Exhibit 1

LIDSKY REPORT

Expert Report

Prepared by Theodore I. Lidsky, Ph.D.

Qualifications

1. I am a licensed psychologist[1] broadly trained in neuroscience and psychology specializing in behavioral neuroscience and neuropsychology. My professional interests include the effects of drugs and metals on the brain and behavior; a major component of this work concerns the effects of lead on the developing nervous system.

2. I am familiar with the development and organization of the brain; normal and abnormal functioning; the role and function and metabolism of metals in the brain as well as injuries caused to the brain by metals, including lead. I am familiar with, and have employed, neuropsychological and neurofunctional testing methods to diagnose brain injury and impairment as well as neuropsychological, neurofunctional, psychological, motor, cognitive and intellectual functioning in infants and adults. I have performed more than 1,500 neuropsychological evaluations of lead poisoned children as well as young adults who had been poisoned as infants.

3. In 2010 I retired, after 20 years service, from a position at the New York State Institute for Basic Research in Developmental Disabilities. During that time, I was chairman of the Center for Trace Element Studies and Environmental Neurotoxicology - a group of scientists studying the role of toxic metals in developmental disorders.

4. I have been a peer reviewer for numerous medical and scientific journals including: Brain Research, Epilepsia, Contemporary Psychology, Science, Journal of Neuroscience, Pediatrics, Brain, Pharmacology and Toxicology. I have also served as a consultant or reviewer for various public health and scientific organizations including the U.S. Environmental Protection Agency and the Canadian National Government (Heath Canada) concerning the neuropsychology and neurotoxicology of childhood lead poisoning.

5. I have addressed the New York City Council and conferred with the Speaker of the Council, Gifford Miller, concerning a comprehensive law for the prevention of childhood lead poisoning from lead paint hazards. In addition, I also have spoken on lead poisoning before representatives of the Senate Subcommittee on Children and Families. I have worked extensively with the Bridgeport Public Health Department, the Foundation for Educational Advancement, Inc. (FEA), and the Bridgeport Public Schools in their efforts to launch the first pre-school early childhood program for lead poisoned children in the state of Connecticut. In 2007 the General Assembly of the State of Connecticut awarded an official citation that was given "In recognition of ... leadership and work for the health and well being of the children." A commendation by the Governor of the State of Connecticut stated, in part: "This recognition is a testament to your outstanding service and commitment to excellence in helping people throughout the nation understand the

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[1] Licensed in Michigan and in New York State.

horrendous effects of lead poisoning and to continue to work toward eradicating lead poisoning."

6. I have authored or co-authored over sixty peer reviewed journal articles related to neuroscience, neuropsychology, neurotoxicology and behavior as well as several books and numerous book chapters, and over 60 abstracts. I have also received research grants from the U.S. Public Health Service totaling more than $900,000 related to the brain and behavior.

7. I have been qualified as an expert witness in courts in New York, New Jersey, Pennsylvania, Michigan, Oklahoma, Mississippi, Missouri, Virginia, and Washington, D.C. My curriculum vitae is attached hereto at the end of this report.

8. My opinions in this report are all made within a reasonable degree of neuropsychological certainty and are based upon my training and clinical experience, as well as the relevant medical literature.

Childhood Lead Exposure[2]

9. It is well established that many children with elevated blood lead levels experience IQ decrements, poor school performance, and problematic behavior (e.g. aggression, poor impulse control). The detrimental effects of childhood lead exposure persist into adulthood. For example, "...childhood lead exposure was associated with lower cognitive function and socioeconomic status at age 38 years and with declines in IQ and downward social mobility."[Ref. 13]

10. The varied adverse effects of lead exposure stem from the fact that lead is a potent neurotoxin; it is a poison that damages the nervous system of humans. The brains of children are particularly vulnerable to the adverse effects of lead poisoning [e.g. Refs. 7,10,12].

11. That childhood lead poisoning causes brain damage is now settled science [e.g. Refs. 2,3,4]. While lead is neurotoxic in any stage of human development, it is especially dangerous for the central nervous system of infants and young children. In particular, children become poisoned with exposures to lower levels of lead than adults, and are more likely to sustain brain damage as a result of poisoning. Lead poisoning in children is particularly insidious because the toxic threshold is so low. Indeed, the Centers for Disease Control recently dropped the reference level to 5µg/dL and acknowledged that there is no safe blood lead level [Ref. 3], while the National Toxicology Program has reported that it is established that blood lead levels below 5 µg/dL cause cognitive impairments [Ref. 12].

[2] The peer reviewed lead poisoning scientific literature is voluminous. For example a MedLine search using the key words lead poisoning and child yields 3,345 articles. References cited in this report appear in brackets. When preceded by "e.g.", it indicates that the cited papers are only a sample of a larger group of relevant articles.

12. It should be noted, in this context, that although lead is eliminated relatively quickly from the blood, it remains in the brain far longer. Thus, lead continues to exert its damaging effects on neural development long after blood lead levels have dropped below the CDC reference level.

13. Lead poisoning-induced brain damage, like all brain damage, is manifest in impairment of neuropsychological functioning (*e.g.*, attention, memory, concept formation). A child's developing nervous system is uniquely vulnerable to the well-established neurotoxic effects of lead. Although the entire brain can be affected by lead, the frontal lobes, hippocampus and cerebellum are particularly sensitive [e.g. Refs. 2,10,11,15] Since the aforementioned parts of the brain are involved in a variety of neuropsychological processes, including motor control, perception, language, attention, memory and executive functions (*e.g.*, concept formation, planning, cognitive flexibility), damage in these areas is seen behaviorally as impairment of cognitive functioning. Lead, because it injures these brain areas, has been shown to impair the same neuropsychological functions [e.g. Refs. 7,9].

14. Lead poisoning often has a "lag effect" in that behavioral impairments due to early poisoning are not observable until the child is older [Ref. 17]. Due to the time lag in the emergence of deficits, assessment of lead-poisoning induced impairments should take place though adolescence. There are 3 points when the effects of early childhood lead poisoning are likely to be observable:

1) In 1st grade when children begin to acquire basic academic skills

2) In the 4th grade when children start to use basic skills to learn new material

3) In 6th or 7th grade when executive functions such as planning and organizational skills are needed.

15. What is the appropriate method for evaluating the effects of a child's exposure to lead? Although intuitively it might seem that a psychoeducational evaluation such as that routinely administered by Special Education committees would be an ideal measure, this assumption would be ill founded. While brain injury can certainly affect IQ, these test batteries were not designed to assess brain dysfunction and are remarkably insensitive to its effects [Ref. 8]. Indeed, some children who have sustained large brain lesions show either no change or, in some cases an increase in IQ [Ref. 6]. Similarly, results from academic achievement tests are not definitive; children without brain injury can do poorly on such tests.

16. In evaluating an individual lead poisoned child, one must be mindful that this metal's neurotoxic effects on the developing brain [Refs. 1,2,10,11,14,15] underlie its cognitive and behavioral effects . Thus, techniques must be selected that are designed to detect the manifestations of brain dysfunction. Brain injury, from a variety of causes (e.g. trauma, ischemia/hypoxia, toxic agents), frequently affects functioning in a limited number of neurobehavioral systems. For example it is not unusual when evaluations of brain injured patients reveal deficits affecting only circumscribed aspects of language (e.g.

object naming) or specific memory functions (e.g. working memory only) leaving other aspects of memory (procedural, semantic, episodic) as well as other cognitive functions intact. Tests used in psychoeducational evaluations, because they assess broad functions and reflect summed performance of multiple subtests that tap a vast array of cognitive functions, obscure the telltale focal impairments that are the stigmata of a brain injury.

Evaluating Lead Poisoned Children: The Field of Neuropsychology

17. The technique that is used to diagnose functionally significant brain injury, including that caused by lead, is neuropsychological testing. "Neuropsychology is an applied science concerned with the behavioral expression of brain dysfunction." [Ref. 8] Neuropsychology is a distinct scientific discipline that differs in methodology from other branches of psychology (*e.g.*, clinical psychology), as well as other disciplines concerned with behavior, such as epidemiology.

