IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TENNESSEE
WESTERN DIVISION

GARY BRADFORD CONE, Petitioner, v. WAYNE CARPENTER, Warden, Riverbend Maximum Security Institution, Respondent.	)	No. 97-2312-JPM

ORDER DIRECTING CLERK TO CHANGE RESPONDENT
ORDER DENYING HABEAS RELIEF
ON INEFFECTIVE ASSISTANCE OF COUNSEL ISSUES
ORDER DENYING PETITION PURSUANT TO 28 U.S.C. § 2254
ORDER DENYING A CERTIFICATE OF APPEALABILITY
AND
ORDER CERTIFYING THAT AN APPEAL WOULD NOT BE TAKEN IN GOOD FAITH

Contents

I. BACKGROUND

This case was remanded from the United States Supreme Court to address Petitioner Gary Bradford Cone's *Brady*[1] claims in his habeas corpus petition. *See Cone v. Bell*, 556 U.S. 449, 476 (2009). (Electronic Case Filing ("ECF") No. 221.) The Court resolved Cone's *Brady* claims on February 14, 2013. (ECF No. 322.) The Court's order set forth the procedural history up until that time and the factual background of the case in detail. (*See id.* at 6-11.) Further, the Court summarized the evidence presented in April 1982, at Cone's trial for the murders of Cleopatra and Shipley Todd. (*Id.* at 14-141.)

On April 3, 2012, while the case was still on remand, Cone filed a Renewed Motion for Evidentiary Hearing and/or Relief on Petitioner's Claims of Ineffective Assistance of Counsel in Light of Intervening Decision in *Martinez v. Ryan*, 132 S. Ct. 1309 (2012). (ECF No. 292.) On April 1, 2013, the Court granted an evidentiary hearing to address certain ineffective assistance of counsel issues under *Martinez* and *Trevino v. Thaler*, 133 S. Ct. 1911 (2013), and specifically

> to allow Petitioner to develop facts related to post-conviction counsel's performance; establish ineffective assistance of post-conviction counsel as cause for the procedural default of the following "substantial" claims of ineffective assistance of trial counsel: Paragraphs 40((a)(i-ii),(b-e, k, p, nn)) and Paragraph 40(z) as it relates to Paragraphs 59 and 69; and establish prejudice to overcome the procedural default. . . . Further, Petitioner may present evidence at an evidentiary hearing in support of the "substantial" claims of ineffective assistance of trial counsel.

(ECF No. 323 at 87-88.)

On October 7, 2013, Respondent[2] filed a Motion to Reconsider and Modify Court's Order

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[1] *Brady v. Maryland*, 373 U.S. 83 (1963).

[2] Petitioner is currently incarcerated at Lois M. DeBerry Special Needs Facility ("DSNF") where James M. Holloway is the warden. *See* Tennessee Felony Offender Information Lookup, https://apps.tn.gov/foil-app/search.jsp (last visited Mar. 30, 2016); *see* Tennessee Department of Correction, http://www.tn.gov/correction/article/tdoc-lois-deberry-special-needs-facility (last

Granting Evidentiary Hearing in Part. (ECF No. 345.) On February 11, 2014, the Court granted the motion for reconsideration in part and modified the scope of the evidentiary hearing. (ECF No. 391.) The Court denied Cone relief as it relates to Paragraphs 40(a)(ii)(3),(4)(a-h), and (5) and 40(k) as it relates to the Petitioner's family background. (*Id.* at 34-35.)

An evidentiary hearing was held over the course of six days in March and April 2014 with additional testimony taken by deposition. Cone filed a post-hearing brief on July 14, 2014. (ECF No. 451.) Respondent filed a post-hearing brief on October 24, 2014. (ECF No. 457.) Cone filed a reply brief on November 19, 2014. (ECF No. 458.)

On January 5, 2015, the parties presented final oral arguments. (*See* ECF No. 462.) The Court directed Cone to file the reports of two expert witnesses who testified at the evidentiary hearing and to file a statement with regard to certain ineffective assistance of counsel claims. (*See id.*) On January 7, 2015, Cone filed the expert reports. (ECF No. 463.) On January 14, 2015, Cone filed a statement regarding certain *Martinez* claims. (ECF No. 464.) On January 21, 2015, Respondent filed a notice of supplemental authority. (ECF No. 465.)

II. RELEVANT CLAIMS

This Court defined the issues that would be addressed pursuant to *Martinez* and *Trevino* in two orders. (*See* ECF Nos. 323 & 391.) The ineffective assistance of trial counsel claims that shall be addressed on the issue of procedural default under *Martinez* and *Trevino* and on the merits of the claims are the allegations stated in ¶¶ 40(a)(i), 40(a)(ii)(1, 2, & 4(i)), 40(b-e); 40(k) excluding evidence on family background, 40(p); 40(nn), and 40(z) as it relates to ¶¶ 59 and 69,

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visited Mar. 30, 2016). The Clerk is DIRECTED to record the respondent as DSNF Warden James M. Holloway. The Clerk shall terminate all references to Wayne Carpenter as the respondent.

which the Court summarizes as follows:

> **¶ 40(a)(i)** - Counsel failed to investigate the circumstances surrounding Cone's criminal charges and trial in the State of Florida and failed to present this evidence at trial;
>
> **¶ 40(a)(ii)** - Counsel failed to fully investigate Cone's background, failing to adequately investigate and prepare pretrial mitigating factors and circumstances, including the
>
> (1) Testimony of Mr. Jerry Pelley, who would have been available to testify that he had used cocaine, morphine, dilaudid, speed, heroin, LSD, marijuana, valium, barbiturates, and numerous other drugs with Mr. Cone. Mr. Pelley would have been available to testify at the trial, either at the sentencing phase, or during the guilt phase. Mr. Pelley was never contacted by Mr. Dice.
>
> (2) Testimony of Ms. Alice Jane Schmidt, who could have testified as to Mr. Cone's drug use. Ms. Schmidt was available to testify at either the guilt phase or the sentencing phase of the trial, and was not contacted by Mr. Dice as a witness.
>
> (4) Testimony and information from other persons who knew Mr. Cone, and who had favorable background information, including, for example: . . .
>
> (i) The fact that he suffered headaches after being beaten on the head with a 2X4.
>
> **¶ 40(b)** - Counsel was ineffective for failing to fully investigate and present relevant evidence of Cone's mental health, and to secure adequate expert assistance to defend Cone, including psychologists or psychiatrists to examine the circumstances of the offenses to establish that Cone suffered Post-Traumatic Stress Syndrome and mental disturbance, and not simply from his service in Vietnam, but as a result of numerous combined traumas in his life, including the murder of his fiancée, the death of his brother, and the death of his father;
>
> **¶ 40(c)** - Counsel was ineffective for failing to investigate Cone's history and drug usage to demonstrate that his personality was consistent with that of a drug user, and that the traumas of his past led him to the use of drugs, and/or to have Cone examined physically to demonstrate that he was indeed a heavy drug user;
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> **¶ 40(d)** - Counsel was ineffective for failing to investigate and/or demonstrate that Gary Cone suffers from brain damage;
>
> **¶ 40(e)** - Counsel failed to obtain adequate expert assistance, including a psychiatrist to give a psychiatric diagnosis at the guilt and sentencing phases of trial;

> **¶ 40(k) -** Counsel failed to adequately investigate the background and personal and medical history of petitioner for the existence of mitigating evidence and/or to present such evidence during the penalty phase of trial, except for evidence related to Cone's family background;
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> **¶ 40(p)** - Counsel failed to adequately investigate witnesses and/or prepare and present them during the penalty phase of trial to demonstrate all aspects of petitioner's character and background that would support a sentence less than death;
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> **¶ 40(nn)** - Counsel failed to investigate and present available medical and psychiatric records; and
>
> **¶ 40(z)** - Counsel failed to object to the prosecutor's improper, inflammatory, prejudicial, inappropriate and misleading or inaccurate statements concerning the law, the evidence or the petitioner during voir dire, opening, direct examination, cross examination, closing, and rebuttal closing at the guilt phase of petitioner's trial, and during opening, direct examination, cross examination, closing and rebuttal closing at the penalty phase of petitioner's trial, as it relates to:
>
> > **¶ 59 -** presenting unconstitutional, inflammatory, and prejudicial argument at the guilt phase, in which the State ridiculed petitioner's indigence, argued facts not in evidence, derogated the death of petitioner's fiancée, and made other derogatory remarks about the petitioner; and
> >
> > **¶ 69** - the State calling the defendant an "animal" in final argument.

(*See* ECF No. 71 at 18-24, 35, 37.)[3]

Despite the Court's determination of the scope of the issues to be presented, Cone asserts in his post-hearing evidentiary brief that he is entitled to relief on his "cumulative error" claim in

[3] In Cone's statement regarding the *Martinez* claims, he requests relief for Petition ¶¶ 40(a)(i), 40(a)(ii)(1), 40(a)(ii)(3), 40(b), 40(c), 40(d), 40(e), 40(k), 40(p), and 40(nn) "for all the reasons previously presented, briefed, and argued to this Court." (ECF No. 464 at 1.) He also identifies those "substantial" claims "which [his habeas] counsel have reviewed, but for which Petitioner has not presented any additional proof," including the allegations in ¶¶ 40(a)(ii)(2), 40(a)(ii)(4), and 40(a)(ii)(5). (*Id.*) The Court denied Cone the opportunity to present evidence at hearing for the allegations in Petition ¶¶ 40(a)(ii)(3), 40(a)(ii)(4(a-h)), 40(a)(ii)(5), and 40(k) as it relates to family background, and Cone's arguments related to these allegations will not be considered. (*See* ECF No. 391 at 34–35.)

Petition ¶ 85 because of the "cumulative prejudice arising from the ineffective assistance of counsel and the prosecution's withholding of exculpatory evidence." (ECF No. 451 at 4-5.) That claim states:

> 85. Petitioner avers that the aforementioned Constitutional errors, when considered in combination with each other, constitute a fundamental denial of due process of law such that the petitioner is entitled to a new trial on guilt and punishment in this cause.

(ECF No. 71 at 40.) This claim is not an ineffective assistance of trial counsel claim, was not addressed in Cone's renewed motion for evidentiary hearing, is not subject to *Martinez* and *Trevino*, and shall not be given consideration by this Court.[4]

III. THE FLORIDA EXPERTS

In 1981, Cone was tried and found guilty of two counts of attempted murder, robbery, aggravated battery, possession of a firearm while engaged in a felony, two counts of aggravated assault, and grand theft related to robbery of a pharmacy in Florida. (*See* ECF Nos. 418-4 & 418-5.) The focus of Cone's post-evidentiary hearing brief, in which Cone contends that certain matters could have been further investigated and presented in his Memphis capital murder trial, is the evidence from the Florida trial, especially as it relates to Cone's mental defect, sanity, and the corroboration of drug use. Cone asserts that he was prejudiced at both the guilt and sentencing phases of trial by counsel's failures. (ECF No. 451 at 21.) The Florida psychological reports are essential to his argument. To add context to the evidentiary hearing, the available reports,

[4] The Court denied Cone relief on his *Brady* claims, *see supra* p. 1. Further, the Sixth Circuit has held that "post-AEDPA, not even constitutional errors that would not individually support habeas relief can be cumulated to support habeas relief." *Hoffner v. Bradshaw*, 622 F.3d 487, 513 (6th Cir. 2010) (quoting *Moore v. Parker*, 425 F.3d 250, 256 (6th Cir. 2005)); *see March v. McAllister*, 573 F. App'x 450, 457 n.5 (6th Cir. 2014). Cone would not be entitled to habeas relief on a cumulative error claim.

testimony, and notes from the Florida trial are summarized below.

A. William Grady Ryan, Ph.D. (Clinical and Forensic Psychologist)

1. Ryan's Report

William Grady Ryan, a clinical and forensic psychologist, evaluated Cone in 1981, in relation to the charges in Florida at the request of his counsel and with the court's permission. (*See* ECF No. 448-5 at PageID 16388.)[5] Ryan interviewed Cone and administered the Wechsler Adult Intelligence Scale (WAIS), Thematic Apperception Test, Rorschach, and the Minnesota Mulitphasic Personality Inventory (MMPI) over the course of three days—January 27, 1981, February 6, 1981, and February 13, 1981—for a total of nine hours. (*Id.*)

Ryan described Cone's demeanor as cooperative, but "de-emotionalized, almost de-personalized automatic and [a] bland style of delivery" with "an eerie other-world aura." (*Id.*) Cone's affect was "alternately somber and smiling but frequently inappropriate to the thought content. Clinically, the worlds of thought, feeling and behavior were not at all integrated, frequently associated with marked pathology." (*Id.*) Ryan found no signs of malingering or "what might be considered by the layman as bizarre behavior." (*Id.*) There were no signs of auditory or visual hallucinations or déjà vu. (*Id.*) Ryan found Cone to be:

> extremely bright, at times functioning on a genius level; however, there was simply not a well-integrated thought process as he described a lot of trees but never really saw the forest. Upon close scrutiny, this examiner found a rigidity of thinking, difficulty in shifting cognitive set and soft signs of personalized or autistic logic which were the end product of intrusive underlying pathology.

(*Id.* at PageID 16388-16389.) Ryan described "slippage" and "illogical linkage" in Cone's thought patterns. For example, Cone explained that he abandoned his pursuit of law school and

[5] "PageID" references from CM-ECF will be used for ease of location of documents in the state court record and exhibits.

left Arkansas "because it was 103 [degrees]" to come to Memphis, where it was at least as hot. (*Id.* at PageID 16389.) Ryan stated, "[t]he defendant frequently evoked in this examiner the response—'Wait a minute, back up and go through that again.'" (*Id.*)

Cone attained a Verbal IQ of 125, a Performance IQ of 111, and Full Scale IQ of 120, placing him in the 95th, 77th, and 91st percentiles on the WAIS. (*Id.*) Ryan stated that the scores are misleading because the scores are "the arithmetical composite of a great deal of variation in this 32 year old male. Simply put, there is a lot of noise in his cognitive system." (*Id.*) Ryan determined that Cone's functioning was "marred with both inter and intra subtest scatter" with subtest scores ranging from the 12th percentile to the 99.9th percentile. (*Id.*) Ryan found "no signs of organicity, rather, the disruption was due to the instruction of aggressive impulse derivatives." (*Id.*) He described Cone's thinking as "concretistic and associated with some perceptual distortion." (*Id.* at PageID 16390.) Cone had difficulty seeing relatively simple consequences of behavior because his common-sense judgment was impaired and he had difficulty in switching thoughts. (*Id.*)

The personality testing revealed a pattern "not consistent with mere substance abuse related psychopathy or neurotic conflict." (*Id.*) Ryan asserted that "the nature of [Cone's] disturbance is more profound and is appropriately diagnosed as an underlying schizo-affective disorder, which unfolds as the degree of ambiguity and lack of structure increases." (*Id.*) Ryan opined:

> As intra-psychic stress becomes combined with external stress and then with substance abuse, he undoubtedly becomes psychotic and enters a world or orality where he must do what he needs. . . . Mr. Cone has some ego capacity to deal with impulse derivatives. However, it quickly begins to fall to super-ego functions to contain his intense orality and related primitive rage. As the external structure fades, his internal structure fades and Mr. Cone becomes a danger to himself and others. Dynamically, the vast usage of drugs by the defendant might best be

> understood on different levels. Physiologically, there is little doubt that the defendant is a production of the addiction process, seeking whatever internal stimulation he can. Psychologically, the chemicals concomitantly fill the structural void, decrease the ever-present pain of individuation or separateness, alleviate depression and at times even provide an internal source of stimulation which reassures Mr. Cone that he has an internal reality with which to compare and distinguish from external reality. As the process proceeds, however, the drugs produce the opposite effect of what was intended. At this point, the drugs merely exacerbate the already schizo-affective psychotic behavior which would occur in this individual independent of drug usage. The substance abuse is a secondary process which [h]as attained functional autonomy.

(*Id.* at PageID 16390-16391.)

The MMPI revealed some neurotic defenses in the abnormal range and a spike on the schizophrenic and manic scales "within abnormal limits." (*Id.* at PageID 16391.) Ryan stated that "[g]iven intra-psychic stress, the manic and schizophrenic features would spike higher. Add the ingredient of toxic features and Mr. Cone would be uncontrollable." (*Id.*)

Ryan determined that Cone was competent to stand trial. (*Id.*) Based on the McGarry checklist, Ryan noted that Cone had an intellectual appreciation of the charges and the range and nature of possible penalties. (*Id.*) Ryan stated that "[t]o the layman, he would be considered to manifest appropriate behavior." (*Id.*) Ryan stated that, at the time of the Florida offense, there is "little question" that Cone was not competent and unable to meet the M'Naughten competency criteria. (*Id.*) With regard to Cone's ability to be treated or to function in a prison setting, Ryan stated:

> from a management point of view . . . Mr. Cone's history and character structure make him a less than poor prognostic risk. Practically speaking, the state does not have the caliber facilities necessary to rehabilitate this man with regard to his functional pathology or his strong addiction to drugs. Undoubtedly, due to the peculiar idiosyncra[s]ies of this case, he will make a 'model adjustment' to an institution of whatever type should that be the outcome of his trial.

(*Id.* at PageID 16392.)

2. Ryan's Testimony

Ryan testified on February 17, 1981, in the circuit court in Broward County, Florida. (ECF No. 448-30 at PageID 16889.) He described the nature of the psychological tests administered to Cone. (*Id.* at PageID 16896-16903.) Ryan stated that as to the WAIS, "If somebody doesn't have organic brain damage, or somebody doesn't have real problems stemming from emotional conflict, then you should get a fairly even measure across the board. There might be some minor elevations. . . . But you will get a pretty constant pattern." (*Id.* at PageID 16898-16899.) Ryan stated that

> When anxiety and other emotional factors start intruding, or you have an organic problem, then you get a variance. The greater the degree of the emotional turmoil, the greater the variation. Or sometimes there is *no ostensible reason* really why somebody is just bouncing all around.

(*Id.* at PageID 16899 (emphasis added).)

Ryan described Cone as "very cooperative." (*Id.* at PageID 16904.) Cone had "a very de-emotionalized approach," "a very bland affect. . . . almost like a flat affect. There was little emotion . . . kind of an automatic response style." (*Id.)* As Cone described the events that led to his incarceration, there was "no weighting that he gave the various bits of information." (*Id.*) "There was . . . almost sort of an eerie sensation." (*Id.* at PageID 16905.) "I wondered really what he was doing in his head in integrating or juggling this information." (*Id.*) Ryan said, "as I was evaluating him, I began to really think about how well the areas of thought, feeling and behavior were integrated. He didn't report any auditory hallucination. He didn't report any visual hallucinations." (*Id.*)

Ryan described "a very extensive history of drug usage; Class A narcotics, among other things" and called Cone "a walking pharmacy":

> He was a walking pharmacy. The stimulation that that provides, the ups, downs, ins, outs, sideways, that gives him to some extent psychologically a reference point. He knows what's inside, and you compare it with what's outside. But there are a lot of complications with it—the tremendous pain, anxiety—that comes from the terror of his own aggressive impulses. He's able to—the intense pain, so to speak, is depressed or suppressed. The very kinds of behavior that he's afraid of doing because of his own aggressive impulses that he can take the drugs to contain himself come out, because after a while, his cortical controls go.

(*Id.* at PageID 16905; ECF No. 448-31 at PageID 16926.) Ryan noted "some unusual sensations that [Cone] has had while on drugs," but Ryan did not report what those sensations were. (ECF No. 448-30 at PageID 16905.)

Ryan believed that the primary problem related to the Florida crime was more the psychological turmoil than the drugs. (ECF No. 448-31 at PageID 16925.) On the day of the Florida crime, Cone's drug intake was rather minimal compared to his usual drug intake. (*Id.* at PageID 16924.) Cone had some Percodan that morning. (*Id*.) The day before, he smoked some joints and had some Quaaludes. (*Id.)* Ryan testified,

> He wasn't having, as best I could determine, an awful lot of drug withdrawal effects. He felt apprehensive. He felt shaky, perspiring. But that could have also been due to some extent to just participating in this kind of activity.

(*Id.* at PageID 16925.) Ryan testified that, "[h]ad it been another kind of situation where there was a very, very heavy use of drugs, it could have been the other way around where the drugs, the toxic influence could have been more predominant over whatever disruption was being caused psychologically." (*Id.*)

With regard to the WAIS, Ryan stated:

> I was talking before about consistency between the subtests that you should get, if there is organic or severe emotional turmoil. What we have here is a guy that is really very, very bright. On some items such as information—it would be over here—you will notice that his pattern is absolutely one of scatter. Within an hour and a half he ranges anywhere from approximately the 12th percentile of the general population, as compared to people his age, on up to the 99.9 percentile.

> So as a clinician I have to ask myself: What's going on here? There's something a little strange. On information which is general knowledge about the environment, about the world, you have certain items such as who wrote Hamlet on through. There he was in the 99th percentile.
>
> If . . . we[']re looking at a task of comprehension which measures—it's a subtest which measures common sense judgment. In other words, the knowledge of what is the right thing to do; what is the appropriate thing to do. There he immediately falls down a little bit over the 50th percentile, and some of the content of the pattern of scatter was interesting.
>
> It wasn't that he went from there to progressively more difficult items, and then flaked out. What happened was: Some easy items, he missed those because his emotional needs—apparently some of his pathology intruded, and he would miss an easy item, and then go on and get a more difficult item. For example: What's the right thing to do if you found an envelope in the street? Well, he gave a discourse on how he's not a peeper. Somebody of far lesser intelligence would be able to say that's a very easy item.
>
> Suppose you were the first person to see smoke and fire in the movies? He got into sort of a macabre description that he had seen people burned, and I found that somewhat upsetting. So he missed that. That is a relatively easy item, but he was able to go on and talk about the law of supply and demand on why land in the city is more expensive than land in the country.

(ECF No. 448-30 at PageID 16906; ECF No. 448-31 at PageID 16907-16908.) Ryan noted that Cone scored in the 97th percentile on arithmetical reasoning and in the 99th percentile for vocabulary. (ECF No. 448-31 at PageID 16908, 16910.) Ryan also noted the plunge on the object assembly test with no explanation for the plunge when Cone scored in the 90th percentile on picture arrangement. (*Id.* at PageID 16911.)

Ryan discussed the digit span test in particular and described it as "just the ability to remember numbers and repeat them back." (ECF No. 448-31 at PageID 16908.) Ryan described "a plunge way down here to about the 12th percentile." (*Id.* at Page ID 16908-16909.) Ryan opined "[t]here is no reason why somebody who has his intellectual capabilities should do this, unless there is some kind of interintrusion." (*Id.* at PageID 16909.) Ryan stated:

> I think it ties in very much with what he was describing in the clinical interviews where at times he will have very fixed ideas. And when he has a fixed idea, he has difficulty in shifting, changing his set, so to speak. And the fixed idea almost takes on not a noiselike quality, but it's like a pressure. That's a very predominant thought. At that point that's the thought that's going to be focused on and go to conclusion.

(*Id.*)

Ryan addressed some people having anxiety with testing and noted that with Cone there was no manifest anxiety. (*Id.* at PageID 16910.) Ryan stated "[w]hen that happens, and you don't have organic damage, something is intruding on that thought process." (*Id.*) When Cone comes under stress, his thinking becomes concrete. (*Id*.) Ryan described Cone's subtle lapses in logic, such as him moving from Arkansas to Memphis because of the weather when both places were hot and other "double-take experiences," as being clinical examples of the intellectual functions measured on the WAIS. (*Id.* at PageID 16912.)

Based on the Rorshach test results, Ryan described "disintegration" as when one's thinking gets confused and it "becomes a little bit unclear as to what's your reality and what's external reality." (*Id.* at PageID 16913.) "When you're using a lot of energy trying to hold things together inside, it's bound to produce some disruption in how you evaluate what's outside you, and how you process the information that's coming in from outside you." (*Id.* at PageID 16913-16914.) Partial disintegration arises "where feelings or the world of affect is not really terribly consistent with the world of thoughts or ideas." (*Id.* at PageID 16914.) It is a process that, "simply, is draining energy away from his ability to focus cognitively and with accuracy on what's happening around him." (*Id.*) Cone had some breaks with reality and some signs of perceptual distortion. (*Id.*) Ryan testified that there were issues with Cone's thinking and perception:

> So we're talking about two separate functions, but we're talking about a disturbance in both, when there is a lot of emotional turmoil, specifically of an aggressive nature. I find that people that have this kind of pattern—and his pattern happens to be what's called schizo-affective disorder—there is an underlying schizo-affective disorder. We're talking about a schizophrenic process and an emotional kind of process."

(*Id.* at PageID 16914-16915.)

Ryan explained the diagnosis of schizophrenia as it relates to Cone:

> Schizophrenia most people think of in terms of two different people. I'm not talking about that. Schizophrenia really involves those fears, the three fears I was talking about: behavior, feeling, thought, where they are just not integrated. Then it becomes difficult to form your own sense of ego boundaries.
>
> You combine that with, say, a manic-depressive kind of component where I guess maybe the best way to describe it is: You may have seen some people who at times would be very, very depressed, and also they are like flying. If you think of that in a more extreme form, it's like a cycle. Some people really spike; some people really demonstrate very much in the way of—have outgoing behavior, but remain depressed. Also, you can get a breakthrough.
>
> But we're talking about a mood-swing factor. That mood-swing factor certainly can become complicated by the use of drugs, especially when using downs and ups. Then you get only more mood swings.
>
> But from the testing, when I tested, he wasn't involved at least to my knowledge, in jail he wasn't involved in drugs. I was picking up signs of problems in his thought process and mood swings; talking about underlying pathology, which to the casual observer, or even, for that matter, with just a straight mental status interview, or if I use my—the interview I would not have been able to document as clearly.

(*Id.* at PageID 16915-16916.) Thus, Ryan stated that he would not have been able to document the underlying problem if he had only interviewed Cone for an hour and would not have had any idea of the extent of Cone's intellectual function or been able to quantify it. (*Id.* at PageID 16916.) Ryan described Cone's functioning as "Autistic Logic" which is "very subtle." (*Id.*) Ryan noted that the whole purpose of psychological testing is to discover what might not be so obvious from a clinical interview by "put[ting] under a microscope what's going on with

somebody." (*Id.* at PageID 16916-16917.)

Ryan testified that the MMPI results were valid. (*Id.* at PageID 16917-16918.) The hysteria scale was above abnormal limits. (*Id.* at PageID 16918-16919.) Ryan discussed the severe scales for pathology and the spike for schizophrenia which measures "schematic type behavior, mood swings." (*Id.* at PageID 16919.) Ryan noted that the testing was done in a structured situation and was still producing bizarre profiles. (*Id.*) In a less structured environment, that is, a more ambiguous situation, the pathology would tend to come out in more bizarre ways, and there would be a greater spike on the schizophrenia scale and the manic scale. (*Id.* at PageID 16920.)

With regard to other tests, on the Thematic Apperception Test, Cone exhibited a neurotic nature, conflicts, problems, and "certainly signs of pathology." (*Id.*) On the Rorschach test, Cone had more psychotic-like responses because, where the structure diminishes, the pathology comes out. (*Id.)* Even on the WAIS, where the structure diminishes, "things start getting a little crazy." (*Id.*)

Ryan talked about the rational use of the neuropsychological tests to pull together the clinical indicators. (*Id.* at PageID 16921.) "And what we're doing in effect is taking samples of his behavior under varying degrees of structure, and we're going from that and extrapolating or saying how he would do in other situations." (*Id.*)[6] Ryan stated that, in an unstructured setting, Cone's "ability is very poor. The capacity is really diminished when he gets a fixed idea in his head. He has difficulty shifting his thoughts, shifting his mind set." (*Id.*) Ryan testified:

> Now, when he got a fixed idea in his head, and when you had some of that—the aggression churned up within, that really clouds the thinking process.

[6] Ryan admitted that he has at times utilized these tests, come up with an opinion, and later found that his opinion was erroneous. (ECF No. 448-31 at PageID 16959.)

And he would have a lot of difficulty distinguishing right from wrong.

> If you went ahead and all of a sudden introduced, you imposed upon him, some structure, if there was something that happened where there was some structure that was imposed upon him for a second, he possibly could snap out of it and give you an appropriate response.

(*Id.*)

Ryan testified that, "in psychological probability," Cone did not know right from wrong when he committed the Florida crimes. (*Id.* at PageID 16922 (emphasis added).) Ryan then described the rigidity of following goals associated with Cone's Florida robbery:

> But in his description of the whole process, there was that rigidity, that following a goal, a fixed goal, that he pursued where he had difficulty kind of integrating things along the way.
>
> The circumstances of how he picked that drug store, he had been in—he had passed through Pompano. He had known there was a drug store there. He then went ahead and pursued this fixed idea. Why go from Key West to Pompano? How about a drug store closer to Key West, or how about one in Dade County? When that need clicked in, when he knew that he was running out of narcotics, that seemed like a very pressing kind of idea.
>
> He then goes up to the Pompano Fashion Mall. He knew he had to get a car. He didn't consider really other options. He wasn't very flexible in his thinking. What he did was he stole a car. But that really didn't work out too well. It drew a little bit of attention; wound up in an accident with the car.
>
> It sounds like a Woody Allen movie that isn't very funny. He then goes through—in close proximity gets another car; goes to a place nearby; winds up getting arrested at a Sambo's down the street.
>
> Now, that kind of rigidity is occurring because the energy intellectually is being drained off in pursuit of fulfilling that emotional need that he's got, and it was in an unstructured kind of setting.

(*Id.* at PageID 16923-16924.)

Ryan spoke of Cone's behavior in the structured setting of prison:

> That reduces a lot of his anxiety. He functions better. I would suspect that he would be either a model mental patient, or a model prisoner, or that he

would be of little difficulty to wh[o]ever his custodians were.

> It becomes a terrible danger to society if he's—he's back out there in an unstructured situation.

(*Id.* at PageID 16932.)

Ryan stated that the treatment prognosis for Cone even with psychiatric therapy outside of a structured setting would be "guarded to poor." (*Id.*)

> Given his needs, I'm not sure that he's going to get—I know he won't get the treatment he needs in jail. I know most probably he isn't going to get the treatment he needs ever in the forensic hospital system, because you're dealing with two major disorders. He doesn't have a minor drug problem. He's addicted to Class A narcotics. He doesn't have a minor emotional behavior. It's not just kind of a borderline thought disorder.
>
> You have both the two major areas knocked out of whack: his cognition and his mood swings. Take both of those, and then when you pour the chemicals on top of it, it's like pouring gasoline on the fire. The higher the structure, the more higher the fire is going to get. That's the best way I can describe it.

(*Id.* at PageID 16933.) Ryan stated that he "would have grave reservations from the management point of view of this man being reintegrated with society." (*Id.* at PageID 16968.)

B. Arthur T. Stillman, M.D. (Psychiatrist)

1. Stillman's Report

Arthur T. Stillman, M.D., a psychiatrist, evaluated Cone in the Broward County Jail on September 10 & 19, 1980; November 20, 1980; and January 19, 1981, for a total of six hours. (ECF No. 448-6 at PageID 16399.) Stillman described Cone as "rather dull and lackluster in his presentation":

> He demonstrates a notable flatness of affect, his voice remains frequently monotone, and his facial expression remains flat and fixed. He demonstrates a paucity of expression of feelings and a lack of vocal change so that his verbal presentations are monotonous, expressionless, and empty. His verbal and body languages seem rather minimal and far less than one would expect from the content

> of his production. He speaks of situations that should be filled with emotion yet, they are expressed as if they were inconsequential details so that everything that was going on in his feelings, his thinking, and his behavior have the same insignificant nature and nothing seems of any great importance or of greater concern than anything else. It is as if he cannot express or does not express in any way, different weights to a wide variety of trivia and a wide variety of important occur[e]nces and a wide variety of situations. There is an emptiness and robot-like flatness in every aspect of his life and his discussion of his life.

(*Id*. at PageID 16399.) Stillman described "a great deal of dysphoria, dejection, a nuclear depression" seen especially when Cone discussed his family life and his relationship with his father. (*Id.* at PageID 16400.) Stillman stated that "[b]ehind the façade of indifference and flatness, there is bottled up and repressed covert rage that is automatically controlled and that uses up a good deal of his psychic energy so that there is little left for other purposes." (*Id.*)

Stillman stated that, "at first blush, [Cone] is of superior if not genius intelligence," but in lengthy discussions, "his logic falls away so that there is evidence of ideas that do not follow logically." (*Id.*) Cone's "ideas become fragmented, oversimplistic and not in keeping with his intellectual capacity." (*Id.* at PageID 16399.) Stillman found that, despite Cone's intelligence, "His insight, however, is grossly limited, his judgment somewhat juvenile, and his ability to reason abstractly and discriminatively seems, at times, somewhat blocked." (*Id.* at PageID 16400.)

Cone's memory seemed adequate except for "inexact, spotty and approximate areas when he was under the influence of large quantities of polydrugs, including cocaine, amphetamines, marijuana, and as he stated, almost anything he could get his hands on" including psychedelics. (*Id.*) Cone reported use of opium, heroin, and dilaudid by injection beginning in the United States Army. (*Id.* at PageID 16401.) He could not seem to function outside of prison without drugs and never considered that he would be without them. (*Id.*) Stillman stated:

> A profound discussion of his use of drugs stated that he realizes that he always took drugs whenever he thought of being in the free world or with people, since he found

> it very difficult to socialize, being somewhat shy and self-conscious. He constantly felt that the drugs gave him the impression that he was in control, when in fact, in looking back, almost every offense he has committed has been the result of going out of control because he had used drugs for a long period of time. He stated that he smoked opium, injected D[i]laudid while he was in Vietnam, and got into the habits and could not stop when he came back. He found that drugs relieved his tension which was, at times, insurmountable and almost unbearable when he was moving around in the outside world.

(*Id.* at PageID 16402.)

Cone categorically denied having hallucinations, but stated that he has seen things that he is not sure were real. (*Id.* at PageID 16400.) Under the effects of drugs and especially cocaine, he has "heard sounds" and entertained paranoid delusions that people were watching him. (*Id.*)

Stillman reported that Cone "engaged in illicit obtaining of monies" after being released from prison. (*Id.* at PageID 16401.) Cone reported having "no work ethic" and "that he hated authorities." (*Id.*) Cone stated that "he is writing a small autobiography" and "feels that somehow something was pushing him to do what he did." (*Id.*) Cone "believed that perhaps the world owed him a living," and he believed that he was too smart to get caught again. (*Id.*)

Cone reported "a number of injuries including a broken right clavicle, having refractured that bone five times since childhood," and a "broke[n] right shoulder blade." (*Id.* at PageID 16402.) "He has had no other injuries or accidents, no epilepsy or diabetes, has never been in a mental hospital . . . ." (*Id.*)

Stillman reported that Cone presented "a rather complicated psychiatric picture" in which he appears to function well in the structured setting of incarceration and the military with proper limits and boundaries. (*Id.* at PageID 16402-16403.) Stillman opined that:

> when left in the outside world where he must create his own structure or where he must set his own limits, he begins to decompensate, becomes overwhelmed by tension, and only the use of drugs seems to quieten down his severe anxiety and his inability to be social. . . . It is clear that either he must be in a well-structured

> situation or under the influence of the tranquilizing effects of powerful drugs so that he can function. When left to his own devices, not only does his anxiety rise to intolerable heights, but he becomes restless, agitated, his thinking becomes confused, and he begins to behave in a fashion using logic that hardly fits his superior intelligence.

(*Id.*) Without the use of drugs, Cone can decompensate and "reaches psychotic types of behavior in which he is out of control." (*Id.* at PageID 16403.) Stillman contended that at these times, Cone "does not know right from wrong nor the nature or consequences of his behavior and must be considered to be insane." (*Id.*)

Stillman, like Ryan, determined that the lay person might not be able to identify Cone's behavior as insanity:

> To the casual observer, it may appear as if this subject is behaving in a goal directed fashion when, in effect, his behavior is more in the nature of a automaton and because of his superior intelligence, which is interfered with by the anxiety, the tension and pressure he feels, it is still higher than the average person's so that the impression left is that he is functioning normally, whereas his true normal functioning is at a much higher intellectual level. Generally speaking, his condition is one in which he cannot function on a sustained and constant basis if left to his own devices and requires a good deal of external control since it is clear that he cannot evolve his own.

(*Id.*)

Stillman concluded that Cone was competent to stand trial, but that at the time of the offense, Cone was

> functioning without structure, without limits of an external nature and cannot create them for himself[,] resulting in a decompensation in which his behavior becomes adverse and indicates that he does not discern rightness from wrongness, nor is he, indeed, fully aware of the nature of his behavior and can give no consideration to the consequences of his behavior. Therefore, in conclusion, this subject is presently, as stated above, sane and competent but at the alleged time of the alleged offense, he becomes insane and incompetent on a temporary basis until he is again contained in a structured situation.

(*Id.*)

2. Stillman's Testimony

Stillman testified that he saw the reports of the prosecution experts David Taubel and Arnold Eichert, the testing results from Ryan, and some police reports. (ECF No. 448-31 at PageID 16976-16977.) Stillman stated that the first part of his evaluation is a mental status examination to look at systems of mental, emotional, and behavioral functioning. (*Id.* at PageID 16977.) Cone was "responsive to questions, but he seemed rather unemotional, kind of a lackluster kind of dull presentation, because there was practically no emotion." (*Id.* at PageID 16978.) His associations were not well formed, and his ideas became fragmented. (*Id.* at PageID 16979.) Cone did not seem to be able to carry subjects to logical conclusions. (*Id.*) He could not differentiate between what was significant and what was not significant, which was surprising for a very intelligent person. (*Id.)*

Stillman testified that once Cone has left a structured situation

> It's as if he becomes a mental retardate, as if his mental function fades away. His ability to discern the significant from the insignificant disappears, and he begins to become dissident in terms of inability to integrate his various mental functions, much as we see in schizophrenia, in which there is a falling apart of certain personality factors.

(*Id.* at PageID 16985-16986.) Stillman stated that "schizophrenia" means "split mind" and then explained how Cone will reintegrate when put back into a structured situation. (*Id.* at PageID 16986.)

Stillman asserted that Cone was a social loner who cannot form close alliances. (*Id.*) He becomes "rather panicky, anxious, easily irritable, when he's in a social situation" because the structure is not clear to him. (*Id.*) Cone used drugs to get a sense of control and structure and reduce his sense of anxiety. (*Id.*) Stillman explained how continued drug use affected Cone:

Most of the powerful narcotics produce a very tranquilized effect for a while, but

> with continued use the very thing one is trying to accomplish becomes destroyed, because these drugs, when used over a period of weeks, become toxic to the person. And the structure, the elements of memory, the elements of reasoning, start to become disturbed by the poisoning effect, because they add up and add up and add up.
>
> If he used large amounts of them at times by injection and by almost every route and used almost every kind of substance, including opium, Dilaudid, Demerol, amphetamines, which can all affect the brain very severely so that he starts out by feeling better when using the drugs, he continues to feel fine, but his functioning starts to fall apart even though in the very beginning, when he's using it, he seems to be functioning better.
>
> To the observer he would be functioning better. But in time the toxic aspect defeats exactly what he's trying to accomplish. If he doesn't use the drug, he will continue to decompensate. If he does use the drug in the beginning, it will be fine. But as he uses it more, he will end up exactly in the same place decompensated. So he's damned if he does, and he's damned if he doesn't, because the problem with drug abuse is that it is self-defeating much like alcohol, and that's the kind of thing that has occurred and reoccurred with him many times.
>
> So we have two serious problems. Basically a significant problem dealing with the fact that he cannot create structure for himself. He cannot become his own mother and father, so to speak, and do what is appropriate. He begins to do inappropriate things. He uses drugs for a short time. He seems to reintegrate, and then with more use he begins to fall apart again.

