Evidence-Based Care of the Child With Deformational Plagiocephaly, Part I: Assessment and Diagnosis

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OBJECTIVES
1. Explain the significance of the correlation between normal infant development and the development of positional/deformational plagiocephaly.
2. Describe the implications of torticollis as it relates to the development and management of deformational plagiocephaly.
3. Identify key features that distinguish synostotic from non-synostotic plagiocephaly.
4. Demonstrate/describe the procedure for obtaining standardized measurements of the infant skull.
5. Classify head asymmetry in an infant based on assessment findings according to type (lateral versus posterior) and severity (mild, moderate, and severe).

ABSTRACT
Non-synostotic deformational plagiocephaly (DP) is head asymmetry that results from external forces that mold the skull in the first year of life. Primary care providers are most likely to encounter DP when infants present for well-child care, and for this reason it is important that providers be competent in assessing, diagnosing, and participating in the prevention and management of DP. The purpose of this two-part series on DP is to present an overview of assessment, diagnosis, and evidence-based management of DP for health care providers. In Part I we provide a brief background of DP and associated problems with torticollis and infant development, and we present strategies for visual and anthropometric assessment of the infant with suspected DP. We also provide tools for differentiating DP from craniosynostosis and for classifying the type and severity of lateral and posterior DP. Part II (to be published in a future issue of the Journal of Pediatric Health Care) provides a synthesis of current evidence and a clinical decision tool for evidence-based management of DP. J Pediatr Health Care. (2012) 26, 242-250.

KEY WORDS
Deformational plagiocephaly, cranial asymmetry, evidence-based practice, assessment, infant care

“Plagiocephaly” refers to an asymmetrical, flattened deformity of the skull (Robinson & Proctor, 2009) and can be used to describe both synostotic and non-synostotic head asymmetry. Synostotic plagiocephaly, which is rare, is due to premature fusion of one or more of the sutures of the skull (Smartt, Elliott, Reid, & Bartlett, 2011). Non-synostotic plagiocephaly is often referred to as positional or deformational plagiocephaly (DP) because it results from external forces that mold the skull. In this article, DP refers to non-synostotic plagiocephaly, which presents most
commonly as one of two forms: lateral DP (flatness on one side of the occiput) and posterior DP (central flattening of the back of the head). The purpose of this article is to provide an overview and strategies for assessment and classification of DP.

**BACKGROUND**

In the first months of life, DP is closely associated with the infant’s motor development. Within the first weeks of an infant’s life, DP generally becomes more severe because the infant has little active positioning of the head; then the head shape begins to improve with progression of normal development (Miller & Clarren, 2000). The peak prevalence of DP is 4 months of age (Boere-Boonekamp & van der Linden-Kuiper, 2001). Until 4 months of age, an infant is not able to hold his or her head up when sitting without support; at 6 months, the infant should have strong and steady head control. In his or her first 6 months, an infant’s head grows rapidly. In the first 3 months, the head circumference increases by about 2 cm per month, and it increases by about 1 cm per month between 4 and 6 months of age (Guo, Roche, & Moore, 1988). After 6 months, the velocity of growth in head circumference decreases to about 0.5 cm per month (Guo et al., 1988).

**Generational and Cultural Factors and Head Shape**

The definition of a “normal” head shape depends in part on one’s cultural norms and practices, including sleep position. The use of external, mechanical forces to purposely mold the shape of an infant’s head (called artificial cranial deformation) was practiced by various cultures for thousands of years, and in ancient times skull shape was a measure of social distinction (Ayer et al., 2010). Swaddling also can result in a brachycephalic head shape, in which the ratio of the head width to head length (cephalic index [CI]) is higher (Graham et al., 2005; Jantz & Logan, 2010). In Asia, where infants traditionally are placed on their backs to sleep, brachycephaly is the norm; schoolchildren in Japan and Korea are reported to have a CI in the range of 85% to 91% (Graham et al., 2005; Jantz & Logan, 2010). In India, where infants typically sleep prone, have a CI in the range of 75% to 78%. In the United States in 1977, when infants routinely were placed prone to sleep, the mean CI was 78% for a group of 1058 White children between the ages of 7 days to 20 years, with very little fluctuation across the age groups (Dekaban, 1977). In 2005 in the United States, when infants routinely were placed supine to sleep, the normative CI for healthy infants was 86% to 88% (Graham et al., 2005). Some evidence indicates that children born in the more recent generation have heads that are wider and shorter than current published norms for age and gender, which were established in the 1970s (Pomatto et al., 2006).