18. Neuropsychological testing is designed to measure the cognitive/behavioral manifestations of normal and abnormal brain function to allow the diagnosis of brain injury. In contrast, other branches of psychology are concerned with such diverse issues as behavioral adjustment, academic readiness, emotional issues and the like. Neuropsychology is the only psychological discipline that is concerned with the diagnosis of brain injury or dysfunction.

19. Neuropsychological tests are distinguished from psychological tests, in that the former are very narrowly focused and measure those functions that are accepted by the neuroscientific community as basic cognitive manifestations of brain functioning (*e.g.*, memory, attention, executive functioning). In contrast, psychological tests evaluate a variety of complex behavioral/social variables, such as emotional state, social adjustment and scholastic achievement.

20. Neuropsychological tests neither depend upon nor evaluate information gained in school and do not require skills such as reading and arithmetic. Rather, neuropsychological tests assess such fundamental neurally-based functions as the ability to pay attention to what is seen and heard, to remember what is heard, and to form concepts and to plan. Thus, these tests evaluate the integrity of those biologically-based symptoms that allow a child to learn in school rather than assessing what information has been learned in school.

21. A psychoeducational evaluation, as is routinely performed with children struggling in school, usually entails an IQ test, speech/language evaluation, and academic achievement testing. This type of evaluation is the starting point for evaluating a lead poisoned child but is wholly inadequate to provide the information necessary to structure an educational intervention that will address that child's problems. It is imperative that the psychoeducational evaluation be followed up with a comprehensive neuropsychological evaluation. This important point underlies the approach to lead poisoning taken by the Connecticut State Department of Education[3] *viz*:

[3] Education Guidelines for the Prevention and Management of Lead Poisoning in Children. Connecticut State Department of Education, August 2013.

"If at any point in the Child Find process, regardless of age or grade, a staff member or team suspects that a child may have a disability related to lead exposure, the staff member or team must refer the child to a Section 504 team or PPT for determination of eligibility under Section 504 of the Rehabilitation Act or the IDEA. The respective team must decide what evaluation is needed in order to determine eligibility and should follow established policy and procedures for making decisions regarding evaluation and eligibility.

If a 504 team determines that a child has an impairment (lead poisoning) and the impairment, without the use of mitigating measures, substantially affects learning, or another major life activity such as attention that in turn substantially limits learning, the 504 team should refer the child for evaluation under IDEA.

If the PPT is considering whether a child may be disabled due to lead poisoning, best practice suggests a two-step evaluation.[Ref. 4] The first step should be an evaluation to confirm deficient performance in the area where the deficiency is suspected. If a deficiency is confirmed, the PPT should consider if the child with a history of lead poisoning needs a comprehensive neuropsychological evaluation to look for other cognitive and functional deficits. [Refs. 4,5] Brain injury from lead poisoning is similar to other types of brain injury where there is no single cognitive profile. Therefore, specific areas of the brain affected and the extent of the damage in any one area are variable child to child. The results of a neuropsychological assessment help the team to understand the discrete areas of the brain affected, including specific deficits, as well as compensatory strengths. This information helps the team to develop an appropriate IEP to meet the child's individual learning needs.

Intelligence tests alone do not satisfy the requirements of a comprehensive evaluation and, therefore, are unsatisfactory for evaluating children with lead poisoning. They are not sufficiently sensitive to the effects of brain injury. IQ or its equivalent is a single number that is determined based on the child's overall performance on a battery of subtests that assess multiple and often unrelated functions. Brain injury, whether from trauma, oxygen deprivation or toxic exposures such as lead, frequently affects functioning in a limited number of neurobehavioral systems. Intelligence test batteries underestimate the effects of such injuries. [Ref. 6]

It is for this reason that, once a deficit is identified in one area, consideration of a neuropsychological assessment of all areas is warranted."

22. The triage methodology advocated by the Connecticut State Department of Education is the standard approach to evaluating children with brain dysfunction from lead and, indeed, many other types of brain dysfunction. Given the history of widespread lead exposure of the children in Flint, it is not only appropriate but also imperative that a similar approach be used here.

<u>Proposed Triage for Children in Flint</u>

23. Triage is necessary to determine which children require neuropsychological evaluations. In dealing with a population of lead-exposed children, one cannot predict which children will be adversely affected or, in affected children, the specific nature of a particular child's deficits. Thus, all children should go through the triage process.

24. At the initial stage of triage, the *Vineland - II Adaptive Behavior Scales* would be administered to evaluate functionality in communication, daily living skills, socialization, and motor skills. In addition, the *Vineland* provides information concerning the presence of various types of abnormal emotional behaviors. The *Vineland* consists of standardized questions administered to individuals with in-depth knowledge of the child's

functionality. Different forms of the *Vineland* are designed for parents/care givers and teachers. The *Vineland* should be administered by a trained non-professional. Administration typically takes 30-45 minutes. The *Vineland* is scored by computer and generates standard scores, percentile ranks, adaptive levels, and age equivalents.

25. To identify all children who should receive a neuropsychological evaluation, it would be highly beneficial to include the *Wide Range Intelligence Test (WRIT)* in the initial stage of triage as well. The *WRIT* is a general intelligence test that provides a brief measure of a child's cognitive ability. It can be administered by a trained college graduate or a psychology student or professional with more minimal training. Administration takes approximately 30-45 minutes.

26. The scored *Vineland* and the *WRIT* must be reviewed by a neuropsychologist for a final determination of status. Children meeting certain criteria would move on to the next stage.

27. As with the methodology advocated by the Connecticut State Department of Education, the second stage is a comprehensive neuropsychological evaluation. A neuropsychological evaluation is needed because, unlike psychoeducational evaluations normally administered in association with an IEP assessment, neuropsychological evaluations are designed to diagnose functionally significant brain injury. This evaluation consists of administration of a battery of standardized neuropsychological tests to assess, in detail, fine motor functioning, language, attention, learning, memory, and executive functioning.

28. Neuropsychological tests can be administered and scored by trained individuals. Trained technicians or more highly trained individuals (school psychologists or neuropsychologists) can administer and score these tests; only neuropsychologists are qualified to interpret the results and determine whether or not a diagnosis of brain damage is appropriate. A comprehensive neuropsychological evaluation typically takes about 3 hours.

Neuropsychological Findings - Cases from Flint

Several children from Flint underwent neuropsychological evaluations conducted by this examiner.[4] The evaluation report of each individual child is appended at the end of this document. Although the particular findings were somewhat different in each case, several general conclusions can be drawn:

1. For several children, lead exposure is only one of multiple risk factors. A brain rendered fragile by other risk factors, would be even more negatively impacted by this potent neurotoxin. The neurocognitive impairments identified in the appended evaluations are entirely consistent with the types of impairments observed in

[4] In addition to those children for whom reports are provided, an attempt was made to evaluate CD. However due to his problems with vision and his failure to bring his eyeglasses, a valid assessment could not be made.

children with lead exposure.

2. Each child had an abnormal neuropsychological profile indicative of brain damage.

3. There was no signature injury; i.e. each child had a unique constellation of neurocognitive functions that were impaired and other neurocognitive functions that were intact.

4. Because there was no signature injury, the educational intervention required has to be tailored individually for each child.

5. I am not aware that any of these children has previously received a neuropsychological evaluation. As a result, their neurocognitive areas of impairment have not been identified by the school system and accordingly they are not receiving services appropriate to their unique neuropsychological profiles.

6. Review of extant educational records indicates that these children are struggling in school. Apart from any consideration of brain damage, they are not receiving appropriate special education services.

Educational intervention based on solid neuropsycholgical testing is needed without delay. It is characteristic of many types of brain injury that, in addition to focal areas of neurocognitive impairment, there are other neurocognitive processes that appear to be intact. With an appropriate plan of intervention, an injured child can learn to use intact functions to mitigate the adverse influence of impairments and thereby function at a higher level. However, impairments will become more entrenched the longer such intervention is postponed. In addition, fundamentals typically acquired early in education will not be learned and an injured child will therefore be missing the strong educational foundation needed to progress in the higher grades.

I declare, under penalty of perjury, that the foregoing is true and correct. Executed on 10/15/17.