(*Id.* at PageID 16986-16988.)

Cone was faulty in the areas of abstract and discriminating reason, even in a structured situation. (*Id.* at PageID 16988.) He thought he was communicating adequately when he was not. (*Id.*) Stillman described "hiatuses" in reason and "the subtleties of his disturbance, which is masked by the structure he is in," which was seen repeatedly and in various ways in the mental status examination. (*Id.* at PageID 16988-16989.)

Stillman's opinion was that "during the alleged offenses, out in the community in an unstructured situation at that time [Cone] did not know right from wrong or the nature of consequences of any merit of his behavior and was at least at a point of being temporarily insane."

(*Id.* at PageID 16991 (emphasis added).) Stillman testified that Cone was competent as he sat there at trial and he could distinguish right from wrong in that situation or in any structured situation. (*Id.* at PageID 16991-16992.) Stillman stated that Cone's stability depends on "so many variables." (*Id.* at PageID 16992.) Generally, the deterioration will be over a period of time, but may take only a few days or a week before he starts to deteriorate. (*Id.*) Reintegration may be "within a matter of an hour or two. It can be within a matter of sometimes a day or two. It depends." (*Id.*)

Stillman testified that Cone went to Memphis and while there, his decompensation continued, and without describing the events in Memphis, Stillman referred to some "activity there." (*Id.* at PageID 16993.) Stillman suggested that the activity was the reason Cone did not stay in Arkansas for law school. (*Id.*) However, Stillman noted that Cone

> went from Key West to Coral Gables to Arkansas to Memphis back to Key West, and it just seemed to me that this was a kind of circuitous thing. And it didn't seem to have rhyme or reason, especially when he should have been highly motivated having been so successful in the law boards. One would think he would have gone to Arkansas and stayed there.
>
> The fact of having to sit and wait without the structure of the classroom organized activity, he began to move off into a disorganized activity.

(*Id.* at PageID 16993-16994.) Stillman acknowledged that Cone had about a month before law school started, but he thought that the events that followed in Memphis and Florida were the result of Cone's decompensation because he had no structure. (*Id.* at PageID 16994-16995.) Stillman also noted that he did not know if the structure of law school would have contained Cone considering that he still would have had to have a social life. (*Id.* at PageID 16995.)

Stillman testified about Cone's movement or a "hobo syndrome, in which people move about and don't form any relationships." (*Id.* at PageID 16996.) Cone does not engage in

relationships because they produce demands and expectations that he cannot meet, which in turn produce anxiety. (*Id.*) Stillman testified that Cone uses drugs "to defend himself against the feelings of anxiety" when he is on his own in the community, and he might be able to relate superficially in a community of drug users. (*Id.* at PageID 16997.) He suffered from what is referred to as anomie, which is a "ruthlessness" or difficulty for him to relate closely or intimately. (*Id.*)

Stillman described the type of therapy required for Cone to operate in society:

> I think perhaps the therapeutic setting, a very intensive therapeutic setting, with therapy going on, mediotherapy, group process, individual therapy constantly, occupational, recreational, with proper medication—I think he could be reintegrated. I think he could be treated but it would be very difficult and very costly and very prolonged.
>
> . . . .
>
> Yes, he could be treated. No one says it would be easy. It would be rather lengthy. He would have to be first of all treated to become a patient. It's a re-educative process before one could get to the dynamic process of his therapy. So any therapist who would start with him would have to start with one kind of process and end up doing another kind of therapy.
>
> But the first process is to be able to habituate him to be a patient and to be able to sit with a therapist repeatedly and form an alliance, and that would be the hard part. Once that's established, he has the intellectual capacity to be able to understand and deal with abstract concepts, and he could be treated quite adequately.
>
> But again I would alert everyone to the fact that it would take three, four years of continuous treatment to do now what could have been done much more easily if he were 12 or 11.

(*Id.* at PageID 16998-17000.)

Stillman testified about Cone's inability to socialize:

> No, I don't believe he could socialize at this time. The patterns that are set are the same. I don't believe that this man has gained any change of a therapeutic nature in the situation he's been in in jail. I don't believe that he could freely and

> of his own volition form alliances or relationships or sustained intimacies or stay in one place any length of time.
>
> I think it would be almost impossible for him to sustain himself on a job where you have to have real contact with other people. He might be able to work in a situation where he would be working all by himself. But that's highly unlikely since you eventually have to have contact with people.

(*Id.* at PageID 16999.)

C. Arnold H. Eichert, M.D. (Psychiatrist)

Arnold H. Eichert, M.D., a psychiatrist, examined Cone on January 8, 1981, pursuant to a court order. (*See* ECF No. 448-10 at PageID 16409.) Eichert had previously seen Cone in November 1980, and determined that he was competent. (*Id*.)

Eichert described Cone's use of marijuana before Vietnam, the heavy use of opium beginning in Vietnam, his occasional drug use while in prison, and the constant use of "class A narcotics and amphetamines" by injection after his release. (*Id.* at PageID 16410.) Cone stated that he handled his drug cravings while in jail by eating candy bars. (*Id.*) Cone reported having "an active imagination" and indulging in "pleasant fantasies" while on drugs, but he denied hearing voices. (*Id.*) While in Key West, Cone used cocaine extensively, which made him paranoid. (*Id.*) In the year prior to Cone's arrest, he was on drugs constantly "and usually was not sure what was happening." (*Id.*) He described the robbery in detail but said it was "like a bad dream." (*Id.*)

Cone described himself as always being opinionated and not taking to authority and being "bitter at the world." (*Id.*)

Eichert concluded that Cone was competent to stand trial and competent at the time of the commission of the crime. (*Id.* at PageID 16410-16411.) Eichert's evaluative technique

consisted of the observing of the patient's manner, as well as his ability to think clearly and to relate his thoughts. (*Id.* at PageID 16411.) No psychological tests were used. (*Id.*) Eichert stated that he had only Cone's story, but it seemed reasonable. (*Id.*) Eichert determined that because Cone was

> so heavily under the influence of drugs, although he knew what he was doing, his actions seemed like "a bad dream." I do not believe at that time he was possessed of sufficient judgment to control his behavior, due to the use of the drugs.

(*Id.*)

Eichert found "no symptoms which might lead one to suspect the presence of psychosis, nor [was] there any evidence of confusion or disorientation which might suggest an organic brain condition." (*Id.*)

D. David E. Taubel, M.D. (Psychiatrist)

1. Taubel's Report

David E. Taubel, M.D., conducted a psychiatric evaluation of Cone pursuant to court order on January 13, 1981, with only Cone's "personally provided history." (ECF No. 448-16 at PageID 16437.) Taubel described Cone as cooperative, intelligent and friendly. (*Id.*) Taubel determined that Cone was "a man of better than average intelligence," evidenced by his "good command of language, the ease with which he communicated and the quickness with which he grasped ideas and concepts." (*Id.* at PageID 16440.) He displayed good memory of past and present events. (*Id.* at PageID 16440-16441.)

Taubel stated that Cone "does not display any significant psychiatric disorder at this time, nor is there any history to suggest that he has had a psychiatric disorder of major proportions in the past." (*Id.* at PageID 16437-16438.) Cone has "never experienced a psychotic disorder nor has

he had any type of mental illness which could equate with or be interpreted as insanity, either of a permanent or a temporary nature." (*Id.* at PageID 16438.)

Specifically, Taubel stated that Cone's problem "has been that of Substance Abuse, Demerol, heroin, amphetamines and other drugs." (*Id.* at PageID 16438, 16441.) Taubel noted that Cone began smoking marijuana and opium while in Vietnam, but did not use drugs intravenously. (*Id.* at PageID 16439.) Cone "became actively involved" in the use of drugs while in prison. (*Id.*) Cone reported "being a middle man, earning money in that fashion to support his own drug usage[,] which consisted of the intravenous injection of heroin, amphetamines and other preparations." (*Id.*) Cone's drug usage continued following his release and while he lived in Key West in early 1980. (*Id.*)

Cone described his activities and actions on the day of his arrest in some detail. (*Id.* at PageID 16439-16440.) Taubel stated that there was "nothing to suggest that [Cone] was suffering from any mental illness at that time and although he had been using intravenous Demerol and possibly other preparations, I could not elicit any history to suggest that he was so grossly drugged as to be unaware of his activities or the nature and consequences of his behavior." (*Id.* at PageID 16440.)

Taubel noted that Cone stated he has never had any gainful employment other than military service where he worked in supply and had no combat duty. (*Id.* at PageID 16439-16440.)

Cone's medical history was "essentially negative" other than the mention of a hospitalization for a broken right collarbone in a motorcycle accident. (*Id.* at PageID 16440.)

Taubel determined that Cone suffered from substance abuse but no other mental illness:

> He displayed no indication of any psychotic process. He appeared to be in excellent contact with reality and he did not display an evidence of delusions or hallucinations. His thought processes were clear, his judgment seemed good, he

> was capable of reasoning and rationalizing and his emotional expression was appropriate. He was neither anxious nor depressed.

(*Id.* at PageID 16441.)

Taubel concluded that Cone was mentally competent to plead or assist counsel. (*Id.*) He stated, "[t]here is no indication that he is insane at this time nor is there any indication that he was insane at the time of the alleged offense." (*Id.*) Taubel further stated, "At the time of the offense he was capable of understanding the difference between right and wrong and also of understanding the nature and the consequences of his actions." (*Id*. at PageID 16442.)

2. Taubel's Testimony

Taubel conducted a clinical interview of Cone for approximately an hour and found him to be cooperative. (ECF No. 448-31 at PageID 17003-17004.) Taubel did not feel that he needed more time with Cone to form an expert opinion. (*Id.* at PageID 17004.) Taubel reviewed Agent Flynn's report and felt that Cone was mentally competent on August 13, 1980. (*Id.* at PageID 17004-17005.) Taubel felt that Cone had "the ability to discern right from wrong under the nature and consequences of his actions and to form an intent." (*Id.* at 17005.)

With regard to a determination of temporary insanity, Taubel stated:

> Well, the first thing is that the temporary insanity is very loosely used, poorly defined, and to my knowledge, even less well defined in legal usage. In psychiatric usage it's very poorly defined.
>
> But generally, it is encompassed by a eutoxic psychotic state in which an individual is grossly unable to conduct himself in a normal fashion as, for example, with del[i]rium tremens or the D.T.'s that an alcoholic might have. That would be a true temporary insanity.
>
> . . . .
>
> We are really almost playing with words in a situation like that. From the psychiatric standpoint, I saw no evidence of any mental [illness] which this man

had that would have caused or could have caused the temporary insanity.

(*Id.* at PageID 17005-17006.)

Taubel did not believe that Cone suffered a toxic psychosis:

> No, there was no indication that I saw from the history the defendant gave me or from reading the reports of the interrogating officers that the defendant had experienced any type of toxic psychosis. In fact, he volunteered the information himself that he had experienced only a very mild withdrawal the first 24 hours that he was in custody.

(*Id.* at PageID 17006.)

Taubel reviewed the FBI's synopsis of the statement taken from Cone in connection with whether Cone has the ability to distinguish right from wrong:

> Yes. It was very important I felt, because the F.B.I. agent, in his report, described certain aspects of the defendant's mental functioning. He not only inquired of the defendant as to how he was thinking and feeling and what his mental and physical state was, but he described some of his own observations.
>
> That I felt was very important, because in a great majority of times, investigating police officers are only looking for the nuts and bolts of the interrogation. They want to know the size of the gun or the type of hat the person was wearing. They do not inquire as to the feelings and attitudes and motivations of the person.
>
> This officer, the F.B.I. agent, did such an inquiry.

(*Id.* at PageID 17007.)

Taubel stated that the concept that a person can know right from wrong in a structured setting but not in an unstructured setting is:

> a very vague one. It's a generalized concept and not applicable unless you have certain specific circumstances and certain specific individuals within those circumstances, and then you might find it valid.

(*Id.* at PageID 17009.) Taubel stated that he did not know under what circumstances Stillman and Ryan thought Cone could function because Taubel could not determine from their reports: "what

to them was a structured or an unstructured situation with reference to the defendant, nor did they state what they considered in general was an unstructured situation." (*Id.* at PageID 17010.)

Taubel did not feel that Cone was trying to malinger. (*Id.* at PageID 17011.) Taubel believed that Cone was looking after his own best interests and that was appropriate. (*Id.*)

With regard to psychological tests, Taubel stated that he was not happy with the MMPI because it is a test subject to many errors. (*Id.* at PageID 17012.) He stated that he has found the WAIS "usually helpful." (*Id.*) He stated that the Thematic Apperception Test is sometimes helpful, depending on the problem one is trying to assess. (*Id.* at PageID 17012-17013.) He described the tests as tools to aid experts and stated that they are almost essential for a psychologist, but "[f]or a psychiatrist they may or may not be, depending on what one's objective is in the course of the examination." (*Id.* at PageID 17013.)

Taubel gave Cone no formal testing. (*Id.* at PageID 17014.) He took Cone's history asked Cone "about his life, his experiences, his needs in jail, his feelings and attitudes about that, plans, [and his] motivations for the future." (*Id.* at PageID 17015.)

Taubel stated that Cone spoke mostly of his feelings about his drug use. (*Id.* at PageID 17015-17016.) Taubel did not feel that Cone's feelings about his father were relevant to the charges against him. (*Id.* at PageID 17016.) Cone stated, "My problem is with drugs." (*Id.*) Taubel testified:

> The defendant told me that he had been using drugs since his Vietnam days. Heroin and marijuana had become his drugs of use during his military days in Vietnam and that he had continued more or less consistently as a drug user throughout his life, primarily heroin, Demerol, Dilaudids, some Quaaludes, very occasional psychedelics, such as LSD, some amphetamines. But the predominant usage was that of the morphine derivatives. Also some alcohol and some cocaine.

(*Id.* at PageID 17017.) Taubel felt that Cone "would eventually have to get into a drug treatment

program, because drugs had dictated so much of his lifestyle from the time he was a teenager." (*Id.* at PageID 17021-17022.)

On redirect Taubel was asked about whether Cone knew or had the capacity to know right from wrong, and Taubel answered "yes" to both. (*Id.* at PageID 17022.)

3. Taubel Evaluation Notes

Taubel's notes dated February 10, 1982, appeared to be attached to the testimony. (ECF No. 448-31 at PageID 17023.) Those notes address the Todds' murders in Memphis:

> Mr. Cone reported he was making his way to Amsterdam, Holland, when he stopped in Memphis. He had taken a room at the Admiral Benbow where he would "just sit in the room and shoot dope." He had a passport. He stated that he had a "shoot-out with the cops" and fled, leaving his passport, drugs, etc. behind. He was trying to get out of town and entered the house belonging to the elderly couple thinking no one was there. He stated, "She made a break for the door." He had been telling them to be calm, but "flew in a rage." He hit her with the gun, he admitted. He stated he had "no idea of the sequence there." But "hit both a bunch of times." Then he cleaned himself up, caught a cab and went to Key West.
>
> . . .
>
> Mr. Cone described the sequence of events leading to his capture in Florida. When asked about his behavior, he stated that when he had a plan, he stuck to it, even though it went badly in this case.

(*Id.*; ECF No. 448-32 at PageID 17024.)

Cone indicated that he financed college by robbing pharmacies. (*Id.* at PageID 17024.) "[H]e wished he was born rich; he's lazy and doesn't like to work." (*Id.*) Cone stated that he never would do anything if he thought he'd get caught; he blamed his failure on drugs and a "bad plan." (*Id.* at PageID 17025.)

Cone's impressions about his future were that:

> I don't know what I would do with my life if I could see the end to my problems. It might be a better system if they took you out the next day and shot you. I'm not

really a quitter but I can't see a future for me.

(*Id.*)

IV. THE EVIDENTIARY HEARING

The evidentiary hearing was held over the course of six days with additional testimony taken by deposition. Cone presented five witnesses at hearing: Ruben Gur, Murray W. Smith, Andrew Newberg, Christos Davatzikos, and George Woods. Cone presented the following five witnesses by deposition: April Ferguson Goode, James D. Kopernak, Michael J. Doddo, Dale Watson, and Erin Bigler. Respondent presented the testimony of two witnesses, Carolyn Meltzer and John Robert Hutson, at hearing.

The Court will summarize the testimony of witnesses presented in connection with the evidentiary hearing:

A. Michael J. Doddo, Esq.

The videotaped deposition of Michael J. Doddo, Esq. was taken on January 7, 2014, in Fort Lauderdale, Florida. (ECF No. 418 at PageID 12671.) Doddo is an attorney who has practiced law since October 1972, in Florida. (*Id.* at PageID 12676.) He represented Cone in 1981 in Cone's Florida case on charges of attempted murder, aggravated battery, first degree robbery, and possession of a firearm during the commission of a felony. (*Id.* at PageID 12676-12677; *see id.* at PageID 12689-12692.)

Doddo testified that he had Dr. Arthur Stillman, a psychiatrist, interview and evaluate Cone. (*Id.* at PageID 12679.) Dr. Stillman did frequent evaluative work for the Federal Public Defender's Office in the early '70s, and the court appointed Dr. Stillman as an expert in a number of Doddo's cases that involved questions regarding the defendant's sanity. (*Id.*) Doddo testified

that Cone's file was destroyed. (*Id.* at PageID 12677.) Doddo identified Stillman's letter report dated February 13, 1981. (*Id.* at PageID 12677-12680; *see* ECF No. 418-1.) Doddo also recalled working with William Ryan, a clinical psychologist, for the first time in the 1980s, on Cone's case and identified a documented dated February 18, 1980, as the report Ryan provided about Cone. (ECF No. 418 at PageID 12681-12682; *see* ECF No. 418-2.)

When Doddo had a concern about the competency of a client, he would contact a doctor or psychiatrist to evaluate him. (ECF No. 418 at PageID 12682.) It appears that he had some concerns about Cone. (*Id.* at PageID 12682-12683.)

When Doddo was representing Cone, he was aware that Cone had pending criminal charges in Memphis. (*Id.* at PageID 12683.) Doddo testified that he does not recall Cone's Memphis trial counsel John Dice, co-counsel April Ferguson Goode, Cone's post-conviction counsel James Kopernak, or anyone related to the Memphis charges, ever contacting him. (*Id.* at PageID 12683-12686.*)* Doddo testified that, if someone had contacted him, "I certainly would have cooperated" and provided the Ryan and Stillman reports, any mental health records, and Cone's file—provided that Cone consented. (*Id.* at PageID 12684-12685, 12720.)

On cross-examination, Doddo could not recall Cone having a history of a diagnosis or treatment for mental illness prior to his Florida arrest. (*Id.* at PageID 12693.) Doddo remembered "that Mr. Cone had a history in these events of a need for drugs and a use of drugs and behavior that didn't appear to be consistent with someone who was competent." (*Id.*) Doddo's defense was that Cone suffered from a mental illness complicated by substance abuse. (*Id.* at PageID 12693-12694.)

Doddo was not familiar with neuropsychological tests or evaluations and had never had a client submit to a neuropsychological evaluation. (*Id.* at PageID 12697.) Doddo did not recall

either Stillman or Ryan recommending that neuroimaging be done on Cone. (*Id.* at PageID 12698-12699.) As Cone's attorney, Doddo would have relied on Ryan and Stillman as the experts to tell him if they felt neuroimaging exams needed to be performed. (*Id.* at PageID 12699.)

Doddo testified that Cone was convicted on all counts in the Florida case and given life sentences, the maximum sentence available on the armed robbery charges. (*Id.* at PageID 12710-12714.)

The Court finds that Doddo was a credible witness. His testimony was objective. He was confident that no one involved with Cone's Memphis case contacted him. Doddo's testimony is consistent with that of Kopernak and Goode, who also did not recall attempting to obtain Cone's Florida records. Doddo's performance as counsel in Cone's Florida case is not at issue in the instant case. Doddo's testimony did not reflect bias or a predisposition in favor of the defense.

B. James Kopernak, Esq.

The videotaped deposition of James D. Kopernak was taken on January 7, 2014, in Fort Lauderdale, Florida. (ECF No. 420 at PageID 13470, 13475-13476.) Kopernak represented Cone in the state post-conviction proceedings. (*Id.* at PageID 13478.) Kopernak is an attorney who practiced law from 1975 to 2006 or 2007, first in Memphis, Tennessee and later in Jackson, Mississippi. (*Id.* at PageID 13477.) John Dice, Cone's trial counsel, was a very good friend and colleague of Kopernak and asked Kopernak to handle the post-conviction work. (*Id.* at PageID 13478, 13540.) Kopernak did not recall doing any other post-conviction relief work. (*Id.* at PageID 13478-13479.) He had never represented anyone in a capital proceeding. (*Id.* at PageID

13479.) Kopernak's representation of Cone was pro bono. (*Id.*)

Kopernak described his investigation of Cone's case:

> Well, basically I recall taking that transcript to, I believe, the office late afternoon[.] [I] went to a local watering hole with a couple of volumes of the [trial] transcript. And I spent about two weeks just po[]ring over that transcript.
>
> . . . .
>
> That was primarily how I got a feel for the case, and, of course, I talked with John Dice about it innumerable times . . . .

(*Id.* at PageID 13480.) Kopernak interviewed Jonathan Lipman, who was a good friend and testified as an expert witness at the trial. (*Id.*) Kopernak talked to Cone a number of times. (*Id.* at PageID 13480-13481.) He remembered "looking for family members, trying to reach family members" and thinking he may have talked to one. (*Id.* at PageID 13481.) Kopernak testified:

> It was not easy as I recall to come up with witnesses that potentially could have testified at the sentencing phase, and I think I probably did talk to one or two family members. I know I made the effort to try to reach family members.
>
> . . . .
>
> The name Sue Cone comes to mind, but I really don't remember if I talked with Sue or not. I think I may have.

(*Id.*)

Kopernak testified that he understood that there were risks attached to not raising all of the claims. (*Id.* at PageID 13483.) He certainly tried "to raise everything [that] I could think of that I thought had a chance." (*Id.*) Kopernak did not exclude any claim for tactical reasons. (*Id.* at PageID 13483, 13488-13489.)

In the post-conviction proceedings, Kopernak raised five claims of ineffective assistance of counsel labeled 11A through 11E. (ECF No. 420 at PageID 13483-13484, 13488.) With regard to ineffective assistance of counsel at the penalty phase in Paragraph 11A of the petition, Kopernak

alleged that defense counsel put on no proof of mitigating circumstances and waived argument, constituting an inadequate strategy as a matter of law. (*Id.* at PageID 13484-13485.) He "was astounded that that could be a strategy actually employed in a death penalty case." (*Id.* at PageID 13485.)

Paragraph 11B addressed the failure to interview prosecution witness Ilene Blankman. (*Id.* at PageID 13485.) Kopernak remembered that

> it was obvious that Eileen [*sic*] Blankman was lying. I don't remember why that was obvious to me, but I recall it being obvious possibly -- probably from talking with Mr. Dice and April Ferguson, but also talking with the petitioner, Gary Cone. I actually tried to find that woman. Word was in those days she was in Key West, Florida. I actually traveled to Key West and quickly learned that a young lawyer doesn't find people by asking questions in Key West, Florida. But I was unable to locate her.

(*Id.* at PageID 13485-13486.)

Paragraph 11C addressed the failure to adequately advise the defendant of the possible effect of his not testifying at the penalty stage. (*Id.* at PageID 13486.) Kopernak stated:

> At this point I recall that primarily in terms of this whole idea of waiving any proof of any kind at the penalty phase. To me, that was such a glaring thing. I don't think I ever found a case where somebody did that. It just seemed like such a glaring failure that everything connected with that was suspect.

(*Id.*)

Paragraph 11D alleged that counsel failed to adequately investigate and adequately prepare pretrial as to mitigating factors and circumstances. (*Id.* at PageID 13487.) Kopernak did not recall anything specific with regard to this claim. (*Id.*) He stated, "I think my feeling was that it was, per se, an inadequate investigation if your determination was you didn't have anything to put on." (*Id.*) The only witness that may have addressed this claim at the post-conviction hearing was Cone's mother Valeree Cone. (*Id.* at PageID 13494.) Valeree Cone had made an argument

at trial to spare her son's life. (*Id.* at PageID 13499.) In the post-conviction proceeding, Valeree Cone stated that she had not previously testified about her son's early childhood and family experiences, but Kopernak did not ask her at the post-conviction hearing what those experiences were. (*Id.* at PageID 13500.) In hindsight, Kopernak understood he should have asked Valeree Cone "about the childhood and family experiences that she could have testified at trial but Mr. Dice never asked her about." (*Id.* at PageID 13500-13501.)

Kopernak did not make a record of what the other witnesses' testimony would have been "[o]ther than just to establish that they had positive things to say that would be admissible that would be—could be the basis for mitigating circumstances." (*Id.* at PageID 13502-13503.) He asked the court for the opportunity to prepare affidavits as proffers of proof for this testimony, but he never submitted any. (*Id.* at PageID 13504-13507.)

Kopernak noted that the "bifurcated death penalty statute" was "relatively new" at the time. (*Id.* at PageID 13498.) In the post-conviction proceedings, he

> was trying to show . . . there were witnesses out there. There was proof to be put on, and frankly, I never felt good about it. I think it was kind of late in the game of my preparation that I realized that the most effective way for me to present the case is to actually present those witnesses that should have testified, and I didn't feel like we did much of a job of that.
>
> . . .
>
> In the post-conviction proceeding. That it was—I think my approach was more to show that there was proof available in a record where, for some reason, the decision was made to present absolutely nothing. I don't think I ever learned when or exactly what all the reasons were for John Dice making that decision. But I—I never—I remember feeling that there was—that suddenly my position was quite a bit different than what I thought it was to begin with, which I thought was basically reviewing a record and finding fault if fault was to be found with respect to the performance of counsel as opposed to actually doing my own investigation, traveling around, finding witnesses, figuring out what they're going to say, and presenting them. In other words, my own little sentencing phase plan, if you will.

(*Id.* at PageID 13496-13497.) He determined, in retrospect, that

> you become that counsel and go out and do those things, and that was a pretty—pretty big burden for somebody doing this on a pro bono basis while trying to earn a living practicing law. Particularly with most of the witnesses being out of state, it was difficult.
>
> . . . .
>
> Well, it takes time and money, . . . if there was money available, I don't think I knew about it.

(*Id.* at PageID 13498-13499.)

At the state post-conviction hearing, Kopernak called two expert witnesses, Wayne Emmons and Steven Shankman, to testify regarding Dice's trial strategy. Emmons' testimony focused on Dice and whether it was an appropriate strategy for Dice to waive argument and not put on any evidence in the penalty phase. (*Id.* at PageID 13494-13495.) Shankman's testimony was similar. (*Id.* at PageID 13495.)

Paragraph 11E alleged that counsel failed to properly advise the defendant with respect to whether or not his communication with state expert witness, Dr. Ben Bursten, was privileged. (*Id.* at PageID 13487-13488.) Kopernak did not recall anything specific, but it appeared that "something got testified to that was damaging" that was in Bursten's notes. (*Id.* at PageID 13488.)

Kopernak stated that he presented all the evidence "that we could muster under the circumstances" at the evidentiary hearing conducted on April 28-29, 1986, to prove his claims. (*Id.* at PageID 13489-13490.) He did not make a tactical decision to withhold any particular proof or not present proof at the post-conviction evidentiary hearing. (*Id.* at PageID 13490, 13533-13535, 13535-13537.)

With regard to Paragraph 40(a)(i) of the habeas petition alleging failure to investigate both

the criminal charges and trial in the State of Florida and the Stillman and Ryan evaluations, Kopernak stated that he did not raise a similar claim in the post-conviction proceeding and that he had no strategic reason for not raising that claim. (*Id.* at PageID 13511-13513.) Kopernak stated that he never contacted Doddo, but it would have been a good idea to get his records. (*Id.* at PageID 13513, 13519.)

Kopernak testified regarding the prosecution's attack on Jonathan Lipman's trial testimony:

> I can tell you as a general rule, I mean, it was—Dr. Lipman's testimony was—people talked about it lightly. The guy is extremely bright. He had a very pronounced English accent, and the guy wasn't that easy to follow. He's a true scientist. And I guess my approach on it was I just don't think I went that far with it. Prosecutor Strother saying ["]well, you can't even write a prescription["] was just a common tactic, I mean, something that I didn't think much about in terms of going behind this cross-examination.
>
> I mean—I mean, to this day, it's pretty sophisticated, what little bit I've looked back at, testimony. Lipman is not your ordinary human being. This guy is on a little bit higher level than most of us.
>
> Certainly in retrospect I see where you—he says you can't write a prescription. In retrospect, you'd say, well, yeah, this is the guy that tells the doctors what to prescribe, because that's exactly what goes on with a person like Dr. Lipman.

(*Id*. at PageID 13520-13521.) In retrospect, Kopernak determined that it would have been helpful for Dice to find corroborating witnesses for Cone's drug use and to get information from the doctors who evaluated Cone in Florida. (*Id*. at PageID 13521-13522, 13524-13525.) Kopernak agreed that it would have been appropriate for him to provide that evidence to the appropriate experts to use in formulating their opinions. (*Id*. at PageID 13522-13523.)

With regard to the allegations in ¶ 40(a)(ii)(1) of the Petition that trial counsel failed to interview Jerry Pelley about Cone's drug use, Kopernak testified that he did not raise a claim like

this in the post-conviction proceedings and did not have a strategic reason for not raising this claim. (*Id.* at PageID 13523-13524.) He agreed that it would have been important for him as post-conviction counsel to have identified persons who had firsthand knowledge of Cone's drug use and to show that Cone was a drug user and not a drug dealer. (*Id.* at PageID 13525-13526.) Pelley might have been of interest, Kopernak conceded on cross-examination, but Kopernak had some concerns about having a convicted felon testify. (*Id.* at PageID 13653-13654.)

Kopernak did not recall looking at Dice's files to assist him in preparing the post-conviction petition. (*Id.* at PageID 13531.) He does not recall discussing with Dice whether anyone conducted a detailed background investigation of Cone to determine what life events could have been mitigating. (*Id.* at PageID 13532.) Kopernak did not obtain a social history. (*Id.* at PageID 13532-13533.) He never put the Florida psychological reports into the record because he never received them. (*Id.* at PageID 13538-13539.) He had no proof of Cone's military or school records. (*Id.* at PageID 13539.)

On cross-examination, Kopernak testified that he was not aware of Cone having any history of diagnosis or treatment for mental illness or a diagnosis for addiction. (*Id.* at PageID 13654-13655.) Kopernak had no knowledge of any doctor who evaluated Cone prior to the Tennessee trial ever suggesting that neuroimaging be done on Cone. (*Id.* at PageID 13580.) If it had been recommended, Kopernak would have wanted it to do it. (*Id.*) Kopernak did not think they were doing PET scanning of any kind on a practical basis back in those days. (*Id.* at PageID 13581.)

Kopernak remembered that the evidence against Cone was overwhelming and that he had confessed to killing the Todds. (*Id.* at PageID 13603.)

Kopernak acknowledged that Dice's opening in the penalty phase addressed the mitigating

circumstances that had been presented in the guilt phase and had more of the effect of a closing argument. (*Id.* at PageID 13607-13608, 13611.) Kopernak testified about Dice's defense strategy:

> Q. Can you see where an attorney representing Mr. Cone, knowing the facts as you know about Mr. Cone's background from the evidence in the case in Tennessee, can you see from the fact that Mr. Cone—his history where given the fact that he had been a good student and been a relatively normal kid and goes to Vietnam and comes back and has problems where an experienced defense lawyer may feel like the Vietnam experience was the source of Mr. Cone's problems as a reasonable strategy for a jury?
>
> . . . .
>
> A. I think that makes sense.
>
> . . . .
>
> Q. . . . If you have a guy who's [a] fairly normal good student who goes off to Vietnam and comes back and gets in a bunch of trouble, it makes a whole lot more sense to attribute what happened to him in Vietnam than it does to present an insanity defense when he has no history of mental illness, does it not?
>
> A. I find this very difficult to answer. My understanding of these facts are regardless of the difficulty of proving it that Mr. Cone spent—I don't [know] how long, how many months, how many years injecting lots and lots of drugs. And that was basically what I learned from Dr. Lipman. This is a guy who for whatever reason, possibly because he was so darn bright, spent apparently a long period of time just ingesting ridiculous amounts of drugs and somehow made it day to day.
>
> Q. And the jury heard about it?
>
> A. And the fact that he was never diagnosed with mental illness seems rather irrelevant to a person like that. If you get caught, maybe you get diagnosed. Maybe you don't.
>
> Q. Well, during—
>
> A. So the question was difficult for me. I wouldn't accept that he didn't have a history of—I can't remember the term you used—mental illness.
>
> Q. Well, during the course of this history, he's making a 3.6 grade point average in undergraduate studies at the University of Arkansas.

A. The fellow was uncommonly bright.

Q. And he was getting accepted to law school at the University of Arkansas?

A. That is correct.

Q. And the jury heard all this evidence about drug use, didn't they?

A. They heard evidence.

Q. And they heard evidence that there were lots of drugs in Mr. Cone's vehicle when he abandoned it?

A. They did hear that.

Q. There were pictures of all those drugs?

A. I think there were.

Q. I mean, so the jury saw that. The jury heard that he was arrested for robbing a pharmacy for drugs in Florida?

A. I believe that's correct.

Q. And they heard all the testimony from Dr. Lipman. So all these things are things the jury was aware of, right?

A. Yeah. The record speaks for itself in terms of what was introduced.

(*Id.* at PageID 13655-13658.)

The Court finds Kopernak to be generally credible. Kopernak had a very good recollection of his investigation and his work in Cone's post-conviction proceedings. His testimony as to his own representation of Cone was objective and believable. Kopernak did have a belief that Dice was ineffective largely based on the fact that Dice did not present evidence in the mitigation phase, although it was presented at the guilt phase of trial.

C. April Ferguson Goode, Esq.[7]

The deposition of April Goode was taken on February 6, 2014, in Nashville, Tennessee. (ECF No. 419 at PageID 12763, 12767.) Goode, then April Ferguson, was Dice's partner at Turner, Dice, and Ferguson and was retained as trial counsel to represent Cone. (*Id.* at PageID 12771.) Goode passed the Florida bar exam in 1978 and passed the Tennessee bar exam in 1979. (*Id.* at PageID 12770.) Goode believed that a member of a veterans association contacted Dice because "[h]e was a veteran and this association was devoted especially to veterans of the Vietnam War." (*Id.* at PageID 12771-12772.) The association connected Cone's mother with Dice. (*Id.* at PageID 12772.) They also represented Cone on direct appeal. (*Id.*)

Goode was vaguely aware that Cone was arrested and charged for offenses in Florida shortly after the events in Memphis. (*Id.* at PageID 12773.) She was not sure if she knew that he had been tried in Florida before being sent to Tennessee. (*Id.*) She was "not focusing on the Florida situation at all." (*Id.*)

The defense in Tennessee was an insanity defense based on Cone's consumption of methamphetamine and other drugs and exposure to stress in Vietnam. (*Id.* at PageID 12774.) She testified that she believes that they were trying to prove insanity based on the test in *Graham v. Tennessee*, 547 S.W.2d 531, 544 (Tenn. 1977). (*Id.* at PageID 12775-12776.) She testified that based on *Graham*, if the defense established a reasonable doubt about defendant's sanity, the burden would shift to the prosecution to prove sanity beyond a reasonable doubt. (*Id.* at PageID 12777-12778.) She agreed that it was necessary to present to the jury any and all reasonable doubt about Cone's sanity because defense counsel wanted at least one juror to have a reasonable

[7] Goode testified in the post-conviction proceedings. (*See* ECF No. 233-2 at PageID 3172-3199.)

doubt based on that standard. (*Id.* at PageID 12778.) She testified that the government put on expert witnesses to put to rest any doubts that the jurors had about Cone's sanity or his capacity to conform his behavior. (*Id.* at PageID 12779.) Because the case was a capital case, she thought it was important to put on mitigating evidence about mental disease or mental illness. (*Id.* at PageID 12779-12780.)

Goode testified that she may not have tried a felony case before Cone's trial in 1982. (*Id.* at PageID 12780.) She may have participated as an assistant at a trial in federal court in New Orleans. (*Id.*) She had no training in the defense of capital cases at the time and no continuing legal education regarding capital defense. (*Id.* at PageID 12780-12781.) Cone's case was Goode's first capital case. (*Id.* at PageID 12781.) She does not know if she reviewed the American Bar Association's standards for criminal justice when she represented Cone. (*Id.*)

Goode stated that she now knows that she had a duty to secure the evidence necessary to fully present Cone's defense. (*Id.* at PageID 12782.) At the time of the trial, she thought that she had the skills that were required to represent him. (*Id.*) She does not now believe that she understood the avenues that were available for Cone's defense. (*Id.* at PageID 12782-12783.)

Goode and Dice worked together with the experts Matthew Jaremko, a clinical psychologist, and Jon Lipman, a neuropharmacologist, to develop and present the defense. (*Id.* at PageID 12783, 12892-12894; *see also* ECF No. 322 at PageID 8317-8326.) Goode and Dice talked to the experts, and Goode was present for some of the interviews with Cone. (ECF No. 419 at PageID 12783.) When asked about Dr. Jaremko on cross-examination, Goode recalled Jaremko testifying that Cone had confessed to him regarding killing the Todds, but she stated that Jaremko's testimony that Cone suffered from post-traumatic stress disorder and a substance abuse disorder "wasn't adequate." (*Id.* at PageID 12908-12916.) Goode recalled Lipman's testimony

and described Lipman as a person who studies the effects of drugs on human beings and animals, specifically their brains. (*Id.* at PageID 12917-12918.) She stated that he examined Cone, but "at the time they didn't have equipment that would actually take a picture of the brain as they do now." (*Id.* at PageID 12918.) Goode stated that Lipman might have been wrong in stating that Cone was not psychotic. (*Id.* at PageID 12921.) She stated, "I don't know. It would have been useful to have the Florida reports." (*Id.*) Goode testified that "it was incomplete" to say that Cone suffered amphetamine psychosis from his drug use. (*Id.* at PageID 12923.) Goode did not recall any of the defense experts that they retained suggesting that Cone had brain damage. (*Id.* at PageID 12951.) She does not think it was possible to have neuroimaging studies done back then. (*Id.*)

Goode testified, on direct, that they needed information about prior mental health evaluations to present the insanity defense. (*Id.* at PageID 12783-12784.) She did not contact the Florida attorneys or see the records in preparing the defense. (*Id.* at PageID 12784.) Now, she thinks that the records would have beeen "invaluable." (*Id.*) She testified:

> I don't know why we didn't think it was important, what was happening in Florida, or what had happened in Florida. It never occurred to me that any mental health evaluations or any of the facts of his convictions down in Florida would have been important to us. I was very poorly focused on obtaining all of the possible evidence that could be found about Mr. Cone.
>
> . . .
>
> It didn't occur to me that they would be of any use. And now that I have been privy to his mental evaluations down there, again, I think they would have been invaluable to us.

(*Id.* at PageID 12784-12785.) She did not have a tactical reason not to get the records; "the thought did not enter my head." (*Id.* at PageID 12785-12786.)

If they had received the Florida records, they would have been retained in the case file.

(*Id.* at PageID 12786.) Goode reviewed the case file, and the records are not there. (*Id.*) Goode believes that they were never obtained. (*Id.*)

Goode agreed that she failed to properly investigate the circumstances of the Florida offense and the Florida mental health evidence. (*Id.* at PageID 12786-12787.) She did not know that the Florida attorney had hired Ryan to conduct a psychological evaluation on Cone and that Ryan wrote a detailed report. (*Id.* at PageID 12787-12788.) She never saw Ryan's report. (*Id.* at PageID 12788.) She also did not know about Stillman, Eichert, or Taubel or their reports. (*Id.* at PageID 12788-12789.)

