COMMONWEALTH OF MASSACHUSETTS

SUPREME JUDICIAL COURT

SUFFOLK, ss. No. SJC-11693

COMMONWEALTH

v.

NYASANI WATT & SHELDON MATTIS

ON APPEAL FROM THE SUFFOLK COUNTY SUPERIOR COURT

BRIEF FOR GARY JOHNSON & TYSHAWN SANDERS AS AMICI CURIAE

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This Court has recognized that because "research on adolescent brain development and related issues continues," it cannot predict how the results of that research will ultimately "inform our understanding of constitutional sentencing as applied to youth." Commonwealth v. Okoro, 471 Mass. 51, 59-60 (2015). Earlier this year, the Court specifically highlighted ongoing research examining the age when adolescent brains reach adult levels of development and acknowledged that this research "may relate to the constitutionality of sentences of life without parole for individuals other than juveniles." Commonwealth v. Garcia, 482 Mass. 408, 412-13 (2019).

This scientific research has demonstrated that eighteen year olds have a diminished capacity to understand the consequences of their actions and control their behavior that is indistinguishable from the diminished capacity of adolescents under the age of eighteen. This science has led courts from across the country to extend legal protections at sentencing to young people beyond the age of seventeen, the American Bar Association to call for the elimination of the death penalty for eighteen through twenty-one

year olds, and two Massachusetts district attorneys' offices to file an amicus letter in this case supporting the extension of constitutional limitations on the imposition of life-without-parole sentences to defendants who were between the ages of eighteen and twenty at the time of their offenses.

The issues presented are:

1. Whether, in light of this large body of scientific research, constitutional limitations on the imposition of life-without-parole sentences on adolescent homicide offenders should be applied to eighteen-year-old offenders.

2. Whether the record in this case is sufficient to definitively resolve the first issue presented.

STATEMENT OF INTEREST OF AMICI CURIAE

Gary Johnson was convicted of felony first-degree murder for an offense that occurred four days after his eighteenth birthday. He was sentenced to a mandatory life term without the possibility of parole. Had he been approximately ninety-six hours younger at the time of the offense, his sentence would have been rendered unconstitutional by Diatchenko, and he would be entitled to a parole hearing in 2022.

Tyshawn Sanders was convicted of first-degree murder last year and is serving a life-without-parole sentence for that offense, which occurred when he was eighteen years old. Prior to sentencing, he filed a memorandum of law arguing that a mandatory life-without-parole sentence would violate his rights under art. 26 of the Massachusetts Declaration of Rights. The court imposed his sentence without conducting an evidentiary hearing or granting him funds so he could build an evidentiary record with the assistance of an expert on adolescent psychological and neurological development.

On November 14, 2019, the Superior Court sent notice that the appellate record for his case has been assembled. Prior to his direct appeal, he will seek permission to file a motion under Rule of Criminal Procedure 30(a) challenging the constitutionality of his life-without-parole sentence. In that motion, he will assert that such sentences are unconstitutional for all eighteen-year-old offenders and that his sentence is unconstitutional as applied to the specific circumstances of his case. Before filing that motion, he will seek funds under Rule 30(c)(5) for an expert on late-adolescent psychological and

neurological development and will develop a robust evidentiary record in support of his claims.

STATEMENT OF THE CASE

Amici adopt the statement of the case presented in the Defendants' joint brief.

STATEMENT OF FACTS

Amici adopt the statement of facts presented in the Defendants' joint brief.

SUMMARY OF THE ARGUMENT

Section 1.A. In Diatchenko v. District Attorney for the Suffolk District, this Court held that all life-without-parole sentences, whether mandatory or discretionary, imposed on juvenile offenders violate art. 26 of the Declaration of Rights. This decision was significantly based on research in developmental psychology and neuroscience showing fundamental differences between adolescent and adult minds. While the relief granted in Diatchenko was limited to defendants who committed their offenses before the age of eighteen, the Court's decision provided no empirical, science-based justification for that cutoff. (pp 13-19).

Section 1.B. A large body of scientific research on late-adolescent neurological and psychological

development has now demonstrates that in all of the ways that were significant to the constitutional analysis in Diatchenko, eighteen year olds are much more similar to younger adolescents than they are to older adults. This research demonstrates that there is no empirical justification for limiting the protections of Diatchenko to offenders under the age of eighteen. (pp 19-31).

Section 1.C. In light of these scientific findings, this Court should extend *Diatchenko's* prohibition on all life-without-parole sentences to eighteen-year-old offenders. (pp 31-32).

Section 1.D. In the alternative, the Court should hold that mandatory life-without-parole sentences are unconstitutional when imposed on eighteen-year-old offenders and should only permit the imposition of such sentences if the judge first conducts an individualized hearing and finds that the defendant is irreparably depraved and incapable of rehabilitation. (pp 33-35).

Section 1.F. Even if the Court rejects both of these categorical rules, it should recognize that individual eighteen-year-old offenders can bring as-applied challenges to their life-without-parole

sentences based on the particular facts and circumstances of their cases. (pp 25-40).

Section 2. If the Court determines that the record in this case is insufficient to definitively resolve these issues, it should wait for a future case with a more fully developed record. (pp 40-41).

ARGUMENT

1. This Court should extend constitutional limits on the imposition of life-without-parole sentences to defendants whose offenses occurred when they were eighteen years old.

A. Diatchenko was largely based on research in developmental psychology and neuroscience showing fundamental differences between adolescent and adult minds.

The Eighth Amendment to the United States Constitution forbids the imposition of "cruel and unusual punishments." Likewise, art. 26 of the Massachusetts Declaration of Rights prohibits the infliction of "cruel or unusual punishments" (emphasis added). The Eighth Amendment and art. 26 both include a proportionality principle, requiring that "punishment for crime should be graduated and proportioned to both the offender and the offense." Miller v. Alabama, 567 U.S. 460, 469 (2012) (citation and internal quotation marks omitted); Diatchenko v.

District Attorney for the Suffolk District, 466 Mass. 655, 671 (2013).

In recent years, the Supreme Court has applied the Eighth Amendment's proportionality rule to forbid the imposition of certain sentences on adolescents that would be constitutional if imposed on adults. See, e.g., Graham v. Florida, 560 U.S. 48, 82 (2010) ("The Constitution prohibits the imposition of a life without parole sentence on a juvenile offender who did not commit homicide"); Roper v. Simmons, 543 U.S. 551, 579 (2005) (holding that the Eighth Amendment forbids the "imposition of the death penalty on offenders who were under the age of 18 when their crimes were committed). Most recently, in Miller v. Alabama, the Court held that "the Eighth Amendment forbids [any] sentencing scheme that mandates life in prison without possibility of parole for juvenile offenders." Miller, 567 U.S. at 479. Under this rule, a sentencing scheme "requiring that all children convicted of homicide receive lifetime incarceration without possibility of parole, regardless of their age and age-related characteristics and the nature of their crimes," violates "the Eighth Amendment's ban on cruel and unusual punishment." Id. at 489.

The Court's holding in Miller, like its earlier holdings in Roper and Graham, "rested not only on common sense--on what 'any parent knows'--but also on science and social science as well." Id. at 471, citing Roper, 543 U.S. at 569. The Court explained that "developments in psychology and brain science continue to show fundamental differences between juvenile and adult minds," including "in parts of the brain involved in behavior control." Miller, 567 U.S. at 471-72.

Following the Supreme Court's decision in Miller, this Court issued its decision in Diatchenko evaluating the impact of Miller on the Massachusetts sentencing scheme for first-degree murder. Diatchenko, 466 Mass. at 658. The Court found that, as applied to juveniles, the Massachusetts murder statute was unconstitutional under Miller because "[b]y its clear and plain terms, the statute impose[d] life in prison without the possibility of parole on individuals who are under the age of eighteen when they commit the crime of murder in the first degree." Id. at 667. But the Court then went on to require greater protections for juvenile offenders by holding that even "the discretionary imposition of a sentence of life in prison without the

possibility of parole on juveniles who are under the age of eighteen when they commit murder in the first degree violates the prohibition against 'cruel or unusual punishment[]' in art. 26." Id. at 284-85 (emphasis added). The Court explained that a life sentence imposed on a juvenile offender--whether mandated by statute or not--is only constitutional if it includes a guarantee that, "[a]t the appropriate time," the juvenile "will be afforded a meaningful opportunity to be considered for parole suitability." Id. at 674.

Like the Supreme Court in Miller, this Court reached its conclusion "with current scientific evidence in mind." Id. at 671. The Court explained that "[g]iven current scientific research on adolescent brain development," a judge cannot reliably find that a juvenile homicide offender is beyond redemption and deserving of a life-without-parole sentence. Id. at 669-70.

All of these cases--from Roper to Diatchenko--limited the relief they granted to defendants who were younger than eighteen at the time of their offenses. But only one decision, Roper, even commented on whether this limitation was justified, and it provided

no empirical justification. Instead, after acknowledging that the "qualities that distinguish juveniles from adults do not disappear when an individual turns 18," the Court merely asserted that "a line must be drawn." Roper, 543 U.S. at 574. At the same time, the Court recognized that the line is not set in stone. Rather, the Court noted that while it had held seventeen years earlier in Thompson v. Oklahoma, 487 U.S. 815, 837-838 (1988), that the Eighth Amendment prohibits the execution of a person under the age of sixteen at the time of his or her offense, "[t]he logic of Thompson extends to those who are under 18." Roper, 543 U.S. at 574. In reaching this conclusion, the Court rejected its holding, announced the year after it decided Thompson, that "the imposition of capital punishment on any person who murders at 16 or 17 years of age . . . does not offend the Eighth Amendment's prohibition against cruel and unusual punishment." Stanford v. Kentucky, 492 U.S. 361, 380 (1989). The Court thus recognized that while it may be that "a line must be drawn" for the kind of categorical rule announced in Roper, that line must be rational, based on empirical fact, and subject to change as scientific understandings develop

and change. See also Moore v. Texas, 137 S. Ct. 1039, 1053 (2017) (holding that when determining whether an inmate's execution would violate the Eighth Amendment due to intellectually disability, States must give proper deference to the "medical community's current standards" that reflect "improved [scientific] understanding over time"); Hall v. Florida, 572 U.S. 701, 721-23 (2014) (finding that a Florida statute permitting the execution of any person with an IQ over 70 was inconsistent with the Eighth Amendment because it was in conflict with the professional consensus that "[a]n IQ score is an approximation, not a final and infallible assessment of intellectual functioning").

This Court has also recognized that constitutional lines governing the sentencing of young offenders must be open to change as the scientific understanding of adolescent development advances:

> [T]he determination that youth are constitutionally distinct from adults for sentencing purposes has strong roots in recent developments in the fields of science and social science. Scientific and social science research on adolescent brain development and related issues continues. At this point, we cannot predict what the ultimate results of this research will be or, more importantly, how it will inform our

> understanding of constitutional sentencing as applied to youth.

Commonwealth v. Okoro, 471 Mass. 51, 59-60 (2015). The Court recently highlighted one relevant area of research: studies about when "most individuals reach adult neurological maturity, with evidence that some brain systems have fully matured in most individuals by around age fifteen other brain functions are not likely to be fully matured until around age twenty-two." Garcia, 482 Mass. at 412 (citation and internal quotation marks omitted). The Court made clear that this research "may relate to the constitutionality of sentences of life without parole for individuals other than juveniles." Id. at 413.

As discussed next, there is no empirical justification for limiting the protections of Diatchenko to offenders under the age of eighteen.

B. A large body of scientific research on adolescent brain development demonstrates that an absolute cutoff at age eighteen for constitutional scrutiny of life-without-parole sentences cannot be justified.

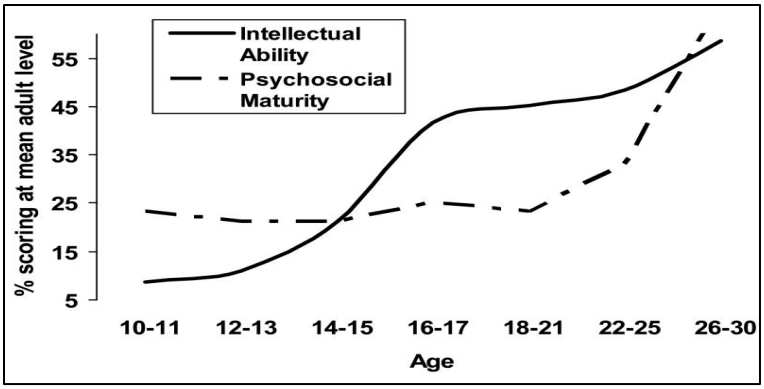
Nearly all of the science underlying the Miller and Diatchenko decisions only became available in the ten to fifteen years before those cases were decided. Starting in the late 1990s, scientists began "using

new [imaging] technologies to study the human brain, and . . . discovered that adolescent brains are further from full adult development than previously believed." Mark Soler et al., Juvenile Justice: Lessons for a New Era, 16 GEORGETOWN J. POVERTY LAW & POLICY 483, 493 (2009). "These imaging techniques are a quantum leap beyond previous methods for assessing brain development." Brief for the American Medical Association and the American Academy of Child and Adolescent Psychiatry as Amici Curiae at 15, Miller v. Alabama, 567 U.S. 460 (2012) (Nos. 10-9646, 10-9647). While previously "the understanding of brain development was gleaned largely from post-mortem examinations," the new imaging techniques permitted researchers to understand "how a live brain operates, and how a particular brain develops over time." Id. at 16. By demonstrating a link between adolescent risk-taking and normal processes of neurodevelopment, these new imaging studies were able to show that adolescent risk-taking is, to a significant extent, "a function of hard wiring." Elizabeth S. Scott et al., Adolescent Development and the Regulation of Youth Crime, 18 THE FUTURE OF CHILDREN 15, 23 (2008).