Theodore I. Lidsky

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5. Communication with Dr. Armin Thies, PhD, ABPP/ABCN, Associate Clinical Professor and Clinical Neuropsychologist, Yale School of Medicine; Consultant, Westport Public Schools, April 5, 2012.

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- Complaint, D.R. et al. v. Michigan Dept. of Ed., et al. (10/20/2016)
- Summary, Lara L. MacQuarrie, Ph.D. (9/12/2016)

O.N.:

- Letter from grandmother (10/10/2014)
- Conners 3 Comparative Report (2014)
- Disciplinary and/or Snap Suspension Documents (2014, 2015, 2016)
- Flint Community Schools Letter to Physician and attached documents (2016)
- IEP (2/7/17)
- Health Record and Clinical Summaries (2015, 2016)

D.T.:

- Letters from grandmother (5/10/16, April 11)
- Report Cards and Progress Report (2015-2016)

C.D.M.:

- IEP Progress Reports and attached documents (2012-2013 and 2013-14)
- IEP (5/29/14)
- REED and Evaluation Plan (1/13/15), MET Evaluations, IEP (3/27/15)
- IEP (3/22/17)
- Consumer Services, Inc. documents (sent 11/30/15 and 12/10/15)
- FCS FOIA Documents (5 parts)

J.T.:

- Doctor's Progress Notes (12/12/15)
- Disciplinary Documents, Referral Forms, Infraction Reports and similar (2015 and 2016)
- Letter from mother (2/3/16)
- Psychological Report (3/8/16)
- OHI Rubric (3/28/16)
- IEP (3/28/16)
- Functional Assessment/Behavior Intervention Form (4/26/16)
- Manifestation Determination Review Notice (5/11/16)
- IEP (6/9/16)
- Urgent Care Document (11/3/16)
- REED and Evaluation Plan (11/7/16)
- Letter from Department of Student Services (11/21/16)
- IEP (12/20/16)
- Evaluation and Progress Documents (2016)
- IEP Notice (1/4/17)
- Letter from mother (1/18/17)
- Letter from Learning Support Services (1/19/17)

LIDSKY REPORT

Exhibit A

CURRICULUM VITAE

THEODORE I. LIDSKY, Ph.D.

Phone: (732) 851 7317

Email: tlidsky@yahoo.com

EDUCATION:

1965-1968 Queens College (CUNY), New York, B.A., Psychology

1968-1973 University of Rochester, New York, Ph.D. Psychology

1973-1975 University of California at Los Angeles, Neuropsychiatric Institute - Postdoctoral Fellow in Developmental Disabilities

PROFESSIONAL EXPERIENCE:

1975-79 State University of New York, at Stony Brook, Assistant Professor:
Biopsychology

1980-84 State University of New York, at Stony Brook, Associate Professor:
Biopsychology

1984-86 Virginia Polytechnic Institute, Associate Professor of Veterinary Biology

1986-1989 City University of New York, Sophie Davis School of Biomedical Education, Associate Medical Professor, Department of Physiology

1989-2010 Institute for Basic Research in Developmental Disabilities, Department of Psychobiology:

1. Head, Laboratory of Electrophysiology, 1989-

2010

2. Member, Center for Trace Element Studies and Environmental Neurotoxicology, 1989-2010
3. Director, Center for Trace Element Studies and Environmental Neurotoxicology, appointed September 1999

1999-present	Thomas Jefferson University School of Medicine, Department of Neurology Adjunct Associate Professor, appointed September,1999 Co-Director, Neurofunctional Assessment Unit
2003-2010	City University of New York, Graduate Center. Adjunct Professor of Neuroscience

U.S. PATENT: U.S. Patent No. 5,602,150.
Treatment of central nervous system disorders associated with psychotic behavior and dementia with a combination of neuroleptic drugs and taurine, or derivatives thereof to prevent the development of tardive dyskinesia. (02/11/97)

RESEARCH GRANTS/CONTRACTS:

National Institute of Mental Health - MH 31207: "Neuronal Organization of Prefrontal Cortical Functions". Principal Investigator: J.S. Stamm. Co-Principal Investigator: T.I. Lidsky. Total for 3 years: $89,085, 1978-1981.

National Institute of Neurological and Communicative Disease and Stroke -NS 15328: "Trigeminal Input to the Basal Ganglia". Principal Investigator: T.I.Lidsky. Award: $6,400 for 1979-1980.

National Institute of Neurological and Communicative Disease and Stroke-NS 16054: "Neuropsychological Studies of the Basal Ganglia". Principal Investigator: T.I. Lidsky. Total for years, $131,785, 1980-1983.

National Institute of Neurological and Communicative Disease and Stroke-NS 21418: "Neuropsychological Studies of the Basal Ganglia". Principal Investigator: T.I. Lidsky.

Total for 5 years, $469,034, 1983-1988.

National Institute of Neurological and Communicative Disease and Stroke- NS 21418: "Biopsychology of Basal Ganglia-Reticular Interactions". Principal Investigator T.I. Lidsky. Total for 4 years, $273,798, 1989-1994.

NYS Department of Mental Hygiene: "Co-administration of taurine with haloperidol and the prevention of tardive dyskinesia. $30,000

Aluminum Foundation of the US: Research contract through the Center for Trace Element Studies and Environmental Neurotoxicology, NYS Institute for Basic Research. Effects of aluminum on synaptic transmission. ≈$40,000 per year,1990-2010.

Aluminum Foundation of the US: Research contract through the Center for Trace Element Studies and Environmental Neurotoxicology, NYS Institute for Basic Research. Effects of aluminum on human health. $100,000, 01/01/00-12/31/01.

Thomas Jefferson University Medical School; subcontract from Eli Lilly Pharmaceuticals. Effects of atypical antipsychotic drugs on glutamatergic transmission. $72,000, 10/01/00 - 09/30/01

American Parkinson’s Disease Association; Dopaminergic effects on glutamatergic transmission. $100,000, 09/01/00-08/31/04

PROFESSIONAL MEMBERSHIPS (Past & Present):

American College of Forensic Examiners - Diplomate in Neuropsychology
Society for Neuroscience
American Academy of Neurology
American Association for the Advancement of Science
Neurobiology Merit Review Board, U.S. Veterans Administration (1990-1995)
Neurobiology Merit Review Board, U.S. Veterans Administration - Ad Hoc Reviewer (1995-2002)

REVIEWER:

Brain Research
Brain
Contemporary Psychology
Science
Epilepsia
Journal of Neuroscience
Pharmacology and Toxicology
Neuropsychopharmacology
Neurobiology of Learning and Memory
Tissue and Cell
American Journal of Public Health
Physiology & Behavior
Pediatrics
Archives of Disease in Childhood
Annals of Occupational Medicine
Annals of Occupational Hygiene
Neurobiology Merit Review Board - Veterans Administration
USPHS, National Institutes of Health
PSC-City University of New York Grant Committee

PROFESSIONAL LICENSE:

N.Y.S.- Psychology 2004 - present

Michigan - Psychology 2017

PUBLICATIONS:

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3. Levine, M.S., Schwartzbaum, J.S. and Lidsky, T.I. Effects of amygdaloid lesions upon FR performance in rats. Behavioral Biology, 1974, 10:511-518.

