In The Supreme Court of the United States

VERNON MADISON,

Petitioner,

v.

STATE OF ALABAMA,

Respondent.

On Writ Of Certiorari To The Mobile County Circuit Court

BRIEF OF PETITIONER

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QUESTIONS PRESENTED

This Court has granted certiorari to address the following two substantial questions:

- 1. Consistent with the Eighth Amendment, and this Court's decisions in Ford v. Wainwright, 477 U.S. 399 (1986), and Panetti v. Quarterman, 551 U.S. 930 (2007), may the State execute a prisoner whose vascular dementia and cognitive impairment leaves him without memory of the commission of the capital offense and prevents him from having a rational understanding of the circumstances of his scheduled execution?
- 2. Do evolving standards of decency and the Eighth Amendment's prohibition of cruel and unusual punishment bar the execution of a prisoner whose competency has been compromised by vascular dementia and multiple strokes, and where scientific and medical advancements confirm severe cognitive dysfunction and a degenerative medical condition which prevents him from remembering the crime for which he was convicted or understanding the circumstances of his scheduled execution?

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INTRODUCTION

Vernon Madison has been on Alabama's death row for over 30 years. As a result of multiple, severe strokes over the last several years, Mr. Madison now suffers from vascular dementia, cognitive impairment, and memory loss. He also suffers from encephalomalacia (dead brain tissue), has small vessel ischemia, speaks in a dysarthric or slurred manner, is legally blind, can no longer walk independently, and has urinary incontinence.

Scientific and medical advancements have allowed experts and courts to confirm the extent of his cognitive decline, and three federal judges concluded that his impaired condition prevented him from having a rational understanding of the execution that the State of Alabama sought to carry out and that his execution was therefore prohibited by the Eighth Amendment. Prior to his most recent scheduled execution date, however, the state trial court, in an unreviewable judgment, concluded that vascular dementia and its attendant cognitive decline and memory loss did not trigger the protections of the Eighth Amendment. This Court has now agreed to resolve the question of whether executing someone with dementia and cognitive brain damage, whose mental disability prevents him from having a rational understanding of his execution, is prohibited by the Eighth Amendment.

OPINIONS BELOW

On January 16, 2018, the Mobile County Circuit Court denied Mr. Madison's petition to suspend his execution because he is incompetent to be executed, filed pursuant to Alabama Code § 15-16-23. (Attached to Petition for Writ of Certiorari as Appendix A.) Section 15-16-23 provides that the trial court's decision "shall be exclusive and final and shall not be reviewed or revised by or renewed before any other court or judge." See also Weeks v. State, 663 So. 2d 1045, 1046 (Ala. Crim. App. 1995) (dismissing appeal of competency-to-be-executed determination because "[t]he statute clearly states that a finding by the trial court on the issue of insanity, as it relates to this statute, is not reviewable by any other court"). As such, the Mobile County Circuit Court's order is the only order presented for this Court's review.

STATEMENT OF JURISDICTION

Mr. Madison's petition for writ of certiorari was filed on January 18, 2018, and review was granted on February 26, 2018. Jurisdiction is appropriate because the Mobile County Circuit Court is the "highest court of [Alabama] in which a decision could be had." 28 U.S.C. § 1257(a).

RELEVANT CONSTITUTIONAL PROVISIONS

The Eighth Amendment to the United States Constitution provides in relevant part:

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

The Fourteenth Amendment to the United States Constitution provides in relevant part:

No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws.

STATEMENT OF THE CASE

Following his arrest for the shooting death of off-duty police officer Julius Schulte on April 18, 1985, Vernon Madison spent the next decade on Alabama's death row illegally convicted. His first conviction by an all-white jury was deemed unconstitutional after state prosecutors were found to have illegally excluded all black veniremembers in violation of *Batson v. Kentucky*, 476 U.S. 79 (1986). *Madison v. State*, 545 So. 2d 94, 95-99 (Ala. Crim. App. 1987). At a second trial, prosecutors improperly introduced clearly inadmissible evidence to obtain a conviction which necessitated a second reversal. *Madison v. State*, 620 So. 2d 62, 73

(Ala. Crim. App. 1992). It was not until 1998 that the Alabama appellate courts finally affirmed Mr. Madison's conviction for capital murder, and even that affirmance left unresolved questions about racially biased jury selection and the trial court's override of the death-qualified jury's verdict of life imprisonment without parole. *Ex parte Madison*, 718 So. 2d 904 (Ala. 1998).

Collateral appeals to state and federal courts were pursued by Mr. Madison. The United States Court of Appeals for the Eleventh Circuit eventually remanded the case to the district court for further proceedings based on concerns about the prosecutor's racially biased use of peremptory strikes. Ultimately, the federal courts denied Mr. Madison's petition for habeas corpus relief. Madison v. Comm'r, Ala. Dep't of Corr., 761 F.3d 1240 (11th Cir. 2014). This Court denied certiorari review and subsequently denied Mr. Madison's petition for rehearing on May 18, 2015. Madison v. Thomas, 135 S. Ct. 2346 (2015).

During the pendency of this federal court litigation, Mr. Madison began to experience serious medical problems that have now left him severely impaired. As a result of multiple, life-threatening strokes, Mr. Madison has suffered significant brain damage. He now speaks in a dysarthric or slurred manner, is legally

¹ In denying habeas corpus relief on Mr. Madison's *Batson* claim, the Eleventh Circuit found that "[t]he history of racial discrimination at the Mobile County District Attorney's Office that prosecuted Mr. Madison is significant." *Madison*, 761 F.3d at 1252.

blind, can no longer walk independently, and has urinary incontinence. (*See*, *e.g.*, Doc. 11-34 at 59 (Holman Prison medical records); Doc. 11-23 at 47 (same); Doc. 8-3 at 16 (expert report of Dr. Goff); Doc. 8-1 at 73-74, 92-93, 104-05 (4/14/16 hearing).)² More importantly, he now suffers from vascular dementia and corresponding long-term severe memory loss, disorientation and impaired cognitive functioning.

The most recent of these strokes occurred on January 4, 2016, when prison officials found Mr. Madison unresponsive in his prison cell and fecally incontinent after he suffered a thalamic stroke,³ which necessitated transfer from Holman Prison to an outside hospital. (Doc. 11-32 at 25 (Holman medical records); Doc.

² The pertinent facts relevant to Mr. Madison's multiple strokes and medical condition were developed in prior litigation and explicitly incorporated into this proceeding. These facts, along with filings and orders of that prior litigation, are all contained in the habeas corpus record and available on PACER. *Madison v. Dunn*, No. 1:16-cv-00191-KD-M (S.D. Ala. 2016). Thus, citations to these facts will be to the document number of the relevant habeas corpus record material, as for example "Doc. 8-3 at 19." Any cites to the hearing held in the Mobile County Circuit Court in 2018 will be as follows: "Hr'g R. at 12."

