

No. 12-10882

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IN THE  
*Supreme Court of the United States*

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FREDDIE LEE HALL,  
*Petitioner,*

*v.*

FLORIDA,  
*Respondent.*

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ON WRIT OF CERTIORARI TO THE  
SUPREME COURT OF FLORIDA

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**BRIEF OF *AMICI CURIAE* AMERICAN  
PSYCHOLOGICAL ASSOCIATION, AMERICAN  
PSYCHIATRIC ASSOCIATION, AMERICAN  
ACADEMY OF PSYCHIATRY AND THE LAW,  
FLORIDA PSYCHOLOGICAL ASSOCIATION,  
NATIONAL ASSOCIATION OF SOCIAL WORKERS,  
AND NATIONAL ASSOCIATION OF SOCIAL  
WORKERS FLORIDA CHAPTER IN SUPPORT OF  
PETITIONER**

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## INTEREST OF *AMICI*<sup>1</sup>

The American Psychological Association is a scientific and educational organization dedicated to increasing and disseminating psychological knowledge; it is the world's largest professional association of psychologists. Among the Association's major purposes is to increase and disseminate knowledge regarding human behavior, and to foster the application of psychological learning to important human concerns. The Association's Division of Intellectual and Developmental Disabilities endeavors to advance the treatment of intellectual and developmental disabilities, based on scientific inquiry and high standards of practice. The Association's Division of Neuropsychology, in collaboration with other national neuropsychology organizations (National Academy of Neuropsychology, American Board of Clinical Neuropsychology and their Academy, and the American Board of ~~Clinical~~ Neuropsychology) works to advance the understanding and treatment of brain conditions affecting intellectual development and disability, based on scientific inquiry and high standards of practice.

Professional



The Florida Psychological Association is a voluntary, member-based, professional organization comprised of psychologists. With over 1,500 members, it is the largest professional organization for

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<sup>1</sup> This brief was written by counsel for amici, as listed on the cover, and not by counsel for any party. No outside contributions were made to the preparation or submission of this brief. Both parties have given written consent to the filing of this brief.

psychologists in the state of Florida. Its mission is, in part, to advance scientific interests and inquiry and the application of research findings to the promotion of health and public welfare.

The American Psychiatric Association, with more than 36,000 members, is the Nation's leading organization of physicians who specialize in psychiatry. Its member physicians work to ensure humane care and effective treatment for all persons with mental disorders, including intellectual disabilities. Association members engage in treatment, research, and forensic activities, and many of them regularly perform roles in the criminal justice system. The American Psychiatric Association and its members have substantial knowledge and experience relevant to the issues in this case. In 2013, the American Psychiatric Association published the Fifth Edition of its Diagnostic and Statistical Manual ("DSM-5"). DSM-5 provides a new definition for intellectual disability (intellectual developmental disorder) based on expert consensus, review of the scientific literature, and contributions from other professional societies.

*Amicus* American Academy of Psychiatry and the Law, with approximately 2000 psychiatrist members dedicated to excellence in practice, teaching, and research in forensic psychiatry, has participated as an *amicus curiae* in, among other cases, *Brown v. Plata*, 131 S. Ct. 1910 (2011); *Indiana v. Edwards*, 554 U.S. 164 (2008); *Clark v. Arizona*, 548 U.S. 735 (2006); and *Penry v. Johnson*, 532 U.S. 782 (2001).

The National Association of Social Workers ("NASW") is a professional membership organization



with 145,000 social workers in chapters in every State, the District of Columbia and internationally. The NASW Florida Chapter has approximately 5,300 members. Since 1955, NASW has worked to develop high standards of social work practice while unifying the social work profession. NASW promulgates professional policies, conducts research, publishes professional studies and books, provides continuing education and enforces the *NASW Code of Ethics*.

The issue at the heart of this case — the identification of individuals with intellectual disability — has been the subject of significant research by psychologists and psychiatrists. Amici submit this brief to present relevant scientific knowledge that can provide context for the Court’s review of whether Florida’s system for identifying defendants with intellectual disability in capital cases violates the Eighth Amendment and this Court’s decision in *Atkins v. Virginia*, 536 U.S. 304 (2002).

