Since the implementation of the American Academy of Pediatrics (AAP) Back to Sleep campaign in 1994, there has been an increased need to educate parents and providers about the importance of Tummy Time when infants are awake. Since the “Back-to-Sleep” campaign:

- Infants are slower to attain major milestones such as rolling over, sitting up, crawling and pulling to stand, according to a study in *Pediatrics* in 1998
- Rate of positional plagiocephaly has risen from one in 300 live births to one in 60 live births in 1999

Babies now miss out on 12 to 15 hours of Tummy Time they used to get each day when they slept on their tummies. Back sleeping with more awake time spent in “containers”-such as car seats, bouncers, strollers, etc. has led to an increase in:

- Early motor delays: Babies are unable to develop back, neck and shoulder muscles needed to meet milestones
- Positional Torticollis: Babies with a tendency to hold their heads predominately to one side
- Positional Plagiocephaly: Babies with a flattening on the back or side of head

We will address the increase in these conditions, while highlighting Tummy Time as a prevention strategy. Tips for parent education will be provided regarding infant positioning during awake time especially in relation to prevention of an infant spending an excessive amount of time in equipment – care seats, strollers, etc. – which can lead to delays in meeting motor milestones.

In addition, research demonstrates a lack of knowledge regarding the benefits of Tummy Time. A 2010 study in the *Journal of Pediatric Health Care* found 90% of new mothers reported receiving information about positioning their infant while asleep and only 55% of new mothers received information regarding infant positioning during awake time.

This poster describes the history of the “Back-to-Sleep” campaign and its importance along with discussing some of its unintended consequences such as the increase in motor delays, positional plagiocephaly and positional torticollis and how to prevent them through Tummy Time when baby is awake.

**Question:**
How can you discuss positional plagiocephaly, positional torticollis and motor delay with parents?

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Statistics highlighting the increase in developmental delays, positional plagiocephaly and positional torticollis

- Prior to 1992: rate of positional plagiocephaly in North America was one in 300 live births1
- 1992: American Academy of Pediatrics (AAP) issued a statement on the association of prone sleep position with sudden infant death syndrome4
- 1994: the Back to Sleep campaign began in the United States2
- 1992-1999: incidence of positional head deformity increased to one in every 40 live births5
- 2013: nursing experts in Calgary observed 47% of infants between 7 to 12 weeks had positional plagiocephaly and positional torticollis.

A review of 19 empirical studies investigating the impact of infant sleep position, play position, and use of equipment or motor development in infants under 2 years of age, concluded there is a transient delay in attainment of developmental milestones in healthy infants if they have not been exposed to prone positioning. It is important to educate parents to continue putting their infants to sleep on their backs, but varying the positions during waking play.5

In addition, a study conducted in a private practice noted infants who slept in the side or supine position were less likely to roll over at the 4-month check-up.6 Since the Back to Sleep campaign, research shows the change in sleep position may be linked to slower attainment of major milestones such as rolling over, sitting up, creeping, crawling and pulling to stand.7

Based upon the review of the literature it is apparent that although it is important to educate parents and providers about the importance of prone sleep position, additional research is needed to confirm the relationship between prone positioning and slower development.

Management of positional plagiocephaly and positional torticollis

Early recognition of positional plagiocephaly and positional torticollis is key along with prevention. If the infant develops a preference, the lateral sternomastoid muscle shortens due to tonic-neck postures and infant forward flexion (plagiocephaly). This is different from cranial torticollis and congenital torticollis in which the right and left of the head initiates the side preference and the occiput flattens correspondingly. Health care providers can teach how to stretch the sternomastoid muscle through massage, encouraging prone play position, and altering positions to diminish side preference. When positional plagiocephaly has not responded sufficiently to conservative treatment a custom made helmet, by baby helmet specialists, can be prescribed.

Results indicate:

- 68% of therapists noted an increase in early motor delays in babies under twelve months of age.
- Of the therapists noting an increase, 54% named back at Tummy Time while awake as the number one reason for the increase in early motor delays.
- 77% noted early detection as the change in sleep position would need to be attributed to babies spending extensive time on their backs while awake (in car seats, bouncers, swings, etc).
- 72% of therapists noted most parents have little or no understanding of Tummy Time.

**History of Back to Sleep guidelines**

- Before the 1990s, lay people and physicians alike were willing to attribute crib death to accidental suffocation in bed (ornaments, personal material "overlaying" or entanglement of the surfaces "so-called thymic dysplasia")4
- 1985: Academicians began to participate in the search for an explanation for crib death
- 1985-95: Relationship between prone sleep position & SIDS was first noted
- 1986: "Sudden Infant Death Syndrome (SIDS) is a term first proposed for a distinctive subgroup of unexplained infant deaths that occur during the postneonatal period with relatively constant clinical, epidemiological, and pathological features"18
- 1986: "The concept of a so-called "thymic dysplasia" to explain SIDS was first noted"19
- 1987: Hawaii introduced first intervention campaign against the prone sleep position
- 1990s: "The Back to Sleep campaign was initiated in the United States and Australia to reduce the incidence of SIDS. This campaign included a variety of public health messages, including promoting supine sleep positioning in the nursery and awake to promote neck strength and head control."
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- 1994: The Back to Sleep campaign began to educate parents, caregivers, and health providers about ways to reduce the risk for Sudden Infant Death Syndrome ("SIDS")
- 2005: American Academy of Pediatrics expanded its recommendations to include safe sleep environments, room sharing without bed sharing; supervised, awake Tummy Time; and limiting nighttime parent contact.
- 2011: American Academy of Pediatrics expanded its recommendations to include safe sleep environments, room sharing without bed sharing; supervised, awake Tummy Time; and limiting nighttime parent contact.

**Prevention of positional plagiocephaly and positional torticollis**

- Prone to Play/Tummy Time
- Early detection of delays
- Urinalysis/courtesy of baby devices

Tips to aid in prevention

- Change the direction of baby in the crib. Odd number heads at one end of the crib, even nights head at the other end of the crib.
- Limit time in bouncing chairs, car seats and swings. Use this time for supervised Tummy Time.
- If baby is bottle-fed, alternate the arm you hold the bottle and baby each feeding.
- After each diaper change, roll your baby on their belly. Spend a few minutes with baby doing supervised Tummy Time.
- Lay baby tummy down across lap to settle baby down or to burp.
- When carrying baby around the house, carry tummy-side down, like a football, instead of upright.

**POSITIONAL PLAGIOCEPHALY 4 MONTH OLD**

View from top

View from behind

Can also affect posture

**POSITIONAL TORTICOLLIS 4 MONTH OLD**

Study in the Journal of Pediatrics in 2010 suggests with the implementation of Back to Sleep guidelines there has been a lack of clarity and education for both parents and providers about the importance of Tummy Time when young infants are awake.

Results indicate:

- 91% of new mothers in this study reported receiving information about positioning infant while asleep.
- 50% of mothers received information regarding infant positioning while awake.

**References**