³ An MRI confirmed that Mr. Madison suffered a "very small acute CVA," (Doc. 11-60 at 11 (Mobile Infirmary Medical records)), and a "[t]iny focal acute to subacute infarct in the right thalamus," (Doc. 11-60 at 13 (same); see also Doc. 8-3 at 19 (Goff report); Doc. 8-1 at 101 (hearing)). "A neurologic symptom or symptom complex caused by cerebral ischemia or hemorrhage is commonly called a cerebrovascular accident (CVA), or stroke." David C. Good, Cerebrovascular Disease, in Clinical Methods: The History, Physical, and Laboratory Examinations 288, 288 (H. Kenneth Walker, W. Dallas Hall, & J. Willis Hurst, eds. 1990). An "infarct" is, "in lay words, a stroke[.]" (Doc. 8-1 at 101 (hearing).)

11-60 at 11-13 (Mobile Infirmary records).) The thalamus is a "connection organ" that links the limbic system in the lower area of the brain to the frontal lobes, (Doc. 8-1 at 101-02 (hearing)), and when the thalamus is damaged, "the most common thing" that results is memory loss. (Doc. 8-1 at 102 (hearing); see also Doc. 8-3 at 19 (Goff report).) After the stroke, Mr. Madison was disoriented, appeared "very confused," and suffered significant loss of memory. (Doc. 8-1 at 101 (hearing); Doc. 8-3 at 19 (Goff report); Doc. 11-52 at 17 (Atmore Hospital medical records); see also Doc. 11-60 at 18, 25, 44, 80 (Mobile Infirmary records); Doc. 11-61 at 47 (same).)

Prior to this January stroke, other strokes had contributed to Mr. Madison's cognitive decline. (Doc. 8-1 at 74-75, 104-07 (hearing); Doc. 8-3 at 19 (Goff report).) In May 2015, he suffered a basilar artery occlusion, causing bilateral cerebral and occipital infarctions, and resulting in increased brain pressure, white matter attenuation, and possible temporal lobe damage. (See, e.g., Doc. 11-28 at 43, 46, 50, 52 (Holman medical records); Doc. 11-58 at 10, 12 (USA medical records).) As a result, Mr. Madison was taken to the ICU and a neurosurgeon was placed on standby due to a high risk of fatal brain herniation. (Doc. 11-28 at 46 (Holman medical records); Doc. 11-56 at 13 (USA Medical records).) This stroke, as well as others, compromised his memory and ability to recall basic things about his life and personal history. (Doc. 8-3 at 13 (Goff report); Doc. 8-1 at 104-05 (hearing); Doc. 11-55 at 48 (USA medical records); Doc. 11-56 at 12 (same); Doc. 11-28 at 39-41, 45 (Holman medical records); Doc.

11-34 at 36 (same).) Indeed, since his stroke, he has repeatedly asked for his mother to come and visit him even though she has been dead for years. (Doc. 8-3 at 15, 19 (Goff report); Doc. 8-1 at 101 (hearing).)

Mr. Madison's stroke left him in an "altered mental status," (Doc. 8-3 at 13 (Goff report); Doc. 11-23 at 48-49 (Holman medical records); Doc. 11-28 at 43 (same); Doc. 11-38 at 32 (Atmore Hospital records); Doc. 11-39 at 2 (same); Doc. 11-56 at 13 (USA medical records); Doc. 11-58 at 16 (same)), with a diminished ability to comprehend, (Doc. 11-30 at 14 (Holman medical records)). He was also unaware of where he was or why he was there and became generally confused, a disorientation that continued well after his hospitalization. (Doc. 11-30 at 32, 36 (Holman medical records); Doc. 11-31 at 3, 7, 10 (same); Doc. 11-56 at 12, 15 (USA medical records); Doc. 11-58 at 59 (same).) His speech was slurred, he exhibited signs of an impaired memory, and he could not remember the officers who were guarding him, whom he had known for years. (Doc. 11-30 at 31-32, 36, 39 (Holman medical records); see also Doc. 8-3 at 16, 19 (Goff report).) Medical records also document that Mr. Madison suffered strokes prior to the May 2015 incident which negatively impacted his cognitive and bodily functioning. (Doc. 8-3 at 19 (Goff report); Doc. 8-1 at 104 (hearing); Doc. 11-28 at 2 (Holman medical records documenting 2014 infarct in pons); Doc. 11-29 at 36 (same); Doc. 11-30 at 3 (same); Doc. 11-40 at 10 (Atmore Hospital records noting "old" infarcts); Doc. 11-49 at 14 (same); Doc. 11-35 at 3, 8 (Holman medical records documenting vision deterioration due to 2014 stroke).)

As a result of these strokes, Mr. Madison now suffers from encephalomalacia, (Doc. 11-60 at 41, 49, 141 (Mobile Infirmary records); Doc. 11-27 at 30 (Holman medical records); Doc. 11-52 at 5 (Atmore Hospital records); Doc. 8-1 at 106 (hearing)), which means that there are areas of his brain where the tissue is dead. (Doc. 8-1 at 105-06 (hearing)). An MRI in January 2016 depicted encephalomalicia in the occipital lobes and cerebellar hemispheres, and indicated that the size of the dead tissue had increased since the last stroke occurred in May 2015. (Doc. 11-60 at 12-13 (Mobile Infirmary records); Doc. 8-1 at 106-07 (hearing); Doc. 11-52 at 5 (Atmore Hospital records).)

Mr. Madison suffers from additional, chronic medical conditions that have led to worsening capacity for rationally understanding his circumstances, including chronic small vessel ischemia which is recognized as a leading cause of cognitive decline.⁴ (Doc. 8-3 at 19 (Goff report); Doc. 8-1 at 73-74, 105-06 (hearing).) He also suffers from occipital angioma – an abnormal collection of blood vessels – which likely contributed to his strokes and debilitating headaches. (Doc. 11-23 at 18 (Holman medical records); Doc. 11-27 at 35 (same); Doc. 11-29 at 36 (same).)

At the 2016 hearing on his competency-to-beexecuted challenge, Mr. Madison was confined to a wheelchair. The trial court found that he "appeared to

⁴ See John G. Baker et al., Cerebral Small Vessel Disease: Cognition, Mood, Daily Functioning, and Imaging Findings from a Small Pilot Sample, 2 Dementia & Geriatric Cognitive Disorders Extra 169, 169 (2012).

be a physically ill individual" and that it was "difficult to tell if Madison was following all of the testimony or not." (Doc. 8-2 at 157 (trial court order of 4/29/16).)

At that hearing, unrebutted evidence was presented that Mr. Madison suffers from a major vascular neurocognitive disorder, see Am. Psychiatric Ass'n, Diagnostic and Statistical Manual of Mental Disorders 621 (5th ed. 2013) [hereinafter "DSM-5"], or vascular dementia, which was caused in part by the thalamic stroke he suffered in January 2016. (Doc. 8-3 at 19 (Goff report); Doc. 8-1 at 101-02, 107 (hearing); Doc. 11-60 at 13 (Mobile Infirmary records).) Dr. John Goff, a licensed neuropsychologist who, at Mr. Madison's request, conducted extensive neuropsychological testing and evaluated Mr. Madison's competence to be executed, determined that Mr. Madison's cognitive and bodily functioning has declined significantly as a result of multiple strokes suffered over the last several years, and as a result of other medical conditions with which he is afflicted. (Doc. 8-1 at 105, 108-09 (hearing); Doc. 8-3 at 16-19 (Goff report).)