### SUMMARY OF ARGUMENT

In *Atkins v. Virginia*, this Court held that the Eighth Amendment prohibits the execution of offenders with intellectual disability.<sup>2</sup> 536 U.S. 304, 321

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<sup>2</sup> While the term “mental retardation,” was used by the parties and the Court in *Atkins*, the preferred clinical term now is “intellectual disability.” See Am. Ass’n on Intellectual & Developmental Disabilities, *Intellectual Disability: Definition, Classification, and Systems of Support* 3 (11th ed. 2010) (hereinafter, “AAIDD Manual”). DSM-5 refers to “intellectual disability (intellectual developmental disorder)” to indicate that the condition is a mental disorder and a medical condition. Am. Psychiatric Ass’n, *Diagnostic and Statistical Manual of Mental Disorders* 33 (5th ed.

(2002). This Court’s decision was grounded in the evolving national consensus that the execution of those with intellectual disability undermines both “the penological purposes served by the death penalty” and “the strength of the procedural protections” guarded by this Court’s capital jurisprudence. *Id.* at 317. That consensus reflects an understanding that offenders with intellectual disability have certain impairments — such as “diminished capacities to understand and process information, to communicate, to abstract from mistakes and learn from experience, to engage in logical reasoning, to control impulses, and to understand the reactions of others” — that make them less morally culpable and place them at a heightened risk of wrongful execution. *Id.* at 318, 320–21.

These impairments are tied directly to the clinical definition of intellectual disability, which this Court recognized requires a diagnosis of significant limitations in general intellectual functioning, significant limitations in adaptive skills, and onset before adulthood. *Id.* at 308 n.3, 318. While the Court incorporated that definition into the *Atkins* decision, *see id.*, it also left to the states the task of determining which defendants are “so impaired as to fall within the range of mentally retarded offenders about whom there is a national consensus.” *Id.* at 317. This approach has led to inconsistency among the states in determining which defendants are within the class of offenders for

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2013) (hereinafter, “DSM-5”). Note also that Congress has enacted “Rosa’s Law,” which replaces the term “mental retardation” with “intellectual disability” throughout the U.S. Code and Code of Federal Regulations. Pub. L. No. 111-256, 124 Stat. 2643 (2010).

which the Eighth Amendment prohibits capital punishment. *See Hall v. State*, 109 So. 3d 704, 714–15 (Fla. 2012) (Pariente, J., concurring) (summarizing different procedures used by the states for identifying defendants with intellectual disability). In the instant case, the state of Florida uses a “firm cutoff” requiring an IQ score of 70 or below to meet the first prong of the diagnostic criteria for intellectual disability. *Id.* at 707.

Although the states have diverged in their methods for diagnosing intellectual disability in capital defendants,<sup>3</sup> there is no such divergence in the mental health community. In assessing whether an individual meets the clinical definition of intellectual disability, there is a unanimous consensus among the mental health professions that accurate diagnosis requires clinical judgment based on a comprehensive assessment of all three criteria: general intellectual functioning, adaptive functioning, and age of onset.

First, a valid diagnosis requires comprehensive assessment of adaptive behavior in conceptual, social, and practical contexts as well as general intellectual functioning. The existence of concurrent deficits in intellectual and adaptive functioning is central to the diagnosis of intellectual disability, and evaluation of adaptive skills is what allows for an accurate diagnosis. Furthermore, because deficits in adaptive functioning — such as the ability to engage in logical reasoning,

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<sup>3</sup> *See, e.g.*, David DeMatteo, et al., “A National Survey of State Legislation Defining Mental Retardation: Implications for Policy and Practice After Atkins,” 25 *Behav. Sci. L.* 781, 785-88 (2007) (surveying state methods for defining intellectual disability).

control impulses, understand and process information, and abstract from mistakes and learn from experience — contribute significantly to the rationales of reduced culpability and risk of wrongful execution that support the *Atkins* decision, their evaluation must be a part of any reliable diagnosis in a capital case.

Second, while evaluation of general intellectual functioning customarily includes the use of individually administered, comprehensive, standardized IQ tests with a contemporary and nationally representative norm or reference sample,<sup>4</sup> it is improper clinical practice to use only an IQ test score cutoff to assess general intellectual functioning or to make a determination that a person does not have an intellectual disability. This is so for several reasons. Among them is that every standardized test score has a “standard error of measurement” (“SEM”) that reflects the reliability (precision) of scores from the test. The SEM is the variation around a so-called “true score,” which is the score that would be obtained if the test had perfect reliability. The SEM is calculated from the statistically determined reliability of each test score provided — specifically in this case, the IQ test score. The SEM, in turn, allows calculation of a range of scores (typically  $\pm 5$  IQ points), or “confidence interval,” within which clinicians can say that the person’s true IQ score lies with 95% confidence. Reporting an