In more recent years, another significant advance in the scientific understanding of adolescent brain development has occurred. "Over the past decade, developmental psychologists and neuroscientists have found that biological and psychological development continues into the early twenties." Elizbeth S. Scott et al., Young Adulthood as a Transitional Legal Category: Science, Social Change, and Justice Policy, 85 FORDHAM L. REV. 641, 642 (2016). This research confirms that eighteen year olds "are not fully mature adults" but rather are more like adolescents under the age of eighteen in three essential ways. Andrew Michaels, A Decent Proposal: Exempting Eighteen-to-Twenty-Year-Olds from the Death Penalty, 40 N.Y.U. REV. LAW & SOCIAL CHANGE 139, 161 (2016).

First, the research has established that eighteen year olds, like adolescents under the age of eighteen, are prone to risk-taking and impulsivity and are not yet mature enough to anticipate the future consequences of their actions. Researchers have found that young people develop "basic intellectual abilities" (a measure of working memory, capacity to solve academic problems, and verbal fluency) much earlier than they develop "psychosocial maturity" (a

measure of impulsivity, risk perception, sensation-seeking, future orientation, and resistance to peer influence). Laurence Steinberg, A Social Neuroscience Perspective on Adolescent Risk-Taking, 28(1) DEV. REV. 78-106 (2008). While "basic intellectual abilities reach adult levels around age 16," the "process of psychological maturation" is not complete until "well into the young adult years." Id.



Source: L. Steinberg, A Social Neuroscience Perspective on Adolescent Risk Taking, 28(1) DEV. REV. 78-106 (2008).

The developmental gap between these two capacities has been linked to organic changes that occur in young people's brains as they develop. While "the development of basic information-processing abilities . . . is facilitated by maturation of the prefrontal cortex," a process that is "largely complete by age 16," abilities associated with psychosocial maturity are "facilitated by improved connections among

cortical regions and between cortical and subcortical regions, . . . which is a later development." Id.

"In many respects, . . . risk-taking during adolescence can be understood and explained as the product of an interaction between the[se] socio-emotional and cognitive control networks." Id. While adolescents tend toward heightened sensation seeking due to "hormonal changes of puberty," their "brain systems that regulate impulse control" are not yet developed. Elizabeth S. Scott et al., Young Adulthood as A Transitional Legal Category: Science, Social Change, and Justice Policy, supra, 656, 657. This "maturational imbalance" results in "a period of vulnerability to risky behavior," including "criminal offending." Id. at 647.

To understand how this phenomenon works in real-life situations, psychologists distinguish between two different decision-making processes: "cold cognition," which refers to "judgment in situations that permit unhurried decision making and consultation with others," and "hot cognition," which refers to "judgment in situations characterized by emotional arousal, time pressure, or the potential for social coercion." Laurence Steinberg, Age of Opportunity:

Lessons from the New Science of Adolescence 202 (2014). For some time, scientists have understood that adolescents, as a result of their stage of neurodevelopment, make poorer decisions, take more risks, and act more impulsively when they are emotionally aroused and relying on hot cognition. See, e.g., Eveline Crone et al., Developmental Changes in Real Life Decision Making, 25 DEVELOPMENTAL NEUROPSYCHOLOGY 251, 252 (2004). It was this body of research that led the Miller and Diatchenko Courts to find that adolescents, because of their stage of neurodevelopment, are more prone than adults to "recklessness, impulsivity, and heedless risk-taking." Diatchenko, 466 Mass. at 660, citing Miller, 567 U.S. at 461 (internal quotation marks omitted).

Recent research has demonstrated that this phenomenon continues past adolescents' eighteenth birthdays. Scientists have found that, "relative to adults over twenty-one," young people between the ages of eighteen and twenty-one "show diminished cognitive capacity, similar to that of adolescents, under brief and prolonged negative emotional arousal." Alexandra O. Cohen et al., When Does a Juvenile Become an Adult? Implications for Law and Policy, 88 TEMPLE L. REV. 769,

786 (2016). This research has also linked the eighteen to twenty-one year olds' diminished cognitive capacity under emotionally charged circumstances to "decreased activity in the [brain's] cognitive-control circuitry." Alexandra O. Cohen et al., When Is an Adolescent an Adult? Assessing Cognitive Control in Emotional and Non-Emotional Contexts, 27 PSYCHOL. SCI. 549, 559 (2016)). See also Marc D. Rudolph et al., At Risk of Being Risky: The Relationship between "Brain Age" under Emotional State and Risk Preference, 24 DEVELOPMENTAL COGNITIVE NEUROSCIENCE 93, 102 (2017) (finding that the brains of eighteen to twenty-one year olds perform and look like younger adolescents' brains when exposed to the emotionally charged stimulus but perform and look like adult brains when exposed to the neutral stimulus).

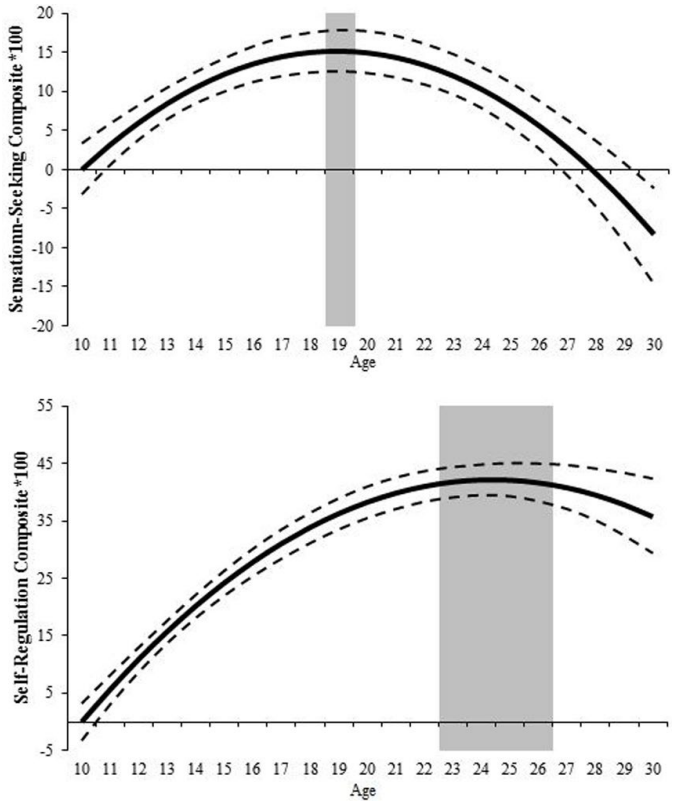
This body of research demonstrates that a key characteristic of adolescence found to be of constitutional significance in Diatchenko and Miller--a propensity to recklessness, impulsivity, and heedless risk-taking--is present in eighteen year olds. And this characteristic is "now viewed as normative, driven by processes of brain maturation that are not under the control of young people," and

typical of normally developing eighteen year olds. Elizabeth S. Scott et al., Young Adulthood as a Transitional Category, supra, 647.

Second, the research has shown that, like younger adolescents, eighteen year olds are more vulnerable to negative outside influences than their older counterparts. In one study, researchers examined a sample of 306 individuals in three age groups--adolescents (thirteen to sixteen), youths (eighteen to twenty-two), and adults (twenty-four and older)--and determined that "the presence of peers makes adolescents and youth, but not adults, more likely to take risks and more likely to make risky decisions." Margo Gardner et al., Peer Influence on Risk Taking, Risk Preference, and Risky Decision Making in Adolescence and Adulthood: An Experimental Study, 41 DEV. PSYCHOL. 625, 632, 634 (2005). And the research has identified an apparent link between peer influence on risk taking and increased activity in the brain's socio-emotional network, a part of the brain that does not begin to mature fully until the early twenties. Id.

Third, eighteen year olds, like younger adolescents, have greater prospects for rehabilitation

than their older adult counterparts. In a recent study of 5,000 people between the ages of ten and thirty from eleven culturally and economically diverse countries, researchers found that "sensation seeking is higher during adolescence--peaking at age 19--than before or after, whereas self-regulation continues to develop into the mid-20s." Laurence Steinberg et al., Around the World, Adolescence is a Time of Heightened Sensation Seeking and Immature Self-Regulation, 21(2) DEVELOPMENTAL SCIENCE 1, 2 (2017). These findings help explain what researchers have known for some time--that risk-taking behaviors, and corresponding rates of criminality, drop off dramatically as young people move from late adolescence and early adulthood into their mid- to late-twenties. See Gary Sweeten et al., Age and the Explanation of Crime, Revisited, 42(6) JOURNAL OF YOUTH & ADOLESCENCE 921-938 (2013).



Age differences in scores on composite variables: Sensation seeking (top) and self-regulation (bottom) in the whole sample. Composite scores were multiplied by 100 and centered at age 10. Grey shading denotes a plateau/peak, defined as years of age for which the instantaneous rate of change (i.e., the estimated slope of the age curve) did not differ significantly from zero. Dashed lines indicate 95% confidence bands.

Source: Laurence Steinberg et al., *Around the World, Adolescence is a Time of Heightened Sensation Seeking and Immature Self-Regulation*, 21(2)DEVELOPMENTAL SCIENCE 1, 2 (2017).

This desistance trajectory is consistent with what scientists now know about neurodevelopment in late adolescence. Adolescence--the period between ages ten and twenty--is a "remarkable period of brain reorganization and plasticity." Laurence Steinberg, Age of Opportunity: Lessons from the New Science of Adolescence, supra, 22. During this time of heightened

neuroplasticity, adolescents are able to learn new information and strengthen basic and advanced abilities to a greater degree than in later life. Id. at 24, 34. Because the brains of adolescents in their late teens continue to mature and retain this high level of plasticity, these young people remain amenable to change and are able to profit from rehabilitation to a much greater degree than their older adult counterparts. Id.

* * *

In sum, current scientific research on late-adolescent neurological and psychological development demonstrates that in all of the ways that were significant to this Court's constitutional analysis in Diatchenko, eighteen year olds are much more similar to younger adolescents than they are to older adults. In light of these scientific advances, courts have begun to recognize that eighteen year olds cannot be treated the same as older, more fully developed adults when they are subjected to harsh criminal sanctions. See, e.g., Cruz v. United States, No. 2018 U.S. Dist. LEXIS 52924, *70 (D. Conn. 2018) (holding that, in light of recent scientific developments, "Miller applies to 18-year-olds," and "the Eighth Amendment

[thus] forbids a sentencing scheme that mandates life in prison without possibility of parole for offenders who were 18 years old at the time of their crimes" (citation and internal quotation marks omitted)); Commonwealth v. Bredhold, No. 14-CR-161, 2017 WL 8792559 at *1 (Ky. Cir. Ct. 2017) (holding that Kentucky death penalty statute is unconstitutional as applied to individuals under the age of twenty-one in light of recent research demonstrating that those individuals are "psychologically immature in the same way that individuals under the age of eighteen (18) were deemed immature, and therefore ineligible for the death penalty"); State v. O'Dell, 358 P.3d 359, 368 (Wash. 2017) (en banc) (holding that eighteen-year-old "defendant's youthfulness [could] support an exceptional sentence below the standard [sentencing] range applicable to an adult felony defendant," and that a contrary earlier decision had "been thoroughly undermined by subsequent scientific developments"). It has also led the American Bar Association to advocate for the elimination of the death penalty for individuals who were twenty-one or younger at the time of their offenses in light of the large body of research published since Roper that has "expanded

understanding of behavioral and psychological tendencies of 18 to 21 year olds." American Bar Association Resolution 111 (2018). And it has now led two Massachusetts district attorneys' offices to file an amicus letter in this case "support[ing] the position that art. 26 of the Massachusetts Declaration of Rights precludes the imposition a mandatory sentence of life in prison without the possibility of parole for offenders who commit murder when they are 18, 19, or 20." Letter of Berkshire & Northwestern District Attorneys' Offices at 1 (Nov. 15, 2019).

As argued next, this Court should recognize that mandatory life-without-parole sentences imposed on defendants who, like amici, were eighteen at the time of their offenses are not immune from constitutional scrutiny under art. 26 and the Eighth Amendment.

C. In light of the current scientific understanding of adolescent brain development, Diatchenko's prohibition against life-without-parole sentences should be extended to eighteen-year-old offenders.