Dr. Goff's testimony established that the thalamic stroke that occurred in 2016 is particularly relevant to Mr. Madison's competency because it resulted in significant cognitive injuries and memory loss as well as a diminished capacity for rationally understanding his circumstance. (Doc. 8-3 at 19 (Goff report); Doc. 8-1 at 101-04 (hearing).) Dr. Goff diagnosed Mr. Madison with vascular dementia due to the onset of cognitive deficits, including memory loss, that were temporally related to a "hard marker in the medical records . . . [,] on the

MRI"; in this case, the thalamic stroke. (Doc. 8-1 at 107-08 (hearing)); DSM-5 at 621-22 ("Neuroimaging (magnetic resonance imaging [MRI] or computed tomography [CT]) evidence of cerebrovascular disease comprises one or more of the following . . . a strategically placed single infarct or hemorrhage (e.g., in agular gyrus, thalamus, basal forebrain). . . .").

Consistent with that diagnosis, Mr. Madison suffers from resulting retrograde amnesia which means that his episodic memory – memory related to events that happened to him in the past – has significantly declined. (Doc. 8-3 at 19 (Goff report); Doc. 8-1 at 102, 107 (hearing).) Consequently, Mr. Madison cannot remember numerous events that have occurred over the past 30 years. Dr. Goff's examination revealed that Mr. Madison cannot independently recall the facts of the offense; the sequence of events from the offense, to his arrest, to his trial or previous legal proceedings in his case; or the name of the victim. (Doc. 8-3 at 18-19 (Goff report); Doc. 8-1 at 101, 107, 110, 119-20 (hearing).)

These findings are consistent with Dr. Goff's neuropsychological testing, which revealed that Mr. Madison has an IQ score of 72, placing him in the borderline range of intelligence and confirming a significant decline from his previous scores. (Doc. 8-3 at 17, 20 (Goff report); Doc. 8-1 at 97 (hearing).) Mr. Madison has a Working Memory Score of 58, demonstrating severe memory deficits. (Doc. 8-3 at 17 (Goff report); Doc. 8-1 at 97-98 (hearing).) The Working Memory Index is scored on a scale that is similar to an IQ test in which 100 is the mean and the standardization is 15.

(Doc. 8-1 at 98 (hearing).) As Dr. Goff explained in his report, Mr. Madison's "memory skills in regard to working memory fall within the severely impaired range with scores comparable to IQ test scores in the 50's," thereby placing him "within the borderline to intellectually disabled range." [Doc. 8-3 at 19 (Goff report)].

Testing revealed additional evidence of Mr. Madison's memory impairments: Mr. Madison could not recall any of the 25 elements in a brief story vignette Dr. Goff read him, could not remember the alphabet past the letter G, could not perform serial three additions, and could not remember the name of the previous United States President. Mr. Madison named Guy Hunt, who had left office nearly 25 years earlier, as the governor of Alabama,6 and could not remember the name of the warden at Holman Prison, where he is incarcerated. (Doc. 8-3 at 16 (Goff report).) There is also evidence Mr. Madison has difficulty rationally processing basic information. During the examination, Dr. Goff noted that Mr. Madison was unable to rephrase simple sentences or perform simple mathematical calculations. (Doc. 8-3 at 18 (Goff report).) Dr. Goff concluded that these deficits likely resulted from the

⁵ His functioning is thus akin to the functioning of an individual for whom the death penalty has been held to be categorically unavailable under the Eighth Amendment. *See Atkins v. Virginia*, 536 U.S. 304, 316 (2002).

⁶ Guy Hunt was governor of Alabama from 1987-1993. *Alabama Governors*, Ala. Dep't of Archives and History, http://www.archives.alabama.gov/govslist.html (last visited May 22, 2018).

January stroke. (Doc. 8-3 at 19 (Goff report).) Finally, Dr. Goff's administration of the "21-Item Test," as well as his clinical interview, confirmed that he did not see any clinical indications for "malingering or dissimulation," and that Mr. Madison "put forth a genuine effort in regard to his attempts to communicate with me and in regard to the psychometrics administered." (Doc. 8-3 at 17 (Goff report).)⁷

Dr. Goff clarified that the memory loss and cognitive decline seen in patients with dementia is pathological, and therefore is distinct from typical memory loss or forgetfulness many people see as they age; that individuals with dementia will vary in their presentation and can have an inconsistent memory; and that a diagnosis of dementia means Mr. Madison's cognitive functioning will likely continue to decline. (Doc. 8-1 at 108-09 (hearing)); see also Susan L. Mitchell, Advanced Dementia, 372 New Eng. J. Med. 2533, 2533 (2015) ("Dementia is a progressive, incurable illness.").

Focusing on Mr. Madison's understanding of the reason for the execution, Dr. Goff attempted to employ a checklist of interview questions specifically designed

⁷ Dr. Goff was previously involved in a competency-to-be-executed challenge in Mississippi where the petitioner claimed incompetency due to global amnesia as a result of a head injury. In that case, however, Dr. Goff found that "Simon was either malingering memory deficits or, generously stated, that he could not rule out malingering as an explanation for Simon's behavior." *Simon v. Fisher*, 641 F. App'x 386, 389 (5th Cir. 2016). Habeas corpus relief was ultimately denied, in part due to Dr. Goff's report.

to evaluate a prisoner's competency to be executed, although he was unable to complete the outline because of Mr. Madison's "tendency to repeat himself and his tendency to go off on tangents." (Doc. 8-3 at 16 (Goff report).) Ultimately, Dr. Goff concluded that Mr. Madison does not "seem to understand the reasoning behind the current proceeding as it applies to him" and does not understand why he is scheduled to be executed by the State. (Doc. 8-3 at 19-20 (Goff report); Doc. 8-1 at 110, 119-20 (hearing).) In response to direct questioning by the state trial judge at the hearing, Dr. Goff testified that while Mr. Madison may understand that the State is seeking retribution, he does not "understand[] the act that he's being – that he's being punished for." (Doc. 8-1 at 120 (hearing).)

The court-appointed expert, Dr. Kirkland,⁹ did not dispute the physical and cognitive decline that Mr.

⁸ As noted in his evaluation, (Doc. 8-3 at 16, 18 (Goff report)), Dr. Goff utilized a checklist published in the journal Behavioral Sciences and the Law. See Patricia A. Zapf, Marcus T. Boccaccini, & Stanley L. Brodsky, Assessment of Competency for Execution: Professional Guidelines and an Evaluation Checklist, 21 Behav. Sci. & L. 103 (2003).