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<sup>4</sup>See DSM-5 at 37 (“Intellectual functioning is typically measured with individually administered and psychometrically valid, comprehensive, culturally appropriate, psychometrically sound tests of intelligence.”).

individual's IQ score without identifying the SEM conveys a misleading sense of precision and reliability and is not in line with standards of practice. In general, failure to administer a test or interpret test results properly may distort results from a particular test.<sup>5</sup>

In sum, intellectual disability cannot be diagnosed or its diagnosis ruled out through exclusive reliance on an IQ test score. Nor can general intellectual functioning be assessed by an IQ test score without taking into account the limitations of IQ testing. Intellectual disability cannot be reliably or accurately diagnosed without an evaluation of an individual's adaptive functioning in conjunction with the individual's general intellectual functioning and age of onset. A state's failure to follow the correct diagnostic approach violates the professional consensus on diagnosing intellectual disability and, in turn, creates an unacceptable and significant risk that offenders with intellectual disability will be executed in violation of the Eighth Amendment and this Court's decision in *Atkins*.

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<sup>5</sup> See DSM-5 at 37 ("Factors that may affect test scores include practice effects and the 'Flynn effect' (*i.e.*, overly high scores due to out-of-date test norms). Invalid scores may result from the use of brief intelligence screening tests or group tests; highly discrepant individual subtest scores may make an overall IQ score invalid.")

**ARGUMENT****I. There Is Unanimous Professional Consensus That the Diagnosis of Intellectual Disability Requires Comprehensive Assessment and the Application of Clinical Judgment.**

As the Court recognized in *Atkins*, intellectual disability is not just low intelligence, but rather a diagnosis that requires a clinical assessment of a person's functioning in everyday life. *See* 536 U.S. at 308 n.3. The Court cited the definitions of intellectual disability from the American Psychiatric Association and the American Association on Mental Retardation (now known as the American Association on Intellectual and Developmental Disabilities ("AAIDD")). *Id.* (citing *Mental Retardation: Definition, Classification, and Systems of Supports* 5 (9th ed. 1992) and *Diagnostic and Statistical Manual of Mental Disorders* 41 (4th ed. 2000)). These diagnostic manuals, along with their most recent revisions, reflect the professional consensus regarding the diagnosis of intellectual disability.

The accepted clinical definitions<sup>6</sup> of intellectual disability include three criteria: (a) significant limitations in general intellectual functioning; (b) significant limitations in adaptive functioning; and (c) age of onset. *See* Am. Ass'n on Intellectual & Developmental Disabilities, *Intellectual Disability:*

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<sup>6</sup> The AAIDD Manual and DSM-5 definitions of intellectual disability differ in some particulars not relevant for the purposes of this brief or the question presented to the Court in this case. There is agreement about the central points made here.

*Definition, Classification, and Systems of Support* 27 (11th ed. 2010) (hereinafter, “AAIDD Manual”); Am. Psychiatric Ass’n, *Diagnostic and Statistical Manual of Mental Disorders* 33 (5th ed. 2013) (hereinafter, “DSM-5”).<sup>7</sup>

Although all three criteria must be present for diagnosis of intellectual disability, the criteria do not represent disjunctive inquiries. The significant limitations in general intellectual functioning and adaptive functioning must be evaluated in conjunction and by a mental health professional exercising his or her clinical judgment — “judgment rooted in a high level of clinical expertise and experience.”<sup>8</sup> This evaluation cannot be limited to a review of IQ test scores because without further clinical assessment, it cannot be known what impairments in adaptive functioning the person experiences or what other clinical indicators of impaired general intellectual functioning exist. *See* DSM-5 at 37 (“The diagnosis of intellectual disability is based on both clinical

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<sup>7</sup> The Court in *Atkins* relied on earlier versions of both the AAIDD Manual and the DSM. The three criteria necessary for diagnosis remain unchanged. *See infra* 13-14 (describing the changes in DSM-5).

