Positional Plagiocephaly
Work up and Management

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Why do we care about Positional Plagiocephaly?
- It’s not life threatening
- It does not affect intelligence
- The Back to Sleep Program, a major contributor to Positional Plagiocephaly saves lives

Parents Care
- They worry that it will affect the brain
- They are upset about plagiocephaly and torticollis when they feel that neither was diagnosed in time to take easier measures to prevent the consequences.
- They would prefer changing sleep position to helmet therapy.
- They would prefer torticollis treatment in the first few months of life when exercises are easier with smaller babies.

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Parents mention:
• They are upset that “no one told us how to prevent this”.
• The burden of using a helmet 23 hours a day for 3 to 6 months and having the helmet readjusted every 3 to 4 weeks.
• The cost of the co-pay or full price of the helmet. Average helmet cost is about $2100. Not all have DME Coverage. Some pay nothing, some pay a co-pay and some pay the full price.
• Helmets range from $1540 to 2800 or more.

Parents’ Concerns hit the media

It affects us
Craniofacial Referrals 1998 & 2005
Helmets Prescribed

Approximate Helmet Cost

Other Costs Involved

Personnel for clinic:
- Plastic Surgeon, Pediatrician/Geneticist, RN
- Travel Costs (esp. gasoline)
  - Pediatrician/Geneticist & RN
- Family
- Family Time off Work
What is Plagiocephaly

Plagiocephaly is Greek for Oblique Head
There are 2 major causes
1. Sleep position (Positional Plagiocephaly)
   the most common and most preventable cause.
2. Craniosynostosis which must be treated surgically and before one year of age if significant.

Positional Plagiocephaly may have prenatal causes
1. Fetal constraint
   A. Multiple fetuses, esp. In Vitro Fertilization
   B. Uterine abnormality, e.g. bicornuate uterus
2. Torticollis
   Shortening of sternocleidomastoid
   Vertebral anomalies
3. Possibly presentation at delivery

Post natal causes
- Torticollis or neck muscle imbalance cause the baby to prefer to lie on one side of the head
- Time in NICU, prematurity or long ventilator time
- Keeping the baby for hours in a car seat or in the same position in the crib
- Not encouraging Tummy Time
- All promote occipital flatness followed by anterior ear position then frontal bossing on the affected side
More Post Natal Causes

Back to Sleep Program
A. Encourages baby to remain in one position when sleeping
B. Exacerbates abnormal prenatal head shape
C. Exacerbates frank torticollis since baby is not often prone and exercising neck muscles
D. Exacerbates neck muscle imbalance
E. May affect gross motor development

Another Culprit
Modern “Approved” Technique

Combating effects of Back to Sleep

Supervised Tummy Time starting at first day home after birth

Changing position in Crib-alternating head at one end one day and at the other end the next day

Using Kaiser brochures available from Member Health Education and Craniofacial Team

Importance of Recognizing Positional Plagiocephaly

Positional plagiocephaly usually starts to become evident by 2 to 3 months of age.

If it is missed at the 2nd and 4th month visit, by the Provider and no intervention is implemented then

When it is recognized at the 6 month visit, the child is likely to need a helmet.
Examining Baby’s Head

Looking at the top

Craniosynostosis is Important to Recognize

If it is significant it needs to be treated surgically before one year of age for optimal outcome. It usually becomes progressively more deforming. Parents are very upset if it is missed.

Most babies can be diagnosed clinically, we usually don’t get X-rays and very rarely get a 3D CT scan (Please don’t expose babies to unnecessary radiation, increasing their risk of cataracts.)
Types of Craniosynostosis most likely to be confused with Positional Plagiocephaly

Unilateral Coronal Craniosynostosis with “bulging” of forehead on unaffected side and flattening of the forehead on the affected side. Usually Posterior Occiput is normal.

Unilateral lambdoidal Craniosynostosis with “bulging of occiput and forehead” on unaffected side, ridging of suture and displacement of ear on affected side inferiorly and posteriorly.
Craniosynostosis

- Don’t confuse cranial molding from delivery with craniosynostosis
- Don’t confuse overlapping sutures with craniosynostosis
- Don’t confuse cephalhematoma with craniosynostosis or positional asymmetry.
- All of these can be observed for a few months
- Beware of Radiology reports. Many radiologists are not used to Positional Plagiocephaly. If they see asymmetry they mention craniosynostosis and often recommend CT scan, usually the baby doesn’t need one.
Management of Plagiocephaly

- At each visit look at the top of the baby's head
- Before 2-3 months of age evaluate for craniosynostosis, torticollis or neck muscle imbalance.
- If Craniosynostosis suspected DO NOT GET X-RAYS or especially CT scans, refer to the Craniofacial Team
- If Torticollis or neck muscle imbalance is present refer to Occupational Therapy
- Vertebral anomalies can cause torticollis, but neck X-rays on infants are hard to interpret