⁹ At the time of the hearing, Dr. Kirkland had a long-standing contract with the State of Alabama. (Doc. 8-1 at 68 (hearing).) Dr. Kirkland has since been suspended from the practice of psychology, see Ala. Bd. of Exam'rs in Psychology, Psychologist Search or License Verification, www.psychology.state.al.us/licensee.aspx (search "Karl Kirkland") (last visited May 22, 2018), after being arrested and charged with four felony counts of Unlawful Possession or Receipt of a Controlled Substance. These charges arose from his use of forged prescriptions to illegally obtain narcotics on four separate occasions, including on April 18, 2016, just four days after the competency hearing in this case and less than two weeks

Madison experienced as a result of his multiple strokes, (Doc. 8-1 at 74 (hearing)), nor did he find any indication that Mr. Madison was malingering. (Doc. 8-3 at 9 (Kirkland report).) Dr. Kirkland reported that Mr. Madison was able to accurately discuss the history of his appeals, (Doc. 8-1 at 71, 78-79, 123-24 (hearing)), but never testified as to whether Mr. Madison could remember the crime or to his ability to rationally understand the connection between the crime and his scheduled execution. *Madison v. Comm'r, Ala. Dep't of Corr.*, 851 F.3d 1173, 1185-86, 1187 (11th Cir. 2017), rev'd sub nom. Dunn v. Madison, 138 S. Ct. 9 (2017).

The trial court denied relief based on a view that Mr. Madison's diagnosed vascular dementia and attendant cognitive and memory deficits were not relevant to the determination of Mr. Madison's competency-to-be-executed. *Id.* at 1188 ("The court never considered the impact of Mr. Madison's memory loss or his belief that he never killed anyone on his ability to make the required connection between his crime and execution."). However, based on this evidence in habeas corpus proceedings, all three Eleventh Circuit judges agreed that Mr. Madison did not have a rational understanding of the link between the crime and his scheduled execution, and was therefore incompetent to be executed. *Id.* at 1189-90; *id.* at 1190 (Jordan, J., dissenting) ("After reviewing the record, I believe that

after his evaluation of Mr. Madison. *See State v. Kirkland*, Nos. DC-2016-002143.00 (April 18, 2016), DC-2016-002144.00 (June 6, 2016), DC-2016-002145.00 (June 22, 2016), DC-2016-002146.00 (June 27, 2016) (Dist. Ct. Montgomery County).

Vernon Madison is currently incompetent. I therefore do not think that Alabama can, consistent with the Constitution, execute him at this time ").

This Court reversed the Eleventh Circuit's grant of habeas corpus relief, but declined to express a view on "the merits of the underlying question" of Mr. Madison's competency-to-be-executed. *Dunn v. Madison*, 138 S. Ct. 9, 12 (2017). A second execution date was set for January 25, 2018.

On the basis of new evidence about the credibility, reliability and validity of Dr. Kirkland's prior opinions and his suspension from the practice of psychology, see supra note 9, as well as the progressive and degenerative nature of his vascular dementia, and his continued mental and physical decline, Mr. Madison once again challenged his competency to be executed in the Mobile County Circuit Court on December 18, 2017. At a hearing on the petition in the Mobile County Circuit Court, the State did not contradict the allegations regarding Dr. Kirkland and the trial court accepted them as true. Hr'g R. at 32. Nevertheless, relying on the evidence that had been previously presented, the state trial court denied Mr. Madison's petition. Cert. Pet. App. A.

SUMMARY OF ARGUMENT

In *Ford v. Wainwright*, this Court concluded that "evolving standards of decency that mark the progress of a maturing society" dictate that the penological justifications for imposing the death penalty are not

served by the execution of someone who is incompetent and that it is therefore prohibited by the Eighth Amendment. 477 U.S. 399, 409-10 (1986). In *Panetti v. Quarterman*, the Court reaffirmed the basic premise of *Ford*, noting that "today, no less than before, we may seriously question the retributive value of executing a person who has no comprehension of why he has been singled out and stripped of his fundamental right to life." 551 U.S. 930, 957 (2007) (quoting *Ford*, 477 U.S. at 409-10).

As a result of several strokes and declining health, Vernon Madison, who has been on Alabama's death row for over 30 years, now suffers from vascular dementia, cognitive deficits, severe memory loss and brain damage. He does not remember the crime for which he has been convicted and does not have a rational understanding of why the state of Alabama seeks to execute him.

The lower court rejected Mr. Madison's claim for relief under *Ford* largely because dementia and neurological disease were seen as outside the scope of protection under the Eighth Amendment. This Court's precedents do not support that conclusion, and instead require that states refrain from executing an individual whose verifiable cognitive impairments render him incompetent to rationally understand the circumstances surrounding a scheduled execution. No penological justification or retributive value can be found in executing a severely impaired and incompetent prisoner, especially where advances in neurological science now make clear the nature of this

incompetency. The execution of Vernon Madison consequently is prohibited by the Eighth Amendment's essential commitment to human dignity.

ARGUMENT

I. The Eighth Amendment Bars the Execution of an Individual Who Lacks the Ability to Understand Why He Is Being Executed.

In 1976, this Court reauthorized application of the death penalty in a series of cases with the express condition that any execution must still "comport[] with the basic concept of human dignity at the core of the [Eighth] Amendment." *Gregg v. Georgia*, 428 U.S. 153, 183 (1976) (plurality opinion) (upholding Georgia's death penalty scheme); see also Woodson v. North Carolina, 428 U.S. 280, 303 (1976) (North Carolina's mandatory death penalty scheme violated Eighth and Fourteenth Amendments); Roberts v. Louisiana, 428 U.S. 325, 334 (1976) (Louisiana's mandatory death penalty statute failed to comply with "requirement that standardless jury discretion be replaced by procedures that safeguard against the arbitrary and capricious imposition of death sentences").

Since that time, this Court has endeavored to "enforce the Constitution's protection of human dignity," *Hall v. Florida*, 134 S. Ct. 1986, 1992 (2014), by limiting the application of capital punishment to those who commit the most serious crimes and those with the most extreme culpability. Thus, the Court has banned

the execution of prisoners whose crimes do not meet the penological justification necessary for the extreme punishment of death. See, e.g., Kennedy v. Louisiana, 554 U.S. 407 (2008) (death penalty disproportionate for nonhomicide offense of rape of child); Coker v. Georgia, 433 U.S. 584 (1977) (death penalty disproportionate for crime of rape of adult woman); Enmund v. Florida, 458 U.S. 782 (1982) (death penalty disproportionate for person who aids and abets but does not kill, attempt to kill, or intend to kill).

This Court has also banned the execution of prisoners whose diminished culpability, by virtue of age or intellectual disability, rendered the death penalty excessive and cruel. See Roper v. Simmons, 543 U.S. 551 (2005) (Eighth Amendment forbids execution of juvenile offenders under 18 at time of crime); Atkins v. Virginia, 536 U.S. 304 (2002) (execution of intellectually disabled violates Eighth Amendment's prohibition on cruel and unusual punishment).