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LIDSKY REPORT

Exhibit B

Trial Testimony

1. Patient: Rhonda John
   Attorney: Alberto Casadevall
   Date: 01/14/13
   Location: Bronx, NY

2. Patient: Christopher & Servando Palaez
   Attorney: Nancy Sachs
   Date: 04/13
   Location: Putnam County, NY

3. Patient: Frank Taylor
   Attorney: Alan Shapey
   Date: 04/24/13
   Location: Bronx, NY

4. Patient: Kerry Herndon-Brown
   Attorney: Ed Hayes
   Date: 06/27/13
   Location: Bronx, NY.

5. Patient: Cortez Mayo
   Attorney: Margie Johnson
   Date: 10/23/14
   Location: Bronx, NY

6. Patient: Kesean Greenhill
   Attorney: Alberto Casadeval
   Date: 03/19/14
   Location: Bronx, NY

7. Patient: D. Monfil
   Attorney: Alberto Casadeval
   Date: 10/20/14 Location: Brooklyn, NY

8. Patient: Javiel Gonzalez
   Attorney: A. Shapey
   Date: 04/21/15
   Location: Bronx, NY

9.. Patient: Samantha Guzman
Attorney: A. Casadeval
Date: 06/17/15
Location: Bronx, NY

10. Patient: Traecina Claibourne
Attorney: V. Greene - Motley Rice
Date: 07/15/15
Location: Providence, Rhode Island

11. Patient: Ramses Arias
Attorney: C. Calderone - Michael Frankel
Date: 10/29/15
Location: Bronx, New York

<u>Deposition Testimony</u>

1. Patient: Fontanez
Attorney: V. Greene
Date:03/27/13
Location: Staten Island, NY (Rhode Island)

2. Patient: Outlaw
Attorney: V. Greene
Date: 08/20/13
Location: Staten Island, NY (Chicago, Illinois)

3. Patient: Traecina Claiborne
Attorney: V. Greene
Date: 04/15/15
Location: Staten Island, NY (Rhode Island)

LIDSKY REPORT

Exhibit C

NEUROPSYCHOLOGICAL ASSESSMENT REPORT

Patient: CDM
Date of Birth: 07/16/2008
Date of Evaluation: 09/12/2017
Age: 9 years, 1 month

History: CDM was accompanied to the evaluation by his mother. The synopsis of CDM's history is based on information provided by his mother and school records. CDM was born full term via normal spontaneous delivery. CDM's mother smoked cigarettes during the pregnancy. Developmental milestones were reached normally. CDM's medical history is remarkable for ingestion of lead contaminated water. Information concerning blood lead levels was not available at the time of this writing.

CDM was diagnosed with ADHD at about 4 years of age and he has been treated by a psychiatrist since that time. He has been prescribed Concerta and Intuniv and took his medication according to his normal regimen on the day of testing. CDM is well below grade level in reading and math and has an IEP with the classification Other Health Impairment due to ADHD.

Neuropsychological Testing

CDM was appropriately dressed and well oriented to time and place. He made good eye contact. A good rapport was established between the examiner and CDM. He was cooperative for parts of the test session but, after about 5 to 10 minutes of work became intransigent and would refuse to continue. Long play breaks were needed at regular intervals to obtain his cooperation for valid testing. During actual testing, CDM was friendly and, at times, enthusiastic. However, due to CDM's refusal to cooperate during many parts of the session, only a limited evaluation could be completed. The test results presented in this report were obtained during periods when CDM was clearly cooperating and making an obvious effort to succeed.

Table 1. *WRIT* IQ Performance.

	IQ	Percentile	Range
Verbal IQ	74	4	Borderline
Visual IQ	88	21	Low Average
General IQ	78	7	Borderline

The *Wide Range Intelligence Test* (*WRIT*) was administered; IQ scores are in Table 1 and subtest scores in Table 2. Unless otherwise noted, ranges reported throughout this report are according to Wechsler[1]. The magnitude of the difference between his Verbal and Visual IQ's is statistically significant (p<0.05) so that his overall level of cognitive functioning cannot be represented by a single number and therefore his Borderline General IQ cannot be taken to represent CDM's overall level of intellectual functioning. The neuropsychological significance of

[1] The relation between ranges and both standard scores and percentiles is shown in the Table in the Appendix.

individual subtest results is discussed elsewhere in this report *(infra)*.

Table 2. ***WRIT*** **Subtest Performance**

Verbal	Standard Score	Percentile	Visual	Standard Score	Percentile
Verbal Analogies	66	1	**Matrices**	83	13
Vocabulary	86	18	**Diamonds**	97	42

A. Language
CDM's knowledge of the meaning of words was in the Low Average range (*Vocabulary* - 18^{th} percentile). Expressive language, ordinarily assessed with the *Visual Naming Test* from the *Multilingual Aphasia Test Battery*, and the *Controlled Oral Word Association Test* (2^{nd} percentile), could not be administered due to CDM's lack of cooperation.

B. Sensory-Motor Functioning
Visuospatial construction, assessed with the *WRIT Diamonds* subtest, was in the Average range (73^{rd} percentile). The *Rey Osterrieth Complex Figure Test* was administered to assess other aspects of construction ability. In this test, the child is required to copy a geometric figure. The test has been normed for children as young as 6 years old. CDM struggled to copy the figure and finally gave up in frustration ($\leq 1^{st}$ percentile; Extremely Low range).

C. Attention
Formal attention testing could not be administered. CDM simply could not sit still long enough to administer a standard attention test. Observation by this examiner during the test session is completely in accord with CDM's previous diagnosis of ADHD.

D. Learning & Memory
Storage of verbal, auditory and visual information is mediated in different ways and, to some extent, by different parts of the brain. Accordingly, to test memory functioning it is necessary to use different tests that tap into different components of verbal and non-verbal memory and may reflect functioning of different brain systems. In the present evaluation, the *Narrative Memory* subtest from the *NEPSY-II* was administered. This test assesses immediate and delayed verbal memory for information with semantic and syntactic content. In addition the *Digit Span* subtest of the (*WISC-IV*) was administered to evaluate auditory working memory .

CDM's performance of the *NEPSY-II Narrative Memory* test indicated impaired verbal memory (free recall- 1^{st} percentile, Well Below Expected Level; free & cued recall -1^{st} percentile, Well Below Expected Level; recognition- 26^{th} to 50^{th} percentile, Expected level[2]). Auditory working

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[2] *NEPSY-II* classification.

memory, as seen in performance of the *Digit Span* subtest was impaired. This test is made up of two parts. In the first part (*Digits Forward*), the patient is required to repeat verbatim sequences of digits of progressively increasing length. In the second part (*Digits Backward*), the patient is required to repeat in reverse order sequences of digits of progressively increasing length. Although his ability to simply retain information in this temporary store was strong (*Digits Forward* - 59th percentile), his ability to remember digits that had to be repeated in reverse order (*Digits Backward* - 6th percentile) was far weaker. Discrepancies of this magnitude are abnormal (5th percentile) and reflect impaired working memory.

E. Executive Functioning

Executive functions of the brain include higher level cognitive processes that allow adaptive thought to be used to solve novel problems, and plan adaptive and goal directed behavior. Among the more salient processes subsumed under the rubric of executive functioning are abstract reasoning, concept formation, and planning. Verbal concept formation was assessed by the *Verbal Analogies* subtest of the *WRIT* and abstract reasoning by the *Matrices* subtest from the same battery. Planning was assessed via the *WISC-III Mazes* subtest.

CDM's abstract reasoning ability (*Matrices*- 13th percentile) was in the Low Average range while verbal concept formation ability (*Verbal Analogies*- 1st percentile) was in the Extremely Low range. Planning ability was in the Borderline range (*Mazes* - 5th percentile).

<u>Summary</u>

CDM's overall level of verbal cognitive functioning, as reflected in IQ, was in the Borderline range while non-verbal functioning, reflected in Visual IQ, was in the Low Average range. By history and direct observation, CDM suffers from ADHD. Neuropsychological testing identified impairments of visuospatial construction, verbal memory, verbal concept formation, and planning. Other aspects of CDM's neurocognitive functioning (e.g. receptive language, abstract reasoning) were within expected limits for this child. A neuropsychological profile characterized by focal impairments observed in association with normal functioning in other areas is abnormal. These findings, interpreted in the context of this patient's history, indicate brain dysfunction.

There are at least two neurodevelopmental risk factors in CDM's history; prenatal exposure to the products of cigarette smoke and ingestion of lead. Based on today's assessment, it is clear that this child has suffered brain damage. Such injury, particularly that caused by lead, is permanent.

Because one of the risk factors is ingestion of lead, there is a significant probability that additional deficits will emerge as CDM grows older. Lead poisoning often has a "lag effect" in that behavioral impairments due to early poisoning are not observable until the child is older. Due to the time lag in the emergence of deficits, assessment of lead-poisoning induced impairments should take place though adolescence.