In Diatchenko, this Court explained that "[g]iven scientific research on adolescent brain development, and the myriad ways this development impacts a juvenile's personality and behavior, a conclusive showing of traits such as an irretrievably depraved

character . . . can never be made, with integrity, by the Commonwealth at an individualized hearing to determine whether a sentence of life without parole should be imposed on a juvenile homicide offender." Diatchenko, 466 Mass. at 669-70 (citation and internal quotation marks omitted).

In light of current scientific research on late-adolescent brain development, there is no justifiable basis for excluding amici, and other similarly situated eighteen-year-old offenders, from Diatchenko's protections. The science now shows that, in all of the ways that mattered to this Court's analysis in Diatchenko, there is no constitutionally significant difference between eighteen and seventeen-year-old offenders.

Accordingly, this Court should hold that the Diatchenko rule applies to the cases of defendants convicted of first-degree murder for offenses that occurred when they were eighteen years old.

D. Even if the Court were to find that Diatchenko's absolute prohibition on all life-without-parole sentences should not apply to eighteen-year-old offenders, it should nonetheless apply the Supreme Court's Miller/Montgomery rule to those cases.

In Miller, the Supreme Court held that "mandatory life without parole for those under the age of 18 at the time of their crimes violates the Eighth Amendment's prohibition on 'cruel and unusual punishments.'" Miller, 567 U.S. at 465 (emphasis added). The Court explained that this decision did not "categorically bar a penalty for a class of offenders or type of crime" but, rather, mandated "that a sentencer follow a certain process--considering an offender's youth and attendant characteristics--before imposing a particular penalty." Id. at 460. The Court specified a number of youth-related factors (now known as "Miller factors") that a sentencing judge must consider before imposing a life-without-parole sentence on a juvenile. Id. at 477-78.

In Montgomery v. Louisiana, 136 S. Ct. 718, 734 (2016), the Court clarified its holding in Miller, explaining that Miller did not merely create a procedural requirement that a "sentencer . . .

consider a juvenile offender's youth before imposing life without parole." Instead, the Miller Court established that, as a matter of substantive law, "the penological justifications for life without parole collapse in light of the distinctive attributes of youth." Id. (citation and internal quotation marks omitted). The purpose of a Miller hearing, the Court explained, is to determine whether the specific defendant before the court is an exception to the rule--"the rare juvenile offender who exhibits such irretrievable depravity that rehabilitation is impossible and life without parole is justified." Id. at 733.

Even if this Court does not apply the Diatchenko rule to eighteen-year-old offenders, it should nonetheless hold that the Miller/Montgomery rule applies to defendants who committed their crimes at the age of eighteen. In light of the science described above, courts cannot justifiably treat a defendant's eighteenth birthday as an absolute cutoff for constitutional protections at sentencing. By applying the Miller/Montgomery rule when evaluating the constitutionality of life-without-parole sentences imposed on eighteen-year-old offenders, courts can

account for the essential differences between these late-adolescent defendants and older adults, while also leaving open the possibility that there may be some rare eighteen year olds who, in light of their individual characteristics, can constitutionally be sentenced to life imprisonment without the possibility of parole.

E. Even if this Court were to reject both of these categorical challenges, it should recognize that individual eighteen-year-old homicide offenders can still bring as-applied challenges to their mandatory life-without-parole sentences based on the facts and circumstances of their cases.

A defendant can challenge the proportionality of a sentence under the Eighth Amendment and art. 26 two ways. First, "[i]n a 'categorical' challenge, a defendant asserts that an entire class of sentences is disproportionate based on 'the nature of the offense' or 'the characteristics of the offender.'" United States v. Cobler, 748 F.3d 570, 575 (4th Cir. 2014), citing Graham, 560 U.S. at 59, 60. Second, "[u]nder an 'as-applied' challenge, a defendant contests the length of a certain [noncapital] sentence as being disproportionate 'given all the circumstances in a particular case.'" Cobbler, 748 F.3d at 575, citing Graham, 560 U.S. at 59.

Even if this Court were to reject the above-described categorical challenges to life-without-parole sentences imposed for offenses committed by eighteen-year-old defendants, it should nonetheless recognize that individual late-adolescent homicide offenders can still bring as-applied challenges to their mandatory life-without-parole sentences based on the particular facts and circumstances of their cases. See Graham, 560 U.S. at 91 (Roberts, C.J., concurring) (noting that he would find the juvenile's life-without-parole sentence violated the Eighth Amendment in light of "the particular facts of this case," without joining the majority's categorical ruling).

This Court has used a three-part analysis to determine whether a sentence constitutes cruel and unusual punishment as applied to the circumstances of a particular case. See Cepulonis v. Commonwealth, 384 Mass. 495, 497 (1981). First, the Court has inquired "into the nature of the offense and the offender in light of the degree of harm to society." Id. at 498 (citation and internal quotation marks omitted). Second, it has compared "the sentence imposed" and the "punishments prescribed for the commission of more serious crimes in the Commonwealth." Id. Finally, it

has compared "the challenged penalty with the penalties prescribed for the same offense in other jurisdictions." Id.

The Court recently noted that this tripartite analysis provides "a useful framework" for considering a "juvenile defendant's challenge to the constitutionality of his sentence," while cautioning that it must be "supplemented with the greater weight given to a juvenile defendant's age." Commonwealth v. Perez ("Perez I"), 477 Mass. 677, 684 (2017) (citation omitted). Because the Eighth Amendment and art. 26 require "that criminal punishment be proportionate to the offender" as well as the offense, a court reviewing the constitutionality of a sentence must consider the individual characteristics of the defendant, not just the crime committed. Diatchenko, 466 Mass. at 671. See also Commonwealth v. Perez ("Perez II"), 480 Mass. 562, 569 (2018) (when considering whether a juvenile offender's sentence is unconstitutionally disproportionate, the court must consider the offender's "personal and family history" and not "the criminal conduct alone").

When reviewing individual late adolescents' life-without-parole sentences imposed for first-degree

murder, courts should also modify the second and third Cepulonis factors. The need for this modification is illustrated by Gregory Diatchenko's case. On direct appeal in 1982, Diatchenko challenged the constitutionality of his mandatory life-without-parole sentence, arguing that it "contravene[d] modern standards of decency" and was grossly "disproportionate to the offense." Commonwealth v. Diatchenko, 387 Mass. 718, 722 (1982). This Court applied the three-part Cepulonis test and rejected his challenge. In reaching this conclusion, the Court found that "the second prong of the disproportionality test . . . cannot even be applied in this case because there are no crimes more serious than that committed by the defendant." Id. at 726. This Court's 2013 decision invalidating Diatchenko's sentence based on his age the time of his offense demonstrates that the Court's earlier comments about the second Cepulonis factor were unjustifiably myopic.

In rejecting Diatchenko's 1982 challenge, the Court faulted him for primarily relying on death-penalty cases to challenge his life sentence. Diatchenko, 387 Mass. at 722. The Court paid no attention to his age at the time of the offense, the

many ways his youth mitigated his culpability, or the singular harshness of imposing a life-without-parole sentence on a teenager. In response to his 2013 challenge, this Court took a very different tack, recognizing that, "in the context of the offender's age and the wholesale forfeiture of all liberties, the imposition of a sentence of life without parole on a juvenile homicide offender is strikingly similar . . . to the death penalty," and making clear that the constitutionality of such sentences can only be evaluated in "the context of the unique characteristics of juvenile offenders." Diatchenko, 466 Mass. at 659, 670.

In determining whether a life-without-parole sentence is unconstitutional as applied to the facts and circumstances of a particular eighteen-year-old offender's case, courts should not apply the type of rigid analysis this Court used in Diatchenko's 1982 case. Instead, courts should consider "all [of] the circumstances in [the] particular case," Graham, 560 U.S. at 59, including the defendant's personal and family history before the offense, any evidence of post-offense rehabilitation, the mitigating impact of youth, and the factual details of the defendant's

crime. If after conducting this analysis, the court finds that the defendant's life-without-parole sentence is grossly disproportionate to the offense and offender, it should vacate that sentence and, in its place, impose a life sentence that ensures the defendant will, at the appropriate time, have a meaningful opportunity to obtain his or her release based on demonstrated maturity and rehabilitation.

2. If the Court Finds that the Record in this Case is Insufficient to Definitively Resolve these Issues, It Should Wait for a Future Case with a More Fully Developed Record.

In Commonwealth v. Garcia, this Court found that the record on appeal was inadequate to permit it to resolve the issue of whether a mandatory life-without-parole sentence imposed on a nineteen-year-old offender violated art. 26's prohibition on cruel or unusual punishment. Garcia, 482 Mass. at 412-13. Unlike Garcia, this case involves a defendant who was eighteen, rather than nineteen, at the time of the offense. The Commonwealth concedes that the extraordinary sentencing disparity between Mr. Mattis and his co-defendant, who was ten days shy of his eighteenth birthday at the time of the offense, does not "serve the interests of justice." Comm. Br. at 86

n. 44. And, as Dr. Laurence Steinberg, one of the country's leading experts on adolescent development, recently testified, the science relating to eighteen year olds is even stronger than the science relating to nineteen and twenty year olds. Add. 114 (testifying that he is "confident enough" about nineteen and twenty year olds but is "[a]bsolutely certain" about eighteen year olds).

If this Court finds, however, that the record in this case is inadequate to definitively resolve the issues addressed in this brief, it should wait for a future case with a more fully developed record.

CONCLUSION

This Court should extend constitutional limits on the imposition of life-without-parole sentences to defendants whose offenses occurred when they were eighteen years old.

Respectfully submitted,

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November 2019

CERTIFICATE OF COMPLIANCE

I, Ryan M. Schiff, hereby certify that this brief complies with the rules of court that pertain to the filing of briefs, including, but not limited to: Rule 16(a)(13) (addendum); Rule 16(e) (references to the record); Rule 18 (appendix to the briefs); Rule 20 (form and length of briefs, appendices, and other documents); and Rule 21 (redaction). I further certify that this brief complies with Rule 20's length limit in that it was prepared using 12-point Courier New font using Microsoft Office 2016 and that the length of the brief is less than thirty-five pages.

/s/ Ryan M. Schiff
Ryan M. Schiff

CERTIFICATE OF SERVICE

I, Ryan M. Schiff, hereby certify that I will cause the above brief to be served on all counsel of record in this case through the Massachusetts e-filing system.

/s/ Ryan M. Schiff
Ryan M. Schiff

ADDENDUM

Eighth Amendment, United States Constitution

Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.

Article 26, Massachusetts Declaration of Rights

No magistrate or court of law, shall demand excessive bail or sureties, impose excessive fines, or inflict cruel or unusual punishments. . . .

UNITED STATES DISTRICT COURT.

DISTRICT OF CONNECTICUT

LUIS NOEL CRUZ Petitioner v. UNITED STATES OF AMERICA Respondent	September 13, 2017 1:25 p.m. 3:11cv787(JCH)

141 Church Street
New Haven, Connecticut

HEARING

B E F O R E:
THE HONORABLE JANET C. HALL, U.S.D.J.

FOR THE PETITIONER: W. Theodore Koch , III
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Niantic, CT 06357

FOR THE RESPONDENT: Patricia Stolfi Collins
John Trowbridge Pierpont
William Nardini
United States Attorney Office
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THE COURT: Good afternoon to you. We're here this afternoon in the matter of Luis Noel Cruz versus the United States of America. 11CV787. If I can have appearances please.

MS. COLLINS: Patricia Collins, John Pierpont and William Nardini for the United States, Your Honor. Also present in the courtroom in the first few rows is the White family.

THE COURT: Thank you. Good afternoon to all of you.

MR. KOCH: Good afternoon, Your Honor. Theodore Koch for Mr. Cruz who is to my left.

THE COURT: Good afternoon to you, Attorney Koch and good afternoon to you, Mr. Cruz.

We're here this afternoon for an evidentiary hearing on a 2255 petition filed by Mr. Cruz. My understanding is we're ready to proceed to take the evidence, Attorney Koch.

MR. KOCH: Yes, Your Honor. We're ready.

THE COURT: If you would call your first witness.

MR. KOCH: Professor Laurence Steinberg.

THE COURT: Professor Steinberg, if you would come up to the witness stand. And when you arrive, I ask that you remain standing so the clerk may administer an oath to you.

LAURENCE STEINBERG

Having been called as a witness, was first duly

sworn and testified on his/her oath as follows:

THE CLERK: State your name for the record and spell your last name.

THE WITNESS: Laurence Steinberg, Steinberg, Philadelphia, Pennsylvania.

THE COURT: You may be seated, Professor. Good afternoon to you and whenever you are ready, Attorney Koch, you may begin.

MR. KOCH: Thank you, Your Honor.

DIRECT EXAMINATION

BY MR. KOCH:

Q. Good afternoon, Professor Steinberg.

A. Good afternoon.

Q. Can you tell the Court what's your present position?

A. I'm a professor of psychology at Temple University in Philadelphia.

Q. Can you describe your educational background starting with college?

A. Yes, I graduated from Vassar College with a bachelors degree in psychology in 1974. I received my PhD in developmental psychology from Cornell in 1977.

Q. What previous professional positions have you held before being at Temple?

A. I came to Temple in 1988. Prior to that, I was on the faculty of the University of Wisconsin Madison and prior

to that, I was on faculty of the University of California Irvine.