In Ford v. Wainwright, this Court concluded that "evolving standards of decency that mark the progress of a maturing society" dictate that the penological justifications for imposing the death penalty are not served by the execution of someone who is incompetent and that it is therefore prohibited by the Eighth Amendment. 477 U.S. 399, 409-10 (1986). Subsequently, in Panetti v. Quarterman, this Court reaffirmed the basic premise of Ford, noting that "today, no less than before, we may seriously question the retributive value of executing a person who has no comprehension of why he has been singled out and stripped of

his fundamental right to life." 551 U.S. 930, 957 (2007) (quoting Ford, 477 U.S. at 409-10). 10

Ford's and Panetti's commitment to protecting the incompetent from execution under the Eighth Amendment is informed by a tragic history of punishment where vulnerable people have sometimes been treated cruelly by state governments. The forcible sterilization of thousands of women deemed "mental defectives," the castration of "confirmed criminals," and the use of lobotomies upon and compulsory institutionalization of people based on their sexual orientation are

¹⁰ All relevant opinions decided prior to *Ford* concerned only procedural questions presented related to competency-to-be-executed claims under the Fourteenth Amendment. 477 U.S. at 405 (distinguishing prior cases on "adequacy of procedures" from "substantive restriction" held to apply).

¹¹ In 1907, Indiana was the first state to enact a compulsory sterilization law, in order to "prevent procreation of confirmed criminals, idiots, imbeciles and rapists." 1907 Ind. Acts 377; Note, Regulating Eugenics, 121 Harv. L. Rev. 1578, 1580 (2008) ("Starting with Indiana in 1907, twenty-nine states enacted compulsory sterilization laws[.]") In 1927, this Court upheld a Virginia law permitting the forcible sterilization of women deemed to be "mental defectives," finding that "[i]t is better for all the world, if . . . society can prevent those who are manifestly unfit from continuing their kind. . . . Three generations of imbeciles are enough." Buck v. Bell, 274 U.S. 200, 207 (1927) (citation omitted). Between the 1920s and the 1970s, over 60,000 Americans mental illness or developmental disabilities forcibly sterilized. Kim Severson, Thousands Sterilized, a State Weighs Restitution, N.Y. Times, Dec. 9, 2011, https://www.nytimes. com/2011/12/10/us/redress-weighed-for-forced-sterilizations-in-northcarolina.html.

¹² See Kenji Yoshino, Covering, 111 Yale L.J. 769, 787-89 (2002) (discussing use of castration, lobotomy, clitoridectomy,

clear reminders of why this Court has interpreted the Eighth Amendment as being centrally concerned about human dignity and protection against cruel punishment. Consequently, the execution of a prisoner compromised by dementia and cognitive injury presents a critically important issue. Despite the fact that Alabama has by statute made competency-to-be-executed claims a "second class" concern unworthy of appellate review where a trial judge's determination is final, this Court in *Ford* and *Panetti* made clear that preventing the execution of the incompetent is a central requirement of the Eighth Amendment.

This Court's precedent exempts from execution "a category of defendants defined by their mental state," *Ford*, 477 U.S. at 419 (Powell, J., concurring), and in both *Ford* and *Panetti*, this Court declined to limit the underlying disorders that can give rise to a finding that a prisoner is incompetent.

In *Ford*, for example, this Court did not specifically define the source of a person's (or "mad man['s]") "mental condition," "sanity," "diagnoses," "nonsane memory," "mental awareness," or "capacity" that could give rise to a competency claim, but sought only to distinguish where a lack of rational understanding would separate those whom society could execute and those for whom

electroshock therapy, and more "medical conversion treatments for homosexuality"); Gregory M. Herek, Sexual Orientation Differences as Deficits: Science and Stigma in the History of American Psychology, 5 Persp. on Psych. Sci. 693, 695 (2010) (discussing "indefinite confinement in a psychiatric institution until they were declared cured").

death would be cruel and unusual. *Id.* at 404, 407, 409, 419, 421. In erecting the Eighth Amendment bar, *Ford* refused to limit what evidence, i.e., what diagnoses, test results, brain scans, or behavior, is required to meet the standard for incompetence.

And in *Panetti*, this Court reflected that *Ford* "discussed the substantive standard at a high level of generality." 551 U.S. at 957. As such, the *Panetti* opinion likewise speaks variously of "mental state," "mental illness," "mental disorder," and "psychological dysfunction," fully rejecting any call "to amplify [the Court's] conclusions or to make them **more precise**." *Id.* at 959-61 (emphasis added); *see also id.* 551 U.S. at 953 (recognizing "the standard is stated in general terms"). ¹³ This lack of precision reflects the Court's understanding that there are multiple circumstances that could give rise to a prisoner's incompetency.

Indeed, *Panetti* presents the only occasion on which this Court has ever commented on what affliction might meet the standard for incompetence, and it did so in a way that would preclude a narrowing of the

¹³ Although the test articulated by *Panetti* is seemingly broad, in practice it has rarely disrupted the State's ability to execute condemned prisoners. Indeed, of the 1,308 death-sentenced inmates who were eligible to file a *Ford* claim between 1986 and July 2013 – many of whom have been estimated to have some form of mental illness – 93% did not even raise a competency-to-be-executed challenge. John H. Blume, Sheri Lynn Johnson, & Katherine E. Ensler, *Killing the Oblivious: An Empirical Study of Competency To Be Executed Litigation*, 82 UMKC L. Rev. 335, 343-44 (2014). In only twenty-one of these cases was the prisoner found incompetent to be executed. *Id*.

inquiry. Specifically, in *Panetti*, the prisoner sought to establish incompetency by demonstrating that his delusional belief system obstructed a rational understanding of the State's reason for his execution. Id. at 956-58. In finding the prisoner competent to be executed, the Fifth Circuit Court of Appeals treated the prisoner's delusional beliefs as irrelevant because the prisoner was "aware that he committed the murders, ... aware that he will be executed; and ... aware that the reason that the State has given for the execution is his commission of the crimes in question." *Id.* at 956. This Court overturned the lower court, finding no support in *Ford* for the proposition that "a prisoner is automatically foreclosed from demonstrating incompetency once a court has found he can identify the stated reason for his execution." Id. at 959. Such a standard is "too restrictive to afford a prisoner the protections granted by the Eighth Amendment" where it rendered certain features of petitioner's mental disorder irrelevant to the determination of competency once it was determined that the prisoner is "aware the State has identified the link between his crime and the punishment to be inflicted." *Id.* at 956-57, 960.