Goode stated:

> I should have secured all—any mental evaluation that had been done on Mr. Cone. First, if they were favorably deposed to support our position, they would have been useful. But also we had to—would have had to be aware of any negative reports that may have been ready to—may have been prepared so we could be ready for them. And that was not done.

(*Id.* at PageID 12789-12790.) She testified that she and Dice should have sought the Florida records. (*Id.* at PageID 12790.) In response to the questions of whether the reports would have supported their defense, she asserted that:

> Yes. As I said before, they were—they would have been invaluable. They would have given us something to argue, something more, I should say. We did have some experts, but it would have been much more useful. In fact, it would have been useful to have these physicians or psychologists perform as witnesses. It's possible that I didn't even know that we could do that.

(*Id.*)

From reviewing the reports, Goode testified that Ryan and Stillman concluded that Cone was insane at the time of the Florida offenses, just shortly after the Tennessee offenses, and that Eichert determined that Cone was unable to control himself. (*Id.* at PageID 12791.) Goode found these evaluations of Cone's insanity "current" and "very useful" for trial. (*Id.* at PageID

12791-12792; *see id.* at PageID 12819.) She would have given them to Lipman and Jaremko:

> I think that they would have looked at the individual reports and looked at their own evaluations of Mr. Cone and decided whether or not their reports were compatible and whether or not they needed to again talk to Mr. Cone. Because I don't think they were—I can't recall them being aware that Mr. Cone had been submitted to numerous examinations in Florida.
>
> Mr. Cone could keep his own counsel to his great det[ri]ment. So they would have been much more useful to make much more comprehensive reports, I think, because they were operating just on word from Mr. Cone and whatever he chose to tell them. Mr. Cone, I should say. Whatever he chose to tell them was what they had to base their reports on, whereas they would have other information from Florida that might round out their reports.

(*Id.* at PageID 12792-12793.)

Goode testified that there was no prohibition against calling the Florida experts to testify in the Tennessee trial. (*Id.* at PageID 12794.) She stated, that based on their testimony, Cone could have argued acquittal at the guilt stage. (*Id.* at PageID 12794-12795.) Goode also understood that there was no limitation on what evidence could have been presented to the jury as mitigating evidence, and the Florida experts could have been presented to the jury as mitigating evidence. (*Id.* at PageID 12795.)

Goode explained the relevance and significance of Ryan's findings about Cone's manner of speech, mood, and thought process:

> Well, I think it's very accurate. I think I mentioned to you earlier that Mr. Cone kept his own counsel. And what I meant by that was that he very rarely volunteered any information if he was asked a direct question. He might answer in a very objective manner. He would have answered in a very objective manner, meaning him saying I'm sorry those two people are dead, things like that.
>
> And when we initially meet him, he's—I can't say he's cold, but he's also not receptive. It seems like he—after I got to be around him a little more, I realized he was spending a lot of energy just holding himself in. And it was kind of frightening at times.

(*Id.* at PageID 12798-12799.) With regard to Ryan's findings about slippage and illogical

linkage, Goode stated that the findings were relevant and significant "[b]ecause [Cone] wasn't able to express himself coherently if you really followed what he was doing, which was what was happening with us." (*Id.* at PageID 12801.)

With regard to the intellectual testing, Goode stated that she was not trained in psychology and would have sought expert assistance to interpret the test scores and determine whether there were signs of mental illness or brain dysfunction. (*Id.* at PageID 12802-12804.) She also could have talked to Ryan and sought his testimony to explain the reports. (*Id.* at PageID 12804.)

With regard to Ryan's findings that Cone had perceptual distortions, was "brilliant" but had "difficulty seeing relatively simple consequences of behavior," that Cone's function on the digit span and digit symbol were consistent with his account and planning of the robbery, and that Cone goes from a vague thought to a specific one and soon becomes focused on one thing, Goode stated, without further explanation, that the findings are significant and "important to explain how those murders happened." (*Id.* at PageID 12805-12807.) Goode also stated that Ryan's finding that Cone had schizo-affective disorder would have helped the defense and "kept us from putting all our defense in one hat." (*Id.* at PageID 12807-12808.) She said, "we could have offered more food for the jury to recognize that insanity comes in many forms, especially with a person as multifaceted as Mr. Cone." (*Id.* at PageID 12808.)

Goode testified that Ryan's findings about both ambiguous situations leading Cone to have breaks with reality and Cone's thought processes becoming psychotic when he was faced with external stress and substance abuse "would have been invaluable." (*Id.* at PageID 12809-12810.) Goode said

> This is what I was really looking for as an evaluation of Mr. Cone. I did not know it already existed. I think this explained Mr. Cone a lot better than other evaluations that we had had done.

> The problem with the drug evaluation that was done based on his ingestion of drugs, it was that juries aren't necessarily sympathetic to somebody who ingests drugs. But this makes it pretty clear that his problems were already there and that his ingestion of drugs was just another way to shut off the noise, I guess.

(*Id.* at PageID 12811.)

Goode believed that Ryan's findings that without structure Cone becomes a danger to himself and others would have fit the defense because

> Well, I've always sought a way . . . to explain what happened in that house. And Mr. Cone would set himself goals[:] I've got to get money to get drugs, I have to get drugs because I have to shut off this noise in my head, I have to—then I have to escape from what I've done and these people got in the way.
>
> As his external structure fades, his internal structure fades[;] [he] becomes a danger to himself and others. He was in a situation where he felt like he had to get rid of these people that were in his way.

(*Id.* at PageID 12812.)

Goode addressed Ryan's finding about the substance abuse being a secondary process related to Cone's mental illness and how that could have been presented to a jury:

> Yes. Bearing in mind, [we] always say how do we explain these things to the jury.
>
> . . . .
>
> How do we make them understand it? And most people do not want to be told that somebody—somebody's walking down the street looking perfectly normal who may be having all these things going on in his head, and about his mammoth struggles to make himself feel normal and look normal is very frightening. And if we'd had this, we might have been able to present it to a jury in a way that reassured them that this man is not going to be out among us.

(*Id.* at PageID 12813-12814.) She felt that these findings would be consistent with the pharmacological review. (*Id.* at PageID 12814-12815.)

Goode also stated that Ryan's findings about Cone's manic and schizophrenic features,

about his lack of emotional integration, and that incarceration would reduce his internal stress, would all have fit well into the defense. (*Id.* at PageID 12815-12818.) The finding about Cone making a "model adjustment to an institution" is "a wonderful argument for a life sentence." (*Id.* at PageID 12820.)

Generally, Goode found Ryan's report more valuable that the Tennessee reports:

> it not only fits in with what we had tried to show, it offers other perspectives, other views of Mr. Cone, which I would say our—comparing with the other reports, the [Florida] reports that I read are much more perceptive of Mr. Cone than what were contained in the Tennessee reports. I say that Dr. Ryan is a—was very sensitive to—to Mr. Cone's affect. I would say that.

(*Id.* at PageID 12820-12821.)

Goode addressed Stillman's report and his statement about Cone being psychotic and insane in Florida and testified that Stillman's conclusion that Cone does not know right from wrong and cannot conform his behavior would have been wonderful to have at trial. (*Id.* at PageID 12826-12827.) She addressed Stillman's statement that Cone can function in a structured situation and testified that it was "a great argument for a life sentence." (*Id.* at PageID 12827.) Goode said:

> He didn't get into any serious trouble either in the army or in prison. He did escape once, but it was very brief. Other than that, he functioned pretty well in those very structured situations.

(*Id.*)

Goode testified about Eichert's report and Cone's description of the Florida robbery as seeming "like a bad dream." (*Id.* at PageID 12828-12829.) She stated:

> Again, this would have been very useful in presenting . . . to [the] jury Mr. Cone's inability to appreciate reality. I keep going back to the phrase by Dr. Ryan about noise in his head, that he had to take drugs to try to make things in there coherent and that it didn't help with helping him deal with what was going on around him. It helped him create an orderly world inside, he thought, but, of course,

it wasn't.

(*Id.* at PageID 12829.) Goode found legally relevant Eichert's statement that Cone was not able to control his behavior "[b]ecause if he could not control his actions or also did not perceive right from wrong, that would have supported our insanity defense and also help with arguing about sentencing." (*Id.* at PageID 12829.) She stated that the fact that Eichert was a court-appointed expert shows that the court had some confidence in him. (*Id.* at PageID 12830.)[8]

Goode testified that the State attempted to attack Lipman's findings about amphetamine psychosis and Cone's drug use by stating that Cone was a drug seller, not a drug user. (*Id.* at PageID 12830-12831.) The State tried to present Lipman as someone who was looking at the case from an academic standpoint "and that when Dr. Lipman expressed wonder at the sheer volumes of drugs that Mr. Cone was able to ingest, I think they tried to call doubt on all that." (*Id.* at PageID 12831.) She testified that the fact that Cone told every expert with whom he talked that he ingested drugs showed consistency and would help to establish that Cone was a drug user. (*Id.* at PageID 12832.) Goode also testified that

> the Florida reports would have really helped us, because they showed that his—part of his difficulties were–came from himself and that the drug use was to stop the noise in his head.
>
> And I'm sorry I keep referring to that expression, but to me that's the best expression of what was going on with him. And the drugs were not necessarily the reason that he was doing things. It was because the drugs were failing him. They weren't doing what he wanted them to do for him. And it was his own native insanity that was driving him to take drugs.
>
> And so that makes sense. If somebody's crazy and they think drugs are going to help them, then they'll take drugs. Why is that hard to believe? We know he was insane. We know he did insane things.

[8] Goode also stated that Taubel had the confidence of the court and that that is helpful to the defense. (ECF No. 419 at PageID 12842-12843.)

(*Id.* at PageID 12833.) She found Stillman's account of Cone's drug use was "very, very useful." (*Id.* at PageID 12837.) Goode noted that "all the doctors really verify one another, that the drug usage was only incidental really to his own mental problems, his mental incapacity. It was just his self-medication." (*Id.*)

Goode "would have integrated [the reports] into our defense, to strengthen our defense, and . . . make a good presentation to the jury for a good argument for a life sentence as opposed to death." (*Id.* at PageID 12844.)[9] When asked how the Florida reports would relate to an acquittal based on insanity, she stated, "we didn't have a lot of votes for an acquittal. Certainly, it would have been useful to present the material twice on different aspects." (*Id.*) Goode believed that some of this material could have established a reasonable doubt for an acquittal. (*Id.*)

Goode agreed that she and Dice did not fully investigate the mental health records from Florida or the mental health information from the psychiatrists and psychologists. (*Id.* at PageID 12845.) She also agreed that they did not present all the relevant psychological and psychiatric records available. (*Id.*) She futher agreed that she and Dice did not present any information related to schizoaffective disorder. (*Id.*)

With regard to other records, Goode did not believe that they obtained Cone's school records or articles related to his high school graduation or accolades, but they were aware that he was a good student. (*Id.* at PageID 12848-12849.) They did not obtain his transcript from the University of Arkansas. (*Id.* at PageID 12851.) Goode was aware that Cone's brother died, but they obtained no articles related to his death. (*Id.* at PageID 12848-12849.) She stated that they

[9] Goode stated "I mean, everything that I have read in the reports has been useful. The Florida reports are even more useful, because they all verify one another." (*See* ECF No. 419 at PageID 12840.)

could have obtained his military records, but they did not. (*Id.* at PageID 12850.) Nevertheless, she knew that he received a Bronze Star. (*Id.*) Goode testified that they did not independently seek records on Cone's drug charges. (*Id.* at PageID 12851.) They did not obtain prison or parole files from Oklahoma. (*Id.* at PageID 12852.) The defense experts were not provided with records related to Cone's education, military service, criminal history, or his brother's death. (*Id.* at PageID 12853.) Goode contends that if they had any of these records, they would have been in the file. (*Id.*) According to Goode, the records were not in the file. (*Id.*) Goode testified on cross-examination, however, that she was not privy to the investigator's reports to Dice. (*Id.* at PageID 12883-12884.)

Goode's testimony at the post-conviction hearing was that Dice directed the strategy of the whole trial, and she researched. (ECF No. 419 at PageID 12860; *see* ECF No. 233-2 at PageID 3173.) On cross-examination in Goode's deposition, she testified that Dice "styled himself lead counsel, but I was admitted to the bar. I was an attorney and I understood what the case law demanded." (ECF No. 419 at PageID 12856.) Goode did not disagree with her testimony about her duties in the case, as stated in the post-conviction hearing, but she disagreed about what her role was at the trial:

> Q. All right. So . . . why are you disagreeing with what you've said at the time was your role as being research and . . . stating that Mr. Dice was responsible for strategy?
>
> A. Well, I've had an opportunity for a lot of mature reflection on what I was doing in that case and—
>
> Q. You're talking about since you testified?
>
> A. Yes.
>
> Q. Okay.

A. Well, actually since the case happened, but especially since I testified.

Q. Let me ask you this: Are you disagreeing with what you testified to in 1986?

A. I'm disagreeing as to the import that you are putting on it, I believe.

Q. Okay. All right. Well, let me ask you this: You tell us then, in relation to strategy of the case today, what were—was your role?

A. It was ineffective. I should have—

Q. No. My question is what was your role in the case in relation to strategy in the case.

A. Minimal.

Q. Okay. Who was responsible for the strategy in the case?

A. Mr. Dice said that he was, but he was wrong.

Q. Well, I'm asking you: Who assumed the role of formulating strategy in this case?

A. Mr. Dice.

Q. Mr. Dice did?

A. Yes.

Q. Not you?

A. I should have.

. . . .

Q. Well, you're not answering my question. My question is: whose role was it as it was practiced in the case?

A. As it was [in] the case, it was Mr. Dice.

. . . .

Q. And the primary reason for that is, is he was an experienced criminal defense lawyer and you were not; isn't that true?

A. That wasn't what the law called for.

Q. That's not my question.

A. I understand.

Q. My question was, he had experience that you did not. Is that fair?

A. That's true. Well, I don't know if he had any experience in capital cases.

(*Id.* at PageID 12856, 12861-12863.)

When asked if she recalled having disputes with Dice about strategy, Goode testified, "I think that generally I felt completely inadequate to the task. As you know, the law provides for two counsel for capital cases, two competent counsel. I was not competent. Therefore, I don't know what Mr. Dice was, but I was incompetent." (*Id.* at PageID 12868.)

Dice, now deceased, was the one generally making the strategic decisions in the trial, and generally Goode did research. (*Id.* at PageID 12869-12870.)

Goode testified that the defense was Vietnam Veterans Syndrome and amphetamine psychosis. (*Id.* at PageID 12892.) She stated that it was an inadequate defense. (*Id.*) "Mr. Dice and I had worked on the Vietnam Veterans Syndrome. We had successfully persuaded the Tennessee Supreme Court that this was a valid test—valid defense. And basically, I think he was in love with it to the exclusion of any other possible defense." (*Id.*) After reviewing the Florida reports, Goode believed that they "weren't stuck with this Vietnam Stress Syndrome" defense. (*Id.* at PageID 12877-12878.) She stated, "John Dice was stuck on it. He was stuck that that was going to be the defense." (*Id.* at PageID 12878.)

Goode testified that Dice never said anything to her about his decision concerning Cone's Florida lawyer and his determination that the Florida reports were not mitigating. (*Id.*) Goode

testified that she was not aware of Cone having a history of treatment or diagnosis for mental illness or drug addiction. (*Id.* at PageID 12893.) Goode recalled that Cone's mother testified, but she said "it was certainly not adequate." (*Id.* at PageID 12894-12906.)

Goode did not recall discussing Cone's decision not to testify with him and stated that she "may or may not have been present." (*Id.* at PageID 12923.) She does remember that "John told me he didn't want to put Mr. Cone on the stand because he was afraid that he would, in his phrasing, lose it or something, that he would go berserk or something like that." (*Id.* at PageID 12924.) She later thought that the decision not to testify was not the right decision. (*Id.*)

Goode testified that generally, an opening statement tells the jury what to expect in that phase of the trial. (*Id.* at PageID 12943.) When asked about the purpose of an opening statement in the penalty phase, Goode testified, "I never participated in that. I don't really know what I would have done in the penalty phase." (*Id.* at PageID 12944.) She testified that Dice's opening statement in the penalty phase was not a typical opening statement, and was instead more of a closing argument. (*Id.* at PageID 12948.)

Goode testified that Cone's mother was not a good witness. (*Id.* at PageID 12952.) Goode stated that she talked "about things that were hidden." (*Id.*) Her testimony was "not only ineffective, but possibly harmful. (*Id.)* "She was a little, tiny woman who was very shy and afraid and . . . I wish we hadn't put her on at all." (*Id.* at PageID 12952-12953.)

On redirect, Goode testified that, in light of the Florida records, she does not agree that Dice conducted a thorough investigation. (*Id.* at PageID 12958.) She stated that they were both counsel of record. (*Id.* at PageID 12958-12959.) She said, "No. I wasn't a clerk. I sat at the table with Mr. Dice." (*Id.* at PageID 12959.) She said that "[t]here was really no defense, but—I mean not much." (*Id.* at PageID 12961.) The Florida records, particularly Ryan's report, made

stronger points on sanity and mental health. (*Id.* at PageID 12962.) Goode stated that Ryan's evaluation "was how I would have said it if I could have said it. He said the words that I was thinking but could not come out with. He really nailed Cone." (*Id.*)

> Mr. Cone was really, really crazy, and yet, he could hold it together to have normal conversation. He could appear to be an intelligent, bright, cooperative person, but there were was something inside him that he was controlling with drugs but he couldn't always control. And if I had only had Dr. Ryan's letter and his evaluation, I think it would have made a tremendous difference.

(*Id.*) Goode testified that Ryan's interpretation was a persuasive way of explaining Cone and his background, and he also could have testified about schizoaffective disorder. (*Id.* at PageID 12962-12963.) She could not think of any reasonable basis not to present evidence of Stillman and Ryan's conclusions about psychosis or Eichert's testimony about loss of control at trial. (*Id.* at PageID 12963-12964.) She stated that the reports about disordered thinking could have illuminated the theory of the defense and that the reports about drugs exacerbating the psychosis were similar to the defense theory and could have been presented through Lipman's testimony. (*Id.* at PageID 12964.)

As far as Goode knows, neither she nor Dice reviewed the Florida records. (*Id.* at PageID 12965.) She and Dice did not discuss the Florida records, but he may have discussed them with Jaremko. (*Id.* at PageID 12965-12966.) Goode testified that it was not reasonable for a defense attorney in a case involving a mental state defense to not use existing mental health records without first looking at the records. (*Id.* at PageID 12966.)

Goode testified that the Florida psychological records may have been useless under Florida law, but it was important to understand what the Florida law was, what was in the records, and how the same records could be used in Tennessee. (*Id.* at PageID 12975-12976.) She testified that a lawyer cannot make a decision to use the records without reviewing them, knowing the facts, and

"apply[ing] them to the law to research"; she agreed that is what a reasonable attorney would have done. (*Id.* at PageID 12977.)

Goode testified that Dice could be misleading as a result of his personal troubles, and that his testimony at the post-conviction hearing may have been inaccurate:

> Absolutely. I think he had trouble grasping what the truth was very often, grasping what the reality was. There were people constantly talking about, I've seen John Dice and he was doing this or saying that, and we were all puzzled about it until, you know, what happened.
>
> . . . .
>
> He testified that he had tested planes. I'm not sure that was accurate. And he also—we know for sure he did tell another lawyer that he had flown in Vietnam. That's not true. He was never in Vietnam. We do know that.
>
> And I thought I knew John pretty well. We talked about his family. And when I went to his funeral, I was shocked to find out that he had an older brother that he had never mentioned. And I was really shocked. This older brother was the person, I think, John wanted to be. He was a successful veteran. And I don't know what happened, but that's one of many examples.

(*Id.* at PageID 12968-12969.)

In light of Goode's past experience as defense counsel in Cone's case, the Court finds that Goode was significantly biased in favor of the defense, and accordingly, attributes limited credibility to her testimony at the evidentiary hearing. The Court specifically notes that, during her deposition for the evidentiary hearing, Goode gave the impression that her role during Cone's trial was much more significant than what she described during her post-conviction testimony. At the time of Cone's trial, Goode had been licensed to practice law for approximately two years and, although co-counsel with Dice, she testified during post-conviction proceedings that her role was limited to mainly research. She did not appear to be involved in formulating trial strategy, the investigation, or the development of experts. During her deposition, however, Goode was

reluctant to acknowledge that her role was so limited. As a result, although Goode testified that she and Dice should have considered additional evidence or presented the case differently, she could not credibily testify as to why Dice made certain strategic decisions or what evidence Dice considered in developing that strategy. Goode's testimony appeared to be affected by her hindsight reflections and misgivings about Cone's case and is not an objective recollection of either her representation or Dice's representation of Cone.

D. Dale Watson, Ph.D. (Clinical and Forensic Neuropsychologist)

The deposition of Dale Watson, a clinical and forensic neuropsychologist, was taken on April 24, 2014, in Walnut Creek, California. (ECF No. 439 at PageID 16065, 16070.) Watson received his master's degree in clinical psychology in 1980 and his Ph.D. in clinical psychology in 1988. (ECF No. 439-1 at PageID 16289.) Watson defined neuropsychology:

> Neuropsychology is the study of brain in behavioral relationships, so neuropsychologists are -- begin as clinical psychologists and have specialized training in understanding of how the brain works, how it affects behavior. And we typically use batteries of tests to assess different aspects of neuropsychological functioning, brain-related functions.

(ECF No. 439 at PageID 16072.)

Watson conducted a neuropsychological evaluation of Cone in September 2012, at Riverbend Correctional Institution in Nashville, Tennessee because Cone's habeas counsel believed that he needed a neuropsychological evaluation. (*Id.* at PageID 16080, 16129.) On cross-examination, Watson conceded that he was not aware of Cone having any clinical symptoms that necessitated a neuropsychological test battery. (*Id.* at PageID 16129.) The purpose of the evaluation was forensic, and was not performed for treatment. (*Id.* at PageID 16129-16130.) Watson testified, on direct, that he concluded that there was evidence of "moderate

neuropsychological d[y]sfunction in somebody who is [a] very high IQ-individual." (*Id.* at PageID 16080.*)* Cone is in the "high average range overall, but there are significant discrepancies between his various skills." (*Id.*)

Watson testified about the General Neuropsychological Deficit Scale (GNDS), which is a summary measure[10] for the Halstead Reitan battery that was developed by Reitan and Wolfson and summarizes 42 different measures from the battery to give an overall judgment as to whether somebody has brain dysfunction. (*Id.* at PageID 16081.) The GNDS suggests that Cone has moderate levels of brain dysfunction. (*Id.*)

Watson described the Halstead Impairment Index, a measure that summarizes the results of seven tests from the Halstead-Reitan Battery, which was the measure used in the 1980s, when Cone was undergoing psychological and psychiatric testing related to the Florida charges, to make a determination of whether somebody has brain damage. (*Id.* at PageID 16081-16082, 16119.) The Halstead Impairment Index, developed in the 1940s and modified by Reitan in the late 1950s, was the first index developed for measuring brain dysfunction. (*Id.* at PageID 16085, 16215.) There is a "huge" amount of literature validating the index. (*Id.*) The index has subsequently been supplanted to some degree by the GNDS because that scale incorporates more data. (*Id.* at PageID 16082, 16119.) "[I]mpairment is measured as a proportion of the impaired scores over seven, since there were seven tests in the index." (*Id.* at PageID 16120.) Cone's Halstead Impairment Index score was 0.7 on the index which ranges from zero to 1.0. (*Id.* at PageID 16082, 16120-16121.) Watson testified that, for someone with Cone's intellect, a score of 0.4 or greater for his intelligence would be an indication of brain dysfunction, so his 0.7 score is a "fairly

[10] Watson testified that summary measures are known to be better indicators of brain dysfunction than any single measure. (ECF No. 439 at PageID 16215.)

definite indicator" of dysfunction. (*Id.* at PageID 16082.) Watson testified that the Halstead Impairment Index indicated mild to moderate impairment in Cone. (*Id.* at PageID 16209.)

Watson tested Cone using a core Halstead-Reitan Battery, which is the complete Halstead-Reitan neuropsychological battery. (*Id.* at PageID 16083.) The Halstead-Reitan Battery was developed by Halstead and Reitan and designed to measure neuropsychological functioning of various parts of the brain, particularly the cortex or the outer layer of the brain, and to objectively identify dysfunction. (*Id.*) There are 42 different measures, some of which are derived from the same tests. (*Id.* at PageID 16083-16084.) The Halstead-Reitan has been around since the 1950s. (*Id.* at PageID 16084-16085.)

Watson administered Cone the Wechsler Adult Intelligence Scale IV ("WAIS IV"). (*Id.* at PageID 16084.) Like the Halstead-Reitan, the WAIS has been around since the 1950s. (*Id*.)[11] The WAIS IV is an IQ test that presently reflects both neuropsychological function and measures "five aspects" of intelligence. (*Id*. at PageID 16087.) There are four primary indices on the WAIS IV, one of which is split into two parts. (*Id.* at PageID 16088.) Those indices are: (1) Verbal Comprehension Index ("VCI"); (2) Perceptual Reasoning Index ("PRI") which measures non-verbal problem solving and visual spacial analysis; (3) Working Memory Index ("WMI") which measures aspects of attention and concentration; and (4) Processing Speed Index ("PSI") which measures how fast people can actually process information. (*Id.* at PageID 16088-16089.) The VCI and PRI are new nomenclatures for WAIS factors that were present in the WAIS III, and

[11] The original WAIS was published in February 1955. David Wechsler, *WAIS Manual: Wechsler Adult Intelligence Scale* (The Psychological Corp. 1955). The WAIS-R, a revised form of the WAIS, was published in 1981. David Wechsler, *WAIS R-Manual: Wechsler Adult Intelligence Scale - Revised* (The Pyschological Corp. 1981). The WAIS III was released in 1997, followed by the WAIS-IV in 2008. David Wechsler, *WAIS–III Administration and Scoring Manual* (The Psychological Corp. 1997); David Wechsler, *WAIS-IV Administration and Scoring Manual* (Pearson 2008).

with the publication of the WAIS III, there was an effort to separate the factors into pure elements. (*Id.* at PageID 16090.) The primary function of the indices is "to allow intra-individual comparisons." (*Id.*)

Watson used a measure that is called a Full Scale IQ, which is derived from ten of the WAIS subtests. (*Id.* at PageID 16089.) Cone's raw score was compared to a normal database to determine where he fell on that curve. (*Id.*) Cone's full scale IQ was 111, which falls in the high average range and about the 77th percentile range of the population. (*Id.* at PageID 16089-16090.) Cone's VCI was 122, at the 93rd percentile range. (*Id.* at PageID 16090.) The PRI was 102, at the 55th percentile range. (*Id.* at PageID 16091.) Although Cone's PRI is average, the 20-point difference is statistically and clinically significant because "it's a relatively rare occurrence" happening in about 9.6 percent of the normal population. (*Id.* at PageID 16091.) Cone's PSI was 102, in the 55th percentile, but the difference in VCI and PRI is more frequent in the population. (*Id.*) There was also a substantial difference between the VCI and WMI of 14, but it is not as rare. (*Id.* at PageID 16092.) Watson stated that these differences mean that Cone's intellectual functioning is "pretty disparate" with "some real strengths and some significant weaknesses." (*Id.*) Watson testified that recent analysis suggests that VCI and WMI are left hemisphere processes, and PRI tends to be right hemisphere, so "we can begin to think of lateralization of d[y]sfunction based upon this pattern." (*Id.*) Watson also noted a "strikingly unusual" 29-point difference in Cone's short and long-term memory function, with long term functioning being greater. (*Id.* at PageID 16093-16094.)

On cross-examination, Watson agreed that Cone scored average to superior on all of the subtests within the WAIS IV. (*Id.* at PageID 16162-16163.) The differences between Cone's scores in the average and superior range on certain tests may represent abnormalities but not

necessarily because the results have to be taken in the context of the overall examination. (*Id.* at PageID 16163.)

Watson also administered the Test of Premorbid Functioning ("TOPF") with the WAIS. (*Id.* at PageID 16094-16095.) The tests were "co-normed" or developed together, and the TOPF is used to predict scores on the IQ tests. (*Id.* at PageID 16095.) Watson testified that

> If there's a huge discrepancy between the TOPF estimated score and the actual score where the actual score is significantly lower, that would be evidence that somebody had an acquired brain injury, for example, a traumatic brain injury or some other event that caused the deterioration in their intellectual skills.
>
> When there isn't that kind of discrepancy, then you've got to think of, [t]his is not the result of an acquired injury, and think of any deficits as being developmental in nature.

(*Id.*) A "developmental" deficit occurs up until the age of 18 or before the person developed all of their word knowledge skills. (*Id.* at PageID 16095-16096.)

Watson addressed the issues of performance validity and malingering. (*Id.* at PageID 16086.) Performance validity ensures that the person has "put forth good effort and [is] not trying to malinger deficits when none exist." (*Id.*) Watson stated that neuropsychologists have developed ways to identify poor test validity. (*Id.*) Some are standalone tests administered concurrently with the battery, and others are embedded measures derived from some of the tests in the battery. (*Id.*) Watson used both standalone and embedded validity measures when testing Cone, and there was no indication of poor effort or attempts to malinger. (*Id.* at PageID 16086-16087.)

Watson administered Cone the Meyers Neurological Battery, which "harshly overlaps" the Halstead-Reitan, and the Delis-Kaplan Executive Function System ("D-KEFS"). (*Id.* at PageID 16085-16086.) Watson described "executive functions" as "controlled functions . . . things like

mental flexibility, the initiation of actions, the inhibitions of actions, problem solving to some extent." (*Id.* at PageID 16096.) Generally, many parts of the brain contribute to these functions. (*Id.* at PageID 16096-16097.) They have been associated with frontal lobe functioning, which are involved in control, judgment, and behavioral functions. (*Id.* at PageID 16096-16097.) Mental flexibility is "the ability to do one thing to—and then if you get feedback from the environment that what you're doing is not correct, to do something else, to shift back and forth mental sets." (*Id.* at PageID 16097.) Watson testified:

> So one of the things that's kind of classic for brain injury is kind of becoming stuck in mental ruts, if you will, and so they become more rigid. They have difficulty being flexible in their behavior. It's very difficult for them to get feedback from the environment to change their behavior, so it's like once they get on a track, they stay on a track. It's hard to shift then.

(*Id.*)

The Wisconsin Card Sorting Test involved executive functions associated with mental flexibility. Watson testified:

> This was administered with the cards, so you have a deck of cards or two decks of cards, actually, and you have four cards in front of the person, and the cards differ in terms of the colors, so there's four different colors, the design elements, so there's a cross, there's circles, et cetera, and a number of design elements between one and four.
>
> So the task is to take a card from the deck and to match it to one of the four key cards. Now, the person doesn't know the rule, that's pre-determined, and so—but each time they're told whether they're right or wrong, and that way they can learn whether they're right or wrong and make their choices.

(*Id.* at PageID 16098.) Cone measured in the below average range for his age, education, and race, and given his intellectual ability, one would expect better performance. (*Id.* at PageID 16098-16099.) Cone was not categorized as being "significantly impaired, but it is a weakness," relatively unusual for somebody of Cone's intellect. (*Id.* at PageID 16099.) Cone's score fell in

the bottom quarter of the population suggesting a "significant weakness particularly in the mental flexibility aspects" measured by the test. (*Id.* at PageID 16100.)

The Delis-Kaplan Verbal Fluency test is a measure of executive functioning particularly built around verbal abilities. (*Id.*) Watson testified:

> The task has three separate trials. The first is the person has to generate words beginning with the specific letter within one minute. There are three different letters, and so we get a letter fluency score from that. The person then has to name animals and—as well as boys' names. There's two separate components for that for trials, and that gives us a category fluency.
>
> And then the task shifts and becomes more difficult and much more of an Executive Functioning task which is that he now has to shift between naming fruits and pieces of furniture, so this is the mental flexibility component which is the Executive Functioning component of it.
>
> And, you know, you want to see somebody who does well on this. That would suggest they're not impaired in the Executive Functioning . . . .

(*Id.* at PageID 16100-16101.)

Cone received a scaled score of 14, in the high average range, on the letter fluency test. (*Id.* at PageID 16101.) On the ability to shift between the fruits and furniture, Cone got a scaled score of 7, the bottom reaches of the average range, on mental flexibility. (*Id.*) Watson determined that Cone had "significant difficulty with mental flexibility in his ability to shift mental sets" which is an executive function. (*Id.* at PageID 16102.)

The Tactual Performance Test ("TPT") is a core component of the Halstead-Reitan Neuropsychological Battery and consists of a puzzle board set on the table at an angle in front of the person. (*Id.* at PageID 16102.) Watson described the test as follows:

> There are ten holes of different shapes in the board and then ten different wooden puzzle pieces are placed in front of him. Each one of those shapes fits one of the holes.
>
> And so the task is for him to place the puzzle pieces in the board while

> blindfolded. This requires him to simply use the sense of touch, his ability to organize a problem-solving task and has a mapping capacity of posterior hemispheres.

(*Id.* at PageID 16102-16103.) The "mapping capacity" is the ability to make a map without seeing it and is associated with visual spacial processing and the parietal lobes of the brain. (*Id.* at PageID 16103.) Watson testified that the TPT measures a component of executive functioning, requiring both frontal input because of planning and organizational capacity and parietal lobe input with the visual or spacial mapping component. (*Id.* at PageID 16104.) Watson testified that Cone was "slow on the task" and fell in the mild to moderate range of impairment. (*Id.* at PageID 16103-16104.)

The Dichotic Word Listening Test is a measure of auditory processing that is most sensitive to temporal lobe function. (*Id.* at PageID 16104.) According to Watson, the task is administered

> by putting stereo head phones on the individual, and there are words presented to each ear simultaneously but they're different words. So he'll hear one word in one ear and another word in the other ear. And so most people are able to use divided attention and hear both words and repeat both words. And this, again, is a measure of auditory processing.

(*Id.* at PageID 16104-16105.) Cone's performance was impaired on this test, fell in the moderate range of impairment, and presented no indication of lateralization of dysfunction or hearing problems. (*Id.* at PageID 16105.) In people with brain damage, dividing attention between the left and right ear is a difficult task and generally "more difficult for him if there are lots of things going on in the environment." (*Id*.)

The Seashore Rhythm Test is a core Halstead-Reitan battery test. (*Id.* at Page ID 16106.) Watson testified that, with this test, "you hear a set of tones that's immediately followed by a different set of tones. That second set of tones is either the same as or different from the first set

of tones, and the person simply has to say whether they're the same or different." (*Id*.) The test is a measure of auditory processing, auditory attention, and the acuity of the brain dysfunction. (*Id.*) "The Seashore Rhythm doesn't necessarily show any kind of lateralization or disfunction, although some people think it's more associated with the right hemisphere." (*Id.* at PageID 16107.) Cone's performance was in the "mild to moderate range of impairment." (*Id.*)

Several tests showed that Cone has significant motor deficits. (*Id.*) The finger tapping test is administered using a small board with a tapping key, and the person simply has to tap their finger as fast as they can. (*Id.* at PageID 16108.) The test is related to the motor strip, which is located at the posterior aspect of the frontal lobes. (*Id.*) This area is the control center for all motor functions of the body. (*Id.*) Cone was bilaterally severely impaired on that test. (*Id.*) Watson also looked at grip strength, and Cone's performance was bilaterally below average, but not grossly impaired. (*Id.* PageID 16109.) The groove pegboard test was used to measure fine motor control, and Cone was not as impaired as on the finger tapping test. (*Id.*)

Watson testified that Cone suffers from sensory perceptual errors. (*Id.*) The front part of the parietal lobe controls the processing of sensory functions. (*Id.*) Cone showed some impairment in the mild to moderate range. (*Id.* at PageID 16109-16110.)

Watson testified that Cone has "a diffused pattern, kind of multiple regions of the brain being impaired" with "some indication that the right hemisphere [and] particularly the posterior part of the brain is dysfunctional." (*Id.* at PageID 16110.)

Watson testified that the GNDS was developed by Reitan-Wolfson to summarize their battery and derived from Reitan's decades of experience diagnosing brain damage in patients. (*Id.* at PageID 16112-16113.) It is Reitan's way of "quantifying that knowledge into a single index to d[e]rive an estimate of how bad brain disfunction might be." (*Id.* at PageID 16113.)

Reitan uses a level of performance approach to compare results to people without brain damage and a pathomnemonic sign component to look for signs of dysfunction that occur only in brain damage. (*Id.*) The central processing component is derived from the comparison of the IQ, verbal versus non-verbal, but also the impairment index to the overall IQ. (*Id.*) Gross inconsistencies in various abilities can be an indicator of brain dysfunction. (*Id.*)

The last component is a comparison of the right to left sides of the body for differences. (*Id.*) The scale runs from zero to three, with zero indicating no damage and three indicating maximal damage. (*Id.* at PageID 16114.) Cone's overall raw score was 43. (*Id.*) The moderate range falls between 41 and 67, so Cone is in the moderate range towards the mild range of impairment. (*Id.* at PageID 16118-16119, 16209.)

Cone scored 26 points on "level of performance indicators." (*Id.* at PageID 16114.) His level of performance was not where it was expected to be given his intellectual abilities, so he got a couple of points on the impairment index because his performance was impaired. (*Id.*) This level of performance score is in the mildly impaired range overall. (*Id.* at PageID 16115.)

Pathomnemonic signs are derived from left hemisphere indicators of the aphasia screening tests. (*Id.* at PageID 16115-16116.) Cone got no points, which indicates that he does not have any aphasic or language-based deficits. (*Id.* at PageID 16116.)

For the central processing component, Cone was given three points for the difference between verbal and performance IQs, indicating severe impairment. (*Id.* at PageID 16116.) He received three points for the comparison between IQ and his Halstead Impairment Index. (*Id.*)

With regard to right/left differences, Cone was impaired on the finger tapping test, but there was no lateralizing significance. (*Id.* at PageID 16117.) He got one point on the TPT. (*Id.*) There was severe difference in grip strength, so he got three points. (*Id.*) Overall, Cone

accumulated 11 points for right/left differences. (*Id.* at PageID 16118.) This indicates that there are differences between the right versus left hemispheres that are unexpected. (*Id.*)

On cross-examination, Watson testified that he did not review any of Cone's records. (*Id.* at PageID 16130-16131.) He only conducted an interview and testing in order to reach his conclusions. (*Id.* at PageID 16131.) Watson understood that Cone was in the appellate process for a capital offense and stated that this fact alone may create the need for a comprehensive neuropsychological evaluation. (*Id.*) Watson agreed that not all capital defendants in the appellate process have brain damage. (*Id.*) Watson stated, however, "given what I know about the prevalence of brain disfunction within a capital population, I think the standard really is that people do need neuropsychological evaluations whether or not they ultimately are determined to have brain damage." (*Id.*) In response to the question of whether it was necessary to do a neuropsychological test battery on Cone, Watson stated, "I would consider it necessary given" the fact that Cone was a capital defendant in the appellate process. (*Id.* at PageID 16132.)

Watson testified that he described that nature and purpose of the evaluation to Cone and told him that they would be evaluating his brain functions for purposes of his case. (*Id.* at PageID 16132-16133.) Watson conducted a clinical interview, which indicated information about Cone's background, education, and history. (*Id.* at PageID 16133.) There was no indication of significant head trauma, and no indication that head trauma would be a source of impairment. (*Id.* at PageID 16139-16140.)

