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| **2Z — Helmet therapy for treatment of positional plagiocephaly / brachycephaly in children** |
| **Summary of Intervention** |
| Non-synostotic/positional plagiocephaly and brachycephaly are distortions of the skull (flattening to the side or the back of the head) that most commonly become apparent in the first few months of life as a result of the amount of time a baby spends lying on their back. Non-synostotic/positional plagiocephaly and brachycephaly are very common, affecting up to 40% of infants (as opposed to synostotic conditions which are rare).  Cranial Moulding Orthosis – or ‘helmet therapy’ – is an intervention that claims to correct the shape of the head. A specially moulded solid helmet is created (with space to allow the flattened area to re-mould) that must be worn 23 hours a day. This helmet requires repeated adjustments as the baby grows.  **This guidance applies to children aged 2 years and under.** |
| **Number of interventions in 18/19** |
| **Data are not currently available** |
| **Proposal** |
| As clinically evidenced by the four major designated supraregional craniofacial services in the UK (prior to the availability of Helmet therapy), the flattened area of the head usually self-corrects naturally, as a baby grows, develops and becomes more mobile with increased muscle strength, and spends less time lying in one position.  There is clear evidence and expert consensus that a helmet does not affect the natural course of skull growth and should not be used.  Helmets may be associated with significant risks such as pain, pressure sores and may adversely affect the bond between baby and parents. They are also expensive. To reduce pressure on the flattened part of the head and encourage remoulding, the following simple interventions are suggested:  — ‘Tummy time’ - Allow baby to spend time lying on their front while awake, supervised and playing.  — Change the position of toys / mobiles / cot in the room to encourage baby to move their head away from the flattened side  — Use a sling or a front carrier to reduce the amount of time baby spends lying on a firm flat surface  — Modify Parental lap “nursing” position to promote contact with less flattened side to parental chest.  All babies including those with non-synostotic/positional plagiocephaly or brachycephaly must be laid to sleep on their back. Sleeping in positions other than this is associated with an increased risk of Sudden Infant Death Syndrome or SIDS (formerly known as Cot Death). For the same reason, no pillows or props should be used to change a baby’s sleeping position. |
| **Rationale for Recommendation** |
| Non-synostotic/positional plagiocephaly is a mechanical distortion that corrects itself as the child grows. Studies have shown that helmet therapy is no more effective than leaving the head to remould naturally as the baby grows. Choosing Wisely UK and Choosing Wisely Canada have both advised against helmet therapy as an intervention for positional plagiocephaly and brachycephaly.  In the guideline NG127 Suspected neurological conditions: recognition and referral published in May 2019 NICE does not refer to helmet therapy and recommends:  For babies aged under 1 year whose head is flattened on one side (plagiocephaly):  — Be aware that positional plagiocephaly (plagiocephaly caused by pressure outside the skull before or after birth) is the most common cause of asymmetric head shape  — Advise parents or carers of babies with positional plagiocephaly that it is usually caused by the baby sleeping in one position and can be improved by changing the baby’s position when they are lying, encouraging the baby to sit up when awake, and giving the baby time on their tummy.  The NICE committee discussed how measuring the distance between the tragus of the ear and the outer canthus of the eye is a useful adjunct to clinical inspection of the head shape of a child under one age and would help a clinician reassure parents that this was a benign condition. However, the committee acknowledged that this was not an absolute discriminator and that if there was uncertainty, referral for specialist assessment was appropriate.  In terms of positional plagiocephaly, the NICE committee recommend that once the flat area at the back of the head is relieved of pressure with changing position, and the child is spending more time sitting, natural growth of the head will reduce the flattening. The committee does not recommend referral for investigations or management for a condition that has an excellent prognosis over time. The committee recommends referral for assessment of developmental disorders if there is concern that delay in meeting early motor milestones – rolling, sitting – is contributing to degree or maintenance of plagiocephaly. The referral would be for diagnostic assessment as well as assessing the need for therapy and provision of equipment such as adapted seating.  Consider referral to physiotherapy if there is concern of neck muscle Pathology. |
| **References** |
| 1. NHS: Plagiocephaly and brachycephaly (flat head syndrome): https://www.nhs.uk/conditions/plagiocephaly-brachycephaly/.  2. NHS: Reduce the risk of sudden infant death syndrome (SIDS): https://www.nhs.uk/conditions/pregnancy-and-baby/reducing-risk-cot-death/.  3. NICE guidance NG127 Suspected neurological conditions: recognition and referral: https://www.nice.org.uk/guidance/ng127.  4. Wilbrand J-F et al. Complications of Helmet Therapy. Journal of Cranio-Maxillofacial Surgery Volume 40, Issue 4, June 2012, Pages 341-346.  5. Expensive helmets do not correct skull flattening in babies. BMJ. 2014 May 1;348:g3066. PMID: 24791750: https://www.bmj.com/content/348/bmj.g3066.  6. Tamber MS, et al. Congress of Neurological Surgeons Systematic Review and Evidence-Based Guideline on the Role of Cranial Molding Orthosis (Helmet) Therapy for Patients With Positional Plagiocephaly. Neurosurgery. 2016 Nov;79(5):E632-E633. PMID: 27776089: https://www.cns.org/guidelines/ browse-guidelines-detail/5-role-of-cranial-molding-orthosis-helmettherapy.  7. van Wijk RM, et al. Helmet therapy in infants with positional skull deformation: Randomised controlled trial. BMJ. 2014 May 1;348:g2741. PMID:24784879: https://www.bmj.com/content/348/bmj.g2741.  8. Choosing Wisely UK: Helmet therapy is not effective in the treatment  of positional Plagiocephaly in children, other treatment options should be considered and discussed with your patient.  9. Choosing Wisely Canada https://choosingwiselycanada.org/pediatricneurosurgery/.  10. PURLs: Helmets for positional skull deformities: A good idea, or not?  https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4294410/. |