**Risk Factors for Deformational Plagiocephaly**

Sleep position is one of a number of proposed risk factors for DP. Several prospective cohort studies of infants (Hutchison, Hutchison, Thompson, & Mitchell, 2004; van Vlimmeren et al., 2007) and case series studies of infants with DP (Golden, Beals, Littlefield, & Pomatto, 1999; Losee, Mason, Dudas, Hua, & Mooney, 2007) have suggested that possible risk factors for DP include assisted delivery, first-born child, male sex, cumulative exposure to the supine position, and infant neck problems. DP is also associated with intrauterine constraint (Stellwagen, Hubbard, Chambers, & Jones, 2008). Although many of these risk factors are not preventable, supine sleep position seems to be the best predictor of DP independent of these factors (Joganic, Lynch, Littlefield, & Verrelli, 2009). Infant care trends over time and cultural norms seem to support this finding, as evidenced by a recent shift in recommendations for infant positioning in the United States.

**Correlation With the Back to Sleep Campaign**

In 1992 the American Academy of Pediatrics (AAP) published a report recommending that healthy infants be placed to sleep on their side or backs (AAP, 1992). Since the AAP’s Back to Sleep campaign, the incidence of sudden infant death syndrome has decreased more than 40% (Persing, James, Swanson, Kattwinkel, & AAP, 2003). Prior to 1992, the incidence of DP was estimated at 1 in 300 infants (O’Broin, Allcutt, & Earley, 1999). After the recommendation a dramatic increase of up to 600% in referrals for plagiocephaly was reported by primary care providers and craniofacial centers (Argenta, David, Wilson, & Bell, 1996). Because many positional head shape deformities improve with time (Hutchison, Stewart, & Mitchell, 2009), the existence of DP is higher in younger infants, and estimates of prevalence are highly age-dependent. Bialocerkowski, Vladusic, and Wei Ng (2008) noted that the point prevalence of DP at 1 year of age (6.8%) has not significantly changed in the past 40 years, and they suggested that an increase in referral rates may be the result of increased awareness of early referral for evaluation of infants with skull deformities, rather than an increase in prevalence.

**DEVELOPMENTAL FACTORS RELATED TO DEFORMATIONAL PLAGIOCEPHALY**

Emerging evidence suggests that infants with DP are less active (Hutchison et al., 2004), have variable tone (Fowler et al., 2008), and are delayed in some areas of development compared with their age-matched peers (Collett, Breiger, King, Cunningham, & Speltz, 2005; Hutchison et al., 2009; Speltz et al., 2010). The association between neurological development and synostotic skull asymmetry has been a focus of research for several years (Kapp-Simon, Figueroa, Jocher, & Schafer, 1993; Kapp-Simon, Speltz, Cunningham, Patel, & Tomita, 2007; Panchal et al.,
but until recently, it was presumed that plagiocephaly without synostosis was not associated with developmental delay (Panchal et al., 2001). Within the past few years, however, evidence has increased for a significant association, if not a causal pathway, between developmental delay and deformational (non-synostotic) plagiocephaly (Collett et al., 2005; Fowler et al., 2008; Hutchison et al., 2010; Hutchison et al., 2009; Hutchison et al., 2010; Speltz et al., 2010). Speltz and colleagues (2010) conducted a case-control study of infants with DP with age-matched and sociodemographic-matched control subjects. They found clinically significant differences in gross motor development; infants with DP scored lower on items such as sitting up, rolling back to side, and crawling. In a similar case-control study, Fowler and colleagues (2008) found significant variability in tone among children with DP at the time of diagnosis. Robinson and Proctor (2009) noted that the current body of evidence does not suggest that DP by itself is a risk factor for delayed development in infants. Rather, the association between some developmental delays and DP indicates that providers should be aware of an increased possibility of delay among infants with DP, and developmental assessment is essential as part of the management of children with this condition.