Q. Can you summarize your publication credits starting with the books that you published?

A. I've authored approximately 15 books, edited a couple of other books. I have published 400 or so research articles, about 250 of those in peer review journals.

Q. And scholarly articles are based on what research? Whose research?

A. My research.

Q. Are you on any editorial boards?

A. Yes.

Currently on three editorial boards. One for a Journal of Psychology and Law, one for a Journal of Neuroscience and one for a Journal of Psychology and Public Policy.

THE COURT: Could I interupt you for a moment.

(Discussion Off the Record.)

Q. Professor Steinberg, what are your professional memberships?

A. I'm currently a member of the Association for Psychological Science, the Society for Research on Adolescence and the Society for Research on Child Development.

Q. What major honors have you received?

A. I have received honors from the American Psychological Association for contributions to the discipline of psychology and are for contributions to public policy. I have received lifetime achievement awards from the Society of Research on Adolescence and Society for Adolescent Medicine. I have been elected as a fellow to the American Academy of Arts and Science and I was the first recipient of the research prize given by a very large Swiss foundation several years ago.

Q. Have you previously testified as an expert?

A. Yes, I have.

Q. Where?

A. I testified in state court in Kentucky, in state court in Delaware, in federal court in Southern District of New York, in state court in Pennsylvania, and before a Parole Board in Arkansas.

Q. Have you ever been involved in the crafting of any amicus briefs to the United States Supreme Court?

A. Yes. In the cases of Roper versus Simmons and Graham versus Florida and Miller versus Alabama, I was the lead scientist for the American Psychological Association in drafting the amicus briefs filed with the court.

My responsibility there was to make sure that the science of adolescent development was accurately represented in the briefs filed by association.

Q. What would you say is your specific area of expertise?

A. Adolescence.

MR. KOCH: Your Honor, I ask that the court qualify Professor Steinberg as an expert of adolescence.

THE COURT: I don't have any question about it. I don't do that under the rules. I ask you to ask your questions. If there is an objection to a particular question, the Government thinks he's not qualified to answer it, I'm sure that I will heard that objection. Otherwise I'm assuming it won't be an issue.

Q. Thank you. Just from the start, Professor Steinberg, can you give us your working definition for our present purposes of adolescence?

A. I think of adolescence as the period spanning ages 10 to up until 21.

Q. What are some of the hallmark behavioral characteristics of adolescent as you defined them, as compared to the adults?

A. Compared to adults, adolescents are more impulsive. They are more prone to engage in risky and reckless behavior. They are more driven by reward relative to adults and less so by punishment. They are more oriented toward the present and less oriented toward the future and they are susceptible to the influence of other people.

Q. Does the brain develop during adolescents?

A. Yes, the brain continues to develop during this period of adolescence.

Q. For the purpose of this entire hearing, you're defining adolescence as age 10 up to and including age 20?

A. Yes.

Q. Is the brain composed of various regions?

A. Yes. The brain is composed of various regions. As scientists, we would be more likely to describe the brain as composed of various systems because many brain systems include multiple brain regions.

Q. Are certain regions or systems of the brain, particularly significant during adolescence?

A. Yes.

Q. Which ones?

A. There's a brain system that we refer to as the cognitive control system. It is responsible for self-regulation as well as advanced thinking abilities. That includes mainly the prefrontal cortex of the brain and its connections to other brain areas.

There's a second system that's important during adolescence that's referred to as the limbic system. It is a deep structure of the brain. It is important in how we process emotions and process social information and experience reward and punishment.

Q. I apologize if you already did this. Can you just describe the prefrontal cortex and its function?

A. The prefrontal cortex is the area of the brain that's located directly behind the forehead. It's mainly responsible for advanced thinking abilities like logical reasoning and planning ahead, but it's also responsible for what psychologists refer to as self-regulation, the ability to control our behavior and our thoughts and our emotions.

Q. How did the limbic system and prefrontal cortex interact?

A. We might think of the limbic system as kind of the emotional center of the brain and the prefrontal cortex as the logical, rational center of the brain. Both systems are active all the time. They can communicate with each other. Although they don't communicate as well with each other during adolescence as they do during adulthood, but in a situation that one is making a decision and let's say the situation is an emotional arousing one, the limbic system will be responsible for the emotional arousal and the prefrontal cortex will be responsible for the self-regulation.

One way to think is the limbic system sometime serves as an accelerator and the prefrontal cortex serves as the brakes.

Q. How is this interaction between these two systems

particularly significant during adolescence?

A. Well, at the beginning of adolescence until age 17 or 18 or so, the limbic system becomes increasingly easily aroused. We know that that happens primarily because of the impact of puberty on the brain and the prefrontal cortex develops very gradually over time so during middle and late adolescence, you have what we call a maturational imbalance between the systems because the limbic system is very easily aroused, but the prefrontal cortex, the cognitive control system is still immature, so very often arousal of the limbic system can overwhelm what the cognitive control system is capable of doing.

Q. Can you give us a definition of cognition please?

A. Cognition is a word that we use to refer to thinking.

Q. Have you heard of the term hot cognition versus cold cognition?

A. Yes, I have.

Q. Can you describe to us the differences between those two please?

A. When we're making decisions about things, sometimes we make them under situations that are very arousing, maybe we're angry or we're enthusiastic or we're with other people who arouse our emotions, and we refer to that situation as the thinking in that situation as hot cognition. That can be

contrasted with situations which are very calm when we're by ourselves. When we're not emotionally aroused and we refer to that as cold cognition. To give you an example, if somebody in a research study of mine is filling out a questionnaire, let's say I put that person in a room by herself. There's nothing to make her emotionally aroused either positively or negatively and the situation is calm and neutral, she would be using cold cognition when she completed that questionnaire. If I took the same person and administered the same questionnaire to her after making her afraid or after making her angry or surrounding her with a group of other people who are urging her to do something or to not do something, filling out that questionnaire under that circumstance would be considered an example of hot cognition.

Q. How is the difference between hot cognition and cold cognition salient to adolescence?

A. Cold cognition relies mainly on basic thinking abilities that are in place and are mature by the time we're 16 or so. Hot cognition relies both on those abilities but also on our capacity to regulate and control our emotions.

We have all had the experience of trying to make a decision when we're upset. We know that our decision-making abilities under that circumstance are not as good as they are when we're making the same decision when

we're calm, and we know that the capacities necessary for good decision-making in hot situations or hot cognition are still immature during adolescence and aren't fully mature until the early or to the midtwenties.

Q. Are there different phases of development within adolescence?

A. The scientists who study adolescence would often divide the period into three phases: early adolescence, let's say approximately from 10 to 13, middle adolescence, approximately 14 to 17, and late adolescence, approximately 18 to 21.

Q. Just basically what are the different characteristics of each of those three phases of development within adolescence?

MR. PIERPONT: The Government is not going to object at this point. Can I have a moment with counsel please?

THE COURT: Sure.

MR. PIERPONT: Thank you, Your Honor.

THE COURT: Do you want the question read?

(Question read by the Court.)

A. Well, there are many differences between the early, middle and late phases but I assume that you would like me to connect this to what we were discussing about hot and cold cognition. During early adolescence both types of thinking

are still immature. Early adolescence compared to adults are not as good in cold cognitive abilities and they are not as good in hot cognitive abilities.

During middle adolescence, there are very few differences between adolescence and adults in their cold cognitive abilities, but they are still immature with respect to their hot cognitive abilities. That is also true during late adolescence. They are a little bit better. They still are not as good as adults are in the area of hot cognition, but they certainly would be comparable to adults in the area of cold cognition.

Q. Do you have an opinion as to when psychological and neurobiological maturity is attained?

A. The answer to that question is complicated because different parts of the brain mature along different time tables. And therefore, the psychological abilities that those parts of the brain govern mature along different time tables. If what you mean by your question is when is everything completed in all systems of brain both with respect to psychological functioning as well as brain development, I think the concessions would be that this is not the case until people are maybe 22 or 23 years old.

Q. What's the basis of your opinion?

A. There have been studies, my own as well those of other scientists, that have administered psychological tests

to people in this age range and have asked at what point do these abilities that are being measured stop improving. There are brain studies that use brain imaging to look at changes in the brain's anatomy and changes in the way the brain functions that also have been done with people of different ages and they have also asked at what point do we no longer see major changes in the anatomy of the brain or in the way that the brain functions.

Q. I want to turn now to the specific characteristics of the late adolescence or what you have said is 18, 19, and 20-year-olds. 18, 19, and 20-year-olds just to be clear, do they fall within your definition of adolescence?

A. Yes.

Q. Can you just backing up describe the history of research on adolescent brain development specifically as it relates ultimately to late adolescence?

A. Sure. Until the 1990s, it was assumed that the brain was fully developed by the time we were 10 or 11-years-old. That's because the brain reaches its adult size by that age. So if you measured the volume of the brain, you wouldn't see big differences after that age in terms of its growth. It wasn't until the advent of brain imaging technology like MRI technology that scientists were able to look inside the living brain. Obviously it was

possible to do an autopsy, cut open the brain and look at it. When you do that, you can't see how the brain functions. You can only look at the anatomy of the brain. It wasn't until there was FMRI and brain imaging that scientists could look at the living brain and see what's going on inside when it was at work. Studies that began to be done during the late 1990s illustrated that the brain was continuing to change during adolescence in ways that weren't visible by looking at the exterior of the brain. This was not known. And the first published studies of how the brain was changing during adolescence didn't really appear until about the year 2000 so relatively recently in terms of the history of science, history of the study of development.

During the period, let's say from 2000 into the middle or latter part of the decade, most of the research on adolescence brain development focused on people who were 18 and younger. There was to my knowledge virtually no research that went past that age and that looked at brain development during late adolescence or young adulthood.

People began to do research on that period of time toward the end of that decade and as we moved into 2010 and beyond, there began to accumulate some research on development in the brain beyond age 18, so we didn't know a great deal about brain development during late adolescence until much more recently.

Q. Okay. I would like to show you what I have previously marked as Petitioner's Exhibit for Identification One. I have shared this with the Government. May I approach, Your Honor?

THE COURT: You may.

Q. That's an article titled "Young Adulthood as a Transitional Legal Category: Science, Social Change and Justice Policy" by yourself. Just briefly can you tell us what's the central point of that article?

A. The central point of that article is that recent discoveries in psychological science and in brain science as well as changes in society, should ask us to rethink how we view people in the late adolescence period and even to the young adult period in terms of their treatment under the law because a lot of the --

MR. PIERPONT: Your Honor, the Government is going to object to the answer at this point. We understand that Professor Steinberg is here to talk about brain sciences, but to the extent we start to get to policy and how people should be treated under the law, that goes a little further upfield of what the Government expected testimony to be about here today.

THE COURT: I will let the answer stand to the point of the objection. I understand it is summarizing the point of an article. I think the Government's objection has some

legs in the sense that he isn't here to tell us about what the policy of the law should be. He's here to tell us what might be a basis for law makers or courts to change.

Q. Let me ask you this: Does that article reliably present the scientific knowledge as regards to late adolescence as of the present moment?

A. Yes. And that was the part of the article that I was responsible for writing.

Q. Okay. I would like to offer that as an exhibit at this time, Your Honor.

MR. PIERPONT: Your Honor, the Government -- I have spoken to Attorney Koch about this. The Government is not going to object again to the extent that it is being offered for the extent of what the current science is. If there was a jury here, we might have some concerns about the policy decisions, but with the understanding that the reason and limited reason it is being offered, the Government does not have an objection.

THE COURT: Do I fairly understand, Professor, that if I read this article, I will be informed to the extent that you understand it, the extent of scientific knowledge studies that have been undertaken, et cetera, in the area of late adolescence up to the time the article was written?

THE WITNESS: Yes, Your Honor.

THE COURT: Then on that basis, I will accept it.

MR. KOCH: Thank you, Your Honor.

THE COURT: Exhibit 1 is a full exhibit, Diahann.

MR. PIERPONT: Thank you.

BY MR. KOCH:

Q. Now I'm going to show you what's previously been marked for identification as Exhibit 2 which is an article entitle "When does a juvenile become an adult? Implications of law and policy." If I may approach, Your Honor.

THE COURT: You may.

Q. Do you recognize that article?

A. Yes, I do.

Q. I will cut right to the main question. Does that article, like the first one, reliably present the scientific knowledge as to late adolescence as of the present moment?

A. Yes, it does.

MR. KOCH: I would offer that, Your Honor, for the same purposes of the previous article.

MR. PIERPONT: Again, Your Honor, subject to the same discussion that I had previously with the Court to the extent there's science in here, there's no objection. The Government does think to the extent there's policy discussions and things along those lines, it is beyond what we're here to do today.

THE COURT: Is your offer -- do you have any objection to how the Government frames their lack of

objection to the purpose of the article?

MR. KOCH: No, Your Honor. That's in accordance with our agreement.

THE COURT: For example, there's a summary at the beginning of this article, it says at the end in this article, we summarized recent behavioral and neurological findings on cognitive capacity in young adults. That's what you are offering it for as opposed to and highlight several ways which they bear on legal policies. That's the thrust of your offer is the second part?