<sup>8</sup> AAIDD Manual at 85 (clinical judgment “emerges directly from extensive data and is based on training, experiences, and specific knowledge of the person and his or her environment”); *see also* Robert L. Shalock & Ruth Luckasson, *Clinical Judgment* 1 (AAMR 2005) (clinical judgment is “characterized by its being systematic (*i.e.*, organized, sequential, and logical), formal (*i.e.*, explicit and reasoned), and transparent (*i.e.*, apparent and communicated clearly)” (cited in AAIDD Manual at 86)).

assessment and standardized testing of intellectual and adaptive functions.”); AAIDD Manual at 35 (emphasizing that “significant limitations in intellectual functioning is only one of the three criteria used to establish a diagnosis of [intellectual disability]”). Clinical judgment is rooted in objective criteria and multiple sources of data, including school records and behavioral rating scales.<sup>9</sup>

**A. Comprehensive assessment requires concurrent analysis of intellectual and adaptive functioning.**

A comprehensive assessment must be “based on multiple data points” that “include giving equal consideration to significant limitations in adaptive behavior and intellectual functioning.” AAIDD Manual at 28.<sup>10</sup> Because adaptive skills — such as abstract

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<sup>9</sup> Evaluation of adaptive functioning faces challenges including obtaining records and information from those with knowledge of the individual’s functioning over time, and the potentially misleading nature of a defendant’s functioning in the highly structured environment of a prison, where there is no need to make the types of decisions that are part of ordinary life outside of prison. See Marc J. Tassé, *Adaptive Behavior Assessment and the Diagnosis of Mental Retardation in Capital Cases*, 16 Applied Neuropsychology 114, 119 (2009) (“The ideal respondents are individuals who have the most knowledge of the individual’s everyday functioning across settings. . .”).

<sup>10</sup> Because Florida’s use of a fixed IQ score cutoff is not tied directly to the evaluation of age of onset, this brief focuses on the need for a comprehensive clinical assessment of intellectual and adaptive functioning. Determination of the onset of the individual’s disability, however, should also be based on a comprehensive evaluation that includes consideration of materials



thinking, social judgment, regulating emotion, and resisting manipulation by others — are crucial to an individual’s ability to live independently and function within the boundaries of social norms, *see* DSM-5 at 33–34, the assessment of those skills is necessary to interpret the evaluation of an individual’s general intellectual functioning and to arrive at a valid diagnosis overall.

The existence of concurrent deficits in intellectual and adaptive functioning has long been the defining characteristic of intellectual disability. Individuals are usually identified in the first instance as potentially having an intellectual disability by impairments in their adaptive behavior, such as difficulty functioning in everyday tasks.

Historically, those observations were the sole basis for identifying and classifying people with disabilities. Individuals with intellectual disability were identified by their communities “because they failed to adapt socially to their environment.” AAIDD Manual at 5. Then, with the development of the first standardized intelligence tests resulting in an IQ score in the early 1900s, there was a brief shift to reliance on IQ tests “as an efficient and objective means to distinguish individuals with [intellectual disability] from the general population.” *Id.* at 43. Despite this initial embrace, however, “dissatisfaction with the IQ score as the sole indicator of ID emerged over time,” as

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such as school records, medical records, psychiatric records, and reports from persons who have long familiarity with the defendant. *See* AAIDD Manual at 94–96.

scientists and professionals realized that IQ testing “only provided a narrow measure of intellectual functioning related to academic tasks . . . thus ignoring important aspects of intellectual functioning that included social and practical skills.” *Id.* at 43–44.

To account for the limitations of IQ testing, the professional community began developing the comprehensive, multi-criteria analysis that is used today. Although impaired adaptive functioning has always been the most noticeable symptom of intellectual disability, the 1959 AAIDD Manual was the first diagnostic guide to provide a clinical definition for the concept of adaptive behavior, defining it as “the degree to which the individual is able to function and maintain himself independently” and “the degree to which he meets satisfactorily the culturally-imposed demands of personal and social responsibility.” *Id.* at 44 (quotation marks omitted).<sup>11</sup> Adaptive behavior has been included in the diagnostic criteria for intellectual disability in each subsequent edition of the manual. *See id.* at 8 (summarizing the definitions used in each edition). Similarly, since 1968 each edition of the DSM has defined intellectual disability as subaverage intellectual functioning that is either “associated with,” “resulting in,” or “accompanied by” impairments in adaptive behavior. *See id.* at 8–9 (summarizing the definitions of DSM-II, DSM-III, DSM-III-R, DSM-IV, and DSM-IV-TR).

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<sup>11</sup> At that time, the AAIDD was known as the American Association on Mental Deficiency, the predecessor organization to the American Association on Mental Retardation and the AAIDD.

As diagnostic methods have been refined in each subsequent edition of these manuals, there has been a steady trend towards emphasizing the importance of clinical assessment of intellectual and adaptive functioning and decreasing reliance on IQ tests. In previous editions of the AAIDD and DSM manuals, this trend has been demonstrated by inclusion of the standard error of measurement (and resulting confidence interval) when using IQ tests as a means of assessing general intellectual functioning. *See id.* at 8–11 (summarizing the shifts in definition over time).