Unless a comprehensive plan of intervention to mitigate his neurocognitive impairments is initiated without delay, CDM's educational prognosis is grim. Impairments of aspects of

executive functioning (i.e. concept formation and planning) in combination with verbal memory problems strike at the very foundations of learning. In isolation, each impairment imposes a serious handicap; in combination their adverse effects are exacerbated. When ADHD is added to the mix, the result can be educationally catastrophic. With an appropriate plan of intervention, CDM would be able to complete high school, albeit with ongoing assistance and course modifications. Without such intervention his chances for success are dismal.
CDM's neuropsychological impairments put his social/emotional development at risk both indirectly, by causing problems in school performance, and directly, by affecting parts of the brain that mediate social functioning and judgment. In addition, children with brain injuries frequently exhibit behavioral problems due to their inability to keep up with classmates and the resulting frustration, shame and loss of self esteem caused by academic deficiencies and failures. Furthermore, the parts of the human brain known to be damaged by lead are intimately involved in the control of the cognitive processes that underlie social judgment and are also critical to acquiring interpersonal skills. It is of concern that CDM is already experiencing emotional problems. Psychological intervention should be initiated without delay.

CDM should be evaluated for a program of cognitive rehabilitation and early intervention should be initiated as soon as possible. It is recommended that CDM be re-evaluated as he grows older. He should be re-assessed at three year intervals through his teenage years and at any time if there is a significant deterioration in school performance or conduct.

Theodore I. Lidsky, Ph.D.
Licensed Psychologist

APPENDIX

Range	Standard Score	T Score	Percentile
Very Superior	≥130	≥70	≥98
Superior	120-129	~63.5-69	91-97
High Average	110-119	~56.5-63	75 - 90
Average	90-109	~43.5-56	25 - 73
Low Average	80-89	~37-42.5	9 - 23
Borderline	70-79	29-36	2 - 8
Extremely Low	≤69	<29	<2

LIDSKY REPORT

Exhibit D

NEUROPSYCHOLOGICAL ASSESSMENT REPORT

Patient: ON
Date of Birth: 07/16/2008
Date of Evaluation: 09/12/2017
Age: 9 years, 1 month

History: ON was accompanied to the evaluation by his grandmother, MD. MD has had custody of ON since he was about 2 months old. ON was removed from the custody of his biological mother due to neglect. The synopsis of ON's history is based on information provided by his grandmother and school records. ON was born full term via normal spontaneous delivery. ON's mother smoked cigarettes and marijuana as well as drank alcoholic beverages during the pregnancy. Developmental milestones were, according to his grandmother's recollection, reached normally. ON's medical history is remarkable for ingestion of lead contaminated water. Information concerning blood lead levels was not available at the time of this writing.

ON was diagnosed with ADHD at about 7 years of age; he presently is treated with Abilify and Concerta. He took his medication according to his normal regimen on the day of testing. Although testing in school has shown ON to have at least average intelligence, he has mild speech articulation difficulties and more pronounced visual-motor impairments. He receives speech therapy and occupational therapy with an IEP classification of speech/language impairment.

Neuropsychological Testing

ON was appropriately dressed and well oriented to time and place. He made good eye contact and was cooperative. He was very friendly and enthusiastic throughout the test session. A good rapport was established between the examiner and ON. Frequent breaks were taken in the testing to enable him to maintain his concentration. After a brief rest he would resume testing without objection. He showed genuine interest in the testing and appeared to be disappointed when he did not know the answer to a question.

Domain	T Score	Classification
Emotional Problems	74	Very Elevated
Negative Mood - Physical Symptoms	82	Very Elevated
Neg Self-Esteem	55	Average
Functional Problems	63	High Average
Ineffectiveness	62	High Average
Interpersonal Problems	59	Average
Total	70	Very Elevated

Although ON's demeanor did not indicate sadness or depression, his responses on the *Children"s Depression Inventory -II* indicated emotional difficulties (Table 1).

The *Wide Range Intelligence Test* (*WRIT*) was administered; IQ scores are in Table 2 and subtest scores in Table 3. Unless otherwise noted, ranges reported throughout this report are according to Wechsler[1]. The neuropsychological significance of individual subtest results is discussed elsewhere in this report *(infra)*.

Table 2. *WRIT* IQ Performance.

	IQ	Percentile	Range
Verbal IQ	106	66	Average
Visual IQ	106	66	Average
General IQ	106	66	Average

Table 3. *WRIT* Subtest Performance

Verbal	Standard Score	Percentile	Visual	Standard Score	Percentile
Verbal Analogies	111	77	**Matrices**	100	50
Vocabulary	99	47	**Diamonds**	109	73

A. Language

ON's knowledge of the meaning of words was in the Average range (*Vocabulary* - 47th percentile). Naming ability (34th percentile), assessed with the *Visual Naming Test* from the *Multilingual Aphasia Test Battery,* was in the Average range while verbal fluency, evaluated with the *Controlled Oral Word Association Test* (2nd percentile), was in the bottom of the Borderline range.

B. Sensory-Motor Functioning

Visually guided fine motor functioning was assessed with the *Purdue Pegboard* test; performance was impaired (dominant right hand- 20th percentile, Low Average; left hand- 6th percentile, Borderline; both hands- 1st percentile, Extremely Low).

Visuospatial construction, assessed with the *WRIT Diamonds* subtest, was in the upper part of the Average range (73rd percentile) while other aspects of construction, assessed with the *Rey Osterrieth Complex Figure Test* (2nd to 5th percentile) were in the Borderline range.

C. Attention

At the beginning of testing ON was able to sustain his attention for about 20 minutes. For the

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[1] The relation between ranges and both standard scores and percentiles is shown in the Table in the Appendix.

remainder of testing, after 5 minutes of effort, he became fidgety and was repeatedly in and out of his seat. Numerous short breaks were necessary to enable him to maintain his concentration. As a consequence, the *Continuous Performance Test*, a test of visual attention that requires uninterrupted performance for 14 minutes, could not be administered.

The *Auditory Attention* subtest from the *NEPSY-II* test battery was used to evaluate ON's ability to pay attention to what he hears. His performance was impaired (combined scaled score- 2^{nd} percentile, Below Expected Level; total correct- 9^{th} percentile, Borderline; errors of omission- 6^{th} to 10^{th} percentile, Below Expected Level; errors of commission - 6^{th} to 10^{th} percentile, Below Expected Level; inhibitory errors - 26^{th} to 50^{th} percentile, Expected Level[2]).

D. Learning & Memory

Storage of verbal, auditory and visual information is mediated in different ways and, to some extent, by different parts of the brain. Accordingly, to test memory functioning it is necessary to use different tests that tap into different components of verbal and non-verbal memory and may reflect functioning of different brain systems. The *Narrative Memory* subtest from the *NEPSY-II* was used to evaluate immediate and delayed verbal memory for information with semantic and syntactic content. Visuospatial memory was evaluated with the recall trials of the *Rey Complex Figure Test*. Auditory working memory was assessed by performance on the *Digit Span* subtest of the (*WISC-IV*).

ON's performance of the *NEPSY-II Narrative Memory* test was at the expected level (free recall- 37^{th} percentile, free & cued recall - 50^{th} percentile, recognition- 51^{st} to 75^{th} percentile, Expected level[3]). Auditory working memory, as seen in performance of the *Digit Span* subtest was in the Superior to Average range (*Digits Forward*- 95^{th} percentile, *Digits Backward* - 26^{th} percentile). In contrast, visual memory was impaired with a pattern of results indicative of deficient visual information retrieval (*RCFT*: immediate recall- $<1^{st}$ percentile, T<20; delayed recall- $<1^{st}$ percentile, T<20; recognition- 54^{th} percentile, T=66).

E. Executive Functioning

Executive functions of the brain include higher level cognitive processes that allow adaptive thought to be used to solve novel problems, and plan adaptive and goal directed behavior. Among the more salient processes subsumed under the rubric of executive functioning are abstract reasoning, concept formation, planning, and attentional control of response set. Verbal concept formation was assessed by the *Verbal Analogies* subtest of the *WRIT* and abstract reasoning by the *Matrices* subtest from the same battery. Planning was assessed via the *WISC-III Mazes* subtest and attentional control of response set was assessed with the *Response Set* subtest from the *NEPSY-II*.