MR. KOCH: Correct.

THE COURT: That's fine then. Exhibit 2 is received as a full exhibit with that understanding.

BY MR. KOCH:

Q. About those articles, is there any question or debate in the scientific community about the findings in these articles?

A. No.

THE COURT: May I inquire as to where they were published. Before you add to your answer, could you tell me. One is Fordham Law Review.

THE WITNESS: I believe the other is Temple Law Review.

THE COURT: Thank you.

A. Well, in accord with the back and forth questioning,

I will limit my answer to your question with respect to the scientific findings that are discussed in the article rather than the policy implications, but there's broad consensus among scientists with respect to the scientific information that's contained in each of these articles.

Q. Thank you. Are there ways in which the brains and behavior of 18 to 20-year-olds are similar to adults?

A. Yes.

Q. Can you describe some of those similarities with adults?

A. As we were discussing earlier, with respect to behaviors that we might think of as cold cognitive driven so things like logical reasoning or the ability to solve problems under neutral nonarousing situations, people that age period perform just as well as adults do.

Q. Are there any ways in which the brain's behavior of 18 to 20-year-olds are more similar to younger adolescence than they were to adults?

A. There is still immaturity in certain brain systems in the behaviors that those brain systems govern, so during this age period, late adolescence relative to adults, still show problems with impulse control and self-regulation and heightened sensation seeking which would make them in those respects more similar to somewhat younger people than to older people.

Q. Thank you. I want to go down a few characteristics of adolescence and ask you for each one of these whether late adolescence are more similar to younger adolescence or to adults. In terms of risk-taking, when does risk-taking peak on average?

A. Well, it depends on the specific type of risk-taking that you are talking about, but in general, people in the late adolescent years are more likely to take risks than people who are adults and more likely to take risks than young adolescents are to, so if you were to -- if you were to draw a graph showing the prevalence of risk-taking by age, it would look like an upside down U. The peak would be somewhere, you know, around 17, 18, 19, approximately that age range. That's when most type of risky behavior are at their height.

Q. What about impulsivity?

A. Impulsivity is still developing during the late adolescent years. I'm sorry. Correct that. Impulse control is still developing during the late adolescent years, so if you were to draw a graph of that, you would see a straight upward trending line that goes from age 10 to age 25 or so.

Q. How about susceptibility to the influence of one's peers?

A. Susceptibility to peers is higher during late adolescence than it is in adulthood. It is slightly lower

than it is during middle adolescence, but it is -- but the ability to resist peer pressure is developing during the late adolescent years.

Q. What about the capacity for change?

A. We think that people are more amenable to change when they're younger than when they're older. We think that people are still capable of change -- are more capable of change when they're in their late adolescent years than when they're adults. That would be supported by personality research that shows that more changes are taking place during that time than if you were looking at people who were in their late 20s, 30s or 40s.

Q. With regards to reward-seeking behavior, is the prefrontal cortex everything in terms of regulating that when it comes to rewards?

A. No. Because reward-seeking is a combination of an urge to go after a reward and the ability to put the reins on that urge. So in order to understand reward-seeking at a given age, you have to ask both about how the prefrontal cortex is functioning, but also about the arousal of the limbic system that might lead to reward-seeking.

I think I said before, but it is worth repeating, that the metaphor that I and other scientists use to describe this is having the accelerator pressed down without a good braking system in place. That would be true of mid

adolescence as well as late adolescence.

Q. In 2003, you co-wrote an article called "Less Guilty By Reason of Adolescence, correct?

A. Correct.

Q. Just tell us in terms of the psychology and not in terms of the policy, what was the central point of that article?

A. The central point of the article that adolescents compared to adults are more impetuous. They are more susceptible to peer pressure and their personalities are less fully formed.

Q. How has the research changed since you wrote that article?

A. I think that the conclusions are still the same today as they were then.

Q. If you were writing that article today, what age range would you apply it to?

A. I think I would apply it to the whole adolescent period. At that time, we wrote that article because of interest and debate at that point about the juvenile death penalty. The focus of the article was about people younger than 18. If we were writing it today, I think we would say that the same things are true about people who are younger than 21.

Q. Is there any question today among the scientific

community that late adolescence as a group possessed the same hallmarks traits of youth that you ascribed to middle adolescence in 2003?

A. They possess many of the same traits.

Q. I want to turn now. This would be the last section. A few questions about the various features of 18 to 20-year-olds.

Are there specific characteristics of this group that emerge when they are in unsupervised groups of their peers?

MR. PIERPONT: A little bit of feedback. I missed the middle part of that question.

A. Your Honor, I'm wearing hearing aids. I wonder if the microphones in those hearing aids are giving some feedback.

THE COURT: It is not you. You are fine. It is Attorney Koch keeps getting a buzz.

MR. KOCH: I have been hearing that the whole time.

I could turn microphone off and yell.

THE COURT: No, you will hear it and I will hear it. He might hear it. Nobody behind you would hear it. That's not a good outcome.

MR. KOCH: This sounds better to me.

THE COURT: I think that's fine. You better put the question again.

BY MR. KOCH:

Q. Are there specific characteristics of 18 to 20-year-olds that emerge when they were in unsupervised groups of their peers?

A. Yes.

Q. What are they?

A. In general, when people that age are with their peers and where there are no adults present, it makes them even more inclined to take risks, and it makes them even more reward-seeking than when they are by themselves. This actually is one of the main focuses of the research that my team at Temple University has been doing for the last 15 years.

Q. Tell me about what kind of studies have you been doing on that?

A. Well, in a series of studies, we invite research participants to come to our lab. We invite them to come with one or two friends, then we randomly assign the people in the study to take a test battery either by themselves or with their friends watching them. In some of the experiments, the friends are in the room with them. In some of the experiments, the friends are in an adjacent room, but they can watch the subject's performance on a monitor.

In some of the studies, the person we're testing is inside a brain imaging machine. The friends would be also in

an adjacent room watching the subject's performance on a monitor. And we administer a series of different kinds of tests, some risk-taking tests, some reward-sensitivity tests, some cognitive-control tests, then we compare how people respond when they're alone versus how they respond when they're in the presence of their peers.

We have done this with people of different ages, then we can ask is the effect of being around your peers different, if you are an adolescent than if you are an adult. What we have found, as I said before, is that when people are in the presence of their peers, up until about age 24 or so, we get this peer effect where it increases their risk-taking and reward-sensitivity, and we don't see that effect after age 24 where adults perform the same way when they are by themselves as when they are in a group.

Q. Have you ever used the term "the social brain"?

A. I have.

Q. What does that mean?

MR. PIERPONT: Your Honor, may I have one more moment with Attorney Koch?

Thank you, Your Honor.

Q. What does the social brain mean?

A. The social brain is a term that is used to refer to a brain system that is important for how we perceive other people and how we judge their opinions of us as well as

their -- as well as their emotions and their facial expressions and so on.

Q. Are adolescents particularly -- are late adolescents particularly concerned with their social status?

A. Yes.

Q. How so?

A. Well, the social brain becomes more active during adolescence, then it becomes less active as we mature into adulthood. What that does is it makes adolescents, including late adolescents more sensitive to their standing in a social group, more sensitive to the impressions that they make on other people, more sensitive to the opinions that other people have of them, and therefore, we think that explains why compared to adults, adolescents are more likely to change their behavior when they are with other -- when they are with their peers. Whereas adults are more consistent when they are alone and when they are with their peers.

Q. Is an immature, late adolescent different from an immature adult?

A. Maybe in the following way. As I said before, we think that the brain has matured by the time people are 22 or 23-years-old. What that means is that somebody who is younger than that who is immature still might become more mature over time. Whereas somebody who is immature who is 30 let's say is probably never going to be very mature because

the parts of the brain that are still -- that regulate these kinds of behaviors are done. They are done developing. So of course, with somebody who is younger, you don't know what the future is going to hold. We do believe that the vast majority of people that show immaturity during adolescence grow up to be mature adults, but we know that there are some immature adults so obviously not all of them do.

Q. Do late adolescents know right from wrong?

A. Sure.

Q. So how is it consistent to know right from wrong yet be less responsible by reason of adolescence?

A. Well, by asking about being less responsible, I want to restrict my answer to less responsible psychologically and make sure I'm not talking about less responsible legally so we don't get into areas that are beyond my expertise. By less responsible, I mean less able to control their own behavior.

Q. Is it possible, using the MRI studies that you mentioned earlier, to conclude that any given adolescent has attained psychological and neurobiological maturity?

A. No.

Q. Why not?

A. We don't have the precision that would be necessary to do that and we don't -- I'm not even sure we would know exactly what to look for.

Most of the MRI studies that are done talk about averages of people of different ages. It is not yet -- we can do a brain scan of somebody and we can say whether he has a tumor or whether he has a lesion in his brain, but we can't look at an individual brain and say is this more like an adolescent brain or more like an adult brain. We're just not there yet.

Q. I think you mentioned earlier that adolescents are more sensitive to rewards and less sentence to penalties, correct?

A. Correct.

Q. Is the harshness of a penalty likely to impact on the decision-making of a late adolescent who is making decisions in the decision-making of hot cognition?

MR. PIERPONT: The Government objects. We're talking about the harshness of penalties. We seem to be getting astray of the scientific underpinnings that Dr. Steinberg is to testify about today.

THE COURT: If he can't answer it, he can tell me that. If he can, I think it is not impermissible in the context of his prior testimony because he talked about hot cognition, making decisions, being more reward focused than risk focused and penalty to me is a risk, so if you can answer the question in that context and just in the sense of greater risk meaning greater penalty without a particular

penalty.

If you want to put a further question as to a particular penalty, you can do that later. If you can get me this far with that answer, sir. If you can't answer it, then maybe the objection is well taken, but I will let you answer.

A. I can answer and I understand the distinction that you are drawing. I think that whenever we're making a decision that has some risk involved, we're always weighing the cost and benefits of different courses of action. To the extent that a potential penalty or a punishment for doing something is salient, we're less likely to take the risk because we get worried that we're going to be punished.

But under conditions of emotional arousal when hot cognition is operating, adolescents are less likely to pay attention to the downside of a risky decision, and they're more focused on the rewards of it, so it means that the prospect of being punished for something and I mean punishment not in a legal sense, like getting a shock in a psychological experiment, the prospect of being punished for something is less salient to an adolescent than it is to an adult.

In psychological research on deterrence, that evidence has been used to argue that this is why kids are less likely to be deterred by the knowledge that something bad can happen to them because they are not paying attention

to it the way they would pay attention to it under the condition of cold cognition.

Q. You mentioned that the research on this really got going in the nineties. Is there anything indicating that adolescent brains in the 90s or 80s would be any different than adolescent brains today?

A. No.

Q. Has your research been replicated in other parts of the world?

A. Yes.

Q. Let me ask more specifically. Are adolescents in other countries and cultures falling into these same research findings that you have had?

A. Well, we recently completed a study of 5,000 people mail in 11 countries, countries that were very different from each other. Some in Europe, some in Africa, some in Asia, some in the Middle East and some in North and South America.

We looked at the two age patterns that I talked about before, this upside down U for reward-seeking, sensation-seeking and we found the same upside down U in other parts of the world as we have found in American samples.

We also looked at this gradual increase in self-control that I described before, and we also found that

in other parts of the world as we have in American samples with the improvements in self-control going on until people were in their midtwenties.

Q. That upside down U, I believe you had mentioned that in the risk-taking context?

A. Yes.

Q. Age 17 to 19?

A. Yes.

MR. KOCH: I have nothing further, Your Honor.

THE COURT: Thank you. For the Government please on cross-examination.

MR. PIERPONT: Your Honor, it is my intention to go through at least one of the exhibits that Attorney Koch introduced so I brought this laptop. I will also point out I have a couple other documents from which I plan to read. I don't intend to introduce them as exhibits. To the extent it would be helpful to the Court to take a look and Attorney Koch to take a look, maybe we can use the Sanction system and publish them on the screen for the Court and Attorney Koch.

THE COURT: That's fine.

CROSS-EXAMINATION

BY MR. PIERPONT:

Q. Professor Steinberg, good afternoon.

A. Good afternoon.

Q. I would like to talk a little bit maybe just to

clarify about the breakdown of age definitions between adolescents and young adults, just to make sure we're on the same page.

To be clear, I know there's been a little bit of question about this, when you say adolescence here today, you are defining it as the age from 10 to 20. That's inclusive all the way up to somebody who is about to turn 21. Is that fair so say?

A. Yes.

Q. As you testified previously, it could be further subdivided young adolescence or early adolescence is 10 to 14, is that right?

A. I said 10 to 13.

Q. 10 to 13 Middle adolescence maybe 13 to 17 area, is that fair to say?

A. 14 to 17.

Q. Late adolescence being this 18 to 20 range that we're talking about today?

A. Right.

Q. These boundaries have been fairly consistent for the last five years, is that fair to say?

A. Yes, with the caveat that they are just labels and just as, you know, here, you might say 10 to 14 and I might say 10 to 13. There's nothing -- these are labels that scientists use, but if I was speaking to other people who

study adolescent development, I think they would use similar labels and similar cut points.