Since *Atkins* was decided, this trend has culminated in the publication of the DSM-5. The DSM-5 demonstrates the increased importance of adaptive functioning in the diagnosis of intellectual disability (and the corresponding decreased emphasis on standardized IQ tests) in two ways. First, the manual expressly states that diagnosis should be “based on *both* clinical assessment and standardized testing of intellectual and adaptive functions,” indicating that exclusive reliance on standardized tests is inappropriate. DSM-5 at 37 (emphasis added).

Second, the DSM-5 is the first edition of the DSM that classifies levels of severity in intellectual disability according to adaptive functioning rather than IQ score. *See* DSM-5 at 33–36. The manual explains that “[t]he various levels of severity are defined on the basis of adaptive functioning, and not IQ scores, because it is adaptive functioning that determines the levels of supports required.” *Id.* at 33. In other words, the DSM-5 recognizes that adaptive functioning has greater practical significance because it is a better

indicator of the individual's ability to function appropriately in society.

**B. The existence of concurrent deficits in intellectual and adaptive functioning is central to the rationale of the *Atkins* decision.**

The concurrent existence and requirement for deficits in both intellectual functioning and adaptive functioning are also reflected in the *Atkins* decision itself. When discussing the impairments that diminish the personal culpability of offenders with intellectual disability and place them at a special risk of wrongful execution, this Court highlighted several specific deficits: “diminished capacities to understand and process information, to communicate, to abstract from mistakes and learn from experience, to engage in logical reasoning, to control impulses, and to understand the reactions of others.” *Atkins*, 536 U.S. at 318. The Court also noted that individuals with intellectual disabilities “often act on impulse rather than pursuant to a premeditated plan,” and “in group settings they are followers rather than leaders.” *Id.*

These criteria, related to impaired adaptive functioning, are especially important to the “[t]he risk ‘that the death penalty will be imposed in spite of factors which may call for a less severe penalty.’” *Atkins*, 536 U.S. at 320 (quoting *Lockett v. Ohio*, 438 U.S. 586, 605 (1978)). Clinical deficits in communication, regulating emotion, and resisting manipulation by others can contribute to “the possibility of false confessions,” “the lesser ability of mentally retarded defendants to make a persuasive showing of mitigation,” less ability to serve as an

effective witness and “give meaningful assistance to their counsel,” and the risk that the demeanor of individuals with intellectual disability “may create an unwarranted impression of lack of remorse for their crimes.” *Id.* at 320-21. The importance of adaptive functioning to this Court’s decision in *Atkins* thus underscores the need for a comprehensive assessment that includes these criteria in every capital case in which a defendant manifests or claims to have intellectual disability.

**C. A system for identifying defendants with intellectual disability that does not include analysis of adaptive functioning is based on a fundamental misunderstanding of the diagnostic criteria.**

Florida’s use of a fixed IQ score cutoff to identify defendants with intellectual disabilities goes against the unanimous professional consensus by treating intellectual and adaptive functioning as sequential and disjunctive inquiries. In the present case, for example, the Supreme Court of Florida explained that because “the failure to establish any one element” of intellectual disability will “end the inquiry,” it was proper for the lower court to limit Hall’s introduction of evidence of his adaptive functioning “after he failed to establish the requisite IQ” of 70 or below. *Hall*, 109 So. 3d at 710. That holding conflicts with the generally accepted professional standard for diagnosis.

Contrary to the Florida court’s determination, the relevant clinical authorities all agree that an individual with an IQ score above 70 may properly be diagnosed with intellectual disability if significant limitations in

adaptive functioning also exist. DSM-5 at 37; AAIDD Manual at 35, 39–40. As the DSM-5 explains, “IQ test scores are approximations of conceptual functioning but may be insufficient to assess reasoning in real-life situations and mastery of practical tasks.” DSM-5 at 37. “For example, a person with an IQ score above 70 may have such severe adaptive behavior problems in social judgment, social understanding, and other areas of adaptive functioning that the person’s actual functioning is comparable to that of individuals with a lower IQ score.” *Id.*; *see also* AAIDD Manual at 40 (“It must be stressed that the diagnosis of ID is intended to reflect a clinical judgment rather than an actuarial determination. A fixed point cutoff score for ID is not psychometrically justifiable.”).