Watson did not review Cone's prison records to determine whether he had been diagnosed or treated for mental illness since his conviction and incarceration in 1982. (*Id.* at PageID 16142.) Watson agreed that these records might be relevant, but he acknowledged in his report that he did not have those records available to him. (*Id.*)

With regard to Cone's drug use, Cone told Watson that he had a history of severe substance abuse that began in Vietnam. (*Id.* at PageID 16143.) Cone told Watson that he developed a formication, which is seeing or feeling insects crawling on the skin, from his cocaine use. (*Id.*) Cone's drug of choice was Demerol, but he took "all of the drugs." (*Id.*) Cone used lots of amphetamines and Dilaudid. (*Id.*) He did not use street drugs generally, but he liked heroin. (*Id.*) Cone also talked about robbing drug stores and that he was compulsive about keeping lists of what drugs he had. (*Id.* at PageID 16143-16144.) Cone told Watson that he was not selling drugs; he did not know anybody to whom to sell drugs. (*Id.* at PageID 16144.) Watson did not speak to Cone directly about any aspects of the Memphis murders or whether he was using drugs at that time. (*Id.*)

Although Watson stated in his report that the purpose of his evaluation was to determine if Cone had deficits or deficiencies in intellectual or neuropsychological function that may have affected his judgment and behavior at the time of the crime, Watson testified that he did not specifically address this question. (*Id.* at PageID 16209-16210.) Watson testified that he was not able to answer the question because he had not reviewed the records from the time of the Memphis murders and did not ask Cone about the crime. (*Id.* at PageID 16210.) Watson explained that, at this point, his evaluation was limited to understanding Cone's brain function, and he could not make a judgment about how Cone's brain function might have affected the crime. (*Id.*)

On redirect, Watson stated that he did not have sufficient information to know for certain that these deficits existed in 1982. (*Id.*) He testified that the TOPF indicated that these deficits existed at a prior time. (*Id.* at PageID 16211.) According to Watson, if there was a significant discrepancy between the TOPF and the actual intellectual functioning, one could say that that there

was deterioration in intellectual function. (*Id.*)[12]

The Court finds Watson's testimony to be narrowly tailored and factually based. Unlike some of the other psychologists who testified, Watson personally examined Cone. This examination, however, was requested because Cone was seeking habeas relief for a capital offense, not because Cone exhibited clinical symptoms of brain dysfunction. According to Watson, similar testing would be necessary for all capital defendants in Cone's position. Watson's belief that brain damage is prevalent in the capital population arguably colored his evaluation of Cone. Accordingly, while Watson's testimony is of some value, he appeared to have a demonstrable defense bias. Additionally, the Court notes that Watson was unable to conclusively determine whether the deficits he observed would have been present in 1982 or how those deficits would have impacted Cone's mental state at the time of the Todds' murders.

E. Ruben Gur, Ph.D. (Neuropsychologist)

Ruben Gur, a neuropsychologist, testified on March 12, 2014, and was allowed to provide opinion testimony in the fields of neuropsychology and neuroimaging. (ECF No. 428 at PageID 15113, 15126.) Gur received a master's degree in 1971 and earned his Ph.D. in 1973, both from Michigan State University. (ECF No. 448-1 at PageID 16319.) Gur became board certified in neuropsychology in 1980. (ECF No. 428 at PageID 15275.)[13] Gur has probably conducted between 70 and 100 forensic evaluations in criminal cases with about two-thirds of the evaluations

[12] Although there was some discussion of the TOPF, there appeared to be no conclusion in Watson's testimony about whether Cone's deficits occurred during the developmental period.

[13] Gur testified that the field of neuropsychology became fully mature in the 1970s. (ECF No. 428 at PageID 15274.) There was no program for neuropsychology and no board certification process until 1978 or 1979, and not many neuropsychologists in the period of 1980-1982. (*Id.* at PageID 15275-15276.)

in capital cases and all but one evaluation being completed for the defense. (*Id.* at PageID 15276-15277.) Gur directs a brain behavior laboratory and the Center for Neuroimaging in Psychiatry at the University of Pennsylvania. (*Id.* at PageID 15114.) The focus of his research is on understanding the normal brain development throughout the life span to see how abnormalities in brain structure and function influence development and how they relate to behavior in a way that can help us understand neuropsychiatric disorders. (*Id.* at PageID 15115.) Neuropsychiatric disorders are severe disturbances in behavior linked to brain function. (*Id.* at PageID 15115–15116.)

1. Neuroimaging Generally

Neuroimaging is the main tool that Gur uses "in order to advance the science of neuropsychology" by examining the effects of brain damage on behavior. (*Id.* at PageID 15116.) With neuroimaging, researchers can look at healthy people as well as patients and obtain a large amount of information about both the structure and function of the brain while the individual is alive with minimally invasive or noninvasive methods. (*Id.*) Gur testified that since approximately 1976 or 1977, computed axial tomography, or CT, scans have been used to look at brain structure. (*Id.* at PageID 15116-15117.) The difficulty with CT scans, however, was that "you couldn't visualize brain structures that were adjacent to bones." (*Id.* at PageID 15117.) The advent of magnetic resonance imaging ("MRI") resolved the issue of structures near bone. (*Id.* at PageID 15117.) With MRI, researchers can obtain precise measurement of brain volume and brain structures and separate the different types of brain tissue relatively easily. (*Id.*)

Gur testified that, to determine brain function, one needs to quantify brain activity in terms of metabolism because when the brain works, it generates energy by burning glucose using oxygen. (*Id.* at PageID 15118-15119.) The first method for measurement of brain glucose

metabolism was the Kety Schmidt method, which is very invasive, requiring the placement of a needle in the carotid artery and jugular vein to deliver an injection of nitrous oxide into the brain. (*Id.* at PageID 15119.) The subsequent method for measurement of brain glucose involved inhalation of a small amount of xenon-133, a radioactive gas, to look at the isotopes in the brain—the clearance of isotopes is proportionate to the rate of blood flow. (*Id.* at PageID 15119-15120.)

2. Halstead-Reitan Battery

Gur testified that the Halstead Reitan Battery was developed in the 1950s and early 1960s based on the experience of World War II veterans who suffered gunshot wounds to the head and the linking of their injuries to behavioral deficits. (*Id.* at PageID 15131.) Gur testified that at the time of Cone's crime in 1980 the Halstead-Reitan Battery was used by trained neuropsychologists throughout the country and was available in Memphis. (*Id.*)

3. WAIS

Gur described the WAIS as a measure of intelligence developed by David Wechsler that contained tests designed to predict academic performance. (*Id.* at PageID 15132.) About half of the WAIS was devoted to language and verbal abilities and half to understanding the ability to operate in space—to put together shapes. (*Id.*) The verbal part related to functioning of the left brain hemisphere, and the performance part related to the right hemisphere. (*Id.*) Wechsler was a psychologist who wanted to measure IQ, not a neuropsychologist, but some of the scales help localize brain damage and are included in neuropsychological evaluations. (*Id.* at PageID 15132-15133.) With the WAIS, brain damage is determined by looking for discrepancies because, "by and large, people are about equally smart in all ways." (*Id.* at PageID 15133.) Gur stated that, when looking for brain dysfunction, "you look for somebody who may do very well in a bunch of measures and then does very poorly in one measure or in two measures." (*Id.* at

PageID 15133-15134.) Gur testified that a WAIS administered to someone like Cone in 1980, would give clues as to whether the individual might have brain damage. (*Id.* at PageID 15134.) Gur stated that his training as a clinical psychologist included looking for those discrepancies in the WAIS testing to determine if referral for a neuropsychological evaluation was needed. (*Id.*)

4. Cone's Neuropsychological Neuroimaging Evaluation

In Cone's case, Gur conducted a neuropsychological neuroimaging evaluation. (*Id.* at PageID 15135.) Gur testified on cross-examination that he was first contacted by Cone's attorney on June 20, 2013. (*Id.* at PageID 15277.) Gur has never met Cone or talked to him. (*Id.*) Cone was referred to Gur in order to determine whether he has brain damage, not because of clinical symptoms that Cone was exhibiting. (*Id.* at PageID 15278.) Cone's behaviors did not prompt the evaluation. (*Id.*) Gur was only asked to do a quantitative analysis of Cone. (*Id.* at PageID 15280.)

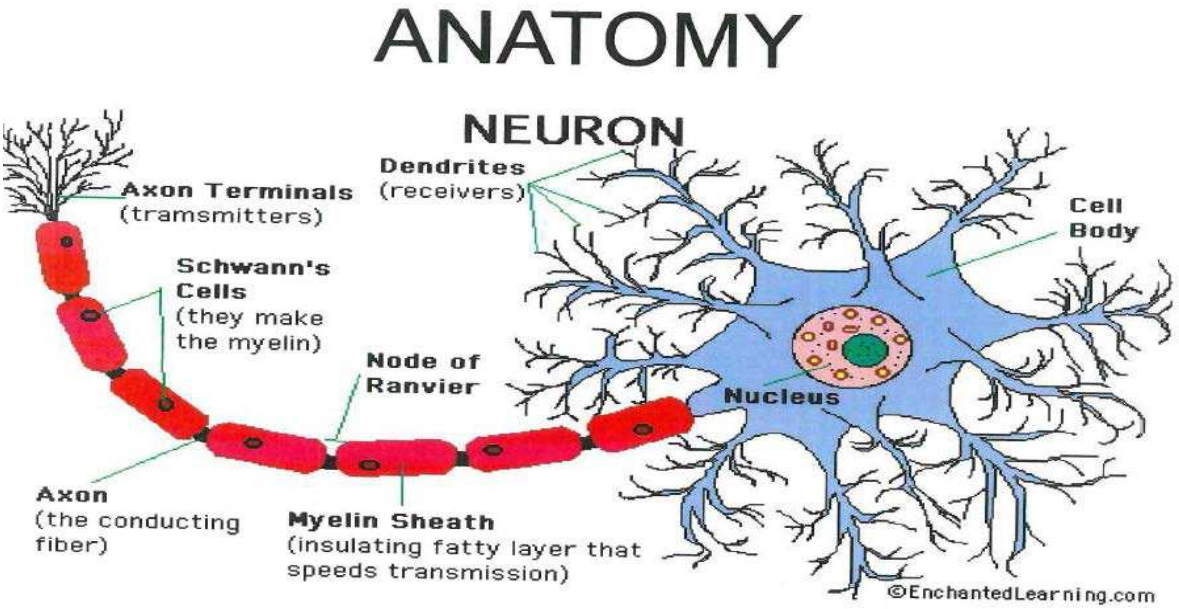
Gur's type of quantitative assessment or evaluation is done for both clinical and "medicolegal" purposes. (*Id.* at PageID 15135.) The individual is evaluated, and receives a neuropsychological battery, an MRI for structural imaging, and a study of functional imaging. (*Id.*) Gur and his team evaluate the studies, make sure the tests are scored correctly, and based on the neuropsychological testing, they come up with "[a] hypotheses on what parts of the brain might be implicated or if there is brain damage." (*Id.*) Gur then does a quantitative analysis of the MRI study and the positron emission tomography ("PET") study or other functional studies. (*Id.*) Functional MRI is currently used more frequently than PET. (*Id.* at PageID 15135-15136.) Gur testified that, using these methods, they come up with a conclusion about whether the person has brain damage, and if so, what parts of the brain are damaged and what behavioral deficits can be linked to the damage. (*Id.* at PageID 15136.)

Cone's evaluation was performed in three parts: (1) a determination of whether he has any brain damage or dysfunction; (2) a determination of the nature of the damage or dysfunction; and (3) an analysis of how the damage or dysfunction affects behavior. (*Id.*) Gur used a PowerPoint presentation to explain his results. (*See id.* at PageID 15137; *see also* ECF No. 448-2.*)* Gur described "brain science" as the "technologies that are used to evaluate the brain." (*Id.* at PageID 15137.) The first consideration is behavior because "[y]ou want to know if the behavioral measures are consistent with an intact brain or with brain damage." (*Id.*) The second consideration is anatomy of brain structure using MRI. (*Id.*) The third consideration is brain function using PET. (*Id.* at PageID 15137-15138.) Gur concluded that Cone suffered brain damage or brain dysfunction on the right side of the brain both in the frontal lobe and the back of the brain on the right side and damage in the midline limbic structures. (*Id.* at PageID 15138.)

Gur reviewed the following materials to formulate his opinions and conclusions about Cone: (1) Watson's neuropsychological testing; (2) Davatzikos' report; and (3) Newberg's report. (*Id.* at PageID 15279.) He received Ryan's report shortly after he prepared his first draft of his report. (*Id.*) Gur did not refer to Ryan's report or use it as a basis for any of his opinions. (*Id.* at PageID 15279-15280.) After Gur prepared the draft, he was asked to review more materials related to the case. (*Id.* at PageID 15279.) At that point, Gur read the reports of Ryan and the others who evaluated Cone. (*Id.*) Gur was impressed that they saw the same things in Cone that Gur saw in his analysis, so he wrote a supplementary report incorporating the other reports. (*Id.* at PageID 15280.)

a. Anatomy

Gur described how anatomy is important to understanding the brain function using the slide entitled "Anatomy" related to neurons:



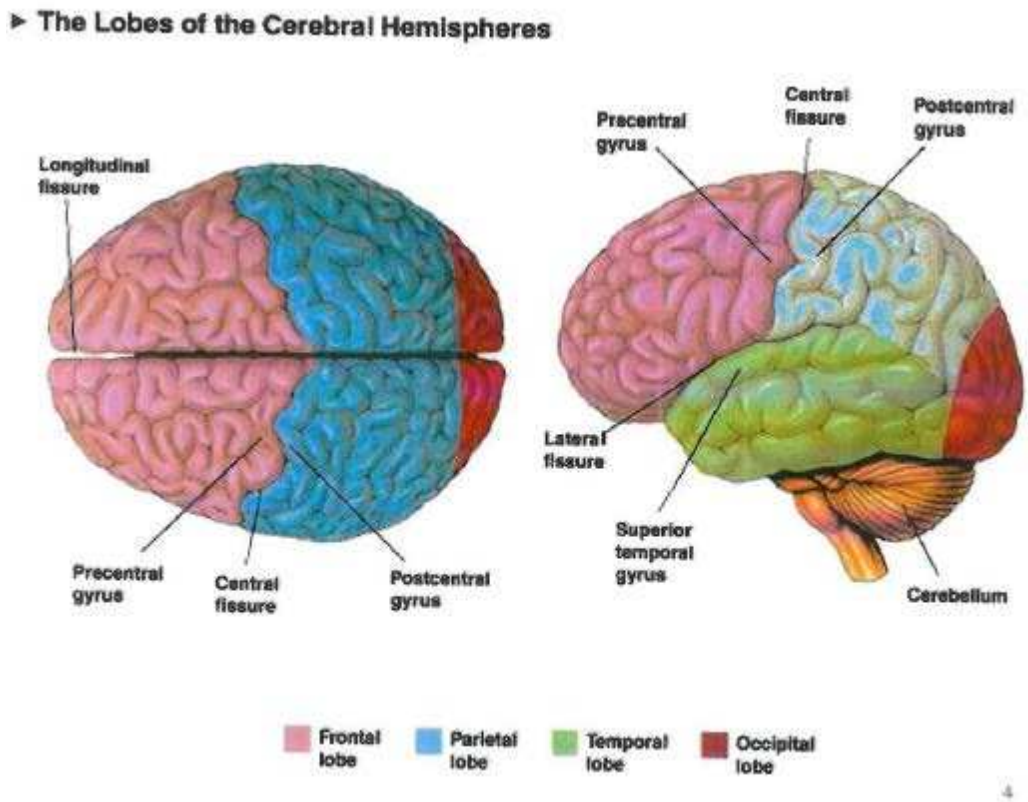
(*Id.* at PageID 15139; *see* ECF No. 448-2 at PageID 16367.) Gur testified that the cells in the brain are called neurons and are distinguished from all other cells in the body by two features: (1) the neuron is surrounded by small protrusions that are called dendrites; and (2) the long fiber that protrudes from the cell. (ECF No 428 at PageID 15139.) Gur explained that the neuron is

> swimming in a sea of chemicals, and the chemicals get attached to the long protrusions that surround the cell, and when the electrical charge of the chemicals outside the cell is different from that inside the cell, it produces a short, an electrical pulse that travels along the membrane of the cell and shoots down this fiber, and that electrical pulse shoots through this fiber that's called axon, and when it reaches the axon terminals here, it releases chemicals. Those chemicals that it releases will get attached to whatever is around them. If there is another neuron there, then it will propagate that signal, it will get attached to the new neuron and produce another pulse.
>
> . . .
>
> If on the o[th]er hand, at the end of this terminal, you have muscle, then the muscle will contract. So this is the element -- these are the elements that control behavior. You have electric pulses, and with those electric pulses, the brain cells communicate with each other, and with those same pulses, the brain then communicates with your muscle.

> Now, you can see that the axon is surrounded by those red notches or nodes that you see around it. These are in reality white because they're made of fat, and their purpose is to insulate the signal. So in the same way that the electric company surrounds the conductors with rubber, and the further distance you want to send the electrical signal, the thicker the rubber has to be, otherwise the signal will dissipate. The brain doesn't have rubber, the brain uses fat for that purpose, so it turns out that we are born with almost no -- the -- those axons are bare, they're not surrounded by fat, and what happens with a baby, a baby cannot direct its action to a particular spot. You may tickle the left foot and they will move both arms because they may try to move one arm, but the signal dissipates in the whole brain and everything is moving. During the first year of life, that part of the brain that controls movement becomes covered, laye[re]d with insulation, and that fat that surrounds the axons get a more respectable name in the brain, it's called myelin, M-Y-E-L-I-N, and the process of layering those axons with myelin is called myelination, and that is the main thing that happens during brain development from age 0 to age around 22.
>
> . . .
>
> [T]he whole period of development from childhood to adolescence is very critical, and a lot of things can cause a train like that to derail, and it's very important that the environment be good, supportive, and nutriti[ous], all those things are important for that process of myelination to take place. And different parts of the brain get myelinated at different times, so it's not the whole brain myelinating at once, but first the parts that control movement get myelinated, that's by the age of one, two, the baby can get up and start walking, and then speech areas become myelinated, and then the last part of the brain that gets myelinated is the front of the brain . . . .

(*Id.* at PageID 15139-1141.)

Gur further described the anatomy by explaining the lobes of the cerebral hemisphere and the structures of the brain:



(*Id.* at PageID 15142; *see* ECF No. 448-2 at PageID 16368.) Gur testified that that "we have not one brain, but two brains" with the corpus callosum connecting the left and right hemispheres. (ECF No. 428 at PageID 15142.) Gur described how the brain is situated:

> First, you see the brain stem at the bottom. The brain stem comes from the spinal cord and brings in all the information from your body, whether you're warm or cold, or whether there is something tickling you, whether you are hungry, whether you need sex, all those sensations from the body come through the brain stem. As you know, evolution doesn't throw anything away, it takes the brain of a worm and puts at the top of it the brain of a reptile, and on top of that, the brain of a mammal, and on top of that, the brain of a primate, and on top of that comes our brain, but nothing is thrown away. All the older brains are still alive and kicking inside our brain, and what you see up to this point here where you see the little head of the brain stem, this is the brain of a snake. A snake will have all these parts, so a snake can wiggle, it can sense heat, cold, hunger, and it can move around, and that's what that brain can do. It then feeds into the brain, the brain that is in the head. In the back, you see a small structure -- well, it's pretty big, but – it's right behind the brain stem, it's called the cerebellum, and that part of brain gets information from the brain stem and it's responsible for coordinating movement.

(*Id.* at PageID 15142-15143.)

Gur described the job of the occipital lobe of the brain:

> So the way the information gets into the cortex, the head, if it's visual information, it goes first straight to the back of the head, which is the occipital lobe, you can see it here in red. The job of the occipital lobe is to, first of all, flip the picture because our eyes project the image upside down, so we literally see the whole world upside down, and it's our brain that keeps flipping it right side up, and that's what happens in the occipital lobe, and then the occipital lobe also decodes the visual location, but in a very rudimentary way. It will detect lines, it will detect darkness and light, it will detect motion and so -- but it doesn't really interpret it, it just sends that information forward.

(*Id.* at PageID 15143-15144.) The information from the occipital lobe is then sent to the parietal lobe, which is in front of the occipital lobe. (*Id.* at PageID 15144.) Gur described two streams of information: (1) the dorsal stream which goes up and is primarily concerned with recognition or thinking; and (2) the orbital stream that goes through the bottom and is related to emotion or feelings. (*Id.*) These streams relate to the cerebral cortex on top of the brain. (*Id.*)

Auditory information comes through the ear into the temporal lobe, which is right behind the temples. (*Id.* at PageID 15145.) The primitive part of the temporal lobe decides the type of "noise" and then moves that information to the juncture between the temporal and the parietal lobe. (*Id.*) In that juncture, "the auditory information meets the visual information, and that's how you [put together an] idea." (*Id.*)

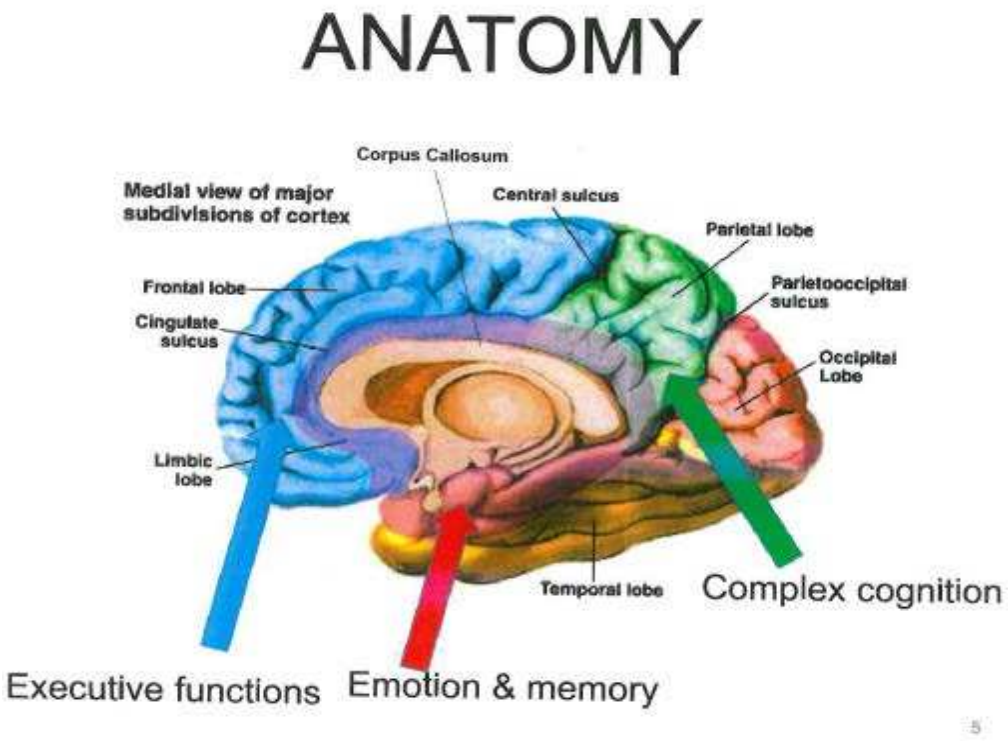
Gur testified that the frontal lobe is the "chief executive of the brain." (*Id.* at PageID 15145-15146.) The frontal lobe takes all of the information and puts it together in context to allow decision making. (*Id.*) Gur further explained:

> The role of the frontal lobe is to know the big picture and adjust your behavior to the context of the behavior in relation to the big picture. So the frontal lobe monitors you and tells you what to do. It monitors your behavior, gives you feedback, tells you what to do. It is involving planning. The frontal lobe, you lay out your plans both short-term and long-term. It turns out that the frontal lobe is

> arranged so that the back of the frontal lobe is responsible for short-term planning, and as you go further frontal, it thinks about more long-term. So people with brain damage in the very front may lose long-term plans, but can still have very good short-term plans.
>
> . . .
>
> Mental flexibility, the ability to shift from one set to another, sometimes a particular behavior works, but all of a sudden conditions change and you have to change your behavior, it's the role of your frontal lobe to change your set.

(*Id.* at PageID 15152-15153; *see* ECF No. 448-2 at PageID 16370.)

Gur described the midline structures of the brain which includes the limbic system:



(ECF No. 428 at PageID 15146; *see* ECF No. 448-2 at PageID 16369.) The limbic system has two key, but very primitive, structures: the amygdala and an almond-shaped structure called the hippocampus. (ECF No. 428 at PageID 15146-15147.) The limbic system regulates emotion. (*Id.* at PageID 15146.) Gur testified that these structures ask very simple questions. (*Id.* at

PageID 15147.) The hippocampus asks, "have I seen this before, have I experienced this before, or is this something new." (*Id.*) The hippocampus is very important for learning new information. (*Id.* at PageID 15148.) The amygdala asks "is this dangerous." (*Id.*)

Gur then explained how information processed through the amygdala is interpreted in the frontal lobe:

> If you sit in a movie theater and you see a tiger jumping at you, the amygdala doesn't know you're at a movie theater, it thinks it is a real tiger, it's really jumping at you, and it issues a command get up and run. All that information fortunately gets forwarded to the frontal lobe, which is very closely linked to the amygdala, and the orbital frontal region right here that sits right above the orbital bones, right above our eyes, that part of the brain, as I mentioned, is the frontal lobe, so that's the part that will say, relax, it's not a real tiger, you're sitting in a movie theater, you paid for your ticket, you're safe, relax, and that's part of why we enjoy horror movies because we're frightened to death by our amygdala, but at the same time we know we're safe and our frontal lobe can tell us don't worry, it's not for real, it's not happening to you, relax.

(*Id.*) Gur testified that if there are problems in the limbic system with either the amygdala or the hippocampus and transmission to the front lobe or if there are problems with the frontal lobe, "you might get a different understanding of the behavior, you might react in a different way." (*Id.* at PageID 15148-15149.)

Gur testified about the emotion and memory circuit, which includes the hippocampus, the amygdala, and the corpus callosum. (*Id.* at PageID 15150.) The corpus callosum is "a huge bundle of nerve fibers" that connects the two hemispheres and transmits information from the left to the right, "and that's why the left hemisphere is verbal, the right hemisphere is spatially intuitive." (*Id.*) Damage to the corpus callosum can have serious behavioral effects. (*Id.* at PageID 15151-15152.)

The striatum is a midline structure that is responsible for reward and controls movement. (*Id.* at PageID 15153.) The striatum activates the frontal lobe using dopamine. (*Id.*) If the

frontal lobe is damaged, the individual will lack mental flexibility and is unable to shift behaviors easily or to adjust to different situations. (*Id.* at PageID 15153-15154.)

Gur testified that, in the early 1980s, the information he testified to about the frontal, parietal, and temporal lobes as well as the cortical regions was known. (*Id.* at PageID 15320.)

b. Executive Functions

Gur testified that the executive functions include adjusting behavior to context, monitoring and directing behavior, planning, mental flexibility, initiation and productivity; inhibition of impulses, and judgment. (ECF No. 448-2 at PageID 16370.) The frontal lobe initiates movement and any plan of action, and is responsible for productive behavior. (ECF No. 428 at PageID 15154; *see* ECF No. 448-2 at PageID 16370.) The frontal lobe can "inhibit your impulse to do something bad" and is responsible for moral judgment. (ECF No. 428 at PageID 15154, 15156.) People with frontal lobe damage show deficits in moral judgment. (*Id.* at PageID 15156.)

When a person has a head injury, the frontal lobe can be damaged and because of the orbital bone, the largest force of the torque is in the midline when the brain rotates:

> the biggest force is right in the middle, it's like the brain is a handle that twists the middle of the brain, and the neurons in the midline structure gets stretched and then they go back to position. It's like a rubber band, if they go back to position perfectly, that's no problem, but very often, they may not go back to position perfectly, and then they will shrivel off and die.

(*Id.* at PageID 15155-15156.)[14] If there are problems in the limbic system and the frontal lobe, a synergistic effect is created in the individual's behavior. (*Id.* at PageID 15156.) It is a

[14] Gur described the potential for brain damage because of the placement of the frontal lobe on top of jagged orbital bones in the front of the skull. (ECF No. 428 at PageID 15149-15150.)

combination seen in people with head injuries where they become impulsive. (*Id.*)

c. Frontal Lobe Damage

Gur testified that the symptoms of frontal lobe damage include disinhibition, irritability, lability, tactlessness, poor planning, mania, risk-taking, perseveration, obsessive compulsive behaviors, motor dysfunction, and antisocial behavior. (*See* ECF No. 448-2 at PageID 16371.)

Disinhibition or a lack of impulse control is a symptom of frontal lobe damage. (ECF No. 428 at PageID 15158.) Gur testified that people with frontal lobe damage tend to be disinhibited and "just say [or do] the first thing that comes to [their] mind" regardless of whether it is appropriate. (*Id.*)

Irritability is another symptom. (*Id.* at PageID 15158.) Situations that a normal person would find "somewhat annoying" or "a little unpleasant" can cause a meltdown in someone with frontal lobe damage. (*Id.*) Persons with frontal lobe damage are also easily provoked. (*Id.*)

Lability is the inability to regulate emotion and is another symptom of frontal lobe syndrome. (*Id.* at PageID 15158-15159.) The person can be very happy one moment and depressed the next. (*Id.* at PageID 15159.) They are controlled by their emotions because the part of the brain that modulates emotions and puts them in context is not functioning well. (*Id.*)

Tactlessness is another symptom of frontal lobe damage and refers to the inability to adjust behavior to context, for example the telling of off-color jokes in respectable company. (*Id.*)

Poor planning, for the purpose of frontal lobe damage, addresses the inability to take long-term goals into account and is somewhat dependent on where the damage is in the frontal lobe. (*Id.* at PageID 15159.)

Mania, which is a side-effect of lability, relates to the inability to put things in context. Because a person suffering from mania cannot put things in context, the person becomes

overconfident and does things based on a false perception of actual abilities. (*Id.* at PageID 15160.) Gur further testified that mania is also related to risk taking because the impulse to take risks comes from the striatal part of the brain in the same regions as the limbic system; the striatal part of the brain includes the basal ganglia, the thalamus, and the hypothalamus and is known as the reward system. (*Id*.) Gur explained that it is this system that induces drug addiction because "if you induce intense pleasure chemically, then your striatum will want to re-experience that." (*Id.*) "[Y]ou need the frontal lobe to go and get [the chemical substances], and if the need is very strong, you will take risks . . . ." (*Id.* at PageID 15160-15161.)

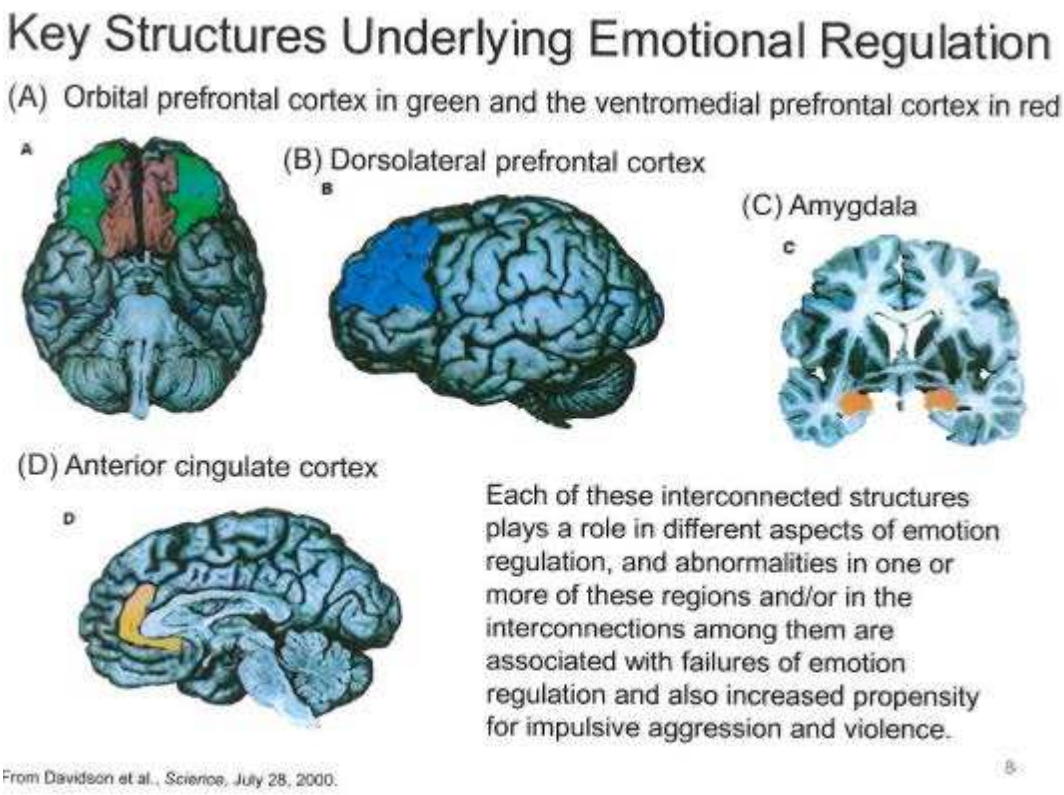
Gur then testified that "[p]erseveration is both the inability to shift sets" and a symptom of frontal lobe damage. (*Id.*) According to Gur, when a person with perseveration starts something, the person cannot stop and adjust to context. (*Id.* at PageID 15161.)

Gur then discussed "motor dysfunction," explaining that it is related to the part of the frontal lobe that controls very high level performance and that a person experiencing motor dysfunction struggles "to put the picture together." (*Id*. at PageID 15162.)

Finally, Gur discussed antisocial behavior as a symptom of frontal lobe damage. (*Id.* at PageID 15162-15163.) Gur testified that many people with frontal lobe damage get misdiagnosed as being antisocial because they are disinhibited, irritable, do not have long range goals, do not take societal context into account, and cannot see the big picture. (*Id.* at PageID 15163.) "[T]hey can't see the forest, so when the forest is the moral structure that's around them, they just can't see it. When they want to do something, they can't take into consideration the rules, the laws, all the—all those things that regulate our behavior." (*Id.*)

d. Key Structures Underlying Emotional Regulation

Gur described the key structures of the brain underlying emotional regulation referring to an illustration in the July 28, 2000 edition of "Science Magazine."[15] (*Id.* at PageID 15163.) The illustration shows: (1) the amygdala; (2) the dorsolateral prefrontal cortex, which is a part of the frontal lobe "that tells you what have I just done, what am I doing now, and what am I about to do in the next second literally"; (3) the orbital frontal that "sits on top of the orbital bone and . . . modulates the impulses coming from the limbic system"; and (4) the anterior cingulate gyrus, which "resolves conflicts" and "makes decisions." (*Id.* at PageID 15163-15164.)



(ECF No. 448-2 at PageID 16372.)

Gur testified that damage in the different regions produces different symptoms. (ECF No.

[15] Richard J. Davidson, Katherine M. Putnam, & Christine L. Larson, *Dysfunction in the Neural Circuitry of Emotion Regulations--A Possible Prelude to Violence*, Science, July 28, 2000.

428 at PageID 15164.) Damage in the amygdala if the amygdala is small results in the amygdala becoming "very easily provoked" because the amygdala has huge cells, and when a cell fires, it induces activity in the adjacent cells. (*Id.*) The individual gets seizures in extreme cases and rage attacks or "sham rage" in less extreme cases. (*Id.*) If the orbital frontal lobe is damaged in addition to the amygdala, the rage will "not be modulated sufficiently" and will result in "actual behavior" reflecting the rage. (*Id.* at PageID 15165.)

Gur reviewed the Midtown Mental Health Center notes and referred to the assertion that Cone had been telling the Todds to be calm and then "flew in a rage." (ECF No. 436 at PageID 15941.) Gur testified that:

> The sham rage is a very well-known characteristic of individuals with frontal lobe damage. Once they perceive a threat, they can lash out and attack literally anything in sight. It's like that monkey in the famous study that had an electrode implanted in the amygdala, every time the amygdala was stimulated, the monkey will attack all the other monkeys around them. So flying into a rage is technically called sham rage, is very well established symptom of frontal lobe damage.

(*Id.*)

e. Behavioral Image (ECF No. 448-3)

Gur testified that "[t]he behavioral image" is a way to systematically and objectively draw a chart based on neuropsychological tests to show where an individual's brain damage is located. (ECF No. 436 at PageID 15924.) He, along with other experts, developed a behavioral imaging assessment algorithm as a methodology to create a standardized way to interpret neuropsychological test results. (ECF No. 428 at PageID 15282.) To design the behavioral imaging algorithm, Gur gathered four of the leading neuropsychologists[16] in the country, brought

[16] The four participating experts were: (1) Arthur Benton, the father of modern neuropsychology; (2) Edith Kaplan; (3) Harvey Levin; and (4) Andrew Sackin. (ECF No. 428 at

them together in a room, and showed them a list of all the tests that were available at time, including the Halstead-Reitan. (*Id.* at PageID 15171.) The experts had a layout with circles on the brain, and each expert put numbers in each circle for each test indicating the probability that a lesion in this area would result in a deficit on that test. (*Id.* at PageID 15172.)[17] "They just did formally and with numbers what every neuropsychologist does informally in their head." (*Id.*) Each participant gave "weightings" using numbers from 0 to 100 to express probability that a particular test would be related to that brain region. (*Id.* at PageID 15172, 15283-15284.) Gur testified that the participants then looked at "the reliability of the weightings." A year later, the participants were asked to repeat their weightings to test their individual consistency and the consistency/reliability of the other participants. (*Id.* at PageID 15285.)

Gur and Zeus Margaretti, a computer scientist, then created an algorithm that translated those weightings into a color code that indicates the relative intactness of each region of the brain. (*Id.* at PageID 15172.)

> So if a region is highly implicated, we think the values that you get indicate that -- you put a particular profile into a particular set of scores into the algorithm, if a particular region is highly implicated as being damaged, it will be colored blue, deep blue; and if it is indicated as being relatively good, it's yellow, flaming yellow, and the other colors are in between.

(*Id.* at PageID 15173.) Gur confirmed that the differing colors "are based upon an analysis of the different parts of the individual brain," rather than a comparison to other brains, because "that was already done by the neurophysical testing." (*Id.*)

Gur was referred to Exhibit 4, a slide from Gur's presentation titled "Evaluation of Gary

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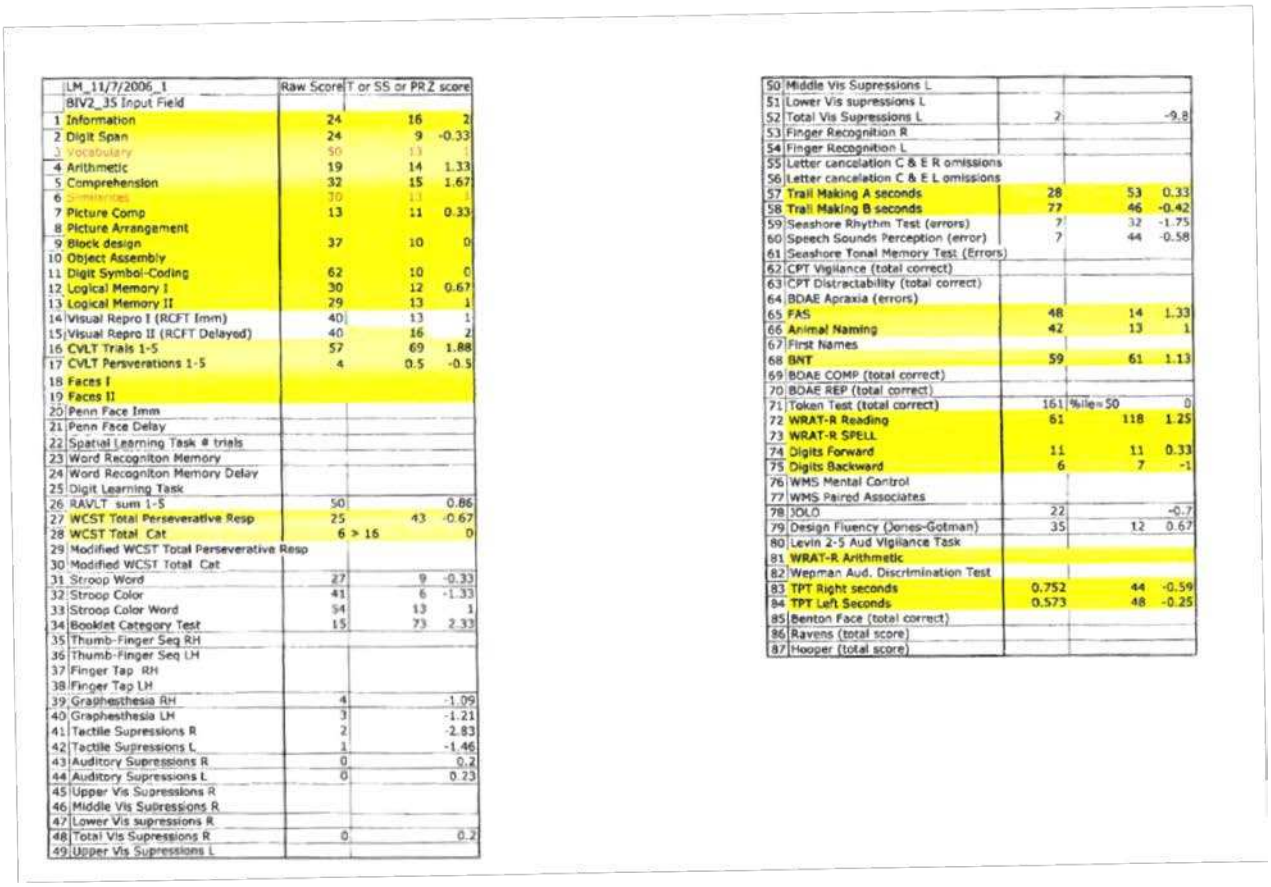
PageID 15171-15172.)