**TORTICOLLIS AND DEFORMATIONAL PLAGIOCEPHALY**

Torticollis is the most common associated finding in infants with deformational plagiocephaly (Rogers, Oh, & Mulliken, 2009). Although limited evidence exists to establish whether torticollis leads to or results from DP, Rogers and colleagues (2009) propose that torticollis precedes head shape changes based on their prospective study of 371 infants with cranial asymmetry. They propose that head positional preference is due to cervical imbalance rather than environmental factors (because of the location of the crib or the preferred side for breastfeeding, for example), and that head position preference manifests as torticollis, which later leads to flattening of one side of the head. Based on a prospective study of 102 healthy newborns, Stellwagen and colleagues (2008) reported that most newborns have mild or moderate craniofacial asymmetries, and as many as one in six newborns have torticollis. Stellwagen and colleagues (2008) suggest that many newborns with limited neck range of motion are not diagnosed or reported because of an incomplete examination or because only the most severe cases are reported. The high prevalence of torticollis at birth supports the hypothesis that deformation follows head rotational preference.

Regardless of the direction of influence, torticollis is important to identify and manage as part of the management plan for DP, because torticollis can limit efforts at repositioning therapy and normal development (van Vlimmeren, Helders, van Adrichem, & Engelbert, 2006). An early referral to physical therapy is important and torticollis needs to be treated as a separate condition, which involves a multidisciplinary approach (Do, 2006). For an infant with torticollis, early referral should be initiated, although the specific protocol depends on each practitioner.

**ASSESSMENT AND DIAGNOSIS OF DEFORMATIONAL PLAGIOCEPHALY**

Pediatric primary care providers are competent to diagnose DP (Robinson & Proctor, 2009). Keen assessment and diagnostic skills may maximize outcomes and minimize cost for families and payers through judicious use of referrals. Knowing when to monitor and when to refer requires an ability to recognize early DP, distinguish DP from craniosynostosis, and recognize improvement or worsening of head asymmetry in an infant. Referring an infant with DP too early may lead to unnecessary specialty visits, whereas referring an infant too late may limit the treatment options for an infant with progressive DP (White et al., 2010).

In addition to clinical examination, many tools are available for the clinical diagnosis of DP, including anthropometric calipers, molding devices, digital devices with software analysis, photography, radiologic imaging, and three-dimensional scanning devices (McGarry et al., 2008). Varying degrees of clinical expertise in diagnosing DP also exist. Craniofacial dysmorphologists are specialists who encounter this condition on a regular basis. Primary care providers are competent in assessment and diagnosis and participate in the prevention and management of DP. Radiologic imaging is costly, subjects infants to radiation, and is not necessary for the majority of children with plagiocephaly; imaging that is required generally should be ordered by specialists rather than by primary or acute care providers (Hutchison et al., 2009; Persing et al., 2003; Robinson & Proctor, 2009). Referral to craniofacial specialists is recommended for a new diagnosis of moderate to severe DP or in cases where etiology is unclear (Robinson & Proctor, 2009).

**Visual Assessment**

Examination of the infant with possible plagiocephaly should include observation from the anterior, posterior, and vertex positions (Losee & Mason, 2005). When
viewing the infant from the front (facial view), look for symmetry of cheeks, eyes, and ears. In up to 80% of infants with lateral DP, the forehead on the side of the flattening is shifted forward (Losee & Mason, 2005). In some cases of plagiocephaly, the top of the head may not be level (Nield, Brunner & Kamat, 2007). In infants with posterior DP (brachycephaly), the head appears wide, and the skull may be prominent above the ears (Regelsberger et al., 2006). From a posterior perspective, look for symmetry of the base of the skull, because occipitomastoid bulging may indicate craniosynostosis of the lambdoid suture on that side of the skull (Losee & Mason, 2005). From a vertex (bird’s eye) view, look for symmetry between the right and left sides and note any flatness on one portion of the head. The normal head shape is slightly longer than it is wide (Dekaban, 1977). Figure 1 shows key findings in lateral and posterior DP from a vertex perspective. Placing one index finger in each of the infant’s external auditory canals and viewing from above can aid in detecting anterior or posterior displacement of one ear, which can occur in plagiocephaly (Smartt et al., 2011). From a side view, look for flatness on the back of the head or a high, sloping forehead. Also note symmetry of the left and right sides. A view of the infant’s head from below (“worm’s eye view”) can be achieved when the infant is supine. From this vantage point, look for symmetry of the ear position, a smooth arch of the forehead, and the degree to which cheeks are of equal height (Nield et al., 2007). As you interact with the infant, note any preference for right or left lateral rotation of the neck. Finally, look and feel for any ridging of suture lines, which can indicate craniosynostosis.