Treatment for Mild Plagiocephaly or less than 4 months old

Change sleep position aggressively
Use How to Improve the Shape of Your Baby's Head in My Baby My Self or positioning sheets from the Craniofacial Team

Basically try to get the baby to look away from the affected side by using mobiles, crib position, etc
Try to get the baby to sleep on the unaffected side with positioning pillows
Treatment of Plagiocephaly at 4-6 months of age

If improving and eyes, ears and forehead are symmetric, continue with change in sleep position, no further work up needed

If not improving refer to the Craniofacial Team and remind parents that surgery will probably not be needed but time is of the essence. It is best to start Helmet therapy by 6 months of age

Treatment after 6 months of age

Molding helmet therapy after 6-8 months of age is not as effective unless the baby was premature

After 12 months of age, helmet therapy is not effective
Native American Molding Devices
When We Use Helmet Therapy

We do treat when there is significant cranial asymmetry especially involving frontal bossing.

We do not treat:
1. When parents are opposed to helmet therapy as long as they understand the consequences. This is an elective treatment.
2. When brachycephaly is present with no asymmetry. This is usually a familial condition more common in Asians and Latinos.

Treated Brachycephaly

FACTS ABOUT Back to Sleep Program

SIDS (Sudden Infant Death Syndrome) is the sudden unexplained death of a baby under 1 year of age. SIDS is the leading cause of death in babies over 1 month old. Most SIDS deaths occur in colder months. Infants who are OVERHEATED during sleep are at higher risk for SIDS. Back to Sleep to prevent SIDS.
They see

Always place babies on back to sleep: night time and nap time.
Keep your baby warm NOT HOT: dressed comfortably.
Place baby on FIRM well fitted crib mattress, AVOID over SOFT objects such as: waterbeds, pillows, bedding, toys, sofas, comforters etc.
Keep infant’s head and face clear of any blankets or objects that could cover the baby’s airway/nose.

They may not notice

PREVENTION of FLAT HEAD:
Provide supervised TUMMY TIME several times a day. I would add: Start at 5 to 10 minutes whenever the baby is awake the first day you bring the baby home.
Place babies head in slightly different positions for sleep.
Use “counter positioning”, change the infant orientation in crib. (Head at head of bed one day, Head at foot of bed next day).
Alternate side of crib or stroller where mobiles and toys are placed in Crib & Car Seat

Available KP Brochures through Member Health Education

PREVENTION
– Keep Your Baby’s Head Round MH 1152 (5/06)
– Evite que se deforme la cabeza de su bebe MH 1206 (5/06)

TREATMENT
How to Improve the Shape of Your Baby’s Head in My Baby Myself, Regional Health Education RHE 234 (5/40)
Available through the Craniofacial Team
Lists of recommended activities in English and Spanish for:

**PREVENTION**
- How to Keep Your Baby’s Head Round

**TREATMENT**
- How to Improve the Shape of Your Baby’s Head

Contact Pamla.S.Hoffman@kp.org or 323 857-2471

Southern California Kaiser Permanente Craniofacial /Cleft Palate Team

Core Team at West Los Angeles
- Surgical Director: Andrew Wexler, MD
- Medical Director: Trevor Hoffman, MD
- Nurse Coordinator: Pamla Hoffman, RN, OTR
- Social Medicine: Mary Boyd, LCSW
- Speech Pathology: Julie Guerrero, MA
- Adjunct Members
  - Leslie Cahan, MD Neurosurgery
  - Henry Kawamoto, MD Craniofacial Surgery, UCLA

Additional Team Members
- Plastic surgeons, Speech pathologists, Social Workers at Bellflower, Fontana, Woodland Hills
- Orthodontics, Prosthodontists (Kaiser does not cover orthodontic care but may cover prosthodontic care)
- Orthotics/Prosthetics for Molding Helmet may be covered depending on Durable Medical Equipment Orthotics/Prosthetics Benefit in individual plan.
- Contact Information: 323 857-2471 tie line 390
- Ereferral to WLA Pediatrics, Dr. Trevor Hoffman
Craniofacial Clinics

Cleft Palate clinics are held at Bellflower, Fontana, Ontario, WLA & Woodland Hills

Helmet Clinics are held:
- for Initial Evaluation at Ontario and WLA.
- for follow up at Bellflower, Ontario, WLA and Woodland Hills.

Special Clinic for Craniosynostosis and complex problems is held at WLA.

Ereferrals are made through Pediatrics at WLA to Dr. Trevor Hoffman.