ON's abstract reasoning ability (*Matrices*- 50^{th} percentile) was in the Average range while verbal

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[2] *NEPSY-II* classification.

[3] *NEPSY-II* classification.

concept formation ability (*Verbal Analogies*- 77th percentile) was in the High Average range. Attentional control of cognitive set was impaired (*Response Set*: combined scaled score- 5th percentile, Below Expected level; total correct 2nd percentile, Below Expected Level; errors of omission 6th to 10th percentile, Below Expected Level; errors of commission 11th to 25th percentile, Borderline; inhibitory errors 11th to 25th percentile, Borderline)[4]. Planning ability was in the Average range (*Mazes* - 50th percentile).

<u>Summary</u>

ON's overall level of cognitive functioning, as reflected in IQ, was solidly in the Average range. Neuropsychological testing identified impairments of visual-motor functioning, verbal fluency, visuospatial construction, attention, visual memory and attentional control of response set. Other aspects of ON's neurocognitive functioning (e.g. receptive language, verbal memory, concept formation, abstract reasoning) were in accord with an Average IQ and are therefore within expected limits for this child. A neuropsychological profile characterized by focal impairments observed in association with normal functioning in other areas is abnormal. These findings, interpreted in the context of this patient's history, indicate brain dysfunction.

There are several neurodevelopmental risk factors in ON's history including prenatal exposure to the products of cigarette smoke, alcohol, and various drugs. ON has also ingested lead and according to his grandmother, suffers from PTSD due to negative experiences with his biological mother. This child has suffered brain damage. Such injury, particularly that caused by lead, is permanent.

ON's neuropsychological impairments impose limitations on his educational potential. His IEP, that addresses articulation problems and visual-motor impairments, doesn't even scratch the surface when it comes to the services needed to address this child's difficulties. In addition to affecting academic achievement, brain damage has both indirect and direct negative influences on social/emotional development. Children with brain injuries frequently exhibit behavioral problems due to their inability to keep up with classmates and the resulting frustration, shame and loss of self esteem caused by academic deficiencies and failures. In addition, school provides an environment in which important social skills are acquired and practiced. Socialization of this sort enters into forming friendships as well as learning the necessary behaviors that are needed for later success as an adult in the home and workplace. Cognitive impairments can limit a child's ability to learn such behaviors. Furthermore, the parts of the human brain known to be damaged by lead are intimately involved in the control of the cognitive processes that underlie social judgement and are also critical to acquiring interpersonal skills.

Educational intervention is needed without delay. As is characteristic of many types of brain injury, despite his impairments ON also has other neurocognitive processes that are not only intact but strong. With an appropriate plan of intervention, he can learn to use his intact functions to mitigate the adverse influence of his impairments and thereby function at a higher

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[4] *NEPSY-II* classification.

level. His impairments will become more entrenched the longer such intervention is postponed. In addition, fundamentals typically acquired early in education will not be learned and he will therefore be missing the strong educational foundation needed to progress in the higher grades.

ON should be evaluated for a program of cognitive rehabilitation and early intervention should be initiated as soon as possible. It is recommended that ON be re-evaluated as he grows older. He should be re-assessed at three year intervals through his teenage years and at any time if there is a significant deterioration in school performance or conduct. ON is showing signs of incipient mood disorder. It is strongly recommended that psychological intervention be initiated without delay.

Theodore I. Lidsky, Ph.D.
Licensed Psychologist

<u>APPENDIX</u>

Range	Standard Score	T Score	Percentile
Very Superior	≥130	≥70	≥98
Superior	120-129	~63.5-69	91-97
High Average	110-119	~56.5-63	75 - 90
Average	90-109	~43.5-56	25 - 73
Low Average	80-89	~37-42.5	9 - 23
Borderline	70-79	29-36	2 - 8
Extremely Low	≤69	<29	<2

LIDSKY REPORT

Exhibit E

NEUROPSYCHOLOGICAL ASSESSMENT REPORT

Patient: DT
Date of Birth: 03/27/2003
Date of Evaluation: 09/12/2017
Age: 14 years, 5 months

History: DT was accompanied to the evaluation by her grandmother, MD. MD has had custody of DT since she was about 6 months old. DT was removed from the custody of her biological mother due to neglect. The synopsis of DT's history is based on information provided by her grandmother and school records. DT's mother smoked cigarettes, took drugs, and drank alcoholic beverages during the pregnancy. DT's medical history is remarkable for ingestion of lead contaminated water. Information concerning blood lead levels was not available at the time of this writing. She has been diagnosed with ADHD, Bipolar Disorder, and Adjustment Disorder With Disturbance of Mood and Conduct.

DT is in 8th grade in regular classes. Review of her academic records indicates that she is struggling in core subject areas. DT sees a therapist and counselor and has been prescribed Vyvance, Lamictal, and Trazadone.

Neuropsychological Testing

DT was appropriately dressed and well oriented to time and place. She made good eye contact and was cooperative and motivated throughout the test session. A good rapport was established between the examiner and DT. Frequent breaks were taken in the testing to enable her to maintain concentration. After a brief rest she would resume testing without objection. DT showed genuine interest in the testing and appeared to be disappointed when she did not know the answer to a question.

Domain	T Score	Classification
Emotional Problems	50	Average
Negative Mood - Physical Symptoms	54	Average
Neg Self-Esteem	43	Average
Functional Problems	49	Average
Ineffectiveness	53	Average
Interpersonal Problems	41	Average
Total	50	Average

Neither DT's demeanor nor her responses on the *Children"s Depression Inventory -II* indicated emotional difficulties (Table 1).

The *Wide Range Intelligence Test* (*WRIT*) was administered; IQ scores are in Table 2 and subtest scores in Table 3. Unless otherwise noted, ranges reported throughout this report are according to Wechsler[1]. The neuropsychological significance of individual subtest results is discussed elsewhere in this report *(infra*).

Table 2. *WRIT* IQ Performance.

	IQ	Percentile	Range
Verbal IQ	87	19	Low Average
Visual IQ	86	18	Low Average
General IQ	85	16	Low Average

Table 3. *WRIT* Subtest Performance

Verbal	Standard Score	Percentile	Visual	Standard Score	Percentile
Verbal Analogies	90	25	**Matrices**	79	8
Vocabulary	86	18	**Diamonds**	98	45

A. Language

DT's knowledge of the meaning of words was in the Low Average range (*Vocabulary* - 18th percentile). Naming ability (1st percentile), assessed with the *Visual Naming Test* from the *Multilingual Aphasia Test Battery,* was in the Extremely Low range while verbal fluency, evaluated with the *Controlled Oral Word Association Test* (2nd percentile), was in the bottom of the Borderline range.

B. Sensory-Motor Functioning

Visually guided fine motor functioning was assessed with the *Purdue Pegboard* test; performance was impaired (dominant right hand- 9th percentile, Low Average; left hand- 14th percentile, Low Average; both hands- 5th percentile, Borderline).

Visuospatial construction, assessed with the *WRIT Diamonds* subtest, was in the Average range (45th percentile) while other aspects of construction, assessed with the *Rey Osterrieth Complex Figure Test* (>99th percentile) were in the Very Superior range.

C. Attention

Detailed analysis of the patient's visual attentional functioning was carried out with the *Conners' Continuous Performance Test* 3rd *Edition* (*CPT 3*). The *CPT 3* requires patients to "... respond

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[1] The relation between ranges and both standard scores and percentiles is shown in the Table in the Appendix.

when any letter appears , except the non-target "X."[2] Individual indices are T scores in which high T-scores (i.e. ≥60) are considered to be elevated (i.e. reflect poor performance) for all measures except reaction time (HRT); HRT scores ≥60 reflect abnormally slow reaction times while scores ≤40 reflect abnormally fast reaction times. Scores <55 are in the normal range and those from 40-44 are termed Low and reflect good performance. Scores that range from 55-59 are termed High Average and are considered to be borderline. DT's performance is summarized in Table 3; her performance reflected normal visual attention.