### Distinguishing Deformational From Synostotic Plagiocephaly

Persistent progressive head shape deformities may be due to factors other than external forces that lead to molding. In some cases, plagiocephaly is a result of premature fusion of one or more sutures (craniosynostosis). Although craniosynostosis is rare (about 1 in 2000 live births; Kabbani & Raghuveer, 2004), it is important to rule out synostosis as a primary cause of abnormal head shape in an infant. The most common type of non-syndromal craniosynostosis is sagittal synostosis, which presents as a long, narrow head with bitemporal narrowing and a palpable bony ridge along the top of the head (Nield et al., 2007). The type of craniosynostosis that presents most like deformational (or positional) plagiocephaly is lambdoid craniosynostosis, which is very rare (approximately 1 in 300,000 births; Persing et al., 2003).

Lambdoid craniosynostosis can be distinguished from DP by history and clinical presentation (Table 1).
Two important distinguishing features are ear displacement (the ipsilateral ear is posteriorly displaced in lambdoid craniosynostosis and anteriorly displaced in DP) and the presence of palpable bony ridges along the lambdoid suture in lambdoid craniosynostosis (Kabbani & Raghuveer, 2004). Bilateral coronal synostosis can lead to brachycephaly, which presents similarly to posterior DP (Blaser, 2008). If there is doubt about the presence of synostosis in an infant with an abnormal head shape, or if signs or symptoms of increased intracranial pressure or poor brain growth are noted, the provider should refer the infant directly to a pediatric craniofacial clinic and/or a neurosurgeon (Nield et al., 2007).

**Anthropometric Assessment**

Accurate and consistent physical measurements aid in the diagnosis and clinical management of the infant with an abnormal skull. The value of each measurement lies in comparison with age-related norms or the individual patient at another point in time (Hall, Allanson, Gripp, & Slavotinek, 2007). In addition to routine measurements of head circumference (occipital-frontal circumference), measurements of the infant’s cranial width, length, and transcranial diameters allow the practitioner to diagnose, classify, and monitor the presence and severity of plagiocephaly (see Tables 2 and 3). These measurements can be taken with anthropometric spreading calipers or sliding calipers (Figure 2). Head length is measured at the glabella (i.e., the most prominent midpoint between the eyebrows) and the opisthocranion (i.e., the most prominent point on the occiput). These same landmarks are used to measure head circumference. Head width is measured at the maximal biparietal diameter, which may be most easily viewed from above. The infant should be upright for these measurements. The effects of thick hair can be minimized by holding the caliper points firmly against the skull (Hall et al., 2007).

The CI is used to quantify the ratio of head width to head length (Kolar & Salter, 1997), which increases with posterior DP. The CI is calculated as the ratio of the head width to the head length, multiplied by 100. In lateral DP, the most notable change in head shape may be observed in the difference between the diagonal measurements of the infant skull (occipital-frontal transcranial diameter, Table 2). The difference between the right and left diagonal measurements is the trans-diagonal difference, and this value is considered the gold standard for quantifying the degree of asymmetry in lateral DP (Glasgow, Siddiqi, Hoff, & Young, 2007). Cranial vault asymmetry also has been used to quantify the ratio of oblique measurements, but authors are inconsistent regarding the measurement points for cranial vault asymmetry (Lee et al., 2008; Lipira et al., 2010; Loveday & de Chalain, 2001), and therefore comparisons are less informative across cohorts.