[17] On cross-examination, Gur acknowledged that there are some areas of the brain that neuropsychologists do not have information about. (ECF No. 428 at PageID 15283.)

Cone." (ECF No. 448-2 at PageID 16365, 16374; ECF No. 448-4 at 16387.)



	LM_11/7/2006_1	Raw Score	T or SS or PR	Z score
	BIV2_35 Input Field			
1	Information	24	16	2
2	Digit Span	24	9	-0.33
3	Vocabulary	50	13	1
4	Arithmetic	19	14	1.33
5	Comprehension	32	15	1.67
6	Similarities	30	13	1
7	Picture Comp	13	11	0.33
8	Picture Arrangement			
9	Block design	37	10	0
10	Object Assembly			
11	Digit Symbol-Coding	62	10	0
12	Logical Memory I	30	12	0.67
13	Logical Memory II	29	13	1
14	Visual Repro I (RCFT Imm)	40	13	1
15	Visual Repro II (RCFT Delayed)	40	16	2
16	CVLT Trials 1-5	57	69	1.88
17	CVLT Perseverations 1-5	4	0.5	-0.5
18	Faces I			
19	Faces II			
20	Penn Face Imm			
21	Penn Face Delay			
22	Spatial Learning Task # trials			
23	Word Recogniton Memory			
24	Word Recogniton Memory Delay			
25	Digit Learning Task			
26	RAVLT sum 1-5	50		0.86
27	WCST Total Perseverative Resp	25	43	-0.67
28	WCST Total Cat	6 > 16		0
29	Modified WCST Total Perseverative Resp			
30	Modified WCST Total Cat			
31	Stroop Word	27	9	-0.33
32	Stroop Color	41	6	-1.33
33	Stroop Color Word	54	13	1
34	Booklet Category Test	15	73	2.33
35	Thumb-Finger Seq RH			
36	Thumb-Finger Seq LH			
37	Finger Tap RH			
38	Finger Tap LH			
39	Graphesthesia RH	4		-1.09
40	Graphesthesia LH	3		-1.21
41	Tactile Supressions R	2		-2.83
42	Tactile Supressions L	1		-1.46
43	Auditory Supressions R	0		0.2
44	Auditory Supressions L	0		0.23
45	Upper Vis Supressions R			
46	Middle Vis Supressions R			
47	Lower Vis supressions R			
48	Total Vis Supressions R	0		0.2
49	Upper Vis Supressions L			
50	Middle Vis Supressions L			
51	Lower Vis supressions L			
52	Total Vis Supressions L	2		-9.8
53	Finger Recognition R			
54	Finger Recognition L			
55	Letter cancelation C & E R omissions			
56	Letter cancelation C & E L omissions			
57	Trail Making A seconds	28	53	0.33
58	Trail Making B seconds	77	46	-0.42
59	Seashore Rhythm Test (errors)	7	32	-1.75
60	Speech Sounds Perception (error)	7	44	-0.58
61	Seashore Tonal Memory Test (Errors)			
62	CPT Vigilance (total correct)			
63	CPT Distractability (total correct)			
64	BDAE Apraxia (errors)			
65	FAS	48	14	1.33
66	Animal Naming	42	13	1
67	First Names			
68	BNT	59	61	1.13
69	BDAE COMP (total correct)			
70	BDAE REP (total correct)			
71	Token Test (total correct)	161	%ile=50	0
72	WRAT-R Reading	61	118	1.25
73	WRAT-R SPELL			
74	Digits Forward	11	11	0.33
75	Digits Backward	6	7	-1
76	WMS Mental Control			
77	WMS Paired Associates			
78	JOLO	22		-0.7
79	Design Fluency (Jones-Gotman)	35	12	0.67
80	Levin 2-5 Aud Vigilance Task			
81	WRAT-R Arithmetic			
82	Wepman Aud. Discrimination Test			
83	TPT Right seconds	0.752	44	-0.59
84	TPT Left Seconds	0.573	48	-0.25
85	Benton Face (total correct)			
86	Ravens (total score)			
87	Hooper (total score)			

(ECF No. 448-2 at 16374; ECF No. 448-4 at PageID 16387.) Gur testified that the spreadsheet displayed "the data [from various tests] that [he] evaluated and that were entered into the algorithm that produced the behavioral image" for Cone. (ECF No. 428 at PageID 15167.) Gur explained that the last score on the spreadsheet "is a Z-score, and that's what gets into the algorithm." (*Id.* at 15173.) According to Gur, "Z-scores are deviations from average." (*Id.*)[18] In other words, "a

[18] A postdoctoral fellow checked the scoring from Watson's tests and translated them into Z-scores to be entered into the algorithm for petitioner's brain image. (ECF No. 428 at PageID 15285-15286.)

Z-score of one would be one standard deviation above the mean or above the norm." (*Id.* at PageID 15174.) "Zero will be average. One will be one standard deviation above average. Minus one, one standard deviation below average." (*Id.*) To determine the intensity of the image in each region, the Z-score of the patient's test is "multiplied by the weights given for that test on that region" and then summed "across regions" to calculate "the intensity of the measurement in that particular area." (*Id.* at PageID 15284-15285.)

Gur developed the behavioral imaging assessment algorithm around 1988. (*Id.* at PageID 15287.) In 1990, he co-authored a paper about the assessment and obtained a patent. (*Id.* at PageID 15287-15288, 15170.) The behavioral algorithm has been peer-reviewed and papers published describing the algorithm in clinical cases. (*Id.* at PageID 15174.) According to Gur, the algorithm "reliably find[s] the same problems that you would find either in an MRI, PET scan or other imaging." (*Id.* at PageID 15175.)

Gur acknowledged that in 1990 Ronald Yeo and Erin Bigler published a criticism of the behavioral image algorithm. (*Id.* at PageID 15176; *see* ECF No. 448-11.)[19] One of the criticisms was that Gur and his colleagues "reported reliability coefficients among three expert neuropsychologists who were asked to rate the importance of 40 brain regions for 43 different test scores, and the median ability coefficient of R equals .43 indicated substantial disagreement among the experts." (ECF No. 428 at PageID 15297.) Gur stated that there are different ways of looking at reliability, and there has always been some disagreement over which regions of the

[19] Bigler testified that in 1977, he was recruited by the University of Texas to develop their neuropsychology program. (ECF No. 433 at PageID 15392.) He testified that Gur's behavioral algorithm is "robust and appropriate." (*Id.* at PageID 15391.) When Gur's article was published, Bigler was trying to develop a method where researchers could use scan data directly to outline brain regions where Gur was using experts to identify brain regions. (*Id.* at PageID 15391-15392.) The "basis for what he's doing is what neuropsychologists do in their everyday practice"; they are just not using the actual image plot. (*Id.* at PageID 15398-15399.)

brain relate to what tests. (*Id.*)

Gur filed and had published a peer-reviewed rebuttal. (*Id.* at PageID 15176, 15298.) According to Gur, "[t]he peer reviewers thought [he] answered the criticism fully." (*Id.* at PageID 15176.) Gur testified that there have not been any questions about the behavioral image in the literature in the last 14 years other than the response by Yeo and Bigler. (*Id*.)

Gur confirmed that his algorithm was not in use in 1982. (*Id.* at PageID 15178.) Gur was asked if it made any difference to his conclusions that he was now using an algorithm that could not have been used by a neuropsychologist in 1982. (*Id.*) He responded:

> The behavioral images can help in very ambiguous cases where you're not sure. Usually I use it to see if there is something I didn't see. So often when a clinician looks at the set of scores, they become attracted to one score that they like, they believe it, it makes sense to them, and then sometimes, they're humans, they ignore other scores, and so sometimes I look at the profile and I say, wow, this looks like inferior temporal kind of damage, I do a behavioral image and I see something in the parietal, I say where did that come from. Then I can go back, look at the score and find out why the algorithm thought there was something in the parietal.

(*Id.* at PageID 15178.) He also testified that, before he generates a behavioral image,

> I create sort of a behavioral image in my mind based on the test results, and then I can compare the behavioral image that the computer generates to the one that I had in my mind . . . . [T]he process is something that takes place in the mind of every neuropsychologist based on the test results.

(ECF No. 436 at PageID 15924-15925.)

Cone's "behavioral image" was created based on an evaluation of neuropsychological tests administered by Watson on Cone in 2012. (ECF No. 428 at PageID 15166.) Gur testified that Watson's tests were available in 1980-1982. (*Id.*) Gur stated that Watson "used a classical old-fashioned standard neuropsychological battery that includes the Halstead-Reitan and some more tests." (*Id.* at PageID 15166-15167; *see* ECF No. 448-4.)

Gur testified that "basically each test is given to a normative sample so we know what is normal and we know what deviations from normal we expect in a normal population, in a healthy population, and then you give each individual a score that reflects how far away they are from normal." (ECF No. 428 at PageID 15169; *see* ECF No. 448-2 at PageID 16374.) Gur testified that "you look at the pattern of numbers" and ask "how does this person look like overall." (ECF No. 428 at PageID 15169-15170.) According to Gur, because Cone's scaled score was 16, which is two standard deviations above the normal (score 10), Cone's

> knowledge of the world, his understanding of what happens in the world is two standard deviations better than normal, so he's very smart. You see, 16 is rare. So he's a very intelligent person, and you see then 13 vocabulary. Vocabulary is a little less, but still a whole standard deviation higher than normal. H[is] arithmetic ability, 14. His comprehension, the ability to process complex concepts is 15, so this is—for his verbal IQ that relates to the left hemisphere, he's very intelligent.
>
> . . . .
>
> But then all of a sudden, you see for digit span, which specifically looks at the dorsolateral prefrontal cortex his score is nine, below average, and it's more than two standard deviations lower than his information score, so that's your first signal that there is some problem and you would say, okay, this particular deficit localizes to the dorsolateral prefrontal cortex, and then you go on and make those inferences, and every neuropsychologist goes through that exercise, and some neuropsychologists are better than others in terms of their knowledge of the field, the amount of training, the amount of experience, so therefore in the '80s with funding from the National Institute of Health, we embarked on the project to standardize the interpretation of neuropsychological tests.

(*Id.* at PageID 15170-15171.)

Gur described how that same process of evaluating the neuropsychological test would have been conducted in 1982:

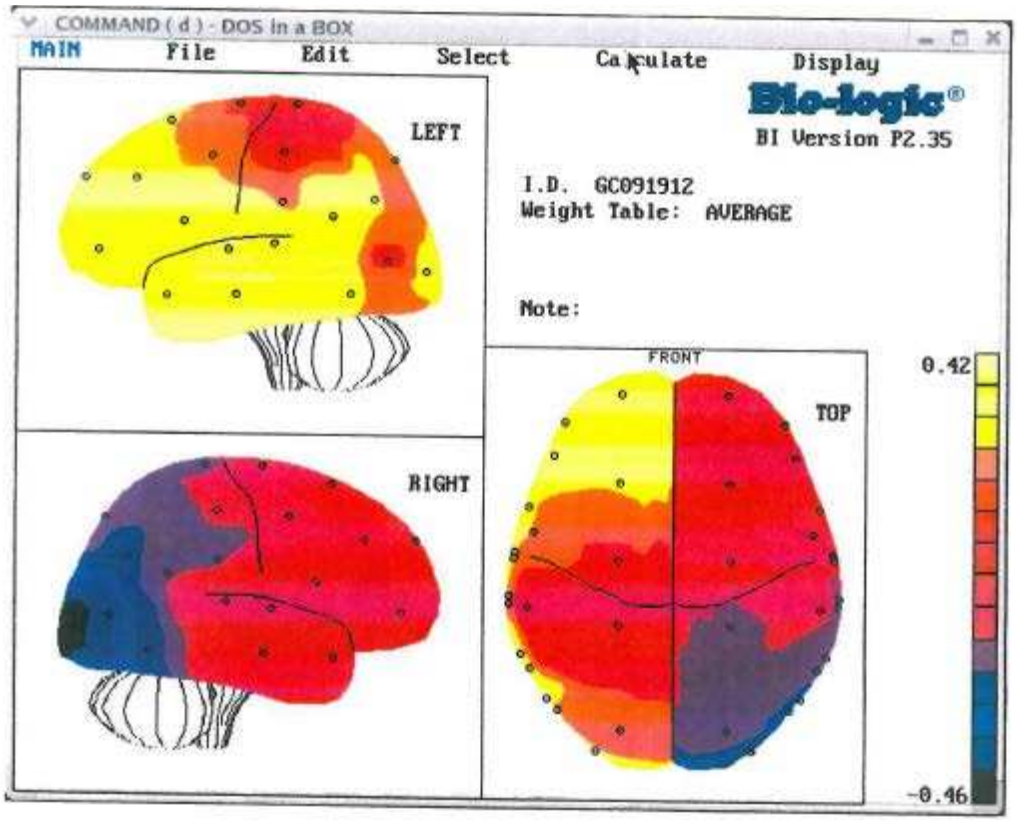
> They would do something very much like what I just did a few minutes ago, they will look and say, wow, this is a very bright individual, what is a score of nine doing on digit span in here? That's the first flag. And then you see a big difference between the average on the verbal test and the averages on the performance tests. Then you start thinking right hemisphere, because right hemisphere damage

> produces that sort of a pattern. For the performance test, his best score is 11, so he's only average on the performance, but way above average on verbal. That suggests problems with the right hemisphere. Then you have more specific tests that look at specific brain systems from the Halstead-Reitan and you begin to see Z-scores that are deviating in significant ways and there is no reason for somebody who has this sort of IQ to be—to have so many tactile suppressions, to have difficulties with understanding cadence and all sorts of things that relate to not just frontal, but also parietal lobe functions. So when you go over those scores, I think it's not—it' s not—you don't need a very well-trained neuropsychologist to see that this is someone who has some brain damage.
>
> . . . .
>
> And you don't need the behavioral image to see that.

(*Id.* at PageID 15178-15179.) Gur testified that the difference between performance and verbal IQ would classify someone as having brain dysfunction and "especially the poor performance on the digit span" in the context of such excellent performance in reasoning ability suggests frontal lobe dysfunction. (*Id.* at PageID 15180.)

Gur testified that Cone's neuropsychological test results indicate brain damage that is more pronounced in the right cortex than the left for cortical regions. (*Id.*) According to Gur, the significance is that the deficits do not relate to verbal fluency, verbal reasoning, or language mediated behavior, but instead to spatial, intuitive, and emotional behaviors. (*Id.* at PageID 15180-15181.) Gur stated that all of the neuropsychological tests are "exquisitely sensitive" to damage in the cortex, but "almost blind" to damage in midline structures. (*Id.* at PageID 15181.) There is no test of impulse control or emotional dysregulation or of interconnection between brain hemispheres. (*Id.*) Gur testified that it is rare to see damage to the cortex and not see damage subcortically. (*Id.* at PageID 15182.)

Gur was asked to explain how the behavioral image and the interpretation of the neuropsychological tests demonstrate brain damage. (*Id.* at PageID 15182.)



(*See* ECF No. 448-2 at PageID 16373; *see* ECF No. 448-4.) Gur described the number scale on the side of his behavioral image diagram as roughly corresponding to Z-scores. (ECF No. 428 at PageID 15291.) Gur stated that he did not use "the formula" to calculate standard deviations. (*Id.*) Gur multiplied a Z-score by a certain weighting; "We don't know how to call this animal, but it's a number that produces a visual display. . . ." (*Id.* at PageID 15291-15292.) Gur explained that "the highest value for that individual and the lowest value for that individual are used in order to to create the . . . color scale," and "each Z-score that was entered into the formula compares that individual to a healthy group." (*Id.* at PageID 15292-15293.) "Each number that goes into [the algorithm] takes into account what is standard." (*Id.* at PageID 15294.) Although the scale is "a unitless measure," the graphic could be read by other neuropsychologists if they have read Gur's papers. (*Id.* at PageID 15290, 15294.)

Gur testified that from the top view at the front, the two hemispheres look almost like they belong to two different people with the left hemisphere being relatively intact and the right hemisphere with blue and pink indicating dysfunction. (*Id.* at PageID 15182.) Gur stated the dysfunction is on the whole right hemisphere. (*Id.*)

According to Gur, Cone has damage in the frontal and temporal regions on the right side of his brain, but it appears to be more severe in the back than the front. (*Id*. at PageID 15182-15183.) Gur testified that it looks like someone hit Cone in the back of the head, but the impact spread frontally. (*Id.* at PageID 15183.) The damage in the frontal and temporal regions on the right was found based on a neuropsychological test that requires three-dimensional visualization—"being able to put together a picture to form a whole, being—putting pieces of a puzzle together, being able to connect a symbol to a representation of the symbol." (*Id.*)

Gur testified that the damage to the right side at the back of Cone's brain is mostly in the parietal area. (*Id.* at PageID 15184.) It spreads anteriorly in the orbital and dorsal parts of the frontal lobe. (*Id.*) Gur stated that there are not very good measures of the orbital cortex in the neuropsychological testing, but "clearly whatever measures relate to it are impaired." (*Id.*) The damage in the right hemisphere is "moderate to severe" being more severe in the back. (*Id.*) Cone's damage is lateralized to the right side, at least for the cortex. (*Id.* at PageID 15186.) Gur testified that there is some damage on the left side of the brain mostly in the back in the parietal and the motor area. (*Id.* at PageID 15184.)

According to Gur, the behavioral effects from the right hemisphere damage will affect anything that relates to the right hemisphere. (*Id.* at PageID 15185.) The right hemisphere is the part of the brain that integrates and looks at the world holistically in an intuitive way and integrates emotion with information that relates to intellectual capacity. (*Id.*) The right hemisphere,

especially the parietal area, relates to "the sense of agency for your behavior." (*Id.*) Gur explained that there is a part in the right hemisphere called the precuneus. (*Id.*) The precuneus "keeps telling you that's me, it's me sitting here, it's me answering questions." (*Id.*) People with damage to the right parietal lobe are prone to episodes of dissociation "where they can do very complicated things and they themselves are conscious during that time, but they don't see themselves as doing it." (*Id.*)

f. Brain Damage Based on 1981 Evaluations in Florida Defense

Gur testified that Cone's brain damage could have been discovered through neuropsychological testing in 1982. (*Id.* at PageID 15186.) Specifically, Gur testified:

> All these tests that we gave that were administered were available in 1980, and had Mr. Cone been referred for a neuropsychological evaluation—there weren't that many neuropsychologists back then as there are now, it was a smaller specialty, but we already had a board, we had recognition by the American Psychological Association as being a section in the American Psychological Association. There was the International Neuropsychological Society. We already had a few journals, Brain Cognition . . . and Neuropsychologia, which is an international journal of neuropsychology[,] existed. Neuropsychology, which is the APA Journal of Neuropsychology, did not exist, but there were a lot of neuropsychologist around, and actually Memphis was one of the meccas of neuropsychology at the time. There were several outstanding neuropsychologists right here . . . .

(*Id.* at PageID 15186-15187.) To support his conclusions, Gur relied on the prior reports of Cone's psychologist, William Ryan, and his psychiatrist, Arthur Stillman, in the 1981 Florida case. (*See supra* pp. 6-24.)

1. Review of Ryan Report

Gur testified that Ryan, a clinical psychologist who evaluated Cone, appeared "very shocked" and "picked up a lot of the symptoms of the frontal lobe damage." (ECF No. 428 at PageID 15188; *see also id.* at PageID 15198.) According to Gur, the signs of brain damage

described in Ryan's report were:

- Flat affect – Ryan "describes that Mr. Cone was talking about emotionally charged events in his life, but his voice was monotone and did not show any deflection." (*Id.* at PageID 15188.) Gur testified that Ryan's description reflects damage in the "[r]ight frontal, . . . the corollary of the Broca region." (*Id.*)[20]

- Very intelligent but very concrete – Cone "has difficulty dealing with abstract relations, and . . . he's unable to see the forest for the trees, that he's describing events, it looks like he's describing one tree after another and assigns the same importance to a major event and a trivial event that happened at the same time. He doesn't have a sense of the context of his speech." (*Id.* at PageID 15188-15189.)

- "[D]eficit in digit span" and "another very low score that would have prompted any well-trained neuropsychologist to request additional testing." (*Id.*)

- "[T]he summary of the WAIS results" – Petitioner overall scored an 18 out of 19 for information; for arithmetic, Petitioner scored an 18 out of 18; for similarities, "he got a 15, very, very respectable"; and then for digit span, he scored a 9 which is " very, very low." (*Id.* at PageID 15191-15192.) The digit span score is "not compatible" and "should be a red flag." (*Id.* at PageID 15192.) He was also low on digit symbol, picture completion, and object assembly. (*Id.*) The digit span looks at the dorsolateral prefrontal cortex. (*Id.*) "Digit symbol . . . requir[es] the cooperation of the right parietal with the right frontal [lobes]. Picture completion is right hemispheric." (*Id.*) "[A]ll the right hemispheric tasks are a whole level below" the verbal tasks. (*Id.* at PageID 15192-15193.)

According to Gur, the Ryan test results indicate that damage is lateralized to the right hemisphere and localized in the frontal parietal areas. (*Id.* at PageID 15193.) In Gur's view, a neuropsychologist in 1981-1982, looking at the WAIS results, would have used the Halstead-Reitan to nail down more specific abnormalities. (*Id.*)

Gur explained that the difference between psychological testing (Ryan's testing) and neuropsychological testing is the purpose. (*Id.*) With psychological testing, the purpose is to determine intelligence and the person's ability to perform well. (*Id.*) It is a difference in

[20] Gur also noted the reference to Cone's effectual range being limited in the Memphis Mental Health Center ("MMHI") notes and stated that it indicates flat affect as a sign of brain damage. (ECF No. 436 at PageID 15940.)

perspective because "the neuropsychologist has the expertise and experience to link any deficit on the testing to the functioning of specific brain systems." (*Id.*)

Ryan's report indicates that Cone's had "scaled scores" of 18, 11, 17, 15, and then 7 on digit span, 8 on object assembly, 10 on digit symbol, and 10 on picture completion. (*Id.* at PageID 15194-15195; *see also* ECF No. 448-5 at PageID 16389.) He scored seven on digit span which was a whole standard deviation below normal, where 18 is almost three standard deviations above normal. (ECF No. 428 at PageID 15195.) According to Gur, the scores of 8 and 10 are low relative to Cone's verbal IQ, and "there [are] some islands of excellence even in the right hemisphere which further support the idea that this person is natively very smart, but something happened, and some brain systems are not working." (*Id.*) Gur explained that Cone's performance score, which consisted of the last five scores for digit symbol, picture completion, block design, picture arrangement and object assembly, is more lateralized to the right hemisphere, whereas information, comprehension, and arithmetic, are lateralized to the left hemisphere. (*Id.*)

Gur stated that, in 1981, Ryan was struck by the discrepancy between Cone's intelligence and his life decisions "that he didn't want to go to law school at a place . . . because it's too warm, too hot there, and he goes to a place that is every bit as hot as the place he didn't go to." (*Id.* at PageID 15196.) Gur testified that someone with Cone's verbal IQ "should be a star, I mean they're quite rare." (*Id.*) Cone did well in school, was admitted to law school, and then he makes "decisions that leave you agasp." (*Id.*) Gur testified that "there is no reason for him to do all those thing[s] that derail his entire career, and he's unable to explain those kinds of decisions in a way that makes sense." (*Id.*) Gur pointed out that in Ryan's 1981 report, Ryan noted the

> disconnect between [Cone's] overall intelligence and his planning ability, his ability to explain why he did what he did, as well as his flat affect and assigning the same importance to very major events and trivial events, not being able to make the

> executive decision of what is—what is the most important part, and what is just something—a by-product or epiphenomenon or something that he doesn't have to worry about. So he can't make those distinctions, and that's a cardinal sign of the frontal lobe damage.

(*Id*. at PageID 15196.)

Gur was asked about Ryan's observations of Cone as "de-emotionalized, almost depersonalized, automatic and [having a] bland style of delivery," and the description of Cone as having "an eerie other world aura" about him as he described the events that led to his incarceration. (*Id.* at PageID 15196-15197.) Gur testified that "[y]ou can almost pick this sentence and put it in a textbook as frontal lobe damage syndrome." (*Id.* at PageID 15197.) Gur explained:

> Because that's exactly what happens with frontal lobe damage, you can be very smart, but when it comes to decision-making, to figuring out what is important and what you don't have to worry about, what you need to focus on and what is really relatively trivial. In the big picture, getting a law degree is much more important than having to suffer through some heat waves, but somebody who has a frontal lobe damage doesn't think that way.

(*Id.*)

According to Gur, Ryan's description of Cone's affect as being "alternately somber and smiling, but frequently inappropriate to the thought content" is a sign of frontal lobe damage because the right frontal area assigns emotional significance to events. (*Id.* at PageID 15197-15198.) Gur testified that Ryan's observations revealed that Cone is "unable to distinguish events that should appropriately produce a particular emotion." (*Id.* at PageID 15198.) Gur testified that, with frontal lobe damage patients, "you can expect them to tell you some horrible story and be smiling or nonchalant, and then become very emotional about something trivial that happened." (*Id.*)

When asked about the meaning of Ryan's statement that "clinically, the worlds of thought,

feeling and behavior were not at all integrated, frequently associated with marked pathology," Gur explained that the role of the frontal lobe is to integrate thoughts, emotions, and context. (*Id.* at PageID 15198.)

Gur also testified that the "soft signs of personalized or autistic logic" and "rigidity of thinking" observed by Ryan, as well as Cone's difficulty in shifting cognitive sets, are indicative of frontal lobe damage. (*Id.* at PageID 15198-15199.) Gur opined that Ryan's report also reflected frontal lobe damage based on Cone's inability to integrate thought, feeling, and behavior as demonstrated by Cone's comprehension subtests, and Cone's inability to shift cognitive sets when Cone stated "at times it is hard for him to, quote, switch thoughts" and "when there is only one thing in my head, it seems loud." (*Id.*) Gur testified that, with frontal lobe damage, "you form a general intent and you start in a particular course, that's the only thing you can think of, and the only thing you can do, and you can't stop, you can't change, you can't adjust your behavior to the circumstances." (*Id.* at PageID 15199-15200.)

Gur also noted that Ryan's finding that Cone had elevated score on the mania scale was significant because "[t]hat's one of the symptoms of frontal lobe damage." (*Id.* at PageID 15200.)

2. Review of Stillman Report

Turning to Dr. Stillman's 1981 Report, Gur testified that Stillman had "some very eloquent descriptions of frontal lobe damage." (*Id.* at PageID 15200.) Stillman described very poor planning and decision-making capacity. (*Id.* at PageID 15201.) Gur testified that Stillman noted that Cone demonstrated "a notable flatness of affect," was frequently monotone, and his facial expression remains flat and fixed; that Cone demonstrated "a paucity of expression of feeling and the lack of vocal changes so that his verbal presentations are "monotonous, expressionless, and empty." (*Id.*) Gur also found that Stillman's observation of "a robot-like flatness in every

aspect" of Cone's life was evidence of frontal lobe damage. (*Id.* at PageID 15202.) Specifically, Gur noted that Stillman observed that Cone spoke of situations "that should be filled with emotion," yet expressed them as if they were "inconsequential." (*Id.*) According to Gur, "[t]hat's the ability to assign value to your experiences, to tell what's important and what's not important, that's the role of the executive." (*Id.*)

Gur testified that the Stillman and Ryan reports "reflected clinical acumen that [was] quite impressive and was very useful," and particularly useful in terms of diagnosing brain dysfunction. (*Id*. at PageID 15264.) Gur testified that based on the reports of Ryan and Stillman, the test scores, and the description of Cone's presentation, there were signs of brain damage in 1981. (*Id.* at PageID 15202-15204.) Gur stated that Cone's case was "not a borderline case" and clearly called for neuropsychological evaluation at the least. (*Id.* at PageID 15203.)

Gur testified that he would have liked to have seen a formal neuropsychological examination in 1981, which is different than Stillman and Ryan's evaluations. (*Id.*) According to Gur, when he interviews a patient, he tries to find significant incidents indicating possible brain damage—information about birth, a family history of developmental disorders, car accidents—none of which would be brought up in a standard psychological evaluation. (*Id.*)

5. MRI Study of the Brain

Gur testified that he evaluated a magnetic resonance imaging ("MRI") study of Cone conducted at Vanderbilt by Robert Kessler, Professor of Radiology and Radiological Sciences and Associate Professor of Psychiatry, on October 25, 2013. (ECF No. 428 at PageID 15204-15205, 15212; *see also* ECF No. 320-1 at PageID 7324; ECF No. 350.) Gur explained that a MR scanner is essentially a long tube placed in a big magnet that has a force "multiple times the strength of the magnetic field of our planet." (ECF No. 428 at PageID 15205.) "[W]hen looking at the brain

[through an MR scanner], the brain is exposed to this strong magnetic force, then the molecules in the brain, the protons align themselves with that force." (*Id.*) A radio frequency signal is then sent towards the brain "at an angle to the main force," which causes the molecules "to try to align themselves with the new force." (*Id.*) "[T]he molecules get lost, and then they rotate back . . . to the main force." (*Id.*) Gur stated that there is a "principle in biology that big bodies move slowly, [and] small bodies move fast." (*Id.*) Gur testified that "[t]he smallest and most abundant molecule in the brain is water." (*Id.*) The water molecules will "go back to place" and "rattle" when they get back. (*Id.* at PageID 15205-15206.) "[T]hat rattling is called resonance, and that's the explanation of resonance in the word magnetic resonance imaging." (*Id.* at PageID 15206.) After the water molecules resonate, "then the proteins resona[te], and last come the big fat molecules." (*Id.*) Therefore, "depending on when you are listening[,] you will get a different composition." (*Id.)*

The brain is "basically" composed of water, protein, and fat. (*Id.*) The water is the cerebral spinal fluid that surrounds the brain on each side. (*Id.*) The proteins are the brain cells or neurons, and the fat is the myelin that surrounds the fibers. (*Id.*) With MRI, the technology records how many resonances are from water, from proteins, and from fat and the researcher acquires the information in three-dimensional voxels. (*Id.*)[21] "[T]he computer literally paints the picture dot-by-dot, but each dot has three dimensions because the MRI obtains information in slices." (*Id.*) For each slice, the picture element will have length and width and depth, which is the slice thickness. (*Id.* at PageID 15207.) On the MRI, "when there is a lot of signal," the image will be white, and when "there is little signal," it will be dark giving a picture of the brain's

[21] Pixels are two-dimensional; voxels are three dimensional. (ECF No. 428 at PageID 15206.)

anatomy. (*Id.*)

Gur testified that the MRI image is very useful to see abnormalities. (*Id*. at PageID 15207-15208.) A tumor will have very different resonance characteristics than the brain and will stand out on MRI. (*Id.* at PageID 15208.) The important point to keep in mind is that the MRI is a translation of numbers, not a picture that someone took with a camera. (*Id.*) The size of the voxels are defined ahead of time, and scientists know how many voxels in each brain will be gray matter, white matter, and fluid to the precision of a milliliter. (*Id.*)

On the significance of the relationship between brain volume and behavior, the principle is "[t]he bigger [the] brain, the more you can do with it." (*Id.* at PageID 15210.) According to Gur, that principle applies to all regions of the brain "by and large." (*Id.*)

Christos Davatzikos at the University of Pennsylvania assisted Gur with his analysis. (*Id.* at PageID 15212; *see infra* Part IV.J.) Davatzikos' report was used to analyze the MRI. (*Id.* at PageID 15212–15213; *see* ECF No. 448-8.) Gur testified that he also analyzed the MRI data himself, explaining that with an MRI, the volume of gray matter, white matter, and cerebral spinal for the whole brain can be determined. (ECF No. 428 at PageID 15213.) The gray matter is the tissue that consists of the neurons themselves. (*Id.*) The white matter consists of the fibers that come out of the neurons and are myelinated surrounded with fat which looks white. (*Id.* at PageID 15213-15214.)

Gur testified that he determined the whole brain volume based on the numbers that come from the MRI. (*Id.* at PageID 15214.) To determine the volume of regions within the MRI, a 3D atlas—a regular MRI of a normal healthy person—is used, but the expert neuroanatomist has gone over it and labeled each voxel in terms of which region it belongs. (*Id.*) The atlas describes that normal person's brain perfectly. (*Id.*) Davatzikos developed a warping algorithm to describe

other brains. (*Id.*) "Essentially, you take Mr. Cone's MRI, you put it on top of the atlas, and then you warp the atlas to fit Mr. Cone's brain, but you record carefully each voxel, how much you had to expand it or to constrict it in order to fit Mr. Cone." (*Id.* at PageID 15214–15215.) The process has been done on hundreds of healthy people with different disorders, and now we know what is the normal average size volume for each of those regions. (*Id.*) There's a standard set of 95 regions that are looked at by this atlas. (*Id.*)

Gur conducted a volumetric analysis of the MRI of Cone's brain. The analysis consists of calculating the volume of each brain structure, comparing it to what is normal for that structure and then coming up with a Z-score. (*Id.* at PageID 15219; *see* ECF No. 448- 2 at PageID 16380.) He testified that the analysis is highly reliable, published, and widely available. (ECF No. 436 at PageID 15932.) Gur testified that overall Cone's brain looks like it is in the average range. (ECF No. 428 at PageID 15220.) The frontal lobe, however, is reduced in both sides. (*Id.*) The parietal lobe is reduced more on the right than the left. (*Id.*) The limbic lobe is reduced more on the left than on the right. (*Id.)*

Gur explained that the brain is floating in fluid. (*Id.* at PageID 15221.) The fluid that surrounds the brain is called sulcal fluid, and the fluid inside the brain is called ventricular CSF (cerebrospinal fluid). (*Id.*) When the ventricles are big, there is a lack of tissue where there should be tissue from either atrophy or dystrophy. (*Id.*) Atrophy means the tissue was there, but it has died. (*Id.*) Dystrophy means that the tissue never materialized or was created. (*Id.*) Gur testified that an MRI cannot distinguish atrophy and dystrophy. An MRI, however, allows observation of the volume of ventricles and a determination of whether the volume is in the normal range. (*Id.*) Gur found that Cone's ventricles are normal overall except for the inferior ventricles, the lower ones where his right ventricle is almost two standard deviations bigger than

normal. (*Id.*) With ventricles, higher Z-scores indicate more fluid in the brain. (*Id.* at PageID 15222.) Gur explained that "when a brain cell dies, its place is taken up by fluid." (*Id.*) Gur explained the relationship between the size of the right ventricle and lower volume in the frontal and parietal lobes:

> The ventricles would be more affected by damage in midline structures than by damage in cortex . . . . [I]t is not just simply a function of reduced volume in those cortical regions. It's probably some other structures that are deep in the brain that died, [or] parts of them died. We can't really tell from the ventricle which structures were involved.

(*Id.*)

Gur testified that the anterior insula and the interior capsule, regions around the inferior ventricle, were found to be in the "clinically significant" range. (*Id.* at PageID 15223.) Specifically, the entire frontal region—frontal pole, anterior orbital frontal, posterior orbital frontal, precentral—are markedly reduced by volume on the right and the precentral seems to have bilateral reduction. (*Id.* at PageID 15224.) Gur explained that the post-central is the beginning of the parietal lobe, the superior parietal lobule, the supra marginal gyrus and the precuneus; these are parietal structures and showed reduced volume on the right. (*Id.*) Gur testified that these findings are consistent with the neuropsychological measures. (*Id.*) Gur explained that a person with reduced volume in the supramarginal gyrus and the precuneus on the right side would be vulnerable to dissociative experiences. (*Id.*)

Gur also observed that the findings in the interior cingulate gyrus are "down on the left more than the right" and tend toward a finding of a head injury "because of the twist[ing]" in midline structures. (*Id.* at PageID 15225.) Gur explained that more damage would be reflected "on the side that is opposite the side where you were hit." (*Id.*) Gur indicated that Cone's abnormalities likely occurred from a blunt head injury to the back of the head on the right. (*Id.* at

PageID 15308.) According to Gur, the effect of the abnormalities on Cone's behavior would be the same, regardless of their cause. (*Id.* at PageID 15321.) Gur acknowledged that he had been provided no history of a head injury and was not "willing to say as a matter of fact that it was" head injury; although, "from the pattern, it looks like a head injury." (*Id.* at PageID 15308-15309, 15321-15322.)

Gur expressed concern about the reduced volume in the anterior cingulate, the part of the brain that makes decisions and resolves conflicts. (*Id.* at PageID 15225.) Gur testified that "damage in the singulate would lead to bad decision-making, especially the anterior cingulate." (*Id.*) Gur was also concerned with the reduced volume in the hippocampus and parahippocampal gyrus, which are parts of the limbic system and relate to memory. (*Id.*) Overall, Gur concluded:

> [T]here's clearly reduced volume that is lateralized to the right, mostly in the cortex, and lateralized more to the left in midline structures, and . . . it's abnormal, especially hippocampus, parahippocampal, gyrus cingulate, these are whole values. The whole limbic system has low volume.

(*Id.* at PageID 15225-15226.)

Gur explained what it meant to be "clinically significant" as far his volumetric analysis:

> Well, across medicine and definitely in neuropsychological practice where things are laid out quite clearly, if you have any function that is more than one standard deviation below your average, for example, if you're getting older, and you notice your memory is not as good as it used to be, and you know that memory goes down with age, but you don't know is this normal for my age or is this maybe I'm headed towards Alzheimer's disease or some other dementia, you will go to a neuropsychologist and the neuropsychologist will give you a battery of tests similar to what Mr. Cone received, and if any of your scores is more than one standard deviation lower than your own average, depending on which domain he's measured, you will get the classification of mild cognitive impairment.

(*Id.* at PageID 15226.) Gur also described the difference between what is "clinically significant" and what is "abnormal." (*Id.* at PageID 15227.)