Panetti thus found that the refusal to consider evidence demonstrating incompetency once a court has found that a prisoner is aware of the stated reason for his execution "is to mistake Ford's holding and its logic." Id. at 960. Rather, a reviewing court must not limit consideration of mental disorders that "so impair the prisoner's concept of reality that he cannot reach a rational understanding of the reason for the

execution." *Id.* at 958. "If anything," this Court found in *Panetti*, "the *Ford* majority suggests the opposite." *Id.*¹⁴

Despite *Panetti*'s insistence that courts cannot treat evidence of mental impairments or disorders as "irrelevant" to the competency determination once it concludes that the defendant is aware of the stated reason for his execution, the trial court in this case did just that when rejecting Mr. Madison's claim. That is, the court below disregarded the medical and scientific evidence that Mr. Madison suffers from dementia and

¹⁴ In other contexts, courts have increasingly found that people with dementia and neurological disorders may require legal protection due to diminished capacity similar to other bases for incompetency. See, e.g., In re Estate of Bragdon, 875 A.2d 697, 700 (Me. 2005) (appointment of full guardian necessary due to individual's dementia); Ivie v. Smith, 439 S.W.3d 189, 194, 201, 207 (Mo. 2014) (en banc) (finding lack of capacity where testator exhibited memory loss and brain testing consistent with diagnosis of vascular dementia); Riddell v. Edwards, 32 P.3d 4, 9-10 (Alaska 2001) (court required to protect individual diagnosed with dementia and attendant confusion and inability to manage financial affairs); Darr v. Billeaudeau, 541 S.W.3d 460, 466 (Ark. Ct. App. 2018) (protection required where medical records documented diagnosis of dementia and individual demonstrated "memory loss, confusion, . . . decreased judgment, [and] cognitive decline"); In re Estate of Flowers, 88 N.E.3d 599, 611, 622-23 (Ohio Ct. App. 2017) (incompetency declared where evidence from medical experts demonstrated significant memory loss and impairment of executive functioning as result of dementia); In re Estate of Lynch, 350 S.W.3d 130, 137-40 (Tex. App. 2011) (affirming jury finding of incapacity because individual had "irreversible strokes that led to a diagnosis by his neurologist that he had dementia" and exhibited "memory loss" and "impaired executive function").

corresponding memory deficits¹⁵ because, at the State's continued insistence, the court determined that vascular dementia constitutes a different medical condition than what this Court has recognized as triggering the Eighth Amendment protections of *Ford* and *Panetti*.¹⁶ And, when Mr. Madison challenged his most recent execution date due to his same progressive and degenerative condition, the lower court again concluded that Mr. Madison's disorder did not implicate the protections of *Ford* and *Panetti*.

II. The Penological Objectives of the Eighth Amendment Cannot Be Squared with the Execution of a Prisoner Whose Vascular Dementia and Associated Cognitive Decline Leave Him Without a Memory of the Commission of the Crime or a Rational Understanding of Why He Is to Be Executed.

Vernon Madison suffers from vascular dementia, which has resulted in a brain injury, a decline in cognitive functioning and significant memory impairment. (Doc. 8-1 at 107-08 (hearing).) Consequently, Mr.

¹⁵ At no point in the initial order denying relief did the state trial judge even mention Mr. Madison's diagnosed dementia, (Doc. 8-2 at 149-58), even though this diagnosis was never disputed by the court's own expert, Dr. Kirkland. (Doc. 8-1 at 123-24 (hearing).)

¹⁶ Throughout this litigation, the State has consistently argued that Mr. Madison's claim should fail because vascular dementia, and associated cognitive and memory impairments, is not considered a mental illness and thus does not implicate *Ford* and *Panetti. See*, *e.g.*, Br. in Opp'n 14-16; Hr'g R. at 17-18; (Doc. 8-2 at 140-41, 143-44 (State's brief after 2016 hearing)).

Madison cannot remember numerous events that have occurred over the past thirty years or more. (Doc. 8-3 at 19 (Goff report).) He cannot independently recall the facts of the offense; the sequence of events from the offense to his arrest, to his trial or previous legal proceedings in his case; or the name of the victim, and as a result he does not have a rational understanding of why he faces execution. (Doc. 8-3 at 18-19 (Goff report); Doc. 8-1 at 101, 107, 110, 119-20 (hearing).) He similarly cannot rationally understand a range of relevant features connected to his death sentence and confinement.

In evaluating Mr. Madison's competency to be executed, Dr. Goff testified that he was attempting to find the answer to two questions: "One is there[] something wrong with him, and the other thing is does what's wrong with him cause him to be incompetent." (Doc. 8-1 at 117 (hearing).) In this framework, whether an individual "forgets particular phrasing" or "begin[s] to forget certain things" does not invariably indicate that the person is incompetent; rather, it means that "there's something is wrong with him." (Doc. 8-1 at 117 (hearing).) And, in Dr. Goff's reasoned professional opinion based on his evaluation of Mr. Madison, the review of significant medical records, and numerous neuropsychological tests, the "thing" that was wrong with Mr. Madison was that his brain had been traumatized, leading to a DSM-5 diagnosis of vascular dementia and corresponding cognitive and memory decline. (Doc. 8-1 at 107 (hearing); Doc. 8-3 at 20 (Goff report).)

Neuropsychological testing confirmed Mr. Madison's significant cognitive and memory deficits. (Doc. 8-3 at 16-17 (Goff report); Doc. 8-1 at 96-100 (hearing).) Specifically, Dr. Goff's testing established that Mr. Madison has a Working Memory Score of 58. (Doc. 8-3) at 17 (Goff report); Doc. 8-1 at 98 (hearing).) The Working Memory Index is scored on a scale that is similar to an IQ test in which 100 is the mean and the standardization is 15. (Doc. 8-1 at 98 (hearing).) As Dr. Goff explained in his report, Mr. Madison's "memory skills in regard to working memory fall within the severely impaired range with scores comparable to IQ test scores in the 50's." (Doc. 8-3 at 19 (Goff report).) Consistent with these findings, testing demonstrated that Mr. Madison has an IQ of 72, in the borderline range of intelligence and a considerable decline from the past. (Doc. 8-3 at 17, 20 (Goff report); Doc. 8-1 at 97 (hearing).)

Ultimately, Dr. Goff concluded that as a result of his deteriorating medical condition, Mr. Madison does not "seem to understand the reasoning behind the current proceeding as it applies to him" and does not understand why he is scheduled to be executed by the State. (Doc. 8-3 at 18-20 (Goff report); Doc. 8-1 at 110, 119-20 (hearing).) In response to direct questioning by the trial judge at the state court hearing, Dr. Goff testified that while Mr. Madison may understand that the State is seeking retribution, he does not "understand[] the act that he's being – that he's being punished for." (Doc. 8-1 at 120 (hearing).) See Panetti v. Quarterman, 551 U.S. 930, 959 (2007) (determination of competency

requires inquiry into "prisoner's ability to 'comprehen[d] the reasons' for his punishment" or "a determination into whether he is 'unaware of . . . why [he is] to suffer it'").