**Determining Severity**

One of the most significant challenges in diagnosing and quantifying DP is distinguishing mild, moderate, and severe deformities (Robinson & Proctor, 2009). Using a consistent method to quantify severity is important so the clinician can document, monitor, and make treatment decisions for DP. Quantifying the severity of plagiocephaly is difficult because many providers use an expert opinion approach that is not well documented and varies by practitioner (Glasgow et al., 2007). Some authors have proposed rating scales based on visual assessment criteria. Argenta, David, and

**TABLE 1. Key differences between synostotic and non-synostotic plagiocephaly**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Non-synostotic (deformational) plagiocephaly</th>
<th>Synostotic plagiocephaly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cause/definition</td>
<td>Abnormally shaped head due to external forces applied to the skull, not due to craniosynostosis</td>
<td>Premature fusion of one or more cranial sutures; exact cause unknown; genetic and environmental factors may play a role</td>
</tr>
<tr>
<td>Common types</td>
<td>Lateral deformational (position) plagiocephaly; posterior deformational plagiocephaly (positional brachycephaly)</td>
<td>Bilateral coronal craniosynostosis (synostotic brachycephaly); sagittal craniosynostosis (dolichocephaly&gt;scaphocephaly); metopic craniosynostosis (trogonocephaly)</td>
</tr>
<tr>
<td>Distinguishing features</td>
<td>Round, symmetrical head shape at birth; parallelogram or brachycephalic head shape; ear may be anteriorly displaced; no palpable bony ridges</td>
<td>May have abnormal head shape at birth; trapezoid head shape; ear may be posteriorly displaced; palpable bony ridges</td>
</tr>
<tr>
<td>Management</td>
<td>Repositioning and physical therapy; helmet in some cases</td>
<td>Usually surgery; helmet in some cases</td>
</tr>
</tbody>
</table>

Note: Adapted from Tables 1 and 2 in Nield et al., 2007.
Thompson (2004) proposed a five-stage clinical classification of lateral DP based on the presence or absence of five clinical findings: posterior asymmetry, ear malposition, frontal asymmetry, facial asymmetry, and temporal bossing or posterior vertical cranial growth. Severity of posterior DP is based on the presence or absence of a central posterior deformity, widening of the posterior skull, and vertical head growth or temporal bossing (Argenta et al., 2004).

Classification of DP severity is also guided by quantitative assessments of skull asymmetry, expressed as transdiagonal difference for lateral DP and CI for posterior DP. Published reports of severity classification systems using these measurements vary widely, and standards remain to be established across disciplines. The most rigorous studies of skull measurements and their correlation with response to intervention were conducted by Hutchison and colleagues, who conducted a randomized clinical trial of positioning treatments for 126 infants with DP (Hutchison, Stewart, de Chalain, & Mitchell, 2010) and a case-control study of 31 infants with DP (Hutchison, Hutchison, Thompson, & Mitchell, 2005). The authors tracked head symmetry of infants with DP using digital photographic techniques, which allowed them to define meaningful measurement cutoff points for lateral and posterior DP severity. We have incorporated these values into a combined schematic for determining severity of lateral and posterior DP based on a holistic assessment that includes both visual and anthropometric assessments. These assessments are presented in Table 3 with a diagnostic guide for determining the type and severity of lateral and posterior DP.

**CONCLUSIONS**

DP is a common condition, particularly in cultures where infants sleep in the supine position. This sleeping position is associated with a significant reduction in the risk of sudden infant death syndrome, but it also may be associated with molding of the infant’s head, especially before the infant develops motor skills. Research suggests that cumulative exposure to the supine position is a primary factor in the development of DP (Bialocerkowski et al., 2008). Torticollis, variable tone, and developmental delay may be present in children with DP, and the assessment of the infant should include particular attention to development and tone.

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**TABLE 2. Cranial measurements used in documenting deformational plagiocephaly**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Measurement</th>
<th>Example (vertex view)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cranial width (breadth)</td>
<td>The greatest transverse diameter of the head, on a horizontal plane</td>
<td><img src="image" alt="Cranial width" /></td>
</tr>
<tr>
<td>Cranial length</td>
<td>The distance from the forehead to most posterior point of the head, in the same plane as measured in head circumference</td>
<td><img src="image" alt="Cranial length" /></td>
</tr>
<tr>
<td>Cephalic index (cranial index) Occipital-frontal transcranial diameter</td>
<td>The ratio of the cranial width to the cranial length</td>
<td><img src="image" alt="Cephalic index" /></td>
</tr>
<tr>
<td>Transdiagonal difference (transcranial diagonal difference)</td>
<td>The difference between two transcranial diameters</td>
<td><img src="image" alt="Transdiagonal difference" /></td>
</tr>
</tbody>
</table>

Note: Measurements are taken with sliding or spreading calipers.