> Clinical significance is from the clinical practice. Abnormal . . . more

> incorporates statistical considerations. So if you go—an example that everybody may be familiar with, if you go to your checkup and it turns out that your blood pressure is normal, but sort of at the high end of normal, given that everything else is good, your doctor will send you for an echocardiogram. Even though your blood pressure is not strictly speaking abnormal, but it is at the high end of normal, it's one standard deviation, a bit over one standard deviation above average, you will get an echocardiogram because that's clinically significant. And you go to the echocardiogram, and it comes back your heart is a bit large, it's still normal size, but large on the large end of normal, a good cardiologist will put you on anti—on blood pressure medication for the rest of your life because it looks like the heart is beginning to adjust to the high blood pressure and increases its size. So clinical significance is something that you do in the context of the whole picture. If I had somebody with average IQ or overall and they did nine on the digit span, I wouldn't worry about it, but somebody comes in with a 16 in information and nine on the digit span, that's clinically significant.

(*Id.* at PageID 15227-15228.)

According to Gur, a cluster of low Z-scores in a cluster of regions that are adjacent to each other "makes sense" in the context of neuropsychological testing that shows cognitive deficits in exactly the functions that relate to these regions. (*Id.*) With Cone's MRI, the cluster of problems can "easily be classified as frontal abnormalities, parietal abnormalities on the right side and limbic abnormalities mostly on the left." (*Id.*)

With regard to Carolyn Meltzer's critique of the use of Z-scores that are above negative two and whether it would have a significant impact on behavior, *see infra* Part IV.G, Gur testified:

> I think she is confusing clinical decision-making with statistical decision-making. If you do an experiment and you want to prove that one group is different from another group, then the criterion of -- well, it's not exactly two standard deviations, but depends on if you have [a] hypothesis on the direction of the difference, then something like 1.6, 1.7 standard deviations will be statistically significant, which is closer to two than to one. But in clinical decision-making, one standard deviation is your guidance to probe further and see -- because that could be clinically significant, and you're supposed to follow it up. If she were practicing the way she's saying, then she would be covered with lawsuits very quickly, because she would pass a lot of people with mild cognitive impairment as being fine.

(*Id.* at PageID 15229.) Gur stated that across all measures, a Z-score of worse than minus 1 is

clinically significant, and "you need to pay attention to it." (*Id.* at PageID 15230.)

With regard to Meltzer's conclusion that Cone's MRI is normal, Gur testified:

> I don't necessarily disagree with her statement that a neuroradiologist doing a visual inspection of the MRI would conclude that these are normal. In fact, most studies that look at the facts of issues such as head injury or major neuropsychiatric disorders will only include subjects that were read by a neuropsychologist as normal, because otherwise there could be a tumor, there could be a stroke, there could be all sorts of other things that could confound the measurement. Had she identified an abnormality that you can see with your eyes, we probably would not have been able to do the volumetric analysis without additional exercises, manual intervention because we had to -- we would have to tell the program that this is a tumor, this is not another lobe that you're trying to fit into, it's something else.

(*Id.* at PageID 15230-15231.) On cross-examination, he stated, "I don't disagree with her that if you eyeball the MRI, it's basically normal." (*Id.* at PageID 15302.) Gur disagrees with Meltzer's conclusion that Cone had no clinically significant neurologic impairment. (*Id.*)

Gur described the difference between a clinical reading of a MRI and the volumetric reading that he performed:

> A clinical reading of an MRI is done to rule out things that you can see with your naked eye . . . that could possibly kill you.
> . . .
>
> Such as a tumor, such as stroke, such as multiple sclerosis. These are the main things . . . , and there are other findings that you can see with your naked eye. Usually, we classify them as incidental findings. There could be a cyst, there could be—sometimes the cerebellum sinks into a space behind it, and that can cause some problems. Those kind of things you can see with your naked eye.

(*Id.* at PageID 15231.)

Gur testified that clinicians do not conduct a quantitative assessment of MRI without first having a clinical reading from a neurologist. (*Id.* at PageID 15301, 15233-15234.) Gur testified on cross-examination that he does not know if Robert Kessler, the nuclear medicine physician who conducted the MRI and PET examinations for Cone, prepared a clinical report for a reading of the

exams, but usually the institution likes to have a clinical report "to cover themselves." (*Id*. at PageID 15301-15302.)[22] Gur did not discuss these examinations with Kessler. (*Id.* at PageID 15302.)

Gur testified that a clinical interpretation or a visual inspection is not a quantification of brain volume. (*Id.* at PageID 15231-15232.) Gur stated:

> The same way in the brain, if all the damage happens in one spot, then that spot will be abnormal, it will be filled with fluids, and you will see a fluid where you think there should be brain. That's what you see in stroke. After a[ ]while, the tissue dies, and its place is taken up by fluid and you can see it. If there is blood collection acutely right after a head injury, you can see that, because that's fluid, and it's in one spot, you can see it. But within a few months, that blood spot will disappear, will get absorbed in the brain, and you look at the brain of somebody who suffered even severe traumatic brain injury, and it looks normal, and the neuroradiologist will read it as normal and should read it as normal because they can't see the damage, it's not in one spot. That's why there is quantification, and there have been literally hundreds of studies, in, for example, TBI, traumatic brain injury, I mean that's one of the problems that is facing our returning veterans, and that's part of what I'm dealing with in the VA at Philadelphia, they—they suffered blast injury or their vehicle turned around and they got a head injury, and they experience deterioration in their life, they start fighting with everybody, they get home, they can't get along with their children, with their wife, they begin to drink, they begin to gamble, they begin to deteriorate, and they say all this happened after this blast. They go get an MRI, and the MRI is read as normal, and they say, no, it's all in your head, there's nothing wrong. And now there is a big effort throughout the VA to use quantitative MRI in order to identify those abnormalities. And in study after study, they—they show that those abnormalities can be clearly documented quantitatively, and the first studies like that that came out listed the clinical reading of the MRIs, and almost in all of them, all the MRIs in that study were read as normal. Now, people don't even bother to mention what the clinical reading is because it's accepted that it is useless for that kind of damage.

(*Id.* at PageID 15232-15233.) Gur testified that clinical MRI readings do not get to the subtleties that a quantitative study does. (*Id.* at PageID 15233.)

[22] Meltzer agreed that it would be quite unusual for Kessler to not have produced a clinical report. (ECF No. 426 at PageID 14990.)

6. Positron Emission Tomography

Gur testified that positron emission tomography ("PET") looks at brain structure by looking at the rate of glucose uptake in the brain. (*Id.* at PageID 15234.) Gur stated that "you generate a synthetic molecule that looks like sugar" called 2-deoxyglucose. (*Id.* at PageID 15235.) The deoxyglucose molecule can take another substance called a positron emitter know as fluorine-18, which has only one electron for every 18 positively charged particles. (*Id.*) Because there are 17 positively charged particles with nothing to bind them, they scatter. The deoxyglucose is mixed with fluorine-18 and injected into the vein and goes into the brain. (*Id.*) The deoxyglucose fluorine-18 mixture goes into the brain after about one half hour. (*Id.*) It does not metabolize and stays stuck in the cell for a long time. (*Id.*) At that point, the positrons begin to scatter. (*Id.* at PageID 15235-15236.) When a positron finds an electron, they attract, collide, and annihilate each other creating a little explosion that emits two light particles which travel exactly 180 degrees away from each other. (*Id.* at PageID 15236.) The patient's head is surrounded with crystals that are sensitive to the light when those explosions occur. (*Id.*) The PET scanner can detect coincidental hits and "reconstruct a picture that tells you how much sugar" was metabolized in each part of the brain. (*Id.*) Gur explained:

> [E]very time a brain cell fires, it is exhausted, it can't fire for a[ ]while until it gets new energy, and it gets the energy by taking sugar and oxygen from the blood and burning them to be able to do another pass. The blood stream brings the sugar and the oxygen to the cell. Now, as a result of metabolism breaking down the sugar, those by-products of metabolism are toxic, they are called free radicals and glutamates, and they will attack the cell and kill it. So they need to be taken away, and that's also done by the blood stream. So the bloodstream brings the food to the neuron and takes away the garbage. If—in general, with MRI, I mentioned that the more the merrier. With glucose metabolism, very high glucose metabolism is as bad as very low glucose metabolism.
>
> . . . .

> Because high glucose produces toxicity, and if the blood supply is inadequate, there will be damage to the brain. This is how epilepsy occurs, this is how seizure disorders occur. As I mentioned in the limbic system, the cells are very big and so they have huge metabolic demands, and if the blood supply is not enough and you have some damage and the amygdala gets excited easily, that's a dangerous situation that is known as kindling, and you can deteriorate over time.

(*Id.* at PageID 15236-15237.)

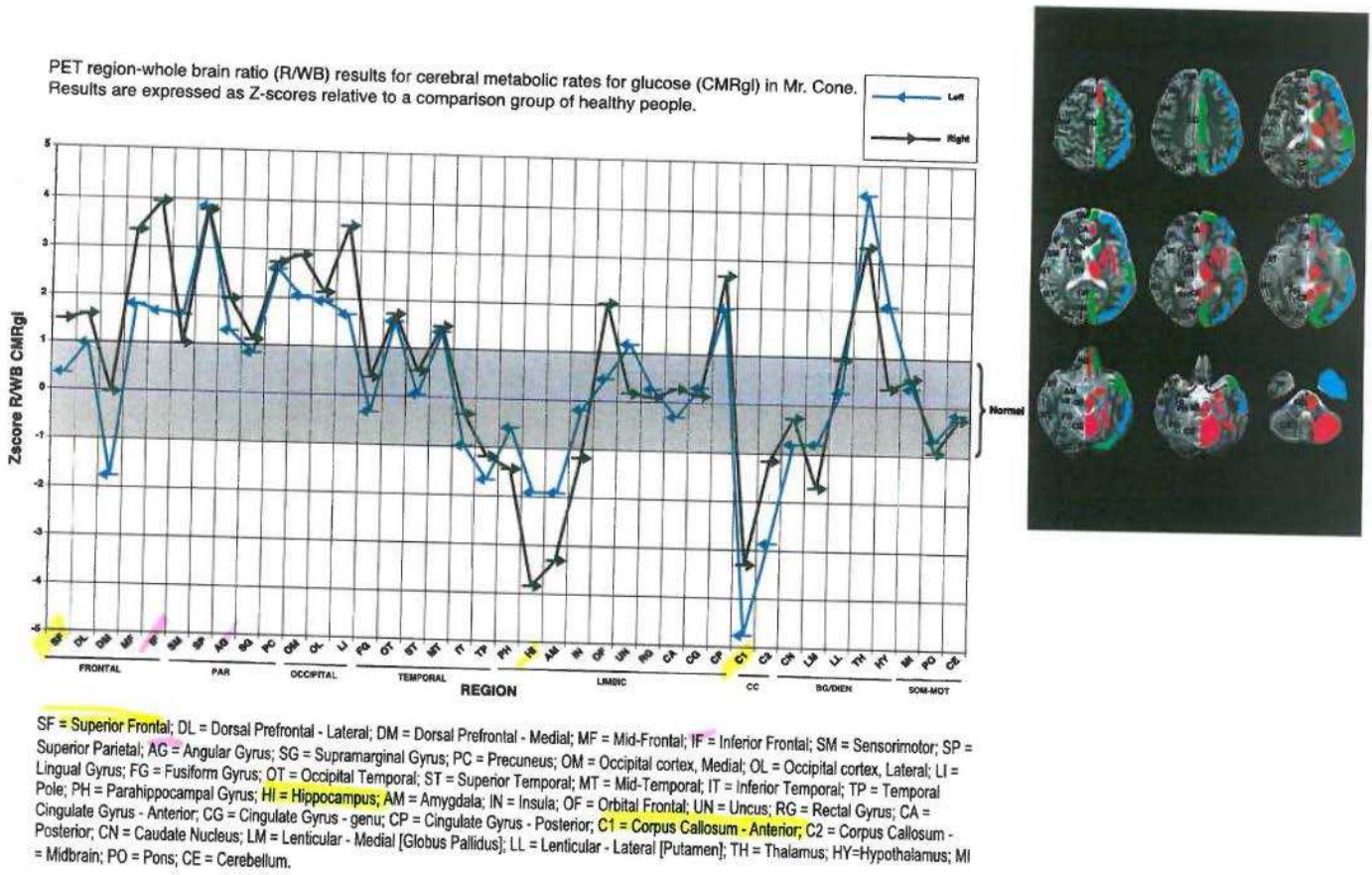
Gur explained some of the PET images of Cone's brain:

> This is an image produced by the PET procedure, and like MRI, this one was painted by the computer dot-by-dot except the dots are much bigger. With MRI, we have resolution of one-by-one-by-one millimeters. With a PET, you can't get that resolution, because as I mentioned, a positron will travel about three millimeters before it will [] collide with an electron, so if you put one dot in the middle of an MRI scanner, you put a dot that is one millimeter in diameter, you will see that dot. If you put the same dot in a PET scanner, you will see almost a tennis ball because the resolution of the PET is about four to six millimeters, so every dot is really -- averages a larger volume. So it looks like it is anatomic, but it doesn't really tell you the anatomy, and that's why you need the MRI in order to know where you are in the brain in order to quantify.

(*Id.* at PageID 15237-15238; *see* ECF No. 448-2 at PageID 16383.)

Gur then addressed Andrew Newberg's report, *see infra* Part IV.I. (ECF No. 428 at PageID 15242; *see* ECF No. 448-9.) Gur simply calculated the Z-scores based on the information that Newberg gave him and then arranged the regions left and right in a logical order and displayed them on the graph. (ECF No. 428 at PageID 15244.)

Gur then explained his graphical representation of Cone's PET:



(*See* ECF No. 448-2 at PageID 16384.) The nine brain slices to the right of the graph represent regions of interest in the brain. (ECF No. 428 at PageID 15244.) The vertical axis of the graph charts the Z-scores, "and the horizontal axis has the brain regions from frontal, parietal, occipital, temporal, then the limbic, then corpus callosum, then basal ganglia and diencephalon, that's the striatal brain, and then the somatomotor region." (*Id.* at PageID 15244-15245.) "[T]he blue lines pointing to the left" represent the left hemisphere, and the "[g]reen lines, arrows pointing to the right" represent the right hemisphere. (*Id.* at PageID 15245.) Gur testified that

> what you can see is that the two striking patterns are increased metabolism in frontal and parietal areas, and these increases are especially pronounced on the right, so the same part of the brain that has tissue lost is over-activated as if—well, I mean, usually we see that as compensatory activation because the tissue that's

> there has to work harder in order to do the same job, and at the same time, you see quite marked hypometabolism in major limbic regions that include the hippocampus here and the amygdala where there is significant clear reduced metabolism, up to four standard deviations below normal. This magnitude, we—is substantial, and we see that in seizure disorder patients.

(*Id.* at PageID 15245.)

According to Gur, the significant reduced metabolism in the amygdala is "severely abnormal" and the reduced metabolism in the corpus callosum is "very abnormal." (*Id.*) Gur explained that C1 reflects the front of the corpus callosum with a Z-score of negative five, which is very rare and that the abnormality is especially bad in the frontal part of the corpus callosum which connects between the two frontal lobes. (*Id.* at PageID 15246.) According to Gur, Cone's brain is a "bit less abnormal" in the back of the corpus callosum, but is still three standard deviations lower than normal on the left side. (*Id.*)[23]

Gur observed that Newberg also commented on the high metabolism in the thalamus and hypothalamus, on the left, which are part of the reward system. (*Id.*) Gur testified that Cone's reward system is "hypercharged." (*Id.*) Gur testified that if Cone is facing a challenge or a situation where he needs to solve something, "his emotional brain will shoot up and his thinking brain that is already working overdrive during rest will shoot down, which is a situation that would lead to problems." (*Id.* at PageID 15247.)

In summary, Gur described four major findings from the PET:

1. Hypermetabolism in cortical regions, in the thinking brain;

[23] Gur disagreed with Meltzer's assertion that it would be difficult to measure metabolism in the corpus callosum. (ECF No. 436 at PageID 15932.) Gur testified that the corpus callosum consists only of white matter, and the regions of interest that were used were solidly inside the corpus callosum. (*Id.* at PageID 15932-15933.) He acknowledged that metabolism in white matter is much lower than in gray matter, about four to one, but asserted that metabolism in white matter can be measured reliably. (*Id.* at PageID 15933, 15937-15939.)

2. Hypometabolism in the emotional brain;

3. Hypometabolism in the corpus callosum; and

4. Hypermetabolism in the reward system.

(*Id.)* He testified that those finding are consistent with the neuropsychological tests and the MRI in the sense that cortical abnormalities are more in the right hemisphere. (*Id.*) The MRI and PET are consistent because the MRI shows abnormalities of volume in the same regions where we have abnormal metabolism. (*Id.* at PageID 15247-15248.) Gur stated that all of the regions that are hypermetabolic are part of the thinking brain, and the hypometabolic regions are part of the emotional brain. (*Id.* at PageID 15248.) He stated that people with this type of PET scan finding should be concerned with a seizure disorder. (*Id.*) If there's no seizure disorder, the amygdala is excitable, and "you would expect [the person] to have outbursts that are difficult for them to control." (*Id.*)

In terms of determining what may have been known or ascertainable about Cone in 1980, Gur stated:

> Well, I'm exactly convinced that the competent neuropsychologist in 1980 who would see the test results of Dr. Ryan would recommend further testing and conclude just on the basis of this testing that there is a high likelihood of brain damage. We did have PET scans back in 1980. We published already in 1981 a paper in Science, and by 1982, '83, PET scan was quite common. So PET scan and the method of analysis would be same. I didn't use any new fancy methods for the PET analysis, these methods have been established for some time, maybe not exactly this pattern of regions of interest, but we could make regions of interest and calculate metabolism. It would take more time, and those PET scanners back then, we would have to take one or—well, up to three slices at the time, so they would take longer, he would have to sit in the scanner for half an hour rather than for 16 minutes, but you get the same information with about the same resolution. The resolution was a bit worse back then, but you could still easily quantify all these regions that we look at here.

(*Id.* at PageID 15249-15250.) Gur testified that he could have done a PET analysis in 1982, and

certain other doctors at the UCLA group, Brookhaven National Laboratory, and Johns Hopkins could have done so as well. (*Id.* at PageID 15250.)

Gur conceded that there were no MRIs in 1980, but testified that a CT scan could have been used. (*Id.* at PageID 15250.) A person using a CT scan quantitatively "would look at the width of the frontal lobe on the left and on the right and could have detected the reduced volume on the right frontal lobe." (*Id.*) According to Gur, the CT scan "would have picked up on the damage in the other frontal regions," other than around the orbital bone, and on the ventricle enlargement. (*Id.* at PageID 15250-15251.) Based on the CT scan, therefore, anatomical and physiological findings could have been made and a conclusion reached regarding brain damage. (*Id.* at PageID 15251.) No CT scan was done in Cone's case. (*Id.* at PageID 15300.)

Gur summarized all of his findings:

> Well, the brain damage is mostly affecting the right hemisphere cortex, and is present in the frontal area, especially orbital frontal and in the parietal area, including the supramarginal gyrus and the precuneus. Subcortically, the damage is more in the left side and affects both hippocampus and amygdala which are key structures both for memory and for regulating emotions.
>
> . . . .
>
> And these structures have both reduced volume and abnormally low metabolism. They're not picked up by the behavioral image or by the neuropsychological testing, but they can still exert major influence on behavior, not on your thinking behavior, but emotional behavior.

(*Id.* at PageID 15251-15252.)

Gur testified regarding the amygdala and hippocampus response in stressful situations:

> So stressful situations, they affect—the amygdala will respond to that, but stress affects hippocampus in a major way. There is evidence that, for example, if you compare veterans who suffer from posttraumatic stress disorder to those who were in the same situation and did not suffer posttraumatic stress disorder, then significantly the hippocampi will be smaller in those who suffered PTSD. Now, there is some debate in the human literature what causes what. Is it that people

> who have small hippocampi are more vulnerable to the effects of stress, or is it that the stress actually reduced volume of hippocampus, which can be done through the process of kindling that I just described. And there are some animal studies that indicate that that is actually the direction of consolidated, the more stress you experience, the more the hippocampus will be smaller. You can't do those studies in humans, but in mice you can raise them up under stress, and the usual stress that is used every day, you hang them by the tail, you hold them by the tail like that, it's very stressful for them. You do that for ten minutes a day, and then you look at the volume of the brain, and the mice that were treated that way will have significantly smaller hippocampi when they grow up than the little mates who were not treated with that stress.

(*Id.* at PageID 15252-15253.) In reviewing the Memphis Mental Health Center ("MMHI") records, Gur stated that Cleopatra Todd's break for the door could have triggered a threat response in Cone's amygdala. (ECF No. 436 at PageID 15941.)

Gur stated that Cone's hippocampi abnormalities "very much could relate to posttraumatic stress especially, at least that's the regions where stress has been clearly documented to produce damage." (ECF No. 428 at PageID 15253.) He indicated that some tests have shown that PTSD could be related to hippocampal abnormalities and memory function. (*Id.* at PageID 15254, 15256.)

With regard to whether Gur's findings indicate susceptibility to a dissociative state, Gur testified that a dissociative state is related to the precuneus and right parietal damage. (*Id.* at PageID 15256, 15259.) "People with damage in that region are vulnerable to dissociative experiences which means they can—in an extreme case, they can find themselves in a different city, they have been there and they can't remember how they got there." (*Id.* at PageID 15259.) In less severe cases individuals do complex things and do not realize that they are doing them. (*Id.*)

Gur was directed to Eichert's report and the statement that Cone remembered the robbery but it was like "a bad dream." (*Id.* at PageID 15263; *see* ECF 448-10.) Gur stated that he saw

two links between Eichert's description and his findings about Cone's brain damage: (1) "partly because of the abnormalities, the drug craving was more severe in his case, especially when you see hypothalamus being hyperactive"; and (2) "more importantly, that description is what you hear from people who suffer dissociative states . . . and is consistent with precuneus damage." (ECF No. 428 at PageID 15263-15264.)

Gur was asked about Meltzer's findings on the PET scan of: (1) mild interior temporal lobe hypometabolism; and (2) a possible mild overall hypometabolism in the cerebral cortex. (*Id.* at PageID 15264-15265.) Gur testified:

> I don't think she read that PET scan very well. I mean the anterior temporal lobe she could have seen as the reduced amygdala metabolism, she might have interpreted it that way, but I can't second-guess what she—the cortical hypometabolism exists in a couple of regions, but mostly the cortex is hypermetabolic. The point is that when you look at it visually you can't really tell because what the visual scan does, it takes the highest value, makes it flaming yellow, and the lowest value makes it deep blue, and you look at the colors and it's impossible to tell whether the cortex is hypermetabolic relative to subcortical areas or the subcortical areas hypometabolic relative to cortex. That's the only way I can explain why she read it that way. I mean the anterior—yeah, the anterior left temporal could be reduced, but it's not quite as reduced as the amygdala. If you look at the PET scan, the amygdala is almost not there.

(*Id.* at PageID 15265.)

Gur testified that Ryan's WAIS results in 1981 and Watson's results were very consistent and noted that the scores are exactly the same if adjusted for the Flynn Effect. (*Id.* at PageID 15266-15267.)[24] According to Gur, on both tests, Cone had "higher verbal than performance"

[24] "The Flynn Effect is a phenomenon named for James R. Flynn, who discovered that the population's mean IQ score rises over time, by about a third of a point each year. According to Flynn, if an individual's test score is measured against a mean of a population sample from prior years, then that individual's score will be inflated in varying degrees . . . ." *United States v. Candelario-Santana*, 916 F. Supp. 2d 191, 207 (D.P.R. 2013). Several federal courts have recently examined the Flynn Effect, and many have declined to apply it. *Id.* at 207-08 (collecting cases). Gur acknowledged that the Flynn Effect "is a point of contention." (ECF No. 428 at

scores, "deficits in functioning related to the dorsolateral prefrontal cortex, the lower score on the digit span compared to the other verbal scores, and generally the lower score of the right hemispheric related functions." (*Id.* at PageID 15270-15271; *see* ECF No. 436 at PageID 15929.)[25] Gur testified that this indicates that whatever we see now in Cone was present back in 1980, and that there was no indication of malingering on any of the tests. (ECF No. 428 at PageID 15271, 15273-15274.)

Gur was asked what specific behavior in the commission of the crime would be attributed to brain damage. (*Id.* at PageID 15310.) He testified that the crime seemed "poorly planned, that he seems to have beaten the old couple much more than was necessary. I would wonder as to whether some perse[ver]ation happened, that once he started, he just kept going." (*Id.*) On cross-examination, Gur recalled that in Cone's encounter with police, "again he had similar situation where once he started shooting, he didn't stop, even after he ran out of bullets." (*Id.* at PageID 15310-15311.) Gur also recalled that Cone "snapped his pistol several times, his ammunition having been exhausted." (*Id.* at PageID 15311.) Gur believed these actions to be a sign of perseveration. (*Id.* at PageID 15311-15312.) On direct, Gur testified that the fact that Cone's beating of the Todds and inability to stop himself was a sign of perseveration. (ECF No. 436 at PageID 15942-15943.)

PageID 15267.)

[25] Gur testified that the test results that indicate brain damage in specific regions are (1) the low scaled score on the digit span test relative to his high information score for the dorsolateral prefrontal lobe, (2) the reduced scores on the performance subscale of the WAIS compared to the verbal subscale for right hemispheres, (3) the scores on the Stroop color test for frontal lobe, (4) the graphesthesia and tactile suppressions scores for the right hemisphere posterior region, (5) the scores on the TPT and Judgment of Line Orientation Rotation relative to Cone's average for right hemisphere posterior, and (6) the difference in scores between digit forward and digit backward for frontal lobe. (ECF No. 436 at PageID 15929-15930.)

When asked on cross-examination about the poor planning, Gur stated, "it looks like once he got started, he—he never stopped himself to figure out—I mean the planning was poor." (ECF No. 428 at PageID 15312; *see* ECF No. 436 at PageID 15942-15943.) Gur stated that a person should "commit the robbery in a way that you won't be discovered." (ECF No. 428 at PageID 15312.) Gur acknowledged that Cone had successfully executed armed robberies to finance his college education, but he stated, "Well, you know, somebody with his intelligence, I would expect even if you're caught in the robbery you're not going to make your situation worse by shooting police officers, by committing more crimes. . . . It looks chaotic." (*Id.* at PageID 15312-15313.) Gur stated that "[s]omebody like that with that level of intelligence would probably not even commit those crimes. . . . He would make a lot more money if he went to law school and was doing what you're doing now." (*Id.* at PageID 15313.) Gur also noted Cone's impulsivity and lack of planning by the going into the Todds' house before finding out if someone was inside. (ECF No. 436 at PageID 15940-15941.)

Gur found no relevance in Cone's statement to the Oklahoma Parole Board that when he left Vietnam, Cone thought his country owed him a living, that he took what he wanted, and that greed is what caused him to go to the Oklahoma penitentiary. (*Id.* at PageID 15313.) Gur was not aware that Cone indicated to Hutson and his staff that Cone "thought his country owed him a living"; "was lazy and had no work ethic"; "had an issue with greed"; committed robberies "when he couldn't support himself the way he wanted"; and "wished he had been born rich." (*Id.* at PageID 15313-15314.) Gur responded "that doesn't seem to me like somebody with almost genius of IQ,[[26]] that's not how they think." (*Id.*)

[26] A WAIS score of 130 and above is classified as "very superior." David Wechsler, *The Measurement and Appraisal of Adult Intelligence* 42 (The Williams & Wilkins Co. 1958).

When asked questions about Cone's attitude, Gur testified:

Q. Some people think that if a person is lazy and they want to have a good standard of living, they can either work or they can take it from somebody else, that's what he said that he did.

A. Yeah, but I think—

Q. Is that what he said he did?

A. I think—

Q. If I'm telling you those things, you don't have reason to disagree with me, right?

A. Right.

Q. Is that fair?

A. Yes, it's fair. I mean some people are like that, yes.

Q. And if he went into this elderly couple's house and they panicked, and they're standing between him and going back to the penitentiary again, you know, what are his choices at that point? If they're trying to run out and they have identified him as a person who has broken into their house who has just robbed a jewelry store and just shot a police officer, what are his choices?

A. His probably best choice would be to surrender because he's only making his situation worse.

Q. You were aware that he changed his clothes after the robbery?

A. Yes.

Q. And changed his appearance?

A. Yes.

Q. Shaved his beard, cut his hair, traveled to Key West, you're aware of that?

A. Yes.

Cone's full scale IQ was 111, which falls in the high average range and about the 77th percentile range of the population. (ECF No. 439 at PageID 16089-16090.)

Q. Stayed with a friend. Were you aware of these things?

A. Yes.

Q. Got a fake driver's license?

A. Uh-huh.

Q. Took a driver's test, got a fake driver's license. Did he get -- do you know if he got it in his own name?

A. If what?

Q. If he got the driver's license in his own name, do you know if he did that?

A. No, I don't. He did not?

Q. He got it in an assumed name.

A. Okay.

Q. Do you know why a person would do that?

A. Do I?

Q. Do you know why a person would run, go to Key West after they just committed the murder of an elderly couple in Memphis?

A. In order to escape.

(ECF No. 428 at PageID 15314-15316.)

Gur described the heat, rage, stress, and the lack of food and water that Cone experienced after the jewelry store robbery and before the murders as signs of frontal lobe damage. (*Id.* at PageID 15323-15324.) Gur testified that, under physical duress, a person with brain damage is more likely to not have the wherewithal to control their behavior. (*Id.*) He testified that the description in the MMHI notes indicate that Cone lacked the capacity to control his behavior at the time of the offense. (ECF No. 436 at PageID 15943.)

7. Credibility Issues

As discussed above, Gur testified that he had performed "[p]robably between 70 and 100" forensic evaluations in criminal cases, all but one of which were on behalf of the defense. (ECF No. 428 at PageID 15276.) Approximately two-thirds of his cases were capital cases. (*Id.*) In forming his opinion in the instant matter, Gur never met or spoke with Cone. (*Id.* at PageID 15277.) At the time that Gur wrote his report, he had reviewed only Dr. Watson's neurological testing, Dr. Davatzikos' report, and Dr. Newberg's report. (*Id.* at PageID 15278-15279.) Gur received Dr. Ryan's report "shortly after [he had] prepared the first draft of [his] report" and did not refer to it or consider it as a basis for any of his opinions at that time. (*Id.* at PageID 15279-15280.) Gur did incorporate the reports by Dr. Ryan and the reports of the other individuals who evaluated Cone in the 1980s in a supplemental report. (*Id.* at PageID 15281.)

The cross-examination of Gur focused on whether any psychologist or psychiatrist described brain damage in 1980-1982 and what testing was possible at that time. Gur acknowledged that "the quantitative analysis that [he] did in Mr. Cone's case didn't exist between '80 and '82." (*Id.* at PageID 15298.) Moreover, despite Gur's contention that he could have performed a PET scan in 1982 and statement that a "competent neuropsychologist" would have recommended such testing after reviewing Ryan's report, (*id.* at PageID 15249), Gur admitted on cross-examination that PET analysis was primarily a research tool in 1980-1982, and its clinical application related mostly to epilepsy and stroke. (*Id.* at PageID 15299.) According to Gur, by 1982, there were only about ten PET centers in the United States. (*Id.* at PageID 15300.)

Gur testified that, in his report, he stated that the etiology of Cone's abnormalities is difficult to determine and that it requires clinical evaluation and integration with history. (*Id.* at PageID 15303.) He agreed that the cause of Cone's abnormalities would be determined by an

evaluation of the patient including information about their birth, growth, head injuries, and drug use. (*Id.*) A clinician would review more records, "[m]aybe do more testing, and probably also talk to the person [to] get . . . a sense of whether they suffer from [brain damage or not]." (*Id.* at PageID15303-15304.) Significantly, Gur did not perform a clinical evaluation and integration of history for Cone. (*Id.* at PageID 15304.)

Gur admitted that neither Ryan nor Stillman indicated in their report that Cone had brain damage. With respect to Ryan, Gur stated:

> I don't think that he actually says that -- I don't recall, but I don't think that he says at any point that he has brain damage. He's not a neuropsychologist. He's describing phenomena that are seen with brain damage, but I don't think he labeled -- I don't think he reached the conclusion that he has brain damage. He raised a lot of questions.

(*Id.* at PageID 15305-15306.)

Gur likewise admitted that there is nothing in Stillman's report that indicates Stillman thought Cone had brain damage. (*Id.* at PageID 15306.) Further, Gur acknowledged that neither Stillman nor Ryan suggested to Cone's Florida counsel that Cone be referred for neuropsychological testing or that neuroimaging studies be done. (*Id.*) Gur was not aware of any mental health professional or other expert from 1980-1982, who rendered an opinion that Cone suffered brain damage, or who recommended Cone undergo neuropsychological testing or neuroimaging. (*Id.* at PageID 15309.)

Despite Gur's opinion that Cone's abnormalities were most likely the result of "a blunt head injury probably to the back of the head on the right," Gur acknowledged that he had not been provided any history of head trauma. (*Id.* at PageID 15308-15309.)

Moreover, although Gur opined that the Florida robbery seemed poorly planned and that Cone's behavior indicated perseveration, Gur testified that he did not review any of the evidence

from the case. (*Id.* at PageID 15310-15312.) He read the description of the crime from the court opinion and looked at the appeal. (*Id.*)

Gur agreed that, even if it is assumed that the abnormalities that he identified in Cone existed at the time of the crime, "the results of Gur's evaluation don't predict . . . the effect, if any, . . . on [Cone's] behavior." (ECF No. 428 at PageID 15316.) He agreed that not all people who have deficits like Cone's purported deficits commit robbery and murder. (*Id.*) With regard to what Gur would expect to see in Cone's behavior while in prison, he stated, "[u]sually people with frontal lobe damage do very well in structured environment[s] where they don't have to make decisions, so I would have predicted that he will . . . be a model prisoner . . . [p]retty well adjusted. (*Id.* at PageID 15316-15317.) Gur said, "it's possible they would be prone to outbursts, but . . . those behaviors are more likely to occur when they have to make decisions, when they're under pressure, they have to worry about the future." (*Id.* at PageID 15317-15318.)

Considering Gur's testimony, and particularly, based on Gur's testimony regarding the Ryan and Stillman reports and the fact that many of the methods used or proposed by Gur were unavailable or in the very early stages of development in 1980-1982, the Court finds that Gur's conclusions are of little value. Moreover, the Court finds that the science used by Gur is somewhat unreliable and has limited probative value regarding whether Cone suffered brain damage and mental illness when he committed these offenses in 1980 and how that brain damage or mental illness affected his behavior as it related to the Todds' murder. The Court further notes that Gur did not review evidence of Cone's behavior from the Florida case, had no personal contact with Cone, did not conduct a clinical evaluation, has no knowledge of the etiology of his purported abnormalities, and admittedly cannot predict the effect of these abnormalities on Cone's behavior. Further, there is no objective evidence in the record indicating incidents of head trauma or brain

damage. The Court finds persuasive Meltzer's critique of Gur's work and opinion that Gur's method is imprecise. *See infra* pp. 145-151, 154. Although neuroimaging has some relevance, the translation of neuroimages to a single subject is particulary challenging. (*See* ECF No. 426 at PageID 15027-15029.) Notably, "[c]urrent brain imaging methods cannot readily determine whether a defendant knew right from wrong or maintained criminal intent or mens rea at the time of the criminal act." (*Id.* at PageID 15027-15028.)

F. Murray W. Smith, M.D. (Internal and Addiction Medicine Physician)

Murray Wilton Smith, a physician certified in internal and addiction medicine, testified on March 13, 2014. (ECF No. 434 at PageID 15517-15518.) He received his board certification in addiction medicine in 1987, the second year that the certification was available. (*Id.* at PageID 15519.) Smith is the associate medical director of Cumberland Heights substance abuse treatment centers in the Nashville area. (*Id.*) Smith evaluates, diagnoses, and treats addiction and the multiple physical complications of addiction, including disease of the heart, lung, kidney, and liver. (*Id.* at PageID 15520-15521.) He also conducts diagnostic evaluations to determine whether patients suffer from addictive disorders. (*Id.* at PageID 15521.) Smith was allowed to testify as a person who can offer opinion testimony related to addiction medicine. (*Id.* at PageID 15222-15523.)

Smith evaluated Cone to determine whether he suffered drug addiction prior to August 1980. (*Id.* at PageID 15223.) On September 10, 2013, Smith spent two and a half hours with Cone with the understanding that they would discuss Cone's life experiences up until August 1, 1980, that they would not discuss life events and experiences after August 1, 1980, and that Smith would prepare a report with his findings. (*Id.* at PageID 15223-15224.)

They "basically walked in [Cone's] footsteps from the time he was a child until August the 1st of 1980." (*Id.* at PageID 15224.) Cone reported that, at age 15, he started drinking with friends on weekends, and by age 17, he was drinking heavily on weekends and having "alcohol amnesia" or blackouts. (*Id.*) His father was very strict about not wanting him to be with certain friends and drinking, so Cone left Fort Campbell and went to Lake Village, Arkansas for his senior year of high school. (*Id.*) Cone graduated from high school with honors and went into the Army in 1966, serving three years until 1969. (*Id.*)

When in Vietnam, "as it was common among many of the Vietnam troops, [Cone] was smoking marijuana laced with opium on a nearly daily basis." (*Id.* at PageID 11524-15525.)[27] Cone had his first experience with amphetamines in Vietnam "as they were given to him to keep him alert doing duties while he was doing some watches and while he was doing some work, so not a steady regular use, but an intermittent supply." (*Id.* at PageID 15528.) Cone reported that he was in the supply department in the Army and shipped a supply of marijuana and opium to Arkansas by stuffing it into clothes. (*Id.* at PageID 15527.)

After Cone's military service, he enrolled in the University of Arkansas under the GI bill. (*Id.*) While at the University of Arkansas, Cone used marijuana and amphetamines on a regular basis, almost daily. (*Id.* at PageID 15527-15529.) Cone did very well in college, and the amphetamines may have benefitted him with his studies. (*Id.* at PageID 15528.) Smith testified that both amphetamines and marijuana are common on college campuses. (*Id.*) There is a term called "'cognitive enhancement' in that some people are taking amphetamines to make them more

[27] Smith testified that it was common for Vietnam troops to use marijuana laced with opium based on "talking to the people in the VA that had been in Vietnam, when I came back from the service in '67 at the Veterans Hospital in Nashville, plus the literature" from the American Journal of Medicine. (ECF No. 434 at PageID 15525.) Smith recalled from those articles that about thirty percent of troops smoked marijuana laced with opium. (*Id.* at PageID 15526.)

alert, more able to remember, more able to study, more able to perform in terms of academic success and cognitive enhancement." (*Id.*)

Cone was "certified for admission" to the University of Tulsa Law School beginning in August of 1970. Cone was convicted of robbery and spent seven and a half years (1972-1979) in an Oklahoma prison. (*Id.* at PageID 15529.) While in prison, Cone injected heroin for the first time. (*Id.*) He reported sporadic drug use in prison because of a limited supply. (*Id.*)

Cone got out of prison in November 1979. (*Id.*) He changed his behavior pattern to "robbing drug stores to obtain narcotics and stimulants, amphetamines," where previously he had robbed convenience stores for money to live on while in college. (*Id.* at PageID 15529-15530.) Cone did not give Smith specific numbers about the quantity of amphetamines and narcotics he used from 1979 to August 1980. (*Id.* at PageID 15530.)