As such, Mr. Madison fits into the category of prisoners for whom an execution would serve no retributive or deterrent purpose. Ford v. Wainwright, 477 U.S. 399, 417 (1986); *Panetti*, 551 U.S. at 959. Retribution is served where an offense is offset by a punishment expressing society's "moral outrage," see Gregg v. Georgia, 428 U.S. 153, 183 (1976) (plurality opinion), but where, as a result of a deteriorating medical condition, the person being punished has no memory of the commission of the offense for which he is to be executed, the "moral quality" of that punishment is lessened and unable to match outrage over the offense, Ford, 477 U.S. at 408. As this Court has explained, retribution is not achieved where "a prisoner's recognition of the severity of the offense" does not match "the objective of community vindication." Panetti, 551 U.S. at 958. For purposes of retribution, there is no moral or constitutional distinction between a person who cannot "recogni[ze] . . . the severity of the offense" as a result of delusions and a person who is unable to do so as a result of dementia, cognitive decline, and memory deficits.17

¹⁷ This lack of moral difference is all the more clear considering that the American Bar Association, American Psychiatric Association, American Psychological Association, and the National Alliance of the Mentally Ill support a bar on executing those with dementia. See Am. Bar Ass'n, Recommendation and Report on the

Nor can executing Mr. Madison be justified on grounds of deterrence. This Court made it plain in *Ford*: the execution of an incompetent person "provides no example to others and thus contributes nothing to whatever deterrence value is intended by capital punishment." 477 U.S. at 407; *Panetti*, 551 U.S. at 958 (same). Whether by delusion or dementia, a lack of rational understanding undermines any potential deterrence objective of capital punishment. Most obvious, with incapacity by virtue of dementia, specific deterrence is already achieved. *Panetti*, 477 U.S. at 958.

Finally, executing Mr. Madison would implicate society's and the Eighth Amendment's aversion to grotesque and obscene punishments. In failing to find retributive and deterrent justifications for executing an incompetent person, this Court recognized the "natural abhorrence civilized societies feel at killing one who has no capacity to come to grips with his own conscience or deity." *Ford*, 477 U.S. at 409-10. "Whether its aim be to protect the condemned from fear and pain without comfort of understanding, or to protect the dignity of society itself from the barbarity of exacting

Death Penalty and Persons with Mental Disabilities (2006), reprinted in 30 Mental & Physical Disability L. Rep. 668, 668 (2006). These groups have recognized that age of onset is the only difference between an individual who is intellectually disabled, and therefore ineligible for the death penalty, Atkins v. Virginia, 536 U.S. 304 (2002), and an individual who suffers from dementia. Am. Bar Ass'n, Severe Mental Illness and the Death Penalty 7 (2016). In this case, the evidence demonstrated that Mr. Madison has an unrebutted IQ of 72 as a result of his multiple strokes and cognitive decline. (Doc. 8-3 at 17 (Goff report).)

mindless vengeance," the Eighth Amendment bars executing someone lacking "capacity" and "understanding." *Id.* And this should be true regardless of whether the deficiency is due to delusions, as with Mr. Ford, or dementia, as with Mr. Madison.

III. Medical and Scientific Advancements Have Allowed for Increased Confidence in the Diagnosis of Mental Disorders that Merit Protection Under the Eighth Amendment.

Since Ford and Panetti, scientific and medical advancements have led to a greater understanding of how neurocognitive disorders manifest in individuals who suffer from cognitive decline, and reliance on such advancements to inform an Eighth Amendment analysis is well-established in this Court's jurisprudence. See Panetti, 551 U.S. at 962 ("conclusions of physicians, psychiatrists, and other experts in the field will bear upon the proper analysis"); see also Moore v. Texas, 137 S. Ct. 1039, 1053 (2017) ("The medical community's current standards supply one constraint on States' leeway [to determine intellectual disability]. Reflecting improved understanding over time, [the DSM-5 and American Association on Intellectual and Developmental Disabilities Manual offer 'the best available description of how mental disorders are expressed and can be recognized by trained clinicians." (citations omitted)); Hall v. Florida, 134 S. Ct. 1986, 2000 (2014) ("The legal determination of intellectual disability is distinct from a medical diagnosis, but it is informed by the medical community's diagnostic framework.");

Miller v. Alabama, 567 U.S. 460, 471 (2012) ("Our decisions rested not only on common sense . . . but on science and social science as well.").¹⁸

Over the past several decades, scientific and medical advancements have provided not just a deeper insight into the physical presentation of conditions of the brain, but the ability to document and confirm the existence of neurological conditions that clearly impact cognitive functioning in a way that may trigger Eighth Amendment protections. The DSM-5 reflects these advances in neuroscience by including expanded criteria for the diagnosis of dementia, now referred to as "major neurocognitive disorder." DSM-5 at 621. See Perminder S. Sachdev et al., Classifying Neurocognitive Disorders: The DSM-5 Approach, 10 Nature Reviews Neurology 634, 634 (2014) ("The DSM-IV approach to classifying neurocognitive disorders also contained a number of limitations, which prompted a major revision in the fifth edition (DSM-5).").

These recently expanded diagnostic criteria for vascular neurocognitive disorder, which reflect a more advanced standard of practice than in the DSM-IV,¹⁹ "giv[e] clinicians more guidance in determining

¹⁸ Reliance on advances in medical standards is particularly appropriate in the context of Eighth Amendment categorical exemptions involving individuals with mental disabilities and disorders, in part because society "relies upon medical and professional expertise to define and explain how to diagnose the mental condition at issue." *Hall*, 134 S. Ct. at 1993.

¹⁹ Am. Psychiatric Ass'n, *Diagnostic and Statistical Manual of Mental Disorders* 161 (4th ed. text revision 2000) [hereinafter "DSM-IV"].

possible etiology," Darrel Regier et al., *The DSM-5: Classification and Criteria Changes*, 12 World Psychiatry 92, 96 (2013), and allow for a more precise understanding of Mr. Madison's limited capacity than was previously accessible. Whereas before, the DSM-IV's diagnostic criteria for vascular dementia directed practitioners to focus primarily on patients' observable cognitive deficits while taking into account any associated neurological symptoms or relevant "laboratory evidence," the DSM-5 now specifically incorporates the use of neuroimaging as a basis for reaching a more conclusive diagnosis of vascular neurocognitive disorder. 21

²⁰ DSM-IV at 161 (DSM-IV diagnostic criteria for vascular dementia included (A) "[D]evelopment of multiple cognitive deficits manifested by both . . . memory impairment" and disturbances in one or more following areas: "aphasia," "apraxia," "agnosia," and "executive functioning," (B) The cognitive deficits cause "significant impairment in social and occupational functioning and represent significant decline from a previous level of functioning," (C) "Focal neurological signs and symptoms . . . or laboratory evidence indicative of cerebrovascular disease . . . that are judged to be etiologically related to the disturbance," and (D) "The deficits do not occur exclusively during course of delirium.").

²¹ DSM-5 at 621 (DSM-5 diagnostic criteria for vascular neurocognitive disorder include (A) "[C]riteria are met for major or mild neurocognitive disorder," (B) "[C]linical features are consistent with vascular etiology," as suggested by temporal link to one or more cerebrovascular events or "evidence for decline is prominent in complex attention . . . and frontal-executive function," (C) "There is evidence of the presence of cerebrovascular disease from history, physical examination, and/or neuroimaging," and (D) "[S]ymptoms are not better explained by another brain disease or systemic disorder."). See also, e.g., DSM-5 at 622 ("Etiological certainty requires the demonstration of abnormalities on neuroimaging.").