Table 5. *CPT-3* Performance

MEASURE	T-SCORE	GUIDELINE
Detectability	51	Average
Omissions	49	Average
Commissions	48	Average
Perseverations	50	Average
Reaction Time (RT)	58	Slightly Slow
RT Standard Dev.	51	Average
Variability	51	Average
RT Block Change	49	Average
RT ISI Change	48	Average

The *Auditory Attention* subtest from the *NEPSY-II* test battery was used to evaluate DT's ability to pay attention to what she hears. Her performance reflected impaired auditory attention (combined scaled score- 2nd percentile, Below Expected Level; total correct- 26th to 50th percentile, Expected Level; errors of omission- 26th to 50th percentile, Expected Level; errors of commission - 6th to 10th percentile, Below Expected Level, inhibitory errors - 26th to 50th percentile, Expected Level[3]).

D. Learning & Memory

Storage of verbal, auditory and visual information is mediated in different ways and, to some extent, by different parts of the brain. Accordingly, to test memory functioning it is necessary to use different tests that tap into different components of verbal and non-verbal memory and may reflect functioning of different brain systems. The *Stories* subtest from the *Children's Memory Scale* was used to evaluate immediate and delayed verbal memory for information with semantic

[2] *CPT 3* assessment report.

[3] *NEPSY-II* classification.

and syntactic content. Visuospatial memory was evaluated with the recall trials of the *Rey Complex Figure Test*. Auditory working memory was assessed by performance on the *Digit Span* subtest of the (*WISC-IV*).

DT's performance of the *Stories sub*test was in the Low Average to Average range (immediate recall- 16^{th} percentile, delayed recall - 16^{th} percentile, recognition- 25^{th} percentile). Auditory working memory, as seen in performance of the *Digit Span* subtest was in the Average range (*Digits Forward*- 41^{st} percentile, *Digits Backward* - 37^{th} percentile). In contrast, visual memory was impaired (*RCFT*: immediate recall- 24^{th} percentile, T=43; delayed recall- 42^{nd} percentile, T=48; recognition- $<1^{st}$ percentile, T<20).

E. Executive Functioning

Executive functions of the brain include higher level cognitive processes that allow adaptive thought to be used to solve novel problems, and plan adaptive and goal directed behavior. Among the more salient processes subsumed under the rubric of executive functioning are abstract reasoning, concept formation, attentional control of response set, and cognitive flexibility. Verbal concept formation was assessed by the *Verbal Analogies* subtest of the *WRIT* and abstract reasoning by the *Matrices* subtest from the same battery. Attentional control of response set was assessed with the *Response Set* subtest from the *NEPSY-II*, and cognitive flexibility with the *Wisconsin Card Sorting Test* (*WCST-64, CV2*).

DT's abstract reasoning ability (*Matrices*- 8^{th} percentile) was in the Borderline range while verbal concept formation ability (*Verbal Analogies*- 25^{th} percentile) was in the Average range. Attentional control of cognitive set was "At Expected Level" according to *NEPSY-II* criteria (*Response Set*: combined scaled score- 25^{th} percentile; total correct- 26^{th} to 50^{th} percentile; errors of omission- 26^{th} to 50^{th} percentile; errors of commission- 26^{th} to 50^{th} percentile; inhibitory errors- 26^{th} to 50^{th} percentile). Cognitive flexibility was impaired with many scores in the bottom of the Low Average range (*WCST*: errors- 9^{th} percentile; perseverative responses- 10^{th} percentile; perseverative errors- 9^{th} percentile; non-perseverative errors- 14^{th} percentile). Although she completed an adequate number of tasks (categories completed $>16^{th}$ percentile; trials to complete category 1- $>16^{th}$ percentile) measures of non-verbal concept formation (i.e. abstract reasoning) were in the Borderline to Extremely Low range (conceptual level responses- 6^{th} percentile; learning to learn- $\leq 1^{st}$ percentile).

<u>Summary</u>

DT's overall level of cognitive functioning, as reflected in IQ, was in the Low Average range. Neuropsychological testing identified impairments of visual-motor functioning, expressive language, auditory attention, visual memory, cognitive flexibility, and abstract reasoning. Other aspects of DT's neurocognitive functioning (e.g. receptive language, verbal memory, auditory working memory) were within expected limits for this child. A neuropsychological profile characterized by focal impairments observed in association with normal functioning in other areas is abnormal. These findings, interpreted in the context of this patient's history, indicate brain dysfunction.

There are several neurodevelopmental risk factors in DT's history including prenatal exposure to the products of cigarette smoke, alcohol, and various drugs. She has been diagnosed with ADHD as well as psychiatric disorders. The medications necessary to treat her emotional illnesses can have adverse effects on neuropsycholgical functioning. DT has also ingested lead, a potent neurotoxin. DT has suffered brain damage. Such injury, particularly that caused by lead, is permanent.

DT's neuropsychological impairments adversely affect neurocognitive processes whose normal functioning is crucial for not only academic success but also for independent living beyond the school years. The negative influence of her impairments is evident in her record of mediocre academic performance. It is unclear from the records provided for my review whether or not she has ever even been evaluated by the special education committee.

The neuropsychological picture presented by DT, similar to many patients with brain injury, is that of areas of impairment observed along with other neuropsychological functions that appear to be relatively preserved. Because there has been no intervention that effectively addresses her impairments, she has not learned how to capitalize on her strengths and, as a result, she is struggling academically. If allowed to continue to flounder, her prospects for a high school diploma are problematic. However consideration of her overall pattern of neuropsycholgical findings indicates that with appropriate intervention, DT would have the potential to complete high school and perhaps succeed at the level of community college.

DT should be evaluated for a program of cognitive rehabilitation and early intervention should be initiated as soon as possible. It is recommended that DT be re-evaluated as she grows older. She should be re-assessed at three year intervals through her teenage years and at any time if there is a significant deterioration in school performance or conduct.

Theodore I. Lidsky, Ph.D.
Licensed Psychologist

APPENDIX

Range	Standard Score	T Score	Percentile
Very Superior	≥130	≥70	≥98
Superior	120-129	~63.5-69	91-97
High Average	110-119	~56.5-63	75 - 90
Average	90-109	~43.5-56	25 - 73
Low Average	80-89	~37-42.5	9 - 23
Borderline	70-79	29-36	2 - 8
Extremely Low	≤69	<29	<2

LIDSKY REPORT

Exhibit F

NEUROPSYCHOLOGICAL ASSESSMENT REPORT

Patient: JT
Date of Birth: 11/13/2008
Date of Evaluation: 09/07/2017
Age: 8 years, 9 months

History: JT was accompanied to the evaluation by his mother. The synopsis of JT's history is based on information provided by his mother as well as a review of school records.
JT was born full term via normal spontaneous delivery. JT's mother smoked cigarettes during the first trimester but did not drink alcoholic beverages, take drugs or medications during the pregnancy. The perinatal period was unremarkable and developmental milestones were reached normally. JT's medical history is remarkable for ingestion of lead contaminated water. Information concerning blood lead levels was not available at the time of this writing.

JT was diagnosed with ADHD at about 5 years of age; he presently is treated with Adderal and Concerta. He did not take his medication on the day of testing. Reading, written expression, and math skills are delayed and the school IEP committee found him eligible for services with the classification of Other Health Impaired.

Neuropsychological Testing

JT was appropriately dressed and well oriented to time and place. He made good eye contact and was cooperative and motivated throughout the test session. Indeed he was very friendly and readily engaged in conversation after a few minutes of adjusting to the testing situation. Although the *Children's Depression Inventory-II* is designed for use by a child as young as 7 years, JT was unable to complete the form due to an inability to read the questionnaire. Observations of his demeanor did not indicate sadness, depression, and anxiety.

A good rapport was established between the examiner and JT. Frequent breaks were taken in the testing to enable him to maintain his concentration. After a brief rest he would resume testing without objection. He showed genuine interest in the testing and appeared to be disappointed when he did not know the answer to a question.

Table 1. *WRIT* IQ Performance.