Q. Put differently, five years ago people weren't saying middle adolescence was a 13-year-old or 12-year-old?

A. Not as far as I know.

Q. Those categories generally have been consistent for the last five years?

A. Yeah.

Q. There's some overlap between what's referred to in the literature as late adolescence and young adult as well, is that fair to say?

A. It's a term of logical overlap. Some people might use young adult to refer to people who are, you know, 18 to 24 or something like that. Other people might use it only to refer to people who are 21 to 24.

Q. And in some of your own work, you have looked at young adulthood and even talked about it in the context of 18 to 21 that being the category. Is that fair to say?

A. I'm not sure. I have a textbook on adolescence and I use the age ranges that I spoke about earlier in that. I am not sure what you are referring to.

Q. Let me bring up Defendant's Exhibit 1 then and this is a full exhibit that was just introduced. This is the "Young Adulthood as a Transitional Legal Category: Science, Social Change and Justice Policy article.

THE COURT: That's Petitioner's 2.

MR. PIERPONT: I'm sorry. That's right.

Q. Doctor, you should be able to see it on the screen in front of you as well.

THE COURT: You have to enlarge that.

A. I have a copy of that in front of me.

THE COURT: I do, too, but he's going to direct you to particular pages, Professor. He's at 645.

A. When you enlarge it, I can read it fine.

Q. I will take you to page 645, as the Court said. Do you prefer Professor or Doctor?

A. Either.

Q. If you go to page 645, there's some discussion in this article. This is an article that you co-authored, is that right?

A. Yes.

Q. I will direct you to one sentence there that's highlighted. It says "Although 18 to 21-year-olds are in some ways similar to individuals in their midtwenties, in other ways, young adults are more like adolescents in their behavior."

Fair to say that that sort of suggests that by young adults, at least in this article, you are talking about 18 to 21-year-olds?

A. Yes. And that's because the two other authors of

this article are law professors and this article stemmed from questioning the boundary that the law draws and the law draws the boundary at 18 and so in legal parlance, it would be appropriate to refer to those people as young adults.

Q. I don't want to go too far down there, but for the purposes of this article, when you are saying young adults, you mean young adults from the ages of 18 to 21 as opposed to something earlier than that or something later than that age range?

A. I believe so, yes.

Q. I would like to talk a little about this idea of late maturation in the brain in areas affecting judgment and decision-making. You testified about that on direct not that long ago. Do you remember that?

A. Yes, I do.

Q. And we heard you testify that part of the brain such as the prefrontal cortex, that's sort of responsible for some of the controlling of the impulses and sort of the CEO, the decision-maker of the brain. You testified along those lines?

A. Yes.

Q. And that the limbic system is the emotional reaction part of the brain that the cortex helps control and rein in. Is that fair to say?

A. Roughly.

Q. You were, as you testified, the lead scientific consultant for the American Psychological Association amicus brief in Miller, right?

A. Yes.

Q. As you I think testified on direct, you consulted on the science that was presented to the Supreme Court in that brief. Is that fair to say?

A. Yes.

Q. It was your job to make sure the science was accurate, is that right?

A. Yes.

Q. Were you familiar as well with other scientific briefs submitted to the court in that context?

A. In Miller? I don't recall. It was sometime ago.

Q. How about a brief by J. Lawrence Aber?

A. Aber, yes. I don't remember the contents of it, but I know that he was a co-author of another brief.

MR. PIERPONT: Your Honor, I'm going to pull up that brief. That's for the convenience of Attorney Koch and the Court. I don't plan on introducing it as an exhibit.

THE COURT: What will it be marked for I.D.?

MR. PIERPONT: Government's 1 for identification purposes. I don't know, Your Honor, if you want to take it down from the screen up there or.

THE COURT: I'm sorry.

MR. PIERPONT: I don't know if you would like to take it down from the screen up there.

THE COURT: Why?

MR. PIERPONT? As it stands right now, if I were to pull it out, it would be going to the entire courtroom and the witness.

THE COURT: It is a public document unless you don't want me to look at it.

MR. PIERPONT: No, Your Honor. I'm just pointing it out to you.

THE COURT: Yup, go ahead.

Q. So in the APA brief on which you were the lead scientific consultant, the brief stated, it is now and I'm quoting. "It is now well established that the brain continues to develop throughout adolescence and young adulthood in precisely the areas and systems that are regarded as most involved in impulse control, planning and self-regulation." You see where it says that, right?

A. I do.

Q. That is similar to the testimony that you have given here today?

A. Yes, it is.

Q. As the lead scientific consultant, you believed it was accurate at the time that it was in this brief as well, right?

A. Yes.

Q. Excuse me for one moment. I'm going to go to the thirteenth page of Government's Exhibit 1. I'm going to direct you to the bottom of the thirteenth page of Government's Exhibit 1 for identification purposes.

It reads, "Well into late adolescence, there's an increase in connections not only among cortical areas, but between cortical and subcortical regions that are especially important for emotion regulation." Are we talking there about in part the prefrontal cortex and the limbic system that you had spoken about previously?

A. Precisely.

Q. It continues to read "As the brain matures, that self-regulation is facilitated by the increase connectivity between regions important in the process of emotional and social information and reducing important in cognitive control processes." Do you see that?

A. Yes, I do.

Q. That's expanding further upon the idea that as the interconnectivity between the frontal cortex and the limbic system as that develops, an individual gains greater control in order to check their emotional reactions; is that right?

A. Yes.

Q. It continues to say, "This developmental pattern is consistent with adults' superior ability to make mature

judgments about risk and reward and to exercise cognitive control over their emotional impulses especially in circumstances that adolescents would react to as socially charged."

So there we're talking a little bit about adolescence maybe in the hot cognitive state and the contrast between somebody who is in their late adolescence as opposed to an adult, right?

A. I believe so. I don't know the exact context of this, but that's how I read it.

Q. Let me go back one page and just bring you to the --give you the context to bring you to the beginning of the particular paragraph. It says well into late adolescence there, right?

A. Yes. But I don't know. This is not a paper that I wrote. I don't know what these authors are using as their definition of well into late adolescence.

Q. You were the scientific consultant on this brief, though, right?

A. Is this our paper or is this the Aber paper?

Q. I'm sorry. This is the American Psychological Association.

A. Yes.

Q. Late adolescence there you understand that to be talking about the context of 18 and older. Is that fair to

say?

A. Yes. I believe so. We're talking about a brief that was written -- which brief is this, by the way?

Q. This is the American Psychological Association.

A. For which case?

Q. For Miller.

A. So this is a brief that is now seven years old.

Q. Maybe five years old.

A. Five years old. Miller was decided in 2012 but yup.

Q. So somewhere between five and seven years old this brief was?

A. Right.

Q. To be clear maybe we'll go to the fourteenth page of what's been previously marked as Government's Exhibit 1 and in this brief, middle adolescence is defined as roughly 14 to 17, right?

A. Yes.

Q. Elsewhere where it talks about late adolescence, fair to concluded that we're talking about people who are older than 17. Is that fair?

A. Correct.

Q. Going back to the fourteenth page of what's been previously marked Government's Exhibit 1, there's a sentence that reads "Studies have shown that the prefrontal cortex is

among the last areas in the brain to mature fully." Do you see that, right?

A. I do.

Q. That's consistent with your testimony here today about the prefrontal cortex developing much later -- withdrawn. Let me make sure I get it right.

That's consistent with your testimony earlier today that prefrontal cortex development continues into an individual's 20s. Is that fair to say?

A. Yes. Yes, if you include the connections between the prefrontal cortex and other brain regions.

Q. For instance, including the limbic system, right?

A. Yes.

Q. So I'm going to also bring up -- Your Honor, let's -- I'm going to bring up another exhibit that we can call Government Exhibit 2 for identification purposes. This is the Aber brief. I will take you to two things there.

THE COURT: Aber?

MR. PIERPONT: Aber, A-b-e-r.

Q. This was a brief submitted to Miller, right? Submitted in Miller.

A. That's what it says here.

Q. So let's take a look at the eleventh page. And here it reads "Since Graham, studies continue to confirm that the prefrontal cortex is among the last regions of the brain to

mature. In fact, the prefrontal cortex is not fully mature until an individual reaches his or her 20s." Do you see that language there?

A. I do.

Q. And that was consistent with your testimony here earlier today with the caveat that we're talking about interconnectivity between the limbic system and the prefrontal cortex, right?

A. Yes.

Q. That's consistent with what was in your brief that was presented to Miller as well, right?

A. Yes.

Q. We focused a little bit on the limbic system. I think I've mentioned it in passing a couple of times, but I want to hone on it a little bit more here. You testified that the limbic system is the emotionally charged part of the brain, that the prefrontal cortex doesn't gain more control over until an individual is in their 20s, right?

A. Yes.

Q. Do you recall writing in 2008, a paper called A Social Neuroscience Perspective on Adolescent Risk-taking in Developmental Review?

A. I do.

MR. PIERPONT: Your Honor, I have that. I would like to, for identification purposes, call that Government's

Exhibit 3. And Your Honor, I have paper copies if you prefer if it would be easier for the court to have.

THE COURT: I can't read it on the screen. Attorney Koch, would you prefer that I have a paper copy?

MR. KOCH: I have no preference.

THE COURT: Somehow the clerk has to end up with a copy.

MR. PIERPONT: Why don't I bring up a couple paper copies for the Court at this point.

BY MR. PIERPONT:

Q. I would direct you, Professor, to the fourteenth page of what's been previously marked Government's Exhibit 3. I'm going to read what it says here. There's a discussion about the decline in risky activity after adolescence and after going through a little bit before, you write, "A more likely, although not mutually exclusive, cause of the decline of risky activity after adolescence concerns the development of self-regulatory capacities that occur over the course of adolescence and during the 20's." Do you see that?

A. I do.

Q. This is consistent with your testimony here earlier today that we have been talking about with the prefrontal cortex exerting control over the limbic system?

A. I believe so.

Q. In fact, if you continue to read later in that

paragraph, you write "The maturation of this cognitive control system during adolescence is likely a primary contributor to the decline in risk-taking seen between adolescence and adulthood. This account is consistent with the growing body of work on structural and functional changes in the prefrontal cortex which plays a substantial role in self-regulation and in the maturation of neural connections between the prefrontal cortex and the limbic system which permits the better coordination of emotion and cognition. These changes permit the individual to put the brakes on impulse sensation-seeking behavior and to resist the influence of peers, which, together, should diminish risk-taking. Do you see that there?

A. I do.

Q. We see a little bit of your analogy there as well in some way where you write about putting the brakes on what would otherwise be an impulsive reaction, right?

A. Yes.

Q. That's what you're writing back in 2008 in this paper?

A. Yes.

Q. You had testified a little bit about the consequences of this as well, right, this idea that the lack of impulse control due to the development of the limbic system but underdevelopment of the prefrontal cortex leads

young adults or 18 to 20-year-olds to act like juveniles in stressful situations. Do you remember giving testimony along those lines?

A. Yes.

Q. I would like to go back to the APA brief on which you consulted and check that testimony against what is in the brief, so I will bring up what's been previously marked as Government's Exhibit 1 for identification and I will take us to the seventh page.

And the brief says there "During puberty, juveniles evince a rapid increase in reward and sensation-seeking behavior that declines progressively throughout late adolescence and young adulthood." You see that, right?

A. I do.

Q. That's consistent with what you presented to the Court here today in terms of into young adulthood that sensation-seeking behavior declines progressively into and including that young adulthood period, right?

A. Um-hum.

Q. To be -- not to put too fine of a point on it, but through late adolescence and young adulthood, that's clearly taking us through the 18 to maybe 21, 22, 23-year-old time period. Is that fair to say?

A. Yes, I believe I said before that the peak in this is around 17, 18, 19 or so, so after that it starts to

decline.

THE COURT: What's the "it" in that answer?

THE WITNESS: The sensation-seeking and reward-seeking.

BY MR. PIERPONT:

Q. I'm going to take us to the eighth page of this Government's Exhibit 1 and again consistent with the brief says "More recent studies confirm" -- well, let's start with "In one example, researchers examined differences in impulsivity between ages 10 and 30 using both self-report performance measures and concluded that impulsivity declined through the relevant period with gains in impulse control occurring throughout adolescence and into young adulthood."

And again consistent with your testimony on direct about this idea that you are not as impulsive as your prefrontal cortex begins to gain control over the limbic system, right?

A. Correct.

Q. In fact, that brief also contains the following language which says "Thus expecting the experience-based ability to resist impulses to be fully formed prior to age 18 or 19 would seem on present evidence to be wishful thinking." Do you see that language there?

A. I do.

Q. So in the brief there, you were saying impulse

control. It would be wishful thinking to think that your impulse control would be fully developed by the time that you are 18 or 19; is that right?

A. Yes.

Q. A little bit more about the impact of peers and environmental pressures. The APA brief contains the following language. Page 10 of what's been marked Government's Exhibit 1.

