HIE & Autism

Is it necessary to pick one or the other?

by Harry S. Cohen

In a recent case, our 11-year-old client's treating child neurologist diagnosed him with autism, even though his history clearly indicated that he suffered HIE as a result of obstetrical negligence. The client's symptoms included profound delays in verbal communication, cognition, and behavior. Defense counsel seized the day and took the deposition of that neurologist, even though they had not taken any of the child's other specialists who had diagnosed the child as having the sequela of HIE. The first several hours of the deposition focused on the neurologist confirming, re-confirming, and then re-re-confirming the diagnosis of autism. Defense counsel then attempted to lead the neurologist into the conclusion that autism has no known etiology. The neurologist shocked defense counsel and responded, "Are you kidding?" and then went on to describe how this child's birth presentation was classic for severe asphyxia and clearly demonstrated the cause of what she had diagnosed as autism.

We were fortunate in that case that our young client's treating physician provided testimony that explained the etiology of his diagnosis of autism. More typically, counsel for the plaintiff are left to unravel the often intentionally confusing diagnosis of autism (whether diagnosed by treater or by defense expert), and demonstrate its relationship to the plaintiff's prior documented diagnosis of HIE. This articles attempts to aid plaintiff's counsel in overcoming a prevalent defense argument: Since autism is of unknown etiology, no one can credibly say, as the plaintiffs are in this case, that the minor-plaintiff's deficits are related to a duration of perinatal asphyxia and HIE.

Autism vs. HIE

Autism has historically been diagnosed with a constellation of symptoms that did in fact distinguish the condition from an injury caused by birth asphyxia; however, that historic label of autism has evolved. A comparison of the former and latter diagnostic criteria reveals that today's autism diagnosis encompasses far more symptomology than in years past. Indeed, what is now labeled as autism most certainly includes the classic sequala of HIE.

Autism Spectrum Disorder ("ASD") can have mild to severe symptomology that presents itself in a variety of areas. Unfortunately, there isn't a blood test or imaging study that can definitively diagnose someone with ASD. As such, we must rely on skilled providers to use subjective and objective testing and criteria to determine if our clients can be categorized on this spectrum. Tables 1 and 2 demonstrate the changes between the DSM-IV-TR (1994) and the DSM-5 criteria (2013), as laid out by Collen M. Harker, M.S. and

	DSM-5	DSM-IV-TR	
Diagnostic Classification	**Autism Spectrum Disorder (ASD)**	**Pervasive Developmental Disorders**	**Key Differences**
Diagnostic Subcategories	None *(However, it is specified that individuals with a well-established DSM-IV diagnosis of Autistic Disorder, Asperger's Disorder, or PDD-NOS should be given the diagnosis of ASD).*	1. Autistic Disorder 2. Asperger's Disorder 3. Pervasive Developmental Disorder, Not Otherwise Specified (PDD-NOS) *(Autism Spectrum Disorder(s))* 4. Rett's Disorder 5. Childhood Disintegrative Disorder (CDD)	In DSM-5: There are no diagnostic subcategories, reflecting research indicating a lack of reliability across clinicians in assigning subcategories. ASD encompasses Autistic Disorder, Asperger's Disorder, and PDD-NOS. Rett's Disorder and CDD are no longer included in the ASD diagnosis.
Requirement for Diagnosis	Must meet all 3 behavioral criteria in category A and at least 2 in category B. (See below).	Must meet at least 6 behavioral criteria overall, with at least two from category A.1, one from category A.2, and one from A.3. (See below.)	In DSM-5: It is now specified that behavioral criteria can be met on the basis of historical report.
	Social Communication & Social Interaction (Category A)	**Social Interaction (Category A.1)**	
Specific Behavioral Criteria: **SOCIAL**	**A. Persistent deficits in social communication and social interaction across multiple contexts, as manifested by <u>all three</u> of the following, currently or by history:** 1. Deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation; to reduced sharing of interests, emotions, or affect; to failure to initiate or respond to social interactions. 2. Deficits in nonverbal communicative behaviors used for social interaction, ranging, for example, from poorly integrated verbal and nonverbal communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a total lack of facial expressions and nonverbal communication. 3. Deficits in developing, maintaining, and understanding relationships, ranging, for example, from difficulties adjusting behavior to suit various social contexts; to difficulties in sharing imaginative play or in making friends; to absence of interest in peers.	**A.1. Qualitative impairment in social interaction, as manifested by <u>at least two</u> of the following:** a. Marked impairments in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body posture, and gestures to regulate social interaction. b. Failure to develop peer relationships appropriate to developmental level. c. A lack of spontaneous seeking to share enjoyment, interests, or achievements with other people, (e.g., by a lack of showing, bringing, or pointing out objects of interest to other people). d. Lack of social or emotional reciprocity (e.g., not actively participating in simple social play or games, preferring solitary activities, or involving others in activities only as tools or "mechanical" aids).	In DSM-5: Social communication and social interaction are combined into one category, in recognition that communication is necessarily social in nature, and based on factor analytic studies. It is specified that social communication/ interaction deficits must be manifested across multiple contexts.
	N/A	**Communication (Category A.2)**	
Specific Behavioral Criteria: **LANGUAGE/ COMMUNICA-TION**	*Symptoms in this area are now subsumed under Categories A (Social) and B (Restricted Activities)*	**A.2. Qualitative impairments in communication as manifested by <u>at least one</u> of the following:** a. Delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime). b. In individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others. c. Stereotyped and repetitive use of language or idiosyncratic language. d. Lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level.	In DSM-5: Language impairment (a) is not included in the diagnostic criteria, but is included as a specifier (see 'Specifiers'). Impaired conversation (b) is considered an aspect of social-emotional reciprocity (A.1). Stereotyped language (c) is considered an aspect of restricted/repetitive behaviors (B.1). Social and imaginative play(d) are incorporated into A.3.