These criteria, updated to encompass the "greater information on post-mortem laboratory correlations and clinical progression [that has] become available over the past two decades," Regier, *The DSM-5: Classification and Criteria Changes* at 96, allow clinicians to arrive at more accurate diagnoses that better grasp the particular cognitive consequences of a patient's condition, including patients who suffer from cognitive decline due to formerly undefined reasons.

Technological advances in brain imaging such as magnetic resonance imaging (MRI), the supplementation of brain volumetrics with new technology, and resulting improvements in brain mapping have revolutionized medical and psychiatric researchers' conception of the brain, resulting in an increasingly complex awareness of how and why disorders of the brain originate.²² Not only have these advances allowed for more precise diagnoses and improved awareness of resulting impairments, they have also revealed the extent to which disorders of the brain are multifaceted.²³ Significantly, improvements in brain science have allowed researchers to more accurately trace the physical etiology of psychiatric disorders, neurological

²² See Laura S. Khoshbin & Shahram Khoshbin, Imaging the Mind, Minding the Image: An Historical Introduction to Brain Imaging and the Law, 33 Am. J. L. & Med. 171, 180-81 (2007); Nitin Williams & Richard Henson, Recent Advances in Functional Neuroimaging Analysis for Cognitive Neuroscience, 2 Brain & Neuroscience Advances 1 (2018).

²³ See, e.g., Chiadi U. Onyike, *Psychiatric Aspects of Dementia*, 22 Continuum 600 (2016) (explaining the "complexity of the relationship between psychiatric disorders and dementia").

conditions, and other sources of cognitive impairment, highlighting the range of physical dysfunction that can result in a compromised mental state.²⁴

These scientific advancements have had a particularly meaningful impact in the study of neurocognitive disorders.²⁵ With the benefit of recent technology, lesions on the brain can now be more readily detected, "allowing for links to be drawn between the presence of lesions and the pattern and severity of memory disorder."²⁶

Here, brain imaging and testing played a critical role in documenting and confirming Mr. Madison's brain injuries and cognitive decline. Advanced imaging technologies provided a precise location of the

²⁴ See, e.g., Bayanne Olabi et al., Are There Progressive Brain Changes in Schizophrenia? A Meta-Analysis of Structural Magnetic Resonance Imaging Studies, 70 Biological Psychiatry 88 (2011); Daniel Lindqvist et al., Psychiatric Disorders and Leukocyte Telomere Length: Underlying Mechanisms Linking Mental Illness With Cellular Aging, 55 Neuroscience & Biobehavioral Rev. 333 (2015).

²⁵ See Martin Dichgans & Didier Leys, Vascular Cognitive Impairment, 120 Circulation Research 573, 573 (2017) ("Recent advances in neuroimaging, neuropathology, epidemiology, and genetics have led to a deeper understanding of how vascular disease affects cognition.").

²⁶ Narinder Kapur & Michael Kopelman, *Advanced Brain Imaging Procedures and Human Memory Disorder*, 65 Brit. Med. Bull. 61, 63 (2003) ("The ability to form three-dimensional images of lesions . . . and to visualize their location in relation to key anatomical structures and in relation to critical white matter tracts, may provide the physician and the neurosurgeon with a clearer idea of the size of a lesion and of its location vis-à-vis critical anatomical regions that have a role in memory functioning.").

cerebrovascular accidents Mr. Madison has experienced over the last few years and revealed the progression of cerebral atrophy and encephelomalacia with greater certainty. For example, to discern the "[t]iny focal acute to subacute infarct in the right thalamus" that Mr. Madison experienced in January 2016, doctors utilized "[m]ultiple sequence MRI images of the brain including DWI." (Doc. 11-60 at 13 (Mobile Infirmary records).) After Mr. Madison's May 2015 stroke, a CT angiogram was used to identify occlusion of the basilar artery, the event giving rise to the stroke, (Doc. 11-56 at 13 (USA medical records)). Use of both DWI, or diffusion weighted imaging, and CT angiograms only became widespread in clinical practice in the mid-1990s.²⁷

In 2014, Mr. Madison underwent an MRI using a "fluid-attenuated inversion recovery" sequence, or FLAIR sequence, which identified "a chronic infarct in the inferior left side of the pons." (Doc. 11-28 at 2 (Holman medical records).) As with the DWI and a CT angiogram, use of a FLAIR sequence in brain imaging was only devised in the early 1990s.²⁸ The same MRI in 2014 also used a gadolinium-based contrast agent to enhance the resulting images taken of Mr. Madison's

²⁷ See, e.g., Susumu Mori & Peter B. Barker, Diffusion Magnetic Resonance Imaging: Its Principle and Applications, 257 Anatomical Rec. 102, 108 (1999); Geoffrey D. Rubin et al., CT Angiography After 20 Years: A Transformation in Cardiovascular Disease Characterization Continues to Advance, 271 Radiology 633, 634 (2014).

²⁸ Beatrice De Coene et al., MR of the Brain Using Fluid-Attenuated Inversion Recovery (FLAIR) Pulse Sequences, 13 Am. J. Neuroradiology 1555, 1563 (1992).

brain (Doc. 11-28 at 2 (Holman medical records)), yet such a contrast enhancement agent did not become fully available until after *Ford*.²⁹

Consistent with this new technology and knowledge, it is now undisputed that Mr. Madison is severely compromised by vascular dementia, brain injury, cognitive decline, memory loss and a diminished capacity to rationally understand what he is experiencing. After reviewing an imaging report following Mr. Madison's 2016 stroke, which showed an infarct in the right thalamus (Doc. 11-60 at 11, 13 (Mobile Infirmary records)), Dr. Goff was then able to explain Mr. Madison's significant memory loss in light of the damage to this portion of his brain. (Doc. 8-3 at 19 (Goff report); Doc. 8-1 at 101-04 (hearing).) Thus, the technologies that permitted Dr. Goff to conclude that Mr. Madison is incompetent to be executed demonstrate the evolving landscape of evidence allowing courts to adequately review maladies that could give rise to incompetence. Advances in knowledge and new insights about dementia, cognitive decline and competency are not just relevant to the evolving standards of decency that define the Eighth Amendment's core values, but essential to prevent cruel and unusual punishment.

²⁹ See Jessica Lohrke et al., 25 Years of Contrast-Enhanced MRI: Developments, Current Challenges and Future Perspectives, 33 Advances in Therapy 1, 2 (2016).

CONCLUSION

The Eighth Amendment's essential commitment to human dignity, as expressed through the "evolving standards of decency" requires that states refrain from executing an individual whose verifiable cognitive impairments render him incompetent to rationally understand the circumstances surrounding a scheduled execution.

This Court should reverse the lower court's judgment and conclude that Vernon Madison's execution is prohibited by the Eighth Amendment and the standards set forth by this Court in *Ford* and *Panetti*.

Respectfully submitted,

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