"The ability to resist and control emotional impulses to gauge risks and benefits in an adult matter and to envision the future consequences of one's actions, even in the face of environmental or peer pressures, are critical components of social and emotional maturity necessary in order to make mature, fully considered decisions.

Empirical research confirms that even older adolescents have not fully developed these abilities and hence, lack an adult's capacity for mature judgment. It is clear that important progress in the development of social and emotional maturity occurs sometime during late adolescence and these changes have a profound effect on the ability to make consistently mature decisions."

Do you see that language?

A. I do.

Q. We're focusing on the time period of late adolescence which would put us 18, 19, 20 in that area,

right?

A. Yes.

Q. So I would like to turn now to what's been previously marked as Defendant's Exhibit 2 which I have on the screen here and I would like to jump into it and read a little bit about the science that's contained in here. Now to be clear --

THE COURT: Is it Government's Exhibit 2?

MR. PIERPONT: This is Defendant's Exhibit 2.

THE COURT: The defendant is the Government in this case.

MR. PIERPONT: I mean Petitioner's Exhibit 2. I apologize.

THE COURT: Go ahead.

Q. To be clear, you testified on direct examination that this is the present state of knowledge regarding adolescence or so the best statement of knowledge -- withdrawn.

Let me ask you to characterize it one more time similar to as you did on direct. When you were talking about the science contained in this article, how did you describe it in sum and substance?

A. As the present state of our knowledge at the time the article was written.

Q. You had testified as well that at least in terms of

the science contained in here, there's broad consensus about the science that's in this article, right?

A. Yes.

Q. Now you are a listed author on this paper, right?

A. Yes.

Q. As a listed author you read this paper, right?

A. Yes.

Q. You agreed what was in it largely?

A. Yes.

THE COURT: I'm a little confused. I'm looking at what I wrote was Petitioner's Exhibit 2. Maybe that's my mistake. It is an article that's written by a professor I know from NYU, Taylor-Thompson.

A. I believe that he's speaking about Petitioner's Exhibit 1.

THE COURT: You are not an author on 2, right?

MR. PIERPONT: Let me double check.

THE WITNESS: Mine is marked 1.

THE COURT: You were answering as to 1?

THE WITNESS: Yes.

THE COURT: Thank you.

MR. PIERPONT: That's right. I apologize this is Petitioner's Exhibit 1, not Petitioner's Exhibit 2 that we're speaking about.

THE COURT: His answer I guess was that it is a

present statement of the knowledge in this area.

A. At the time the article was written, yes.

THE COURT: Which is 2016.

BY MR. PIERPONT:

Q. Was this published in 2016 or 2017? Do you know, Professor?

A. I believe 2016, but I'm not absolutely certain.

Q. So I would like to take you then to the seventh page of this exhibit and it reads, "Research on developmental differences between adolescents and adults often has not drawn age distinctions among individuals older than 18 and therefore is of limited value in understanding risk-taking among young adults." Do you see that language?

A. Yes.

Q. To be clear, young adults as we talked about in this article refers to people from the ages of 18 to 21, right?

A. Yes.

Q. This was published in 2016 you said, right?

A. Yes.

Q. Do you agree with this statement there's only limited value in understanding risk-taking among young adults or that is individuals from the ages of 18 to 21?

A. What we meant by this sentence is that -- is that there has not been a lot of research that has specifically looked at people who are older than 18 and divided them up

into different age groups for purposes of comparison.

Q. To be clear, the conclusion that you draw from that is that research on developmental differences is, therefore, of limited value in understanding risk-taking amongst young adults, right?

A. Yes, but the next word is "nevertheless."

THE COURT: Could I ask you to give me the page of the article, not the seventh page because I went to the seventh piece of paper and I can't find the language.

MR. PIERPONT: I understand. Page 646, Your Honor.

THE COURT: Thank you. Okay. I got it.

BY MR. PIERPONT:

Q. You continue "Nevertheless, theoretical models can inform our discussion of risk-taking in young adulthood," right?

A. Yes. I do think it is fair to look at both of those sentences together.

Q. So later on page 647 and going into 648, you write, as one of the three authors, "The age patterns in risk-taking would seem to offer support for the conclusion that young adults are also affected by the developmental influence that" -- hang on one second. I will withdraw that.

Let's start right here at the beginning of 648. You write, "The study of psychological development in young adulthood is less advanced and the findings of this research

are less consistent than the findings of research on adolescents. Do you see that language there?

A. I do.

Q. Do you agree with that statement?

A. Yes.

Q. And you go on to give a couple of limitations and I will focus on two of them now today discussing some of the shortcomings with the research on young adults in this paper here.

The first one reads "One limitation" and I will zoom in so everyone can read.

"One limitation is that studies rarely survey a sample that includes adolescents, young adults and individuals in their late 20s using the same measure for all three groups." Do you see that language there?

A. I do.

Q. You agree that's a shortcoming with the research amongst 18 or 21-years-old?

A. Yes.

Q. You continue to write or you and two other authors continue to write, "A second limitation is that studies that span the necessary age range frequently lack the statistical power to compare narrowly defined age groups." Do see that language as well?

A. Yes.

Q. You would agree with that statement as well?

A. Yes, I do.

Q. Studies of 18 to 21-year-olds don't always have the statistical oomph that's needed to maybe pass muster at least in the same way as first studies amongst adolescents. Is that fair to say?

A. I think what we meant there was that studies that have adults or people from 18, all the way up to further into the 20s, don't necessarily divide them up into age groups where there's enough statistical power to compare them. It is not within the 18 to 21 group as you phrased your question, but it is wider than that.

Q. I understand. So let's take a look then at page 649 of this exhibit. You write "Conclusions about whether psychological development continues beyond age 18 are highly task dependent. Consider, for example, the question of whether young adults." Again in that context, taking about 18 to 21-year-olds, right?

A. Yes.

Q. "Like juveniles, are more susceptible than older adults to peer influence. The answer is equivocal." Do you see that writing there?

A. I do.

Q. Do you agree with that statement that the science and the studies suggest -- well, it is ambiguous as to what

impact peer pressure has on young adults?

A. That's right.

Q. You continue to write there "Studies of resistance to peer influence using self-reports do not find age differences after 18." Do you see that language there?

A. I do.

Q. "But experimental studies comparing individuals' performance on decision-making tasks, when they are alone versus when they are with their peers find peer effects on task" --

THE COURT: Could I just ask you to slow down. My brain can't compute what you are saying so I have no idea how she can take it down. My brain can't listen at the speed.

MR. PIERPONT: Happy to slow down.

THE COURT: Thank you.

BY MR. PIERPONT:

Q. So you continue to write "Studies of resistance to peer influence using self-reports do not find age differences after 18, but experimental studies comparing individuals performance on decision-making tasks when they were alone versus when they are with their peers find peer effects on task performance after this age at least into the early 20's" Do you see that language there?

A. I do.

Q. You continue to agree with that language?

A. Yes.

Q. "For example, exposure to peers increases young adults' preference for immediate rewards, willingness to engage in exploratory behavior and ability to learn from experience."

Do you see that.

A. Yes.

Q. You continue to write "In some studies, exposure to peers has been shown to increase young adults' risk-taking; but in other studies, this has not been found."

Do you see that as well, right.

A. Yes.

Q. So jumping to page 651 of this exhibit. Here you are discussing neurobiological research and brain development in young adulthood. And you write, along with other authors, "As with behavioral research, very few studies have systematically examined age differences in brain development among individuals older than 18. In most studies, adolescents are compared to adults with the latter group composed of people who may be as young as 19 or as old 50. When adult comparison groups average data from such a wide age range, it is impossible to draw specific inferences about potential differences between young adults and their older counterparts."

Do you see that language there?

A. Yes.

Q. Do you agree that where adult comparison groups have average data from such wide age ranges, that it is impossible to draw specific inferences about individuals from the age of 18 to 21?

A. If you don't have that category separated out, you couldn't.

Q. You agree with this that in most studies that is the case, that adolescents are compared to adults with people from the ages of 18 to 50 in that group, right?

A. Yes.

Q. On the next page, this is on page 652. You write as follows about this research on brain systems and that is, "The research indicates that brain systems governing thinking about social relationships undergo significant change in adolescence in ways that heighten concerns about the opinions of others. Compared to adults, adolescents seem especially sensitive to both praise and rejection, making young people potentially more easily influenced by their peers."

You continue to write.

"But very little research has asked whether and how these brain systems continue to change beyond the teen years. One study that examined the impact of peers on neural responses to reward in a sample of adolescents, ages 14 to 18, young adults, 19 to 22, and adults, 24 to 29, found that

the presence of peers increased activation in this brain region among adolescents but had no impact in the other two age groups."

You see that language there, right?

A. I do.

Q. The other two age groups in this case would include young adults albeit as defined from 19 to 22, right?

A. Yes.

Q. I will take us to one more page here and I will read two separate highlighted parts. And this, Your Honor, is on page 653 of Petitioner's Exhibit 1.

You write "It is clear that the psychological and neurobiological development that characterizes adolescence continues into the midtwenties, but the research has not yet produced a robust understanding of maturation in young adults age 18 to 21.

You see that, right?

A. I do.

Q. And you agree that there is not yet a robust understanding of maturation in young adults aged 18 to 21?

A. I do.

Q. You continue later, "The research on age patterns in risk-taking and on emotional maturation, particularly on impulse control in negative arousal states and peer influence in social contexts, provide the most powerful evidence that

young adult offending likely represents a continuation of adult (sic) risk-taking, driven by developmental forces; but many uncertainties remain."

Do you see that language as well?

A. I am but in your reading of it I think you misquoted it. It likely represents a continuation of adolescent risk-taking. I believe you said adult risk-taking. It says adolescent risk-taking in the article.

Q. Yes. Adolescent risk-taking, but you do agree that uncertainties remain in that regard?

A. I'm sorry.

Q. You do agree that uncertainties remain in that regard, right?

A. Yes.

MR. PIERPONT: Excuse me for one moment.

I have nothing further, Your Honor. Thank you.

THE COURT: I have a few questions. I will ask them before redirect. I will give the Government a chance to follow-up if they have questions on my questions. Give me a minute to organize my thoughts.

Well, let's start with some kind of visual basics. In my mind, when you told me to think about risk-taking, you told me to think of an upside down U where the horizontal axis would be age, the risk-taking would go vertically and I will see it go up and then down. Is that fair?

THE WITNESS: Yes.

THE COURT: So there's in effect a trough in the U even though it is upside down. If I righted the U, there would be a trough at the bottom so in this case, it is at the top?

THE WITNESS: Yes.

THE COURT: Did I understand your testimony to be that the peak of that upside down U is 17, 18 and 19?

THE WITNESS: Yes. Although, Your Honor, I believe I said, if I didn't, I will now. A lot of it depends on the specific type of risk-taking that you are talking about and the specific measure that's being used but generally speaking, that's where the peak is.

THE COURT: Okay. Then you also said, and I might have got this wrong, but I believe you also said that impulse control was fully developed by 18 to 19, did I take that down incorrectly?

THE WITNESS: No, I didn't say that.

THE COURT: That's when he was going fast. I was trying to catch up.

THE WITNESS: What I believe I said was that impulse control continues to develop into the midtwenties.

THE COURT: Okay. So that diagram is an axis of age horizontal, vertical is impulse control. It is a straight line up until about the midtwenties?

THE WITNESS: Then it plateaus, exactly.

THE COURT: Thank you. That's that. When an expert testifies in court, Professor, they are required to be able to at least state to a reasonable degree of, in your case, psychological study certainty that something is more likely true than not true?

THE WITNESS: Yes.

THE COURT: So I don't know if this is proper. Anybody wants to object, please object. I will not be offended, but I would like to ask you some questions that are going to be sort of focused on confidence levels.

In other words, I assume nothing you've said today do you question is at least more likely true than not in terms of your opinions that you gave about impulse control, risk-taking, age changing, et cetera. But I'm interested in confidence sort of levels. In other words, how much above 50 percent are you certain or believe to be is the case true.

In other words, I will start with -- I will start with something. It sounds like you define late adult adolescence as 18, 19, 20 and adulthood or young adulthood at over 20?

THE WITNESS: Yes.

THE COURT: And what is the confidence level you have that is where the line should be drawn in a psychological sense?

THE WITNESS: Um.

MR. PIERPONT: When you say line in that context?

THE COURT: His categorizations. I'm calling them lines. But I can change line to categories, but the line -- 20 falls into one category, 21 falls into another category in my mind, that's a line between 20 and 21. I'm asking -- this is kind of a really pure psychology question. It could be related to the case. In terms of these categories that seem to be drawn early, mid, late adolescence, young adulthood, you know.

I guess I could get up on the stand and say well, early adolescence, in my opinion, starts at six. You would laugh because you know as a psychologist, that's not a fair characterization of the category known as early adolescence.

So I'm trying to get at the witness's view of his confidence that 20 is indeed the proper end of late adolescence.

Why wouldn't it be 21? I guess I can put it that way.

THE WITNESS: It could be, Your Honor. These are labels. These are shorthands that we use for purposes of communication. A lot of development, in fact, most of development is gradual and where we choose to draw lines for purposes of creating these labels or for purposes of the law, it is not arbitrary but reasonable people might disagree as

to whether it should be 21 or 22.