Table 1

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So while it is true that there is no known definitive causation for ASD, there are many factors that are associated with an ASD diagnosis. Most studies since the arrival of the DSM-5, support that ASD criteria is more restrictive than the previous DSM-IV. However, with our neurologically impaired clients, sequelae of their previous HIE diagnosis can now be considered in the 'Comorbidities' section of the DSM-5. This section recognizes that comorbidities, such as HIE, can be associated medical factors of ASD.

	Restricted, repetitive behavior, interests, activities (Category B)	Restricted repetitive & stereotyped patterns of behavior (Category A.3)	
Specific Behavioral Criteria: RESTRICTED/ REPETITIVE ACTIVITIES	**B. Restricted, repetitive patterns of behavior, interests, or activities, as manifested by at least two of the following, currently or by history.** 1. Stereotyped or repetitive motor movements, use of objects, or speech (e.g., simple motor stereotypies, lining up toys or flipping objects, echolalia, idiosyncratic phrases). 2. Insistence on sameness, inflexible adherence to routines, or ritualized patterns or verbal nonverbal behavior (e.g., extreme distress at small changes, difficulties with transitions, rigid thinking patterns, greeting rituals, need to take same route or eat same food every day). 3. Highly restricted, fixated interests that are abnormal in intensity or focus (e.g., strong attachment to or preoccupation with unusual objects, excessively circumscribed or perseverative interest). 4. Hyper- or hyporeactivity to sensory input or unusual interests in sensory aspects of the environment (e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement).	**A.3. Restricted repetitive and stereotyped patterns of behavior, interests and activities, as manifested by at least one of the following:** a. Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus. b. Apparently inflexible adherence to specific, nonfunctional routines or rituals. c. Stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements). d. Persistent preoccupation with parts of objects.	In DSM-5: Sensory issues are now included as a behavioral symptom (B.4.).
Age of Onset	**C. Symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learned strategies in later life).**	**B. Delays or abnormal functioning in at least one of the 3 behavioral must be present prior to age 3 years.**	In DSM-5: Symptoms do not have to be apparent before age 3.
Level of Impairment	**D. Symptoms must cause clinically significant impairment in social, occupational, or other important areas of current functioning.**	Optional: Global Assessment of Functioning (0-100) may be used.	In DSM-5: Functional impairment must be present for a diagnosis. Severity levels for behavioral criteria A and B must be specified: Level 3: Requiring very substantial support Level 2: Requiring substantial support Level 1: Requiring support
Rule-Outs	**E. These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay.**	**C. The disturbance is not better accounted for by another Pervasive Developmental Disorder.**	In DSM-5: Social (Pragmatic) Communication Disorder (SCD) is presented as an alternative (new) diagnosis for individuals who have marked deficits in social communication, but whose symptoms do not otherwise meet criteria for ASD.
Comorbidities	The following "Specifiers" should be indicated: With or without accompanying intellectual impairment. With or without accompanying language impairment. Associated with a known medical or genetic condition or environmental factor. Associated with other neurodevelopmental, mental, or behavioral disorder. With catatonia.	ADHD and Stereotyped Movement Disorder cannot be diagnosed along with Autistic Disorder.	In DSM-5: Comorbidities with other conditions are recognized; Specifiers are used to further describe the symptomatology.