Smith said that when he is examining a patient to determine whether the person is suffering from a drug addiction, he typically takes a history from the patient to determine the amount of drug use and the type of drugs. (*Id.* at PageID 15530.) Smith testified that he likes to validate the patient's history based on two parameters: (1) finding someone who has direct knowledge of the person's drug use; and (2) identifying the patterns of behavior that would be consistent with the patient's purported history of drug use. (*Id.* at PageID 15531.) Smith testified that it is very difficult to obtain personal knowledge of a person's drug use because "addiction is commonly done in secret and hiding, so it's not always very easy to find a person that actually has experienced the use of the drug by the addict in front of that person." (*Id.*) Smith testified that it is very common for experts in his field to rely on statements or written materials provided by law enforcement, defense attorneys, or others to validate a person's drug use. (*Id.*)

Smith reviewed Cone's records from prison, which stated that he was found to be in

possession of amphetamines and marijuana while in the prison, and materials supplied by Cone's sisters Rita and Ella Sue, his mother Valeree, and an Oklahoma prison inmate Jerry Pelley dated September 6, 2013. (*Id.* at PageID 15530-15532.) The transcript of Valeree Cone's testimony said that she was aware that he shipped marijuana and opium back from Vietnam. (*Id.* at PageID 15544.) Smith also reviewed a judgment from the circuit court in Arkansas about the authorities finding opium and marijuana that was shipped to Cone and that the charge was reduced to a misdemeanor and a fine to settle the case. (*Id*. at PageID 15544, 15558; *see* ECF No. 448-17.)

The summary of the interview with Rita Cone that Smith reviewed was dated August 27, 1990. (ECF No. 434 at PageID 15534-15535; *see* ECF No. 448-14.) The Rita Cone memorandum noted four occasions when she visited Cone in prison and believed that he was on drugs. (ECF No. 434 at PageID 15536.) She saw Cone "only as being altered and felt that it was drug alteration, that he was under the influence." (*Id.* at PageID 15585.) She said that after he left prison, she saw him smoking pot in a car:

> When he got out of prison, they all got together, she feels this was shortly before he was arrested in Florida, he was still very quiet and subdued, he was not quite himself. Again, she felt he was under the influence as she had felt while she visited him. She knows for a fact that he was still smoking pot because she saw him do it. She gave an example of them driving to the movies and him smoking pot while in the car.

(*Id.* at PageID 15585-15586.)

Smith reviewed a transcript, dated August 23, 1980, of a phone call between Memphis police officer Roby to Ella Sue Cone in Chicago. (*Id*. at PageID 15534-15535; *see* ECF No. 448-15.) According to Smith, the Ella Sue Cone interview was not as direct, but it was a "further indication that there was awareness of his drug use by the family." (ECF No. 434 at PageID 15536.)

Smith reviewed Pelley's statement that Cone liked to use all types of drugs, including speed—a street term for amphetamines—and that Cone's drug use was pretty constant. (*Id.* at PageID 15532-15533; *see id.* at PageID 15563.)

The independent evidence of Cone's drug use that Smith reviewed was: (1) Pelley's statement; (2) Valeree Cone's testimony about the marijuana from Vietnam; (3) Rita Cone's statement that she saw him smoke marijuana in the car; (4) Rita's belief that he was under the influence of drugs in prison; and (5) the prison misconduct reports (a) that Cone was in possession of amphetamines based on the drug's presence in a package addressed to him in the prison mailroom and (b) that Cone had a half of a half pint of Old Charter and the 21 joints in prison. (*Id.* at PageID 15536, 15564-15565, 15573-15574, 15586-15587.) Smith also considered that drugs were found in Cone's car according to the testimony of Jonathan Lipman. (*Id.* at PageID 15587.) These statements, according to Smith, were important but "just part of the picture that we want to paint of his validation of what he's saying about his drug use." (*Id.* at PageID 15533.)

Smith reviewed the reports of Ryan and Stillman from January and February of 1981. (*Id.* at PageID 15536; *see* ECF Nos. 448-5 & 448-6.) Smith testified that these reports were important to the second factor that he used to validate drug history – the consistency of the behavior as an addictive person. (ECF No. 434 at PageID 15539.) For Cone,

> one of the consistencies is that the same exact history given to me in 2013 was the same history given to these two doctors in 1981 . . . . [I]t's part of an investigative type behavior that if there's consistency in the story after all these years, it most likely is not made up.

(*Id.* at PageID 15539-15540; *see id.* at PageID 15559.) Smith described Ryan's report as "excellent, and very informative and corroborating the drug history of Mr. Cone." (*Id.* at PageID 15541.) When asked whether the Ryan and Stillman reports would have been "important

validation" had he been asked "to form an opinion in July 1980 with respect to Mr. Cone's drug use," Smith testified that the Stillman and Ryan reports would have been important even though "a lesser time interval" had passed.[28] (*Id.* at PageID 15559.) According to Smith, the reports would have been "extra added weight that he was being accurate in his reporting." (*Id.* at PageID 15559-15560.)

Smith reviewed Eichert's psychiatric report dated January 1981, and found it to corroborate Cone's drug use. (*Id.* at PageID 15540.) Eichert reported that Cone's drug use "altered his perceptions of what was happening." (*Id.*)

Smith reviewed Taubel's report, which he described as corroborating to some degree. (*Id.* at PageID 15540-15541; *see* ECF No. 448-16.) Smith said, "it was very superficial compared to the excellent reports done by Dr. Stillman and Dr. Ryan, so it felt like was . . . [n]ot a good investment in terms of energy in terms of a good evaluation." (ECF No. 434 at PageID 15541.)

Smith noted Cone's guilty plea for robbery of the convenience stores to obtain money for living expenses while he was going to the University of Arkansas on the GI Bill. (*Id.* at PageID 15541.) Cone and Smith talked about that conviction, and the plea corroborated Cone's story to the extent that it demonstrated he was behaving "outside the realm of a usual and typical person, especially an honors graduate." (*Id.*)

Smith reviewed Cone's Oklahoma Department of Corrections master file and medical records, which documented Cone being found in possession of amphetamines and marijuana. (*Id.* at PageID 15542.)

Smith testified that in 1980, the validation of drug use was "almost entirely the history

[28] The date appears to be incorrect because the Stillman and Ryan reports did not exist in July 1980, as they were not written until January and February 1981.

given by the person and then the validation by someone who was personally aware and experienced their addictive behavior, or there was verification in terms of some of their behaviors that were consistent with addiction." (*Id.* at PageID 15555.) He stated that "[y]ou could" look for track marks, but it is "pretty unusual." (*Id.*) Smith stated that

> Someone who is intelligent and skilled and has good equipment, track marks are not very common because they know—they're [*sic*] intelligence tells them to move it around, their intelligence tells them to hide it, their intelligence tells them to use sharp needles. And track marks are commonly someone injecting in the same place over a long period of time with poor needles, that's the most common track mark.

(*Id.*) The presence or absence of track marks themselves would not indicate that the person was not using or injecting drugs "especially if the person had learned to do it in prison where hiding it would be even more critical." (*Id.* at PageID 15555-15556.) "The presence of track marks is confirmatory. The absence of track marks has basically no value." (*Id.* at PageID 15593.)

On cross-examination, Smith acknowledged that there was no other specific evidence of Cone's drug use, "only behavior that was consistent with drug use." (*Id.* at PageID 15574.) Smith stated on redirect that he believed that this independent evidence would have made a stronger case for the jury if Lipman and Jaremko had this evidence of Cone's drug use at trial. (*Id.* at PageID 15593.)

Smith testified that the diagnostic criteria used in addiction medicine to establish the diagnosis of addiction is threefold: (1) a pre-occupation with getting and using the chemical substance; (2) a loss of control of use of the substance either sporadically or on a regular basis; and (3) continuing use of the substance despite it causing trouble in that person's life. (*Id.* at PageID 15544-15545.) The preoccupation would make drugs the most important thing in the person's life. (*Id.*) Smith testified that

> what happens in addiction based on the standard of our American Society of Addiction Medicine is that the brain chemistry is highjacked by the chemical, and this occurs in people who have a very strong genetic background, and about 15 percent of the population have this genetic brain chemistry background that allows the brain chemistry to be highjacked so that the person is basically under the direction of that drug. The root word of addiction is the Latin addictum which describes the relationship of a slave to its master. And as the disease of addiction progresses, there occurs in many of the addicts a drug craving. And craving is a -- an urge, a demand by this highjacked brain chemistry that says you have to do this or you feel like you're going to die, so that nothing else matters, right, wrong, good or bad, law, moral ethics, the drug is telling them that they have to go and do whatever it takes to get the drug, and the threat feels like if I don't do it, I will die. So that is the general concept of what's happening in the craving that is the progression of the pre-occupation with getting and using it, the highjacked brain chemistry.

(*Id.* at PageID 15546.)

According to Smith, Cone met all three diagnostic criteria on August 1, 1980. (*Id.* at PageID 15545.) Smith would have diagnosed Cone with polysubstance chemical dependence in August 1980, to a reasonable degree of medical certainty. (*Id.*) Smith stated that there are no grades or degrees of substance abuse. (*Id.*) Based on the destructive effects on Cone's life and how much he was under the control of the "highjacked brain chemistry," however, Smith testified that he would call Cone's substance abuse disorder severe. (*Id.* at PageID 15546-15547.) On cross-examination, Smith stated that he had no knowledge of Cone ever being diagnosed or treated for addiction or for mental illness. (*Id.* at PageID 15575.)

Smith testified on direct that there was no certification with respect to diagnosing substance abuse disorders or chemical dependence in 1980. (*Id.* at PageID 15553.) As an internal medicine physician, Smith had to take care of and diagnose patients with addiction, so he practiced the standard of care in 1980, even though he was not certified "and no one was certified as a specialist before 1986 in addiction medicine." (*Id.* at PageID 15553, 15561.)

Persons with a substance abuse disorder almost never cease their substance abuse without

some sort of intervention "because the person is a slave and powerless over the addiction." (*Id.* at PageID 15553-15554.) Smith testified that addicts need an external source to overcome their addiction:

> there has to be some source outside usually, and that source outside can be somebody that's critically important to them, such as their family or priest, it can be a medical condition, it can be a spiritual change in terms of a conversion religiously. But something has to intervene because these people are powerless in their addiction over this craving for the drug that then tells them what to do so that nothing else matters. Family is not important, nothing is important except getting and using the drug, and so something outside of themselves has to intervene, and sometimes it is being locked up in a place where they cannot get their drugs.

(*Id.* at PageID 15554.)

Smith said that being intelligent is "absolutely not" inconsistent with being a drug user. (*Id.*) Intelligent drug addicts "use their intelligence to be better able to hide their addiction." (*Id.*)

Smith addressed the 1982 criminal trial testimony of Jonathan Lipman on cross-examination. (*Id.* at PageID 15576.) Smith is familiar with the field of neuropharmacology and works with neuropharmacologists as part of addiction medicine. (*Id.* at PageID 15577.) Neuropharmacology is the study of effects of chemicals on the nervous system. (*Id.*) Smith believes that he would have had the same diagnosis of Cone as Lipman. (*Id.* at PageID 15581.) Smith testified that he was not adding anything to Lipman's 1982 testimony other than the experience that he has as a physician. (*Id.* at PageID 15582.)

On redirect, Smith was asked about the appropriateness of Lipman's testimony and validation efforts at the trial in 1982:

> Q. All right. Now, Dr. Lipman is testifying at Mr. Cone's trial with respect to as of the time of the offense whether or not he had an opinion that Mr. Cone suffered from a substance abuse disorder. My question to you is, for an expert at that time in 1980 testifying, should an expert, Dr. Lipman, have sought out other

> information other than just Mr. Cone's testimony to try to validate his testimony before rendering an opinion in Mr. Cone's trial?
>
> A. He testified in 1982. Certainly, the standard of practice would be at that time that you look for validation of what is being told to you, that has been a standard for many, many years in all fields of medical evaluations.

(*Id.* at PageID 15589.) According to Smith, an expert in 1982 should have looked for corroboration other than Cone's statements. (*Id.* at PageID 15590.)

Smith stated that if he were preparing to testify for Cone's trial, he would have wanted the Ryan and Stillman reports and any information he could find to corroborate drug use, especially if the fact of the killings was not in dispute, but the fact of drug addiction and the defendant's mental state were being disputed. (*Id.* at PageID 15594.) Lipman and Jaremko could have used the following items to corroborate and independently validate Cone's drug use:

- Eichert's report that Cone told him at the time of the Florida he was feeling like he was in a "a dream-like state";
- Stillman's report because he gave a history similar to Lipman's, and Stillman discussed the abnormalities of Cone's mental state and processes;
- Taubel's report incompletely describes that drug use;
- Ryan's evaluation "not only showed the drug use as described by Dr. Lipman, but it also discussed the abnormal mental state as Dr. Stillman had discussed, so it validated there was an alter[]ation of his mental state";
- The guilty plea in Chicot County, Arkansas in July 1970, where Cone pleaded guilty to the misdemeanor possession of marijuana;
- Cone's sisters' witnessing Cone's marijuana usage; and
- The two occasions where Cone was found to be in possession of drugs while in prison.

(*Id.* at PageID 15595-15598.) Smith thought that Jaremko and Lipman's testimony would have been stronger if they had sought the validating evidence to corroborate Cone's drug use. (*Id.* at

PageID 15599.)

Smith believed that Cone's drug use impacted his ability to conform his conduct to the requirements of the law at the time of the offense. (*Id.*)

The Court finds that Smith's testimony corroborates that of Lipman's during Cone's trial. Although Smith pointed out various pieces of evidence that could have made Lipman's testimony stronger, Lipman's testimony was much more detailed than Smith implies. (*See* ECF No. 420-8.) Lipman, a neuropharmocologist, provided comprehensive testimony on the nature and frequency of Cone's drug use, as well as the effect of these drugs and their related withdrawals on Cone's mind and behavior. (*See id.* at PageID 14230-14231, 14235-14270, 14274-14275.) After hearing Lipman's testimony at trial in combination with the evidence found in Cone's car, it was evident that Cone was a heavy drug user. *See Cone v. Bell*, 556 U.S. 449, 492 (2009) (Thomas, J., dissenting) ("There was extensive evidence at trial that supported the inference that Cone was not only a longstanding drug user, but that he was in fact using drugs at the time of his crimes. The State itself presented significant evidence on this point.") Although Smith pointed to some additional independent evidence of Cone's drug use, that evidence is largely cumulative and of little additional persuasive effect. Smith's testimony, therefore, adds little to an already well-developed record.

G. Carolyn Meltzer, M.D. (Neuroradiologist and Nuclear Medicine Physician)

Carolyn Meltzer, M.D., a practitioner and professor of neuroradiology and nuclear medicine, testified on March 13, 2014. (ECF No. 426 at PageID 14914, 14919.) Meltzer described neuroradiology as a subspecialty field within radiology that is dedicated to imaging of the central nervous system, the brain, spine, head, and neck. (*Id.* at PageID 14914–14920.)

Meltzer described nuclear medicine as a branch of radiology that encompasses functional imaging in which radio tracers are taken internally into the body and scanners are used to detect the distribution of the radio tracers and measure function. (*Id.*) Meltzer is a physician at Emory University, the chair of the Department of Radiology and Imaging Sciences, and an associate dean for research in the School of Medicine. (*Id.* at PageID 14919.) She did a postgraduate PET research fellowship at Johns Hopkins University and was involved in some of the original PET imaging studies looking at specific nerve chemical systems in the brain. (*Id.* at PageID 14922-14923.) Meltzer was accepted by the Court as a person who can render opinions on MRI and PET scans in her general field of expertise. (*Id.* at PageID 14935.)

Meltzer agreed to review and provide an interpretation of neuro-imaging exams that were performed on Cone at Vanderbilt University by Robert Kessler. (*Id.*) She also reviewed the following:

- Watson's declaration dated October 3, 2012;
- Watson's neuropsychological testing conducted on September 9-10, 2012;
- Watson's report dated November 14, 2013;
- Oklahoma Department of Corrections medical records from 1978;
- Kessler's declaration on October 5, 2012; and
- Gur's neuro-imaging assessment dated November 15, 2013.

(*Id.* at PageID 14936.)

Meltzer conducted a visual examination or clinical reading of the MRI and PET. (*Id.* at PageID 14995-14996.) The purpose of a clinical reading is to determine whether there is an indication of a disease process or congenital developmental abnormalities present that have

"caused the picture that you are seeing of the brain." (*Id.* at PageID 14996, 14998.) On cross-examination, Meltzer acknowledged that a "normal" reading means there is no disease process or developmental problem, and the clinical reading is not designed to identify behavioral problems. (*Id.* at PageID 14998.) She stated that "certain areas of the brain[,] if there's pathology[,] could be associated with the expectation of abnormal behavior, memory function or executive function, but those relationships vary in individuals. (*Id.* at PageID 14999.) Meltzer stated that a normal clinical reading does not mean that the person behaves normally. (*Id.* at PageID 14999-15000, 15013.)

Meltzer prepared a report of her findings with regard to the evaluation and interpretation of Cone's MRI and PET scans along with the consideration of other materials. (*Id.* at PageID 14936.) Meltzer responded to certain questions posed by Respondent's counsel in her report. (*Id.* at PageID 14936.) With regard to the first question of whether Cone's MRI and the PET scan show abnormalities, Meltzer responded:

> My finding in reviewing the MRI of Mr. Cone was that it was normal with age related changes that we would expect for his current age. The PET study showed two findings that were somewhat nonspecific. One was mild decreased metabolism, hypometabolism or lessened uptake of the fluorodeoxyglucose [in] the anterior temporal lobes. Then I thought it was likely related to age related volume loss in those areas as was noted on the MR, and second finding of there seemed to be a mild overall hypometabolism or less fluorodeoxyglucose, uptake in the cerebral cortex than appropriate, and it's a nonspecific finding, but it may be seen with normal aging, and it may be seen with medications that have an effect on the central nervous system and may globally affect uptake in the cortex.

(*Id.* at PageID 14937.) The medications that would have such an effect would include medications for hypertension as noted in Cone's medical records. (*Id.*) Certain amphetamines have a psychoactive effect and can depress cortical metabolism. (*Id.* at PageID 15016.)

The second question was the clinical significance of any abnormality. (*Id.* at PageID

14937.) Meltzer stated that there is no definite clinical significance to the MRI and PET findings. (*Id.* at PageID 14938.)

The third question was the source of the abnormality. (*Id.* at PageID 14938.) Meltzer testified:

> The MRI, we said was normal with the expected age changes that occur in the brain as we get older and the PET findings. As I mentioned, the mild diffuse hypometabolism that we found can be seen with a number of medications that can have effects on the central nervous system. Also, high level of glucose in the blood will take up some of the entry points for fluorodeoxyglucose or the sugar that's given, so if the glucose is high—the blood glucose is high at the time of the PET scan, that can show also a depression of uptake. I did note that in Dr. Watson's report that Mr. Cone was taking several antihypertensive medications such as Metoprolol which is a beta blocker, and that can certainly have a depressive effect on central nervous system. He was also on Captopril, an ACE inhibitor angiotensin-converter enzyme inhibitor that also has central nervous system effects. So, you know, we can—I also just noted by—as a point of ruling out, dementia can cause widespread hypometabolism on a PET scan, but that's in the late stages of the disease. And given Mr. Cone's high level of cognitive function, that didn't seem to be clinically pertinent in the differential diagnosis.

(*Id.*)

The fourth question was, given the other possible sources of abnormalities, whether it is possible today to determine if the abnormality was present at the time of the crime in August 1980. (*Id.* at PageID 14939.) Meltzer concluded:

> it's not possible to know what those findings would have been if those technologies were readily available in 1980. As I mentioned, the brain—one thing you see as a neuroradiologist every day is the brain changes drastically with age, just as our faces change as we age through the life span, the appearance of the brain changes greatly, so with such a long time period, even if we had those technologies, certainly, we would not be able to make any conclusions of what the brain might have looked like.

(*Id.*) She testified that the two mild PET findings that she observed are not something "you would expect to see in a 32-year old," which would have been in Cone's age in 1980 to 1982, because they are age-related findings. (*Id.*) She elaborated that "although the global—the cortical

hypometabolism could have an effect related to medication, [] we rarely see that in younger individuals." (*Id.*) On cross-examination, however, Meltzer testified that she has "no way to project what [Cone's] brain looked like or functioned as at the time of the offense." (*Id.* at PageID 14995.)

The fifth question was a directive to discuss the extent to which MRI or PET imaging were being utilized between 1980 and 1982 as a diagnostic tool for doctors seeking to determine the existence of brain damage for someone in Cone's situation. (*Id.* at PageID 14939-14940.) Meltzer testified:

> So the first commercial MRI scanner was produced in 1980 and installed at Hammersmith Hospital in England. There were MRIs being installed in this country soon after. So in the early to mid '80s, you started to see MRI scanners at some of the top major institutions. I think—I was at Johns Hopkins at the time, I think we got our first MRI scanner in approximately 1985, and then there was a lot of testing to understand what the brain looked like and to develop protocols, so essentially MRI wasn't accessible as a diagnostic tool between 1980 and 1982.
>
> I was involved in PET scanning and PET technology very early on. In the 1980 to 1982 places, there really were just a handful of large academic centers that had PET technology, thus spatial resolution of those scanners was very poor. You had to have a cyclotron present at the institution to be able to make fluorodeoxyglucose, which is something we can acquire commercially today. When I started doing PET research at Hopkins when I was a student and around in the 1982 period, we had one of the PET scanners, was able to take three images of the brain, they were very large slices, very poor spatial resolution. So essentially, as a—as the PET we know today, it didn't exist in that period of time.

(*Id.* at PageID 14940.)

Meltzer testified that she was familiar with the methodology of Gur's behavioral imaging algorithm in assessing impairments. (*Id.* at PageID 14941.) She was also familiar with the Yeo paper in 1990, criticizing the validity of Gur's methodology. (*Id.* at PageID 14942.) In Meltzer's report, she addressed some of the bases for criticism of the methodology:

> There were a number of concerns brought forth that I share, so this technique uses

> expert neuropsychological assessments to project functions on various parts of the brain and display it as if it is a three-dimensional image of the brain, and then applies the likelihood of there being a brain injury to a region looking at Z-scores or standard deviation—relationship to standard deviations for the subjects being looked at relative to that database. Since there's a lot of variation on where brain functions are in the brain, it seems that it is rather circular reasoning to use expert data, make up the database and then apply a comparison to a test subject and have that be as validated gold standard, so that was the nature of the concerns. There's also that the expert ratings among the experts that were looked at, there wasn't a very high degree of agreement among those experts. Yeah, there was fairly substantial disagreement, and they rated the importance of 40 brain areas. That also was quite a long time ago to really have precise regions associated with that kind of data at that point. Now, we—it's always been variable from individual to individual, so it seems like it like an imprecise method, but quantitative statistics are superimposed upon it.

(*Id.* at PageID 14942-14943.)

Meltzer reviewed the MRI analysis in Gur's report and understood that Davatzikos, a mathematician at the University of Pennsylvania, conducted a quantitative volumetric analysis of Cone's MRI images. (*Id.* at PageID 14943.) The one-page report of Davatzikos indicates that the images of Cone were examined via delineation of regions of interest ("ROIs") of the brain by examining partitions of the brain. (*Id.*; *see* ECF No. 448-23; *see also* ECF No. 448-8.)

Meltzer was referred to a graphic (ECF No. 448-24) of data that Davatzikos produced using the quantitative analysis of the MRI (ECF No. 426 at PageID 14946). Meltzer was asked if she found that the quantitative method of evaluation of Cone's MRI by Gur and his colleagues was valid. (*Id.* at PageID 14948.) She responded:

> No, I have numerous concerns, and it's -- although I have not had access to the raw data to try to duplicate the analysis, from what I understand of the description of the methods, it's quite unusual and problematic for a number of reasons.
>
> . . . .
>
> Certainly. So there are a number of concerns, and I will try to go through them somewhat systematically. The first is that my understanding is that this MRI

was conducted on a scanner at Vanderbilt University, and compared with normative database of 59 normal males, presumably that normative database was created from the University of Pennsylvania from Dr. Gur's and/or Dr. Davatzikos' research subjects. So—and this would hold for the PET, but sticking to the MRI, to try to do a quantitative assessment when you have a single subject from a different scanner compared with a large number of subjects from not the same scanner can be fraught with difficulty, particularly if the scanners are different models or different vendors. There are different proprietary software that process the images and can make them look sharper or smoother. The sequences may be different. There's a process by which scanners, MRI scanners are shimmed to create as much uniformity in the magnetic field as possible. That varies, though, from scanner to scanner. In research studies where we might be doing a comparison of brains from different scanners at multiple centers, one, that's usually avoided, but if there is the need to do a large multi-center trial, there's usually an extensive process using phantoms and calibrating the scanners to one another. And usually one tries to stick to the same make and model of the scanner as well. So that's a fundamental potential source of error in this, and I don't know that they have gone through the very rigorous process that has been done for some of these multi-center trials to try to calibrate these scanners, so that's one fundamental concern that I have.[29]

The normative database, although there is a very large normative database, they have taken a relatively small sample of 59 individuals in the same age category. Considering how much variation there is from brain to brain as we get older, that's not a huge sample.

Thirdly, in research studies, for the most part where quantitative imaging like this, these kinds of techniques are applied, we're usually looking at two groups of individuals who may differ in one characteristic or a known diagnosis, to look at what areas of the brain may be different.

. . . .

Sure. So say we were—we had a group of 25 healthy elders, we looked at their brains, and 25 patients with known Alzheimer's disease, we wanted to compare those samples quantitatively to see which areas of the brain may be affected. When one looks at a single subject analysis compared to a group that is only appropriate to do after that intergroup analysis has been validated, and usually

[29] Gur testified that the volumetric analysis that they conducted "is least vulnerable to scanner variations, and . . . with modern scanners, you don't need to worry about it." (ECF No. 436 at PageID 15944.) He stated that the most important issue is whether the resolution of the scanner is sufficient, and Gur contended that the resolution of the scanner at Vanderbilt is fine. (*Id.*) Gur contended that "[a]lmost every study published these days contains data from multiple scanners." (*Id.*)

> you need to have a hypothesis about a specific region of the brain that may be affected or regions from that rigorous group analysis. I may be able to illustrate at least the principle of that from a very simple statistical graph.

(*Id.* at PageID 14948-14950.)

Meltzer invoked statistical principles to explain her concerns with Gur's methodology. (*See id.* at PageID 14955; *see also* ECF No. 448-25.) She testified that a "normal distribution is what we expect if we look at a population," but "[n]ot everything that one might examine in the brain" falls on a normal curve. (ECF No. 426 at PageID 14955.) Meltzer asserted that the assumptions of Gur's quantitations are based on the findings having a normal distribution. (*Id*.) Meltzer testified that, in clinical neuroradiology or clinical specialties, "you look for . . . where there's validation for applying a diagnostic method to a single individual because we're looking at single patients, and one must have done that prep work on the research side to know whether it's a valid assessment one can make clinically." (*Id.* at PageID 14958.) The problem with Gur's method is that, without the validation, a clinician is likely to call many things abnormal that are normal or vice versa. (*Id.*)

Meltzer gives an example from Cone's case related to observation of the temporal horn:

> I had assessed the temporal horn of the lateral ventricles as being normal, said the ventricles were normal. The lateral ventricles are paired structures in the brain that are filled with cerebral spinal fluid. The temporal horn of this structure is this fluid space that extends into the temporal lobes. The normal variation in the shape of the temporal horn is very large, so, in fact, most people have asymmetries of their temporal horn, so when I looked at the MRI, from experience and from those earlier studies that looked objectively at normal MRIs and determined that the degree of normal variation, I assessed the ventricles were normal. The—in the quantitative measure, Dr. Gur notes an abnormally enlarged ventricle, and then there are other portions that go on to talk specifically about the temporal horn. Indeed, the temporal horn may be enlarged if there's loss of tissue around it, but that wasn't the case, and when it is enlarged, it shows rounding, it shows specific features that can't be detected by a simple volumetric assessment. We have to understand the complexity of the brain structure and note appropriately in this case in my report that it has the normal configuration.

(*Id.* at PageID 14958-14959; *see also id.* at PageID 15015.)

Meltzer offered another critique of Gur's assessment:

> The other danger in these assessments is instead of having a hypothesis about a specific brain region that we may know to be affected in a disorder, we're doing a bit of a fishing expedition by sampling many, many regions of the brain, and that multiplies the likelihood that you may—that something may fall into the statistically positive range when it's really just normal, and that's a basic statistical principle. The more I sample something, the more likely I'll get an odd finding that really is just simply due to chance.

(*Id.* at PageID 14959.) She stated that the brain region samples were extensive, and this is often done in a research study because there is no hypothesis of a specific brain region involved. (*Id.* at PageID 14959-14960.) A researcher may sample many regions to get an idea of an area for further investigation. (*Id.* at PageID 14960.) Meltzer stated, "It is expected that when one samples that many regions, if one tried to publish that data, the reviewers would come back and say you need to use a much more conservative threshold because of those multiple comparisons." (*Id.* at PageID 14960.)

Meltzer commented on the Z-score values and the need for a conservative threshold. (*Id.* at PageID 14960.) She testified that she did not have the raw data to replicate the Z-scores. (*Id.* at PageID 15016.) Meltzer testified that Gur's determination that between one standard deviation from the average to two standard deviations is clinically significant is a very lax threshold. (*Id.* at PageID 14960.) From the normal distribution curve, "if you use two standard deviations from the average, you get 95 percent of the individuals in a normal distribution." (*Id.*) One standard deviation catches many normal people or normal areas that are being measured. (*Id.*) Gur's decision to define one standard deviation as clinically significant "struck" Meltzer as "very unusual." (*Id.*)

Meltzer noted that most of the values are generally below the average on the MRI. (*Id.* at PageID 14961.) Meltzer futher noted that Gur called the average "normal, but that's the average of his normative database." (*Id.* at PageID 14961.) The fact that most of the values fall below the average could point out a general loss of brain tissue, or it could be a systematic error resulting from comparing two different sets of data on different scanners. (*Id.*)

Meltzer expressed concern with Gur's and Davatzikos' determination of abnormalities in evaluating Cone's MRI. (*Id.* at PageID 14963.) According to Meltzer, Gur and Davatzikos define "abnormal" as "below two standard deviations." (*Id.*) She stated that there is really only one region on the MRI that is in that range, yet Gur and Davatzitkos name a number of abnormal regions. (*Id.*) Meltzer has concerns whether "abnormal" is an appropriate designation and is not quite sure how they concluded so many regions of the brain are abnormal. (*Id.*)

Following a clinical assessment, Meltzer concluded that Cone's MRI was normal in appearance. (*Id.* at PageID 14948, 14961.) She stated:

> The brain is a very complex structure. There is no quantitative analysis that can fully assess a brain image for any specific diagnoses. We try to use quantitative methods to help us, but a neuro-radiologic assessment is really the only way to diagnose clinically significant disorders that can be detected with MRI.

(*Id.* at PageID 14961.)

Meltzer addressed the e-mail report from Andrew Newberg to Gur about Cone's PET scan. (*Id.* at PageID 14963; *see* ECF No. 448-9.) Meltzer referred to a follow-up report from Newberg and comments:

> It is an unusual report. The Society of Nuclear Medicine has guidelines for the interpretation of FDG PET data and requires certain things like saying how much radio tracer or fluorodeoxyglucose was injected in the patient, how long they were scanned, et cetera, the conditions. So it's a very casual report and not with the usual standard. It was unclear to me initially whether this was an evaluation of the PET as Dr. Newberg is a nuclear medicine physician from his own reading or it was

related to the numbers on the back, which are a detailed quantitative analysis that suffers from some of the same problems we talked about for the MRI. I'm glad to elaborate on that.

. . . .

So once again the PET scan was acquired at Vanderbilt, and the comparison individuals presumably were from Penn with no indication that there was calibration of the methods or the scanners or whether they were identical scanners.

The number of regions examined is extraordinarily large, and some of the—again, apparently not with a correction for those, sort of a fishing expedition of looking at every region in this kind of quantitative manner.

In Dr. Newberg's summary here he says there's increased metabolism in a number of areas. I will make a comment about that. I wasn't quite sure what he meant by increased metabolism. So since this isn't acquired in a—with true quantitation, there are ways with PET imaging to get true quantitative regional measures of the glucose metabolic rate of the brain. That's usually done with arterial sampling in a very rigorous manner. There's no indication this was done this way, so we're really looking at a semi-quantitative or qualitative findings, we're just looking at the fluorodeoxyglucose uptake in brain areas relative to other brain areas. Typically, when one reads such a scan, one refers to the metabolism or uptake of FDG in the deep gray matter structures of the brain since there's not a lot of things that change those structure as normal metabolism and everything in relation to that. So typically the cortex of the brain has similar FDG uptake as the thalamus and basal ganglia which are base structures of the brain that don't vary that much, and there aren't that many things that affect them. He's saying there's increased metabolism, and I'm not sure what that is relative to. If it's relative to the base structures of the brain, that's not a finding that I saw or that made any sense. The—and there are very few things that cause cortical increased metabolism, hypermetabolic tumors, very malignant brain tumors, an active seizure, nothing that makes any clinical sense in this case or with the MRI findings being normal.

Also, it's odd to comment on the visual cortex. The visual cortex is—the FDG uptake or metabolism of the visual cortex is very much influenced by how much light we're seeing or what we're doing visually after the FDG is injected, so if I have my eyes open in a bright room and I'm looking about the visual cortex, metabolism will go way up. If my eyes are closed or if I'm in a dim room for that period of time, those values will be considerably lower. So to comment on abnormalities in the visual cortex without the knowledge of what was happening during that uptake phase is unusual and seems spurious because everybody who reads PET scans on a regular basis either insures to control that or knows there's a lot of variability that can be subtly affected by what our eyes are doing at that time.

(*Id.* at PageID 14966-14967.)

Meltzer testified that usually changes in the visual cortex are somewhat disregarded because they are "so sensitive to what one is doing with one's eyes, the luminan[ce] of the room, et cetera." (*Id.* at PageID 14967-14968.) Meltzer was asked about how the conditions of the room are normally reported, and she indicated that typically one would state "whether the eyes were open or one was in dimly lit room . . . ." (*Id.* at PageID 14968.)

Meltzer has not seen a full report from Newberg in an acceptable format. (*Id.* at PageID 14968.) Meltzer stated that Newberg's report is "not in the normal form or with the normal detail of a report." (*Id.* at PageID 14969.) She commented:

> what is odd in this case is the scan was done at a different institution, so I don't know if that's where the full report, the clinical report was done and this is a separate scientific analysis, I don't know. I have not seen a full report.

(*Id.*)[30]

Meltzer stated that the Society of Nuclear Medicine Guidelines on interpretation of FDG PET images has been very involved in evidence-based guideline development in the field. (*Id.* at PageID 14970-14971.) She stated that the guidelines list "the sort of future evaluation category comparison with normative databases as was done here as something that's not validated yet." Meltzer later elaborated that the Society of Nuclear Medicine has a procedure guideline for fluorodeoxyglucose brain PET imaging, and the American College of Radiology has numerous guidelines for various examinations. (*Id.* at PageID 14989.) These guidelines prescribe what, as professionals, the doctors should be doing "in conducting these exams based on best practices,"

[30] Cone's counsel indicated that he does not believe that there is a document from Newberg that looks like a more traditional report. (ECF No. 426 at PageID 14970.) According to counsel, Newberg sent an e-mail and the underlying data; counsel does not believe that Newberg made a report in the traditional sense. (*Id.*)

including "the preparation of the patient, the conducting of the examination, the elements of the report, [and] its analysis" (*Id.*)

Based on the 2009 Society of Nuclear Medicine Procedure Guideline for FDG PET brain imaging, Meltzer testified that "any radiologic report needs to include the clinical indications for the examination, a history of why [the examination is] being done, any other essential clinical information such as medications, any recent other nuclear medicine findings, the finding on other modalities such as MRI," and specifically with regard to "brain PET, how the study was obtained, . . . the dose and route of the [r]adiopharmaceutical injection, [and] what the blood glucose was at the time of injection." (*Id.* at PageID 14989-14990.)

Meltzer observed that Newberg is a board-certified nuclear medicine physician, but he is not trained in radiology. (*Id.* at PageID 14971.) Meltzer further explained that "[y]ou must have an understanding of the anatomy to appropriately interpret the PET scan." (*Id.*) Meltzer later commented that it "would be quite unusual" for "an institution like Vanderbilt and Dr. Kessler to conduct these exams and not produce a clinical report evaluating the results." (*Id.* at PageID 14990.)

Meltzer was referred to Exhibit 24, a page from Gur's report related to the PET study and Newberg's clinical reading, and was asked to comment on Gur's review. (*Id.* at PageID 14971-14972; *see* ECF No. 448-26.) Meltzer testified that one of her "points of confusion" in this review is that it says that Newberg reviewed the PET clinically, but there is no full clinical report. (ECF No. 426 at PageID 14972.) Meltzer explained that "a clinical evaluation is a non-quantitative review based on one's training and expertise in the normal distribution of fluorodeoxyglucose in the complexity of what is known of the anatomy of the brain." (*Id.* at PageID 14973.) Meltzer stated that the findings appear to be "a summary of [the] quantitative

analysis, which is not appropriate clinically or validated clinically." (*Id.*)

Meltzer also noted the PET images of Cone's brain are "shown on what is called the false color scale, which is red, yellow, blue, green, et cetera." (*Id.*) She stated that in nuclear medicine, according to the guidelines,

> one should not be primarily reviewing scans shown on this kind of color scale, it should be on a continuous gray scale or continuous color scale with one color pallet. When one has these discrete measures or discrete colors, you can accentuate small differences. By one area looking yellow, one looking red, the difference may be small, but it falls into the next color pallet[e], so this is not the way we typically read scans.

(*Id.*) Meltzer testified that "[t]he gray scale would look somewhat similar to the lower resolution form of the MRI" and "would be shown in a gray tone." (*Id.* at PageID 14975.) She stated that "one can use a gray scale tone or what's called a hot metal tone which applies a bit of orange to it," but it is important that "the color given to an area is displayed on a continuous scale with the values of that area." (*Id.*) When a PET is displayed in discrete colors, "it accentuates differences between areas that may not have very different values." (*Id.*) Gur's report did not include a PET image shown on a gray scale. (*Id.* at PageID 14977.)

Meltzer also pointed to the fact that the PET scans were taken from different scanners, and explained that the difference in the scan results can, more likely than not, be attributed to machine differences. (*Id.* at PageID 14978.) Specifically, Meltzer explained that:

> The connections between the dots don't mean anything, it should be a scatter plot because it's discrete—discrete data points for each area. The fact that it goes up and down is just—graphically, they have connected these dots, but it doesn't really mean anything. They hover around normal, but there's some areas that are higher and some areas that are lower. Without having specific hypotheses about small areas and, in fact, I will mention this one, this is the corpus callosum, this is an area of very low normal FDG uptake. And when one has an area of very low signal, it tends to be subject to noise and differences in scanner characteristics. I would have been interested if there was also another area of this large white matter hemisphere tracts in the brain. If that also was lower in Mr. Cone than the

> normative group, I would have suggested that that indeed is more likely to be from the differences in the scanners.

(*Id.*; *see* ECF No. 448-2 at PageID 16384.)

Meltzer also explained the significance of FDG uptake:

> FDG uptake is -- so basically FDG is a form of glucose or sugar, and the brain uses sugar as it[]s own metabolic source. . . .
>
> . . .
>
> it's sugar that supplies the brain's energy, and the cortex are the cell bodies of the neurons or brain cells, and they're the most metabolically active. The white matter are the connections from those—the bodies of those nerve cells. They're fibers, they're tightly packed, and there's not as much glucose activity in those. In fact, it is very low, quite low compared to the cerebral cortex.

(ECF No. 426 at PageID 14979.) She testified that white matter areas of the brain are low in uptake of many things including sugar, so low levels of FDG uptake in white matter areas would be more reflective of noise from the scanners. (*Id.*) She stated, "It would be hard to understand clinically why there would be specifically lower uptake in the white matter fiber. These are really the connections, so clinically one doesn't really pay a lot of attention to the connections in this type of scan. You're really looking more at the metabolism of the areas where there are brain cells." (*Id.* at PageID 14979-14980.)