Thus, the decision to “end the inquiry” and preclude any evidence of limitations in adaptive functioning when a capital defendant scores above 70 on a standardized IQ test is the opposite of what is required by clinically accepted diagnostic methods. Instead, a thorough evaluation of adaptive functioning is crucial in that situation, because limitations in adaptive functioning among individuals with IQ scores in this range are what allow qualified professionals to make a clinically valid diagnosis of intellectual disability.

The facts of the instant case also provide a concrete example of why a comprehensive assessment is necessary. The opinion of the Florida Supreme Court indicates that at various points in his life, Mr. Hall achieved IQ scores of 60, 71, 73, and 80. *See Hall*, 109 So. 3d at 707 (discussing scores of 71, 73, and 80); *id.* at 718 (Perry, J., dissenting) (discussing a previous

assessment of Hall's IQ as 60). Although the record also indicates that Mr. Hall had a history of limitations in adaptive functioning, such as illiteracy, short-term memory problems, and age-inappropriate behavior in school, *see id.* at 718–19, the assessment of that information was not considered as part of his *Atkins* claim because he had achieved an IQ score over 70. *See id.* at 709-10. Under the universally accepted clinical standards for diagnosing intellectual disability, the court's determination that Mr. Hall is not intellectually disabled cannot be considered valid.

**II. The Use of a Fixed IQ Score Cutoff To Assess Intellectual Functioning Violates the Professional Consensus and Clinical Norms of Mental Health Professionals For Additional Reasons.**

A correctly administered standardized IQ test is one means of assessing general intellectual functioning in a comprehensive assessment of intellectual disability. Determining an individual's general intellectual functioning based on a fixed IQ cutoff score, however, is contrary to the mental health community's professional consensus and unjustified by the relevant clinical norms. The application of IQ test scores in this way is invalid, unreliable, and creates an unacceptable risk that a person with intellectual disability will be misdiagnosed.

**A. IQ testing is one means of assessment used by clinicians to determine whether a person has sufficiently impaired intellectual functioning to be considered intellectually disabled.**

General intellectual functioning is a multi-faceted concept. It consists of the ability to reason, make plans, solve problems, think abstractly, comprehend complex ideas, make judgments, and learn from instruction and experience. DSM-5 at 33, 37; AAIDD Manual at 31.

For purposes of diagnosing intellectual disability, a properly constructed and administered IQ test is customarily used. *See* DSM-5 at 37; AAIDD Manual at 31. In every case, clinical assessment is required in order to “interpret[] the obtained score in reference to the test’s standard error of measurement, the assessment instrument’s strengths and limitations, and other factors, such as practice effects, fatigue effects, and age of norms used[.]” AAIDD Manual at 35; *see also* DSM-5 at 37 (“IQ test scores are approximations of conceptual functioning but may be insufficient to assess reasoning in real-life situations and mastery of practical tasks.”). It is fundamental to the diagnosis of intellectual disability that “[c]linical training and judgment are required to interpret test results and assess intellectual performance.” DSM-5 at 37.

Against the background of clinical judgment, persons whose general intellectual functioning is “*approximately* two standard deviations below the mean” are considered significantly impaired. AAIDD Manual at 35 (emphasis added); *see also* DSM-5 at 37 (same). For IQ tests whose mean score is 100, a score



two standard deviations below is between 65-75.<sup>12</sup> DSM-5 at 37.

Clinical use of an IQ test score requires that the score be from the individualized administration of a reliable and valid comprehensive intelligence test that has been standardized on the general population.<sup>13</sup> The construction, administration, and interpretation of such IQ tests require psychometric expertise. *See generally* Am. Educ. Research Ass'n, *et al.*, *Standards for Educational and Psychological Testing* 1-6 (1999) (“APA Standards”); *see also* AAIDD Manual at 35 (“There are a number of challenges and psychometric issues related to the measurement of intelligence and the interpretation of IQ scores.”).

The construction of valid and reliable IQ tests is a difficult endeavor.<sup>14</sup> Under the best of circumstances, testing is a tool that provides an approximation of

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<sup>12</sup> As discussed *infra* Part II.B, IQ test scores can only properly be identified as a confidence interval, not a single number. AAIDD Manual at 36.

<sup>13</sup> Validity and reliability are technical terms essential to the proper design of psychological tests. Validity “refers to the degree to which evidence and theory support the interpretations of test scores entailed by proposed uses of tests.” American Educational Research Association, *et al.*, *Standards for Educational and Psychological Testing* 9 (1999) (“APA Standards”). Reliability “refers to the consistency of such measurements when the testing procedures is repeated on a population of individuals or groups.” *Id.* at 25.