If I may, to the extent that a different way to answer the question is, Am I confident that development is still going on? Yes. Absolutely confident.

THE COURT: Based upon your education, training, your research involvement, is it your opinion that 20-year-olds, generally speaking, obviously we're all made up of humans who are entirely different, but as a class, someone age 20 is more like an 18 or 19-year-old or more like a 21-year-old in categorization of psychologically? That didn't make any sense.

THE WITNESS: No. It made perfect sense.

MR. PIERPONT: Your Honor, I'm again when you say psychological. In what sense?

THE COURT: The characteristics we have been talking about. Development of the frontal lobe, risk-taking, impulse control. I guess I would hope he wouldn't put a 65-year-old in the same category as an 18-year-old in describing them psychologically as far as development and all of these other aspects that he's spoken about in describing 13-year-olds versus 15-years-old versus 18-years-old.

I'm trying to have a sense of -- and I understand the last answer is a perfectly sound one at least to my ignorant hearing -- I'm ignorant I mean -- of the idea that reasonable people can differ. Reasonable researchers might

create a different class to study. They might look at 19 to 23-year-olds, but in his view that he categorized these folks there, I'm trying to understand, I assume it is based on his view, his belief, his judgment as an expert that those years share common characteristics while they may be developing and evolving over time, but they still belong together in a psychological sense. I guess that's what I'm trying to say.

THE WITNESS: Yes. If I can elaborate a bit.

THE COURT: Please do.

THE WITNESS: It is not just an opinion in the study that I mentioned before of the 5,000 people from eleven different countries, we actually statistically said well, when does self-control hit a plateau. We quantitatively asked when that was. It was at 22 was the earliest we could see it, so in the sense that people who are still developing share that as a similarity, then people who are 20 are more like people who are younger because they are also still developing.

THE COURT: So to me that implies that there are greater cross category differences than within category differences?

THE WITNESS: Yes.

THE COURT: So in your opinion, an 18-year-old -- Is an 18-year-old more similar to a 20-year-old or to a 17-year-old? Again we're speaking in general broad

statistical census. I'm not talking about be an individual person.

THE WITNESS: It depends on what your -- to me I think of them as comparable. That is I wouldn't say one or the other. I think it would depend on the measure of similarity that you were going to use.

THE COURT: Well, certainly an 18-year-old is closer to a 17-year-old than a 20-year-old in numerical sense.

THE WITNESS: Yes. I think if you looked at measures of things like self-control, you would find closer scores between 18-year-olds and 17-year-olds because they are closer together on that horizontal axis than you would between 18-year-olds and 20-year-olds because the development of those things is linear and gradual, so the further apart on the axis you are, then the further apart you will be on their scores.

THE COURT: That's on the impulse control chart?

THE WITNESS: Yes.

THE COURT: On the risk one, we have already established that it is an upside down curve so 18 and 20 might be roughly the same place or roughly equal to 19?

THE WITNESS: Pretty close, yeah.

THE COURT: There were a number of places that Government's counsel pointed you to in Petitioner's Exhibit 1, the article that you co-authored, and I will not go back

over the exact language, but I just happen to write down I think at page 649, the phrase, After 18 years is used and 651, quote, older than 18. When you wrote those words or co-wrote those words, was that literally accurate? In other words, you were writing and expressing a view with respect to people who are 19 and 20 or does over 18 or older than 18 in those contexts mean 18 years and one day? If you need to go back to the article.

THE WITNESS: No. I know what you are referring to, Your Honor, yes. My answer to that has to put the article in context. As I mentioned before, the first and second authors are law professors and this article was written specifically because we were asked for a conference held at Fordham to look at the current legal boundary in the United States for purposes of criminal prosecution.

THE COURT: Is under 18?

THE WITNESS: Exactly. To say basically is 18 the place where we should be drawing this line. Had we been asked to address a different question. That is the question before the court today, should the line be drawn at 21 or at whatever age, we would have written the sentence that way. So in other words, the construction of the sentence came out of the legal question of this article.

THE COURT: Miller is under 18?

THE WITNESS: Exactly.

THE COURT: That's helpful. Thank you. I think that's all that I had. The only thing I would ask before we go to redirect or the Government's cross on that is I don't usually let a CV be marked into evidence, but I was thinking although I took some notes about the brief questions you asked him, if you had a CV for the professor, would there be objection to marking it? I think it might be helpful to have it in the record.

MR. PIERPONT: No objection.

MR. KOCH: I have one.

THE COURT: That will be Petitioner's Exhibit 3. I think probably I should let the Government cross on my questions and then the redirect would cover both the Government's cross and my questions. Is that all right?

MR. PIERPONT: Your Honor, the Government is not going to have cross-examination on those questions.

THE COURT: You are welcome to.

MR. PIERPONT: I appreciate that. Thank you.

THE COURT: Attorney Koch.

MR. KOCH: Thank you, Your Honor. On the CV, I can --

THE COURT: If you don't have a copy, I would as you show it to the Government unless they have seen it. Send it to Diahann and we'll mark it. The hearing is going to go past today. It is not a harm.

MR. KOCH: They have seen it. They got it from me. Now they are giving me my copy.

THE COURT: So that will be Petitioner's 3. Give it to Diahann. She'll mark it later. Thank you. I don't need to see it right now, Diahann. I think it should be in the record. Go ahead, Attorney Koch please.

MR. KOCH: Thank you, Your Honor.

REDIRECT EXAMINATION

BY MR. KOCH:

Q. All right. Professor Steinberg, stepping back a minute or two. I guess relating to the last questions of Her Honor. Are psychologists as interested in drawing these categorical lines as lawyers are?

A. No.

Q. What's your main interest driving all of this research?

A. My main interest is to better understand how decision-making abilities change between the ages of 10 and 30.

Q. So you were to take your research outside of any context of line drawing or legal or policy considerations, where would you just float the age of full maturity of the brain?

A. As I said before, around age 22 or 23, based on current information.

Q. The Government pointed to different kinds of reservations and qualifications in the article that you wrote. Do those reservations and qualifications undermine your confidence in your conclusions here today?

A. Well, as I responded when the Government was asking its questions, I still stand by what we wrote which is that we know less about young adults, late adolescents, if you will, than we do about people who are under 18. That's a statement of fact because as I explained when you were questioning me, that has been a much later focus of research so not as large a body of evidence has accumulated.

So as a scientist, the more studies there of something and the more consistent the findings are, the more confident we are.

The reason that Scott and Bonnie and I wrote this paper that we were just talking about is because people were raising legal questions about where we ought to draw the line. We looked at the science and said, you know, there's enough here to open up the discussion. It is not -- it is not as fully developed as the literature is on adolescence, but there's enough studies in my view and my co-authors' view to say I think we should revisit this.

Q. Does your research ever conclude that any bright line should be drawn?

A. No. And as a scientist -- that's a legal question.

That's not for me to answer. What I see my role today and in other cases in which I have testified, is to do my best job of explaining the science to the legal decision-makers. It is their decision to decide how to use that science to draw legal boundaries. That's not a scientific question.

Q. Does any of your research support that there's a clear clinical psychological difference between your average 17-year-old and your average 18-year-old?

A. I would say probably not. If you were asking me as a scientist, if I thought that we would find a statistically significant difference between 17-year-olds and 18-year-olds on the kind of things that we study or to use Her Honor's way of putting it which was correct that we would find greater between category differences than within category differences, no, I can't think of a study where one would find such a bright-line boundary.

Q. At some point, you were asked about something that the Government had pointed to about similarities that exist between -- strike that question.

Let me ask you it differently. 18, 19, and 20-year-olds, you have testified they have some similarities with adults, right?

A. Sure.

Q. How does hot cognition play into that?

A. I would say that the similarities that you would

find are more in the realm of cold cognition. In hot cognition is where you would find the differences between people that age and adults.

Q. Would it be fair to say under hot cognition, that's where late adolescence are more similar to mid adolescence than they are to adults?

A. Absolutely. That's exactly how I would put it.

MR. KOCH: Nothing further. Thank you.

THE COURT: Just based on something that you said a moment ago or it was imbedded in a very long answer of something you said a moment ago, I want to have the record be clear. Is it your opinion to a reasonable degree of psychological science certainty that the findings which underpinned your conclusions as to the petitioner's in, for example, Graham, under 18, actually they were 14 but the opinion says under 18, you have the same opinion as to 18?

THE WITNESS: Yes. And had that been the question that was asked in Graham, I would have said the same things. I would have changed the age in the brief.

THE COURT: The number would have changed?

THE WITNESS: Exactly.

THE COURT: If someone said could you change it to 21, would you have been able to do that based upon your expertise as a psychologist?

THE WITNESS: I don't think I would be confident

enough. I think I would be confident enough about 20, but not 21, but we're really, you know, in terms of reasonable scientific certainty, I am more certain about 20 than I am about 21.

THE COURT: As to 18?

THE WITNESS: Absolutely certain.

THE COURT: All right. I don't have if you have questions on that.

MR. KOCH: I have one follow-up question. When you said 20, up to 20 or through 20?

THE COURT: I was asking and if you didn't understand me, when I was using 18, 20, 22, I was referring to a person who nominally has that age. In other words, not under, but is at the moment a 20-year-old, i.e, a person who could be 20 years and a day or 20 years and 11 months and 29 days.

THE WITNESS: That's how I understood your question.

MR. KOCH: Thank you, Professor.

THE COURT: Professor, I think we'll get you back to Philadelphia. I apologize for the delay this morning.

THE WITNESS: It happens.

THE COURT: It shouldn't. I'm thinking of sending some other agency of the government your bill, but we'll deal with that later. Thank you very much.

The other thing I wanted to put on the record and I apologize I kind of assumed things and I shouldn't assume things. You mentioned the presence of the family members of the victim Mr. White. I assume they are here because you fulfilled your obligation under the Victim's Right act by notifying them. There was a second victim whose name I believe was Diaz. Any family?

MS. COLLINS: We have made efforts and the agents have been helping us make efforts. We have not be able to locate a member of the Diaz family. The White family was helping us with that as well. We're not able to reach the person. We're continuing that. We're hoping to do that before the 29.

THE COURT: In the category of not assuming anything, I understood your remarks. I don't want to assume it, Attorney Pierpont. While the members are present of the White family which I appreciate that no one wished to participate I guess in this proceeding, the hearing. I don't know that they could. They have right to be present and to be heard I think, but I don't know heard at an evidentiary hearing, I'm not sure.

MR. PIERPONT: I think the read here that we have we informed them, we talked to them about this hearing and what was going to happen at the hearing. I don't believe it would be the Government's position that in this context, they would

have the right to be heard. If that comes up, we'll continue to apprise them of those rights.

THE COURT: Okay. They have a right to be heard at any public proceeding involving release, plea, sentencing, parole. This is in the nature of evidentiary hearing. They have a right to be informed of all proceedings. I think you were right to do that.

Attorney Koch, I believe you indicated on your witness list that you intended to call Mr. Cruz to testify.

MR. KOCH: Yes, Your Honor.

THE COURT: Can we do that now?

MR. KOCH: I had an agreement with the Government that we would do that on another day which is why I believe we scheduled September 29.

THE COURT: I did, but I did it based on the representation that the professor would take all day. Therefore, we would need more time. I set aside the whole day. Somebody else is responsible for ruining my morning. But I don't know. Why did you ask me to set aside a whole day? I don't mind doing it in two days. Why did I schedule a whole day?

MR. KOCH: Could I have a moment with the Government please?

THE COURT: Sure.

MR. KOCH: Thank you.

I know that Your Honor would like to go forward. I thought that there was an off-chance that this might be the case. However, Mr. Cruz I didn't get to seem him before we were in court today, and I was kind of relying on the September 29 date and I apologize that we have taken --

THE COURT: My concern if I weren't looking out at a room full of the public who will have to return I assume given their level of interest. I can go back and do work on something else right now. But, you know, would I rather have the 29 open and not occupied with this, yes. Would I rather not inconvenience people, yes.

MS. COLLINS: Prior to today -- may I? Prior to today's proceedings in informing the family, we gave them the date of 29 once the Court issued that date on the calendar. They are well aware that's going to occur on the 29th. They have been told that ahead of today and I think that --

THE COURT: You have no objection to it continuing?

MS. COLLINS: We have to objection to the 29.

THE COURT: You are a lucky man, Attorney Koch. That's all I can say.

MR. KOCH: Thank you, Your Honor.

THE COURT: Please understand the next time I schedule an all-day hearing, when one finishes in five minutes, I don't expect to recess to take the second witness on the second day. I intend to go to the second witness.

That's at trials, hearings, anything in front of Judge Hall. Write it down in your book. Is there anything else? We'll stand adjourned.

(Whereupon, the above hearing adjourned at 3:18 p.m.)

COURT REPORTER'S TRANSCRIPT CERTIFICATE

I hereby certify that the within and foregoing is a true and correct transcript taken from the proceedings in the above-entitled matter.

/s/ Terri Fidanza

Terri Fidanza, RPR

Official Court Reporter

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EXAMINATION