Torticollis, variable tone, and developmental delay may be present in children with DP, and the assessment of the infant should include particular attention to development and tone.
TABLE 3. Diagnostic guide for determining type and severity of lateral and posterior deformational plagiocephaly

<table>
<thead>
<tr>
<th>Clinical findings</th>
<th>Lateral deformational plagiocephaly</th>
<th>Posterior deformational plagiocephaly (brachycephaly)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Occiput (vertex view)</strong></td>
<td>Ipsilateral occipital flattening Contralateral occipital bossing</td>
<td>Uniform occipital flattening</td>
</tr>
<tr>
<td><strong>Ear position (vertex view)</strong></td>
<td>Ipsilateral ear may be anteriorly displaced</td>
<td>Normal</td>
</tr>
<tr>
<td><strong>Face, forehead (anterior, lateral, and vertex views)</strong></td>
<td>May be normal; more severe cases may present with the following: mandibular asymmetry, ipsilateral frontal bossing, contralateral forehead flattening, ipsilateral cheek anteriorly displaced</td>
<td>Temporal bossing, increase in vertical height in severe cases</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>Torticollis, head position preference</td>
<td>Large size, history of limited activity or limited mobility</td>
</tr>
</tbody>
</table>

### Severity\(^a\)

<table>
<thead>
<tr>
<th></th>
<th>Lateral deformational plagiocephaly</th>
<th>Posterior deformational plagiocephaly (brachycephaly)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mild</strong></td>
<td>TDD(^b) 3-10 mm Flattening restricted to the back of the skull (type I)(^c)</td>
<td>CI(^d): 82%-90% Central posterior deformity (“ping-pong ball depression”)(^e)</td>
</tr>
<tr>
<td><strong>Moderate</strong></td>
<td>TDD(^b) 10-12 mm Malposition of ear (type II), forehead deformity (type III)(^f)</td>
<td>CI(^d): 90%-100% Central posterior deformity and widening of posterior skull(^f)</td>
</tr>
<tr>
<td><strong>Severe</strong></td>
<td>TDD(^b) &gt; 12 mm Malar deformity (type IV), vertical or temporal skull growth (type V)(^f)</td>
<td>CI(^d): &gt; 100% Vertical head, head growth, or temporal bossing(^f)</td>
</tr>
</tbody>
</table>

Note: CI, Cephalic index (or cranial index); TDD, transcranial diameter difference.

\(^a\)There is no firm professional consensus on the best way to subjectively or objectively classify severity of plagiocephaly; these severity categories are based on our review of published reports. The clinician’s rating of severity should be used as part of a holistic assessment and to guide the practitioner in decision-making with the algorithm provided with this article.

\(^b\)Based on Hutchison et al. (2005).

\(^c\)Based on Argenta et al. (2004).

\(^d\)Based on Hutchison et al. (2010).
Future research should be aimed at identifying potential causal pathways between DP, torticollis, and developmental delays, understanding whether there is a shared etiology, and understanding to what extent risk factors are modifiable or non-modifiable. Because DP itself is often self-limiting with conservative strategies, and because associated morbidity is low, research on the assessment, diagnosis, and management of this condition may be limited by low prioritization among funders for the type of studies that provide the highest quality evidence. For this reason, it is particularly important for primary care providers to focus on early prevention and management of this condition. Treatment of severe DP is undoubtedly more costly than early management of mild or moderate DP.

Understanding the risk factors and natural course of development and skull growth will enable the pediatric health care provider to actively participate in the prevention and early management of DP. Practitioners who include a comprehensive visual assessment of the infant’s head in every well-child examination are likely to recognize early signs of asymmetry when the condition is most amenable to conservative management (Bialocerkowski et al., 2008; Robinson & Proctor, 2009; van Vlimmeren et al., 2008; Xia et al., 2008). The practitioner can diagnose, monitor, and make appropriate referrals by accurately measuring and documenting dimensions of the asymmetric skull using consistent techniques as previously described. In Part II of this two-part series on DP (to be published in a future issue of the *Journal of Pediatric Health Care*), we will provide a review of the most current evidence on management of DP and an algorithm for clinical decision making.

REFERENCES