<sup>14</sup> *See generally* APA Standards at 37-48 (describing the process of developing educational and psychological tests).

cognitive functioning in various spheres. IQ tests are administered in a controlled setting and they do not take into account the actual life circumstances of the individual being assessed, the stresses of daily life, individual responses to varying challenges, and variations in emotional reactivity and resilience.

There are, however, three tests of adolescent and adult intelligence that are generally accepted for the diagnosis of intellectual disability: the Wechsler Adult Intelligence Scale – Fourth Edition (“WAIS-IV”); the Stanford-Binet Intelligence Scale – Fifth Edition (“SB5”); and the Woodcock Johnson Tests of Cognitive Ability.<sup>15</sup> Each of these tests satisfies the professional standards for validity and reliability required for their use in diagnosis of general intellectual functioning in persons being evaluated for intellectual disability.<sup>16</sup>

But even the results from standardized IQ tests that meet the professional norms for validity and reliability may prove flawed if the tests are either improperly administered or interpreted. Tests can fail to accurately assess a person’s general intellectual functioning for a number of reasons, including, among

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<sup>15</sup> Caroline Everington & J. Gregory Olley, *Implications of Atkins v. Virginia: Issues in Defining and Diagnosing Mental Retardation*, 8 J. Forensic Psychol. Prac. 1, 7 (2008) (stating that “[o]nly individually administered global tests of intelligence are acceptable for diagnosis of mental retardation”).

<sup>16</sup> Kevin S. McGrew, *Intellectual Functioning: Conceptual Issues, Determining Intellectual Disability in the Courts: Focus on Capital Cases 6* (Ed Polloway ed. AAIDD, forthcoming in 2014) (on file with counsel of record).

others: conditions of testing, including lack of privacy or otherwise distracting environment; test fairness for those with “severely limited verbal abilities” or substantial cultural differences; and failing to address the “Flynn effect” (aka, test norm obsolescence), which identifies the steadily increasing average IQ scores that distort the accuracy of older test scores; and the “practice effect” for those whose scores have improved through repeated testing.<sup>17</sup> Finally, a full IQ test score is a composite of multiple subtests. When there is considerable variability in an individual’s scores on particular subtests due to known clinical conditions (such as traumatic brain injury), the full scale IQ score may not be a valid measure of intellectual functioning.<sup>18</sup>

Despite these drawbacks and imperfections, both the AAIDD Manual and DSM-5 recognize that properly designed and administered IQ tests are one acceptable

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<sup>17</sup> AAIDD Manual at 36-38; *see also* Frank M. Gresham & Daniel J. Reschly, *Standard of Practice and Flynn Effect Testimony in Death Penalty Cases*, 49 *Intellectual and Developmental Disabilities* 131, 134-37 (2011); Gilbert S. MacVaugh & Mark D. Cunningham, *Atkins v. Virginia: Implications and Recommendations for Forensic Practice*, 37 *J. Psychiatry & L.* 131, 147-151 (2009).

<sup>18</sup> *See* Committee on Disability Determination for Mental Retardation, National Research Council, *Mental Retardation: Determining Eligibility for Social Security Benefits* at 4 (Daniel J. Reschly, Tracy G. Myers, and Christine R. Hartel, eds. 2002) (“Significant and meaningful variation among an instrument’s respective part scores may indicate evidence of compromised validity for one or more of them (for example, a low verbal scale score for an individual with a suspected speech disorder), which in turn would threaten the validity of the composite IQ score.”).

method of identifying limitations in general intellectual functioning. *See* AAIDD Manual at 31 (“Although far from perfect, intellectual functioning is currently best represented by IQ scores when they are obtained from appropriate, standardized and individually administered assessment instruments.”); DSM-5 at 37. An essential aspect of the proper use of IQ test scores in the diagnosis of intellectual disability is to recognize and respect the limits of a score’s usefulness.

**B. IQ test scores used to diagnose limitations in intellectual functioning are subject to a standard error of measurement and the interpretation of IQ test scores must take the test’s reliability into account.**

IQ test scores, like the scores from all standardized educational and psychological evaluations, are subject to a variability that is external to the abilities of the test taker.<sup>19</sup> This variation reduces the reliability of the scores produced by the testing instrument because it reduces the confidence a clinician has that the score accurately reflects the test taker’s true abilities.