Table 2

Note also that there is now an academic grounding in the assertion that HIE, among other conditions, can cause the deficits now labeled as autism. The American Journal of Perinatology published an article in 2017 titled, *Association of perinatal risk factors with Autism Spectrum Disorder*. This was a retrospective cohort study of 594,638 children's medical records to determine perinatal complications and diagnosis of ASD (DSM-IV). Table 3 below shows the association between perinatal conditions and ASD in that study. As demonstrated therein, there is a clear increase in diagnosis of ASD with birth asphyxia and a higher still increase with an APGAR score of <7 at 5 minutes. The most significant association appears when both antepartum and intrapartum

	Total Birth	ASD N	Incidence rate[a]	Hazard ratio (95% CI)		PAF
				Crude	Adjusted[b]	
No perinatal condition	269,226	3,917	1.28	1.00 (Ref.)	1.00 (Ref.)	
Perinatal conditions	126,179	2,338	1.70	1.31 (1.25, 1.38)	1.15 (1.09, 1.21)	0.3
Antepartum conditions	18,757	354	1.89	1.34 (1.20, 1.49)	1.22 (1.10, 1.36)	0.4
Preeclampsia	16,693	325	1.78	1.38 (1.23, 1.54)	1.26 (1.13, 1.41)	0.4
Placental abruption	2,064	29	1.29	1.00 (0.69, 1.44)	0.91 (0.63, 1.32)	–
Intrapartum conditions	99,834	1,740	1.74	1.26 (1.20, 1.34)	1.10 (1.04, 1.17)	0.2
Breech/transverse	12,441	266	1.97	1.53 (1.35, 1.73)	1.39 (1.23, 1.58)	0.6
Fetal dystocia	38,993	734	1.75	1.36 (1.26, 1.47)	1.09 (1.01, 1.18)	0.2
Prolapsed/nuchal cord	45,877	686	1.43	1.10 (1.01, 1.19)	1.03 (0.95, 1.12)	0.1
Birth asphyxia	2,523	54	1.87	1.47 (1.13, 1.93)	1.29 (0.98, 1.69)	0.7
Apgar of < 7 at 5 minute	948	23	2.06	1.65 (1.10, 2.49)	1.46 (0.97, 2.21)	1.0
Neonatal resuscitation	1,549	30	1.71	1.34 (0.94, 1.92)	1.16 (0.81, 1.66)	0.5
$>$ 1 intrapartum conditions	9,150	205	2.04	1.60 (1.39, 1.84)	1.34 (1.17, 1.55)	
Both conditions[c]	9,926	244	2.30	1.78 (1.56, 2.02)	1.44 (1.26, 1.64)	1.3

Abbreviation: ASD, autism spectrum disorder; CI, confidence interval; PAF, population attributable fraction.
[a]Incidence rate is shown per 1,000 person-years.
[b]Adjustments were made for maternal age, education, parity, smoking, prenatal care, year of diagnosis, psychosocial disorder during pregnancy, child's sex and race/ethnicity.
[c]Both conditions, the presence of antepartum and intrapartum conditions.

Table 3

conditions are present, where the incidence rate of ASD occurred in 2.3 children out of every 1,000. The DSM-5 is still too new for use in large scale retrospective studies, such as this one.

This study demonstrates the significance of perinatal and intrapartum conditions that contribute to HIE and associated increases in the diagnosis of ASD in childhood. It helps establish that HIE and ASD can be associated. The results can also help counsel for an injured client assess whether to encourage early monitoring and identification/diagnosis for ASD, rather than feeling the need to work around a diagnosis of ASD.

So, whereas the tendency in our cases has been to fight the diagnosis of autism, there should no longer be that need. Our experts should be armed and able to explain that autism/ASD is a multifaceted and complex diagnosis, encompassing a broad constellation of symptoms, and that there is academic consensus that HIE can be a cause. Stated differently, what we are now calling "autism" is what a consensus of physicians used to agree -- and still should -- was classic HIE.

About the Author

Harry Cohen is the managing member of Harry S. Cohen & Associates, a 5-lawyer, Pittsburgh, PA based firm devoted exclusively to plaintiffs' medical malpractice. Since 1991, the principal focus of his practice has been the representation of children who have incurred injuries from birth trauma, although he has litigated all aspects of medical malpractice. The Firm's typical geographical reach is western Pennsylvania and central to northern West Virginia. Mr. Cohen received his BA degree from Northwestern University in 1975 and his JD degree from The University of Pittsburgh School of Law in 1979.