	IQ	Percentile	Range
Verbal IQ	85	16	Low Average
Visual IQ	88	21	Low Average
General IQ	84	14	Low Average

The *Wide Range Intelligence Test* (*WRIT*) was administered; IQ scores are in Table 1 and subtest scores in Table 2. Unless otherwise noted, ranges reported throughout this report are according to Wechsler.[1] The neuropsychological significance of individual subtest results is discussed elsewhere in this report *(infra)*.

Table 2. ***WRIT* Subtest Performance**

Verbal	Standard Score	Percentile	Visual	Standard Score	Percentile
Verbal Analogies	82	12	**Matrices**	83	13
Vocabulary	90	25	**Diamonds**	96	39

A. Language
JT's knowledge of the meaning of words was in the Average range (*Vocabulary* - 25th percentile). Naming ability (<1st percentile), assessed with the *Visual Naming Test* from the *Multilingual Aphasia Test Battery,* and verbal fluency, evaluated with the *Controlled Oral Word Association Test* (1st percentile), were in the Extremely Low range.

B. Sensory-Motor Functioning
Visually guided fine motor functioning was assessed with the *Purdue Pegboard* test; performance was in the Average range (dominant right hand- 69th percentile, left hand- 59th percentile, both hands- 52nd percentile).

Visuospatial construction, assessed with the *WRIT Diamonds* subtest, was in the Average range (39th percentile) while other aspects of construction, assessed with the *Rey Osterrieth Complex Figure Test* (≤1st percentile) were in the Extremely Low range. Perception of line orientation (*Arrows*) was in the Borderline range[2] (9th percentile).

C. Attention
JT was fidgety and continually in and out of his seat. He was able to sustain his attention for about 5 minutes before needing redirection. As a consequence, the *Continuous Performance Test*, a test of visual attention that requires uninterrupted performance for 14 minutes, could not be administered.

The *Auditory Attention* subtest from the *NEPSY-II* test battery was used to evaluate JT's ability to pay attention to what he hears. His performance was impaired (combined scaled score- 9th percentile, Borderline; total correct- 9th percentile, Borderline; errors of omission- 6th to 10th percentile, Below Expected Level; errors of commission - 26th to 50th percentile, Expected Level,

[1] The relation between ranges and both standard scores and percentiles is shown in the Table in the Appendix.

[2] *NEPSY-II* classification.

inhibitory errors - 51st to 75th percentile, Expected Level[3]).

D. Learning & Memory
Storage of verbal, auditory and visual information is mediated in different ways and, to some extent, by different parts of the brain. Accordingly, to test memory functioning it is necessary to use different tests that tap into different components of verbal and non-verbal memory and may reflect functioning of different brain systems. The *Narrative Memory* subtest from the *NEPSY-II* was used to evaluate immediate and delayed verbal memory for information with semantic and syntactic content. Visuospatial memory was evaluated with the recall trials of the *Rey Complex Figure Test*. Auditory working memory was assessed by performance on the *Digit Span* subtest of the (*WISC-IV*).

JT's performance of the *NEPSY-II Narrative Memory* test was impaired with a pattern of results indicating impaired retrieval of stored visual information (free recall- 5th percentile, Below Expected Level; free & cued recall - 16th percentile, Borderline; recognition- 26th to 50th percentile, Expected level[4]). Auditory working memory, as seen in performance of the *Digit Span* subtest was in the Average range (*Digits Forward*- 38th percentile, *Digits Backward* - 35th percentile). JT's visuospatial constructional ability was so severely impaired that the results of the free recall trials of the *Complex Figure* test, that depend on a modicum of copying ability, could not be interpreted. However, his ability to simply recognize components of the figure after a 30 minute delay was at the 27th percentile, in the Average range.

E. Executive Functioning
Executive functions of the brain include higher level cognitive processes that allow adaptive thought to be used to solve novel problems, and plan adaptive and goal directed behavior. Among the more salient processes subsumed under the rubric of executive functioning are abstract reasoning, concept formation, planning, and attentional control of response set. Verbal concept formation was assessed by the *Verbal Analogies* subtest of the *WRIT* and abstract reasoning by the *Matrices* subtest from the same battery. Planning was assessed via the *WISC-III Mazes* subtest and attentional control of response set was assessed with the *Response Set* subtest from the *NEPSY-II*.

JT's abstract reasoning ability (*Matrices*- 13th percentile) was in the Low Average range as was verbal concept formation ability (*Verbal Analogies*- 12th percentile). Attentional control of cognitive set was impaired (*Response Set*: combined scaled score- 16th percentile, Borderline; total correct 2nd percentile, Below Expected Level; errors of omission 11th to 25th percentile, Borderline; errors of commission 26th to 50th percentile, Expected Level; inhibitory errors 26th to 50th percentile, Expected Level)[5]. Planning ability was in the bottom of the Low Average range

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[3] *NEPSY-II* classification.

[4] *NEPSY-II* classification.

[5] *NEPSY-II* classification.

(*Mazes* - 9th percentile).

Summary

JT's overall level of cognitive functioning, as reflected in IQ, was in the Low Average range. Neuropsychological testing identified impairments of expressive language, visual perception, visuospatial construction, attention, verbal memory and attentional control of response set. Other aspects of JT's neurocognitive functioning (e.g. receptive language, visual memory, abstract reasoning) were in accord with a Low Average IQ and are therefore within expected limits for this child. A neuropsychological profile characterized by focal impairments observed in association with normal functioning in other areas is abnormal. These findings, interpreted in the context of this patient's history, indicate brain dysfunction.

There are at least two neurodevelopmental risk factors in JT's history; prenatal exposure to the products of cigarette smoke and ingestion of lead. It is clear that this child has suffered brain damage. Such injury, particularly that caused by lead, is permanent.

JT's neuropsychological impairments impose limitations on his educational potential. Classroom instruction is heavily dependent upon the ability to remember what is demonstrated and written on the blackboard or read in a textbook. The patient's memory problems will render these traditional modes of instruction markedly less effective than for uninjured child. Moreover his weaknesses in this area are compounded by difficulties in paying attention, a problem of particular significance in a classroom environment that is typically rife with distractors. Deficits such as these will become increasingly felt as he progresses to the higher grades in which more conceptually difficult material must be learned.

Difficulties in learning due to neuropsychological impairments also have implications for other aspects of this child's development. School provides an environment in which important social skills are acquired and practiced. Socialization of this sort enters into forming friendships as well as learning the necessary behaviors that are needed for later success as an adult in the home and workplace. Cognitive impairments can limit a child's ability to learn such behaviors.

Cognitive problems also frequently result in a loss of confidence in response to the academic difficulties posed by cognitive deficiencies. Repeated inability to keep up with one's peers ultimately causes problems of social development.

JT's most recent IQ testing indicates IQ scores in the middle of the Low Average range. In a normal child, an IQ in the Low Average range betokens potential and cognitive abilities that are sufficient to complete high school. In contrast, JT's current IQ, in conjunction with his neuropsychological impairments and behavioral problems, indicates that, absent appropriate intervention, he will not obtain a high school diploma. With an appropriate plan of intervention, however, he can learn to use his intact functions to mitigate the adverse influence of his impairments and thereby function at a higher level. With such a plan, JT would be able to complete high school, albeit with ongoing assistance and course modifications. Intervention is needed without delay. His impairments will become more entrenched the longer such intervention is postponed. In addition, fundamentals typically acquired early in education will not be learned and he will therefore be missing the strong educational foundation needed to progress in the higher grades.

JT should be evaluated for a program of cognitive rehabilitation and early intervention should be initiated as soon as possible.

It is recommended that JT be re-evaluated as he grows older. He should be re-assessed at three year intervals through his teenage years and at any time if there is a significant deterioration in school performance or conduct.

Theodore I. Lidsky, Ph.D.
Licensed Psychologist

APPENDIX

Range	Standard Score	T Score	Percentile
Very Superior	≥130	≥70	≥98
Superior	120-129	~63.5-69	91-97
High Average	110-119	~56.5-63	75 - 90
Average	90-109	~43.5-56	25 - 73
Low Average	80-89	~37-42.5	9 - 23
Borderline	70-79	29-36	2 - 8
Extremely Low	≤69	<29	<2