The field of psychometrics — the study and practice of creating and testing psychological evaluation metrics — has provided a mathematical means to estimate the variability in results that would be present if it were practical to test a person 100, 200, or more times.<sup>20</sup> This

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<sup>19</sup> *See, supra Part II.A* (discussing how IQ tests can fail to accurately measure intellectual functioning).

<sup>20</sup> *See, e.g.,* Ross E. Traub & Glenn L. Rowley, *Understanding Reliability*, 10 *Educ. Measurement: Issues & Prac.* 171 (1991),

mathematical means relies on the use of standardized testing procedures and the development of methods to calculate a test's reliability (*i.e.*, the precision, consistency, and repeatability of the test score). Once an IQ test's reliability is calculated based on group data, a simple mathematical calculation produces an estimate of the average variability of the observed IQ scores expected across all persons taking the test.

The standard error of measurement ("SEM") quantifies "this variability and provide[s] a stated statistical confidence interval within which the person's true score falls." AAIDD Manual at 36. SEM is a unit of measurement: 1 SEM equates to a confidence of 68% that the measured score falls within a given score range, while 2 SEM provides a 95% confidence level that the measured score is within a broader range. For example, the average SEM for the WAIS-IV is 2.16 IQ test points and the average SEM for the Stanford-Binet 5 is 2.30 IQ test points (test manuals report SEMs by different age groupings; these scores are similar, but not identical, often due to sampling error). The SEM for these test scores is then used to calculate confidence intervals. Thus, a full scale IQ "score of 70 is most accurately understood not as a precise score but as a range of confidence with parameters of at least one standard error of measurement." AAIDD Manual at 224.

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available at <http://ncme.org/linkservid/65F3B451-1320-5CAE-6E5A1C4257CFDA23/showMeta/0/> (explaining that "test reliability is about the relative consistency of test scores."); Alan S. Kaufman, *IQ Testing 101* (2009).

As explained above, it is standard psychometric practice to report the “estimates of relevant reliabilities and standard errors of measurement” when reporting a test score. APA Standards at 31 (quoting Standard 2.1); *see also* AAIDD Manual at 36 (“Reporting an IQ score with an associated confidence interval is a critical consideration underlying the appropriate use of intelligence tests and best practices; such reporting *must* be a part of any decision concerning the diagnosis of ID.” (emphasis added)).

The use of a fixed IQ cutoff score fails to account for the associated confidence interval of a given test score. The AAIDD Manual is clear that its operational definition of “significant limitations in intellectual functioning” as IQ test scores two standard deviations below the mean “is *not* to specify a hard and fast cutoff point/score.” AAIDD Manual at 35. Reporting the range within which the person’s true score falls, rather than only a score, underlies both the appropriate use of intellectual and adaptive behavior assessment instruments and best diagnostic practices. “Such reporting *must* be a part of any decision concerning the diagnosis of [intellectual disability].” *Id.* at 36 (emphasis added).

The plus-or-minus range is inherent to the accuracy of IQ scores; the use of a fixed IQ cutoff score is to apply a false precision to the assessment of IQ and presents a significant risk that individuals with intellectual disability will be executed in violation of the Eighth Amendment. *Id.* at 39-40 (“It must be stressed that the diagnosis of ID is intended to reflect a clinical judgment rather than an actuarial determination. A

*fixed point cutoff score for ID is not psychometrically justifiable.”* (emphasis added); see also Stephen Greenspan & Harvey N. Switzky, *Lessons from the Atkins Decision for the Next AAMR Manual, in What is Mental Retardation?: Ideas for an Evolving Disability in the 21st Century* 279 (Harvey N. Switzky & Stephen Greenspan eds. 2006) (cited in AAIDD Manual at 40). Because there is inevitable uncertainty about the precise level of a person’s IQ, additional information — and its synthesis by a clinician — is essential to the diagnosis of intellectual disability.

### CONCLUSION

There is a unanimous consensus among the mental health professions that it is not valid to exclude a diagnosis of intellectual disability based solely on an IQ score above 70. Relying solely on an IQ score at any level presents a significant risk that individuals with intellectual disability will be executed in violation of the Eighth Amendment. Instead, the appropriate method of diagnosis in every case is a comprehensive assessment of the individual’s adaptive and general intellectual functioning in order to interpret the IQ score and arrive at an accurate diagnosis.

For the foregoing reasons, the diagnosis of intellectual disability in capital cases should be based on a comprehensive assessment of intellectual and adaptive functioning, including the appropriate standard error of measurement and confidence interval associated with standardized tests.

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