicky Infant

Soothing techniques specific to colicky infants have been widely studied. Commonly recommended strategies include increased carrying, a crib vibrator, and infant massage; however, data do not support their effectiveness in reducing crying in colicky infants (Barr, McMullan, et al., 1991; Huhtala, Lehtonen, Heinonen, & Korvenranta, 2000). One study found swaddling superior to massage in calming colicky infants (Ohgi, Akiyama, Arisawa, & Shigemori, 2004). Another study found that a structured behavioral management program by trained counselors tailored to each mother-infant dyad reduced excessive infant crying (Wolke et al., 1994). Counseling alone, however, was no more effective than general support measures in the management of colic (Parkin, Schwartz, & Manuel, 1993). In summary, it appears that effective soothing interventions differ little between infants with and without colic.

Without a treatment for colic, soothing techniques often are the last hope for successful parent intervention with infant crying. Providing practical advice about infant crying and the most effective soothing techniques as well as parent support can improve parent morale and self-esteem (Long & Johnson, 2001). Even if the soothing techniques do not reduce infant crying, parents will feel better prepared to handle the stress of crying.

HELPING THE PARENT COPE WITH INFANT CRYING

The problem of infant crying is very real to every parent who presents with complaints of infant crying. Parents should not feel alone or helpless when handling infant crying. Without a treatment for colic, soothing techniques often are the last hope for successful parent intervention with infant crying. Providing practical advice about infant crying and the most effective soothing techniques as well as parent support can improve parent morale and self-esteem (Long & Johnson, 2001). Even if the soothing techniques do not reduce infant crying, parents will feel better prepared to handle the stress of crying.
Crying, regardless of the duration, is normal. It often is emotionally distressing to parents, creating worry over possible illness and placing the infant at risk for abuse. However, more than 95% of the time, medical intervention is unnecessary to manage crying. The research literature supports the effectiveness of interventions aimed at helping parents cope with infant crying by providing support and suggestions for soothing interventions. By providing emotional and behavioral interventions to parent-infant dyads, pediatric health professionals may help to prevent shaken baby syndrome and its often lifelong sequelae.

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