With regard to Gur's comments that it is quite consistent for a clinical neuroradiologist to classify these imaging exams as normal because the neuroradiologist is looking at the MRI and PET with the visual eye, and Gur is looking at a quantitative assessment, Meltzer stated:

> Quantitative assessments can certainly be helpful in understanding brain images, but the—used alone, they don't tend to make specific clinical diagnoses. So, you know, as I mentioned, some of the findings and areas denoted in the clinically significant or abnormal ranges as Dr. Gur has defined them don't make neurobiological sense and haven't been validated to look at so many regions in the way he's looking at them.

> I agree that MRI is not a highly sensitive technique overall, structural MRI for some certainly psychiatric disorders. Those are areas of research with group analyses, but so far there is no imaging study that has been shown quantitative or qualitative to take a single subject and make a definitive diagnoses of some of the conditions he mentioned, schizophrenia or autism. We have seen from research studies some abnormalities in those brains, but again not validated on a single subject with high reliability.

(*Id.* at PageID 14980-14981; *see id.* at PageID 15000 ("Sometimes quantitation will augment a visual inspection . . . .").)

On cross-examination, Meltzer admitted that quantitation is important in research studies and that she has used quantitative history in her own neuroimaging work. (*Id.* at PageID 15002-15003.) Meltzer explained how a quantitative analysis was used in her research:

> So it is the group data, as you said, but looking at—rather than divided by the number, it really is a composite weighted for the number of individuals and looking at statistical probability across that group of how brain structures will look. This intergroup study didn't have a large number of individuals, it was exploratory, and the hypothesis involved was that we expected those patients with mild cognitive impairment and specific memory dysfunction, which is a group we now know commonly goes on to develop Alzheimer's disease, we were looking at an area of the brain known to be pathologically involved in Alzheimer's disease.
>
> . . . .
>
> . . . So, first, all of the brain data from the group is really put together in a statistical map, and then all of the brain data in the other group is put in a statistical map, and then those are compared statistically with a correction for those multiple comparisons. It's done with statistical parametric mapping which was a technique developed to really approach that kind of detailed information on a statistically rigorous basis. I hope that was clear.

(*Id.* at PageID 15005-15006.) She stated that her research focused on a particular area of the brain, and she had an a priori hypothesis about the region of the brain that would be affected. (*Id.* at PageID 15006.) Further, her use of quantitative assessment was for group comparision where there were known differences between groups instead of a group to individual comparison. (*Id.* at

PageID 15007-15008.)[31]

Meltzer explained the difference between Gur looking at the numbers generated by the MRI to her visual approach:

> the brain is a very detailed complex structure. So even if we take one area of the brain, one structure of the brain that has been an area of intense investigation, called the hippocampus, it's an area that is involved in memory, developing morphologic quantitative techniques to be able to characterize that one brain structure is very difficult because it is very complex. You can say quantitatively if you can outline it carefully—and remember these structures weren't outlined as individual structures. They put block-like regions on the brain, so they are not outlined as discrete structures. And with hippocampus, there—we still can't get very reliable quantitative machine driven ways to assess abnormalities in that structure that take the place of the visual assessment if somebody really understands not only the anatomy of the brain, but the—what the MRI's signal means and artifacts. So you have to understand the physics of the imaging tools as well as the anatomy of the brain, and there's no substitute for bringing that experience to bear on interpretation of imaging studies.

(*Id.* at PageID 14981-14982.) She disagreed with the assertion that Gur's quantitative assessment is more valuable than her clinical assessment; "quantitative methods can play an adjunct role, but don't take the place of the clinical evaluation." (*Id.* at PageID 14982.)

Meltzer noted that her findings are related to a review of the MRI and PET together. (*Id.*) Her early work in this area was to define the influence of change that occurs in the brain structurally and how that manifests in terms of potential artifact or pseudo abnormalities on the PET scan. (*Id.* at PageID 14983.)

With regard to Gur's assertion that PET findings could be attributable to post-traumatic stress disorder, Meltzer stated:

> So posttraumatic stress disorder is an area of great interest from a research point of view. It affects many Americans, and in particular, functional MRI techniques

[31] Gur attempted to rebut Meltzer's testimony about comparing individuals to groups, stating, "That's what we do every day when we treat patients clinically." (ECF No. 436 at PageID 15931.)

> have been used to see areas of the brain react differently, especially in response to when the subject is presented with reminders of the trauma, and those kinds of group analyses are very helpful to understanding the underlying pathophysiology of the disorder. In terms of being used diagnostically, again, on a single subject basis with validity, that's not been shown. We're not at that point yet.
>
> Certainly, brain morphology doesn't typically change in PTSD PET findings. Yes, there [have] been some PET group studies, but, again, small subjects, multiple different results and no consensus in the community for—nor enough validity that PET is a useful tool for diagnosing PTSD. Could it be present? It could be, but it's—we can't make that determination from this examination.
>
> . . .
>
> From PET, [yeah], from PET or MR. There's no reliable [way] to make a diagnosis of either from a single PET or MR.

(*Id.* at PageID 14984-14985.) The studies on both animals and humans are "not translatable into single-subject diagnostics at this point." (*Id.* at PageID 14985.) She also agreed that "in intergroup research studies . . . , there has been a lot done" to understand post-traumatic stress disorder. (*Id.* at PageID 15017.)

With regard to Gur's findings of traumatic brain injury, Meltzer testified that there is a tremendous amount of research being done in that area, and she is on the steering committee for the American College of Radiology's Traumatic Brain Injury Institute. (*Id.* at PageID 14985.) She stated that, with significant brain injury, one typically sees changes on the MRI, and "certain areas of the brain that, depending on the mechanism of trauma, would exhibit abnormal signal." (*Id.*) Years after the injury, the tissue can undergo some permanent loss of neurons, and there is a tendency to see it in the inferior frontal lobes and the inferior temporal lobes as indicated by an abnormal signal on the MRI. (*Id.*) She did not see that with Cone. (*Id.*)

Meltzer stated that there is ongoing research with very mild traumatic brain injury that may be so mild enough not to cause those types of changes in the brain. (*Id.)* That brain trauma,

however, is not consistent with Cone's findings. (*Id.* at PageID 14986.)

With regard to Gur's findings that the white matter abnormality and the enlarged ventricle may be due to a developmental disorder, Meltzer stated:

> [T]here's no evidence of either—as I mentioned, that right ventricle is normal in configuration and normal in size. It may be slightly different than the opposite side, but that is more common than not with normal brain variation, and importantly, the configuration and contour of the complex structure of the lateral ventricle is maintained, so there's no reason to suspect that any enlargement could be due to a primary abnormality of the ventricle or the surrounding tissue. It's normal in configuration, so I disagree with that being evidence of disease. It is normal.
>
> The developmental disorder, could there be microscopic developmental abnormalities in the brain? Certainly, but there appears to be no evidence of any of the common neuro-developmental abnormalities that we see such as a duplication of an area of the cortex and in folding of the cortex. There's known ways the brain develops, and if it gets stalled in a certain area of the brain during development, we see very characteristic malformations of the brain, and there's no evidence of that.

(*Id.* at PageID 14986-14987.)

With regard to George Woods' report and his statement that air encephalograms were available in the 1980s, which could have been valuable in determining Cone's neurocognitive deficits, Meltzer testified:

> Well, imaging has changed very much as a field over the last 20 years. In fact, neuroradiology is a relatively new subspecialty. So I must say I have never seen a pneumoencephalogram. It was—from any historic understanding, it was done by injecting air into the ventricles of the brain and turning a patient so that the air would float to the top, and I don't really know that it's had much clinical utility since any kind of cross sectional imaging has come out. I was a radiology resident starting in 1988, and most of my professors hadn't seen one either. So I don't know that that was a clinical useful tool so recently. There was CAT scans or computed tomography then. It's much better now than it was back then, but could be used to look generally at the structures of the brain.

(*Id.* at PageID 14988.)

On cross-examination, Meltzer admitted that she did not have any detailed information

about the scanner at Vanderbilt, the calibration of that scanner, or about the protocols used at Vanderbilt. (*Id.* at PageID 14993.) She testified that the scanners have to be calibrated to one another. (*Id.* at PageID 15017-15018.)

Meltzer stated that "[t]he only thing she know[s] about that normative database is what [Gur] supplied"; she "know[s] nothing else about how that normative database was compiled." (*Id.* at PageID 14993- 14994.)

Meltzer was then asked to clarify her expertise. (*Id.*) Meltzer explained that she is an expert in diagnostic radiology with joint appointments in neurology and psychiatry,[32] but that she is not an expert in neuropsychology. (*Id.* at PageID 14994-14995, 15023.) She does not have an advanced degree in psychology, but she has "a good understanding of the relationship of brain regions to behavior, at least what's known of it." (*Id.* at PageID 14995.) Meltzer testified that it is fair to say that Gur's article is in the field neuropsychology, but she stated that "her research has largely been about imaging findings and behavioral states." (*Id.* at PageID 15022-15023, 15030.)

In August 2013, Meltzer published an article entitled "Guidelines for the Ethical Use of Neuroimages in Medical Testimony: Report [of a] Multidisciplinary Consensus Conference" in the American Journal of Neuroradiology. (*Id.* at PageID 15018; *see* ECF No. 448-28.) On redirect, Meltzer explained that the conference, which Gur also attended, consisted of "all of these experts together in one room to discuss the appropriateness of using neuroimages in courtrooms and establishing ethical guidelines for doing so." (ECF No. 426 at PageID 15025-15026.) She was the primary author for the article. (*Id.* at PageID 15018.) From that article, a group issued recommendations for ethical guidelines for the use of neuroimages. (*Id.* at PageID 15019.)

[32] Meltzer testified, "A neuropsychiatrist, I'm not sure what a neuropsychiatrist is. . . . There's board certification in psychiatry, neuropsychiatry is redundant." (ECF No. 426 at PageID 15022.)

Also on redirect, Meltzer read a paragraph from the article that she believed was relevant to Cone's case:

> Brain imaging findings have limited application to the primary question of the court of determining criminal intent. The practice of performing imaging studies on a defendant in order to shed light on brain function or state of mind at the time of a prior criminal act is problematic. The retrospective nature of this evaluation makes it particularly difficult to attribute causality to specific imaging findings. Current brain imaging methods cannot readily determine whether a defendant knew right from wrong or maintained criminal intent or mens rea at the time of the criminal act. Also, there's an inherent difficulty in translating mechanistic or neural system data into human behavior. While functional imaging research has correlated numerous behaviors and moods with regions of the brains, issues of individual variation, plasticity and the challenge of assuming knowledge of past motivational statements limits the utility of brain images to infer causality of behaviors. Morse argued that the detection of structural or functional brain findings that correlate with behavioral syndromes does not convincingly imply causation or criminal responsibility, or predict future behaviors.

(*Id.* at PageID 15027-15028.) On recross, she testified that she could not say whether the presence of brain damage in an individual is mitigating in any particular case and that this was one of the issues addressed by the conference. (*Id.* at PageID 15030.) Her report stated that the application of neuroimaging findings to mental state determinations is problematic. (*Id.* at PageID 15030-15031.)

Meltzer also testified on redirect that there is a section about conventional and structural imaging and the scientific validity of its use. (*Id.* at PageID 15028.) She read the paragraph about the use of these methods for single-subject use versus group research:

> Advanced brain imaging techniques, such as functional MR imaging, diffusion tensor imaging, perfusion imaging, PET, and SPECT are used in care in only a few clinical settings in which sufficient literature and/or clinical evidence has demonstrated sensitivity and specificity. Such techniques are most often applied in the research setting, typically by using group comparisons, and statistical validity is a well-recognized challenge for functional MRI. The translation of functional MRI or other experimental neuroimaging methods to single-subject uses is highly challenging and, thus far, applied only in clinical situations in which a relatively strong activation signal may be obtained, such as in presurgical mapping

> of the motor cortex. This pertains more to functional MRI. We're talking mostly about structural MRI here, but the same principles apply.

(*Id.* at PageID 15029.)

The Court finds Meltzer to be highly credible, in light of her objective disposition and analytical approach. Metlzer's critique of Gur's neuroimaging assessment is particularly persuasive. Accordingly, the Court gives significant weight to Meltzer's testimony and conclusions.

H. John Robert Hutson, Ph.D. (Clinical and Forensic Psychologist)

John Robert Hutson, the clinical and forensic psychologist at Midtown Mental Health Center ("MMHI") who evaluated Cone prior to trial and testified at his 1982 trial, testified on March 14 and 17, 2014, as Respondent's expert. (ECF No. 435 at PageID 15616, 15627, 15667, 15679; ECF No. 427 at PageID 15037, 15041; *see also* ECF No. 322 at PageID 8333-8334.) Hutson received a bachelor of science degree in psychology from the Ohio State University in 1968 and a doctor of philosophy degree in clinical psychology from the University of Tennessee in 1975. (ECF No. 435 at PageID 15667.) In 1982, Hutson was the clinical director at MMHI. (*Id.* at PageID 15679.)

Hutson specializes in clinical and forensic psychology. (*Id.* at PageID 15667.) Clinical psychology is the study of aberrant behavior, thinking, and treatment. (ECF No. 435 at PageID 15667.) Forensic psychology is applying or using psychological principles in legal situations. (*Id.* at PageID 15668.) Hutson was accepted as a person who can express opinions in connection with clinical psychology and forensic psychology. (*Id.* at PageID 15676.)

Hutson testified that he is familiar with the field of neuropsychology, but he is not an expert in the field. (*Id.* at PageID 15749.) He has been trained in the Halstead-Reitan Battery.

(*Id.*) Hutson clarified on cross-examination that this test was available in the 1980s and is an instrument designed to determine whether there is a likelihood of brain damage. (ECF No. 427 at PageID 15047.) The test is generally given by a neuropsychologist trained in administering it. (*Id.* at PageID 15048.) Administration of the Halstead-Reitan is not within the area in which Hutson practices as a clinical psychologist. (*Id.* at PageID 15048-15049.) Hutson has evaluated and treated patients who displayed organic difficulties. (ECF No. 435 at PageID 15749.) Once organic impairment difficulties have been detected, he refers patients to a neurologist. (*Id.*)

1. Cone's Evaluation

Hutson conducted a sanity evaluation of Cone prior to his trial in 1982, when Hutson was employed as a clinical director and ran the forensics program at the MMHI. (*Id.* at PageID 15679; ECF No. 427 at PageID 15041-15042.) MMHI was an outpatient mental health clinic that provided treatment services to the mentally ill and disabled, mostly in the midtown area of Memphis. (ECF No. 435 at PageID 15679.) The center had a program for clinical early intervention for mothers with children at risk, a forensics programs, a pharmacy, and day treatment programs for the severely mentally ill. (*Id.*) As clinical director, Hutson was responsible for managing and credentialing the clinical staff, and he also performed clinical duties. (*Id.* at PageID 15680.) The center originated as the University of Tennessee Mental Health Center, which was part of the medical school. (*Id.*) When it was divested from the medical school, it continued to run a forensics program and hold a contract with the State Department of Mental Health for court-ordered evaluations in Shelby County. (*Id.* at PageID 15680-15681.)

On January 8, 1982, MMHI received an order from Judge Beasley, Sr., to evaluate Cone to determine whether he was incompetent at the time of the commission of the crime. (*Id.* at PageID 15679, 15681-15682.) The order stated:

> Midtown Mental Health Center shall examine the defendant and determine, (a), the defendant was mentally-ill at the time of the commission of the crime charged; (b), whether such illness, if found, prevented the defendant from knowing the wrongfulness of the act charged; and, (c), whether such mental illness, if found, rendered the defendant substantially incapable of conforming . . . his conduct to the requirements of the law, the violation of the law as now charged.

(*Id.* at PageID 15720-15721.)

At the time, the required showing for insanity was that the defendant could not appreciate the wrongfulness of his behavior or conform his conduct to the requirements of the law due to significantly incapacitating mental illness or mental retardation. (*Id.* at PageID 15681.)

A team of professionals that included Hutson, psychologist Wyatt Nichols, and psychiatrist Benton Bursten evaluated Cone. (*Id.* at PageID 15682.)

Hutson reviewed his notes from the evaluation:

> [Cone] was extradited from Florida. He says in the summer of 1980 he robbed a jewelry store on Poplar. July to August, during that, there was a shooting of a police officer, shooting of another individual, a murder and a murder. He was in a '72 Cutlass that was found with jewels, also cash and drugs. Then apparently asked him to list out the drugs, Dilaudid, Demerol, Morphine, Desoxyn/Preludin and barbs, meaning Barbiturates, which he indicated he did not use. He indicated the Demerol, he shot or injected two CCs about every couple of hours. . . . [I]t was Haagen-Dazs Ice Cream, which he indicated he subsisted on it just prior to the time of the robberies. . . . [F]iancée was killed about two and a half months after prison started. This refers to prison in Oklahoma. She was raped and murdered in Tulsa, and his father died after one month that he was in prison in Oklahoma. His plans were . . . he intended to go to Amsterdam. This is—refers to a time that he was in Memphis. His family, his father was an Army officer, he had no juvenile—says juvenile record no. Scar and—there was a scar on him where he indicated he was hit or something . . . .
>
> . . . .
>
> He gave some specific description about the incident. He changed clothes. He was staying in, it looks like the medical center . . . . He was listening to a Neil Young tape, I remember that was significant to him, and he told us about. About 45 to 50 minutes after the robbery, he was on his way to . . . , that he was staying at the Admiral Benbow across from Methodist Hospital. . . . I asked him what evidence he thought that they had to tie him to the crimes, the murders, and he

> indicated he thought fingerprints, but he really didn't know. He left the next day to Atlanta, and then to Miami, and then to Key West.
>
> . . . .
>
> . . . [H]e was in Nam, meaning I guess Vietnam [in] 1968. He had traveled, been to Florida, Hawaii[,] Arkansas, Tennessee and back to Florida. . . . He was left-handed. . . . a .38 caliber pistol.
>
> . . . .
>
> That's what he indicated he used. That's in Memphis.

(*Id.* at PageID 15692-15694.) Cone told him that Arthur Stillman, a psychiatrist, evaluated him in Florida. (*Id.* at PageID 15694.)

Bursten saw Cone next, and Hutson reviewed those notes. (*Id.* at PageID 15695-15696.) Bursten asked about the charges and indicated that Cone is competent to stand trial. (*Id.* at PageID 15695.) There was a conversation about confidentiality. (*Id.* at PageID 15696.) Bursten's notes state:

> Said he was doing drugs, Demerol, Dilaudid, Morphine, shooting amphetamines, no barbiturates . . . , but will take Percodan. No Angel Dust and like. Dislike—dislike Quaaludes. . . . Out of Oklahoma State Prison nine to ten months. In drugs since. Steady supply by robberies of drug stores. I like Demerol liquid—it might be morphine, but I'm not going to speculate. Easier to inject. Shooting Preludes, and it looks like Demerol four times a day. Had been shooting Preludes five to six days. Think ahead . . . . Nervous but not jittery. Demerol and Dilaudid something. Was at Admiral Benbow, swim with a girl, prostitute Tuesday or Wednesday, could ejaculate. By Thursday and Friday with—get erection, but not ejaculation. Whenever I shoot Preludes, get horny. Thursday or Friday night not tired. Drank cokes and eat ice cream. Used thin, constipated. Could maintain high by juggling drugs, listening to music, it might be intermittently or might be constantly . . . . No hallucinations . . . . Same drugs Saturday, Pre[]lude, Demerol, Dilaudid. Put on a suit, new suit bought three weeks. . . . . Green suit, checked shirt, black suede tie. Went shopping—went window shopping, went to the jewelry store. Started to rob, had gun in the car, went to several jewelry stores before—before this one. Looked at engagement rings, diamonds and watches, saw things, rings, Rolexes, said I take, I guess. Got gun from the car, put it in back pocket, walked in, told give stuff. I left. . . . Went to side street, changed to cutoffs, flannel shirt. Intention was to go to Amsterdam,

not so hot there. A couple of weeks before law school, the University of Arkansas. . . . Back to Admiral Benbow, saw police behind in plain car on a mic. Intended to shake. He stayed with me. . . . [C]ycle cop started trailing. . . . I shot him. Kept running. Remember guy with bottle, shot him. Hid in abandoned house. I was tired by this time, laid in the attic. Sunday, a knock on a door, [wo]man slammed door in face. . . . [S]he called cops. I left because—I left house, came to other house in . . . and they panicked. . . . [S]omebody tried to get out door. Hit, cleaned up, left, hit both of them. Left, called taxi to the airport. Flew Memphis to Atlanta to Miami to Key West. Think every plane maybe $2000. No passport ridiculous. Cut my something to -- of Amsterdam. Went to Key West to drug friends. I needed drugs. Sat by window, and that's about it.

(*Id.* at PageID 15698-15700.)

There were additional notes about Cone's family life:

Graduate University of Arkansas, finance and banking, 23. Father lifer in the Army, staff sergeant, died in 1972, heart attack. Authoritarian, very strict, not abusive, restrictive. . . . He changed rules in mid-term and ground year. Mother real nice, but she would not go versus his wishes. No either drink. She be sympathetic. That's all, I think. They had a good relationship. Two older sisters, 38 and 35. Father strict with them, but . . . would not let them date, excuse me. They left home 18. None mother. No family history of criminology, alcohol, mental illness. Discusses TV show with something good humor. Moved around a lot. Graduated Lake Village, Arkansas. Honor grad. No trouble in high school. No enuresises, likes school. To be corporate lawyer. Exxon pollute the universe. Did not like animals, did not kick the[m], . . . not many fights . . . . We traveled, but we . . . made friends, make acquaintances easily, nice personality. PE high school 18 in Army. To get GI Bill. Thirty-one months honorable, no trouble, '66 to '69, last year in Vietnam, E-5, specialist in supply. Out in July, college, University of Arkansas, August '69. Busted for marijuana just before school. Punishment was to go to college for six months. . . . I brought reefer back from Vietnam. Doing armed robberies to support self through college, GI Bill. Did not cover it. After freshman year, the job something, but did not, saw gun store, bought gun, robbed grocery, no big deal until afterwards, barfed. . . . [I]n college, acid, Mescaline, psilocybin, marijuana, opium. Down on needle as a matter of principle. . . . Good college, 1972. 3.63, magna cum laude. In prison seven years couple of months. 16 first s[e]x. 14 same age—no, 14-year old. Very underlined, well. I use to li[]e to them. I enjoy about all my friends. One female was engaged to girl in '72. When went to prison, do not know why he's celibate and—it looks like celibate, but we lived in different towns. Don't like promiscuous people. It could be do like promiscuous people I'm not sure what it is. No, it turns me off. She withstood my logic. I could roll if girls want it or not, I guess. Head games. No homosexual relationships, no hassle. . . . Army supply. Germany was easy. Vietnam did not enjoy. Dead bodies. Did drugs

> all the time. Day-to-day just curbing down. . . . Then it says Vietnam, no dreams, flashbacks . . . . Competent, not insane at time of offense.

(*Id.* at PageID 15700-15702.)

Hutson reviewed the notes of their psychology intern Hedy Augenbraun. (*Id.* at PageID 15703.) She noted that Cone was oriented, and his speech was coherent and relevant. (*Id.* at PageID 15704.) There were no indications of psychosis. (*Id.*) His effectual range was quite limited, and he spoke of tragic or remarkable events dispassionately. (*Id.*) Cone reported that he was making his way to Amsterdam, Holland when he stopped in Memphis and took a room at the Admiral Benbow, where he would "sit in the room and shoot dope." (*Id.*) Cone stated that he had a "shootout with the cops" and fled, leaving his passport and drugs behind. (*Id.*) He was trying to get out of town and entered a house belonging to the elderly couple thinking no one was there. (*Id*.) Cleopatra Todd "head[ed] for the door," and Cone "flew in a rage." (*Id.*) Cone hit her with a gun and stated that he hit both of them a bunch of times. (*Id.* at PageID 15705.) He cleaned himself up, caught a cab, and went to Key West. (*Id.*) When asked about his behavior, Cone stated that when he had a plan, he stuck to it, even though it went badly in this case. (*Id.*)

Cone told Augenbraun that he had certain drug stores targeted for robberies and avoided others because they did not have certain classes of drugs. (*Id.*) Cone preferred Demerol and Dilaudid because Morphine "makes my neck bow up." (*Id.*) He also reported using opium and amphetamines in Vietnam and believed he could easily obtain heroin and cocaine in Amsterdam. (*Id.* at PageID 15705-15706.)

Cone told Augenbraun that he "financed his college education by robberies and burglaries and has never had a job"; "he wished he was born rich"; and "he's lazy and doesn't like to work." (*Id*. at PageID 15705.) Cone stated he never would do anything where he thought he would get

caught and he "blamed his failure on drugs and a . . . bad plan." (*Id.* at PageID 15706.)

Cone told Augenbraun, "I don't know what I would do with my life if I could see the end to my problems. It might be a better system if they took you out the next day and shot you. I'm not really a quitter, but I can't see a future for me." (*Id*.) He did not want "to be . . . 65 in prison." (*Id.*)

Augenbraun concluded that Cone was "clearly competent, and there is no evidence to support a defense of insanity at the time of the offense." (*Id.*) She opined that he used drugs for years to suppress feelings he could not deal with and that violence is apparently not part of his usual modus operandi. (*Id.*) She also noted that he was "of at least above average intelligence." (*Id.*)

Nichols administered the Minnesota Multiphasic Personality Inventory ("MMPI") to Cone on January 20, 1982. (*Id.* at PageID 15707.) Cone was somewhat depressed and tried to make himself look fairly good, but the test was valid diagnostically. (*Id.* at PageID 15708.)

Hutson described the importance of the F and K scales on the MMPI:

> [The F scale] is a measure of—it really picks up two things. If somebody is feigning to look mentally-ill, present a mental illness that they don't have, it[] is going to be elevated, or if they're very, very emotionally upset or distraught at the time they take the test, it's going to be elevated.
>
> The next one is a K scale, which is kind of a measure of denial the higher it is. Trying to fit in, trying to make yourself look good, positive or normal. It is important probably to look at both of these in conjunction with each other, and the rule of thumb is if there's—you notice he has got a 10 on the F and a 21 under K. If they're within ten points of either one either direction, it's a good administration of the MMPI. Now, the person may not look good on it, but it's a valid administration. If it is 20 points difference between the F and K either direction, then it's questionable, but you should still use or take a look at it, but you need to put it together with a lot of other clinical information. If it's more than 20 points, then you should be very suspect and look for malingering, look for people covering up something or—

. . . .

> It is an 11, which would indicate that you should take it with some serious consideration, yes.

(*Id.* at PageID 15709-15711; *see* ECF No. 448-29 at PageID 16814.)

According to Hutson, there are ten clinical scales on the MMPI. (ECF No. 435 at PageID 15709.) For Cone, the depression scale was somewhat elevated, but Hutson expected it to be elevated for a person with a capital offense. (*Id.* at PageID 15712.) The hysteria scale, which is a measure of self-centeredness, selfishness, and being overly emotional, was elevated, but Hutson stated that he never saw Cone as being overly emotional. (*Id.* at PageID 15713.) Cone scored high, but within normal limits, on the schizophrenia scale for bizarre and aberrant thinking. (*Id.* at PageID 15717.) Cone was "somewhat of a loner. Social, but not that comfortable in social situations" causing the scale to be raised. (*Id.*) The MMPI results indicated that Cone had some depression. (*Id.* at PageID 15718.)

Hutson testified that the team considered the Memphis Police Department report dated January 6, 1981, and Flynn's interview dated August 14, 1980, in the evaluation. (*Id.* at PageID 15721-15722.) Flynn's interview was one of the most important parts of the evaluation because it was the first time that Cone was talking to somebody after the Memphis crimes and the first interactive report they had of Cone's behavior and speech. (*Id.* at PageID 15722.) The team considered Flynn's summary of his interview with Cone, conducted when "Flynn went back the next day and talked further with Mr. Cone"; Stillman's testimony; Taubel's testimony; and Lipman's preliminary report for an interview dated February 5, 1982. (*Id.* at PageID 15722-15727.)

Lipman's detailed drug histories for Cone dated April 12, 1982, and April 14, 1982, were

given to Hutson after the team wrote their report to the judge, and just prior to trial. (*Id.* at PageID 15727.) He believes Dice gave them to him. (*Id.* at PageID 15728.) Cone did not have a history of treatment for mental illness or drug abuse. (*Id.* at PageID 15729-15730.)

Hutson read the forensic summary that was prepared and dated February 16, 1982:

> Mr. Cone is charged with a multitude of offenses including robbery with a deadly weapon, possibly several counts, two counts of assault to murder, two counts of murder in the first degree in Division 6 Criminal Court. Evaluation of his competency to stand trial was not ordered, although there was an order for the evaluation of his capacity at the commission of the offenses which allegedly occurred in August 1980. The evaluation was conducted in the Shelby County Jail where Mr. Cone is being held with no bond.
>
> Mr. Cone indicated that he was extradited from Florida following convictions there in which he received two consecutive life sentences on a variety of charges. He indicated in Memphis in the summer of 1980 he's accused of robbing a jewelry store on Poplar, shooting a police officer and shooting another individual and two murders. He indicated he's implicated in the robbery and the shootings because of eyewitnesses and other evidence. Indicated that he's not sure why he's implicated in the murders unless it be through fingerprints or some other indirect evidence. Mr. Cone indicated that his 1973 Cutlass was found with the jewels, cash and drugs following the robbery of the jewelry store. He denied knowing why he did the robbery, but did indicate in some detail what occurred at that time. Indicated that he was staying at the Admiral Benbow across from Methodist Hospital, and that following the robbery, he changed clothes while changing tapes in his car, specifically putting on a "Neil Young tape." He indicated that 45 to 50 minutes after the robbery is when the shootings occurred. He indicated that at the time of the robbery he was dressed in a suit, then changed to cutoffs and wore casual clothing. He indicated he left town the day after the robbery going to Atlanta, Miami and Key West. Mr. Cone indicated an extensive history of drug abuse, primarily involving Dilaudid, Demerol and Morphine. He indicated he used about 2 CCs every couple of hours, and on occasion also used Desoxyn or Preludin and dealt in barbiturates but did not use them. He said that he had been doing this ever since he got out of prison almost a year before. He indicated that at his worst he used 20 to 25 times a day, he also subsisted on Haagen Da[]z[s] Ice Cream. At the time of the incidents, he indicated that he had come to Memphis from Fayetteville, Arkansas, and it was his intention to go to Amsterdam. He noted, however, that he lost his passport in the car at the time of the chase following the robbery.
>
> Mr. Cone indicated that he went to prison and spent seven and a half years on a conviction for armed robbery in Oklahoma. He indicated that he went in

> 1972 and was released in late 1979. He indicated that about a month after he was in prison his father died, and about a month and a half after that he discovered that his fiancée had been killed in Tulsa in an incident in which she was raped and murdered. He indicated that her name was Glenda Cale and that she had been a student at Little Rock University and was working in Tulsa. Mr. Cone indicated that he served in the Army from 1966 to 1969 in a supply unit and received an honorable discharge at the rank of E-5. He indicated that he used a considerable amount of opium in the Army, particularly in Vietnam where he indicated he was in 1968. He said that that was the beginning of his drug usage. He indicated that he used drugs all through college, particularly hallucinogenics, that he went through college in about three and a half years receiving a bachelor's degree in business and finance with a 3.65 grade average. He indicated that he graduated from the University of Arkansas at Fayetteville, and that he went to prison shortly thereafter. He indicated that essentially he has supported himself by armed robbery prior to doing time in Oklahoma and since then. He indicated that he robbed only check cashing stands and grocery stores and drug stores. He indicated that he was apprehended in the Oklahoma case when a girlfriend of a charge partner "ratted" on both of them. He indicated he spent time in Florida, Hawaii, Arkansas, Tennessee, Illinois and that he is familiar with Europe from trips there, and that his first trip there was when he served in Germany in the Army.
>
> An MMPI was administered to Mr. Cone, and the results were essentially normal. This is in comparison to the one allegedly administered in Florida after his apprehension there. Mr. Cone denied any juvenile record, indicated that he grew up primarily as a dependent of an [Army] officer who was often away from home, that he had an older brother who died when he, Mr. Cone, was about eight years old, and that he has two sisters, one who lives in California and the other recently lived in Chicago with whom he is somewhat close. He has no previous history of treatment for psychiatric reasons, and there appears to be no evidence to support an insanity defense in these charges.

(*Id.* at PageID 15731-15734; *see* ECF No. 448-29 at PageID 16806-16807.)

Hutson testified that they saw no clinical indicators of brain damage, and they would have done something about it if they had. (ECF No. 435 at PageID 15750; *see* ECF No. 427 at PageID 15063.) Hutson explained why their observations and evaluation of Cone did not cause them to believe that Cone had a neurological impairment:

> We saw no behavior, nothing in his appearance, nothing in his gait, nothing in his mental status reports that indicated brain damage. There's no asymmetrical presentation in his facial features, no asymmetrical presentation in his body strength, in his gait which are indicators, no difficulties in his speech, no difficulties

> in his auditory perception. These are things you will see. There were no difficulties in your memory that you will as possibly as indicators, that, whoa, maybe I should get a neurologist involved here. We also had Dr. Bursten talk to him. Dr. Bursten is a physician, he didn't see anything. . . . He is a neuropsychiatrist.
>
> Furthermore, let me add, Mr. Cone gave his medical history, and we also knew that he had been in the Army, that he had been in a university for three and a half years, that he had been incarcerated for seven and a half years, he was under observation. He never got treatment. It was never reported as a problem, even independent if he didn't know it. So we had no basis to go down that hole basically and pursue that as a hypothesis.

(ECF No. 435 at PageID 15750-15751.)

On cross-examination, Hutson testified that although the team was assigned by the Court to determine whether Cone had an insanity defense, "If we had found something that we thought was beneficial to the defense, generally, we tell them. I mean it's not unusual for me to call a defense attorney on a court ordered evaluation and say, look, you didn't ask for this, but you might want to, or you might want to hire your own expert to look into it." (ECF No. 427 at PageID 15045.)

Hutson testified that their primary method of conducting these evaluations was to interview the defendant. (*Id.* at PageID 15045.) Psychological testing was very seldom done. (*Id.* at PageID 15046.) "Basically, the rule is we never do it unless we need to . . . answer a question that we have." (*Id.*) Hutson stated that he can think of only two reasons why a MMPI would have been administered to Cone: (1) "to see if it shows clinically kind of what we're seeing in person with the defendant"; and (2) "we may have been influenced by the fact that the testimony from his Florida case indicated . . . that they gave a variety of tests." (*Id.* at PageID 15046-15047.)

The methodology used with evaluating Cone for the sanity determination was that: (1) they interviewed Cone; (2) they reviewed the facts of the criminal offense; and (3) they tried to obtain

information from the prosecutor, eyewitness statements, or information from the defense "to look at [Cone's] behavior and to assess [it] in conjunction with [the] personal interviews." (ECF No. 427 at PageID 15049.) Hutson testified that "in general, we try to get as much information as we think may be relevant to the issue, whether it be medical records, social history, criminal records, things of that nature." (*Id.*) Hutson reviewed Cone's behavior to see if it was apparent that he knew right from wrong or could conform his conduct to the requirements of law and then "worked backwards." (*Id.* at PageID 15050-15051.)

Hutson agreed that "it was [Cone's] level of planning and sophistication and the level of control," in addition to the facts of the case, that were "inconsistent with the defense of insanity." (*Id.* at PageID 15051-15052.) Hutson agreed that there could be mental disorders and impairment that do not render a person insane that could be considered mitigating and that could have subtle effects on behavior. (*Id.* at PageID 15052-15053.) Hutson agreed that if Ryan's finding of a schizoaffective disorder were accurate, it could be mitigating evidence in a capital case. (*Id.* at PageID 15054.)

Hutson believed that Cone suffered from a substance abuse disorder. (*Id.* at PageID 15063-15064.). Hutson stated that there was mixed evidence about substance abuse, but Cone consistently indicated that he used drugs. (*Id.* at PageID 15064.) Hutson agreed that a drug addict can have a "lingering psychosis" for some time after he stops using drugs and that amphetamines can affect the user's thinking for up to a year after the drug use has ceased. (*Id.*)

Substance abuse disorder and some depression were the only psychological or psychiatric disorders that Hutson found that Cone suffered from in 1980. (*Id.* at PageID 15072-15073.) Hutson testified about the problem of diagnosing someone with an affective disorder when they are a substance abuser with an ongoing drug problem:

> I just was going to note when you have substance abuse, it's very hard—really it's almost impossible to make a diagnosis of an affective disorder such as depression because of the interactive effect of the substance abuse on the affective system. Before you really make an affective diagnosis such as depression or bipolar disorder, somebody really has to be drug free for some period of time, usually six months or so.

(*Id.* at PageID 15079.) Hutson cited the DSM IV explaining that a mood disorder is not due to the direct physiological effects of the drug abuse or the general medical condition. (*Id.* at PageID 15081.) Hutson, based on his training related to substance abuse, used a six-month period as a rule of thumb for a patient being drug free before being able to diagnose a mood disorder. (*Id.*) Hutson testified that the time period may differ based on the primary drug of abuse, the amount, and the length of the history of usage. (*Id.* at PageID 15083.) He testified that amphetamines are "the most insidious" drug. (*Id.*)

2. Supplemental Evaluation

Hutson reviewed a series of documents to supplement his prior opinions related to Cone and testified related to these documents.

Oklahoma Parole File

Hutson reviewed a form dated June 15, 1978, that Cone filled out to petition for parole which states:

> I am doing a 25-year armed robbery sentence as a first time offender. My problem has been a poor attitude in life due to my social upheaval during the late 1960s and early 1970s. I came back from Viet [N]am in 1969 and thought the world owed me a living. I had done my bit for America and expected a pat on the back and rewards for my behavior. This did not occur, so I took my frustrations elsewhere. After feeling cheated by society, I started robbing grocery stores in 1971. [The] three robberies that I did netted a fairly small sum of money and has totally overturned my life. Two months after coming to prison, I escaped and [got] another three-year sentence for escape. Got maybe another three-year sentence. Since this time my attitude has steadily changed for the better. I now know that I will be an asset to society and not a parasite. A costly lesson for me, but valuable. Gary Cone.

(*Id.* at PageID 15754; *see* ECF No. 448-18 at PageID 16488.)

Hutson reviewed a letter dated June 23, 1980, from the University of Arkansas Law School saying that Cone had been granted tentative admission. (ECF No. 435 at PageID 15754; *see* ECF No. 448-14 at PageID 16489.)

Hutson reviewed a document dated August 31, 1977, entitled Oklahoma State Penitentiary Institution Parole Summary which described Cone's "recent rationalization" as

> In 1969, I returned from Vietnam after three years in the U. S. Army. I entered the University of Arkansas in order to obtain a BS degree in finance and banking which I completed in May 1972, four-year course in three years. During the last year of my college career, I performed three armed robberies in Oklahoma City. I feel that my main problem at that time was the attitude held that the world owed me a living. I tried to find employment in a part-time capacity while attending college to supplement the GI Bill payments I received, but I didn't try as industriously as I should have or could have. The experience I have received through the military vice offered me the idea that a gun could and would be a quick way to make enough money to finish college in the style suiting my immature nature of the time. I robbed three grocery stores in Oklahoma City on a belief that they were insured and the employees did not have a gun. This proved to be the case. I did not actually pull the gun on any occasion of the three robberies, nor would I have hurt anyone during these robberies in any manner or situation. I was caught two months after graduating from the University of Arkansas and sentenced to three terms of 25 years each on the charge of armed robbery. I have been at McAlester for five years exactly this month. Thank you.
>
> . . .
>
> Note, in 1975, I was accepted to the master's program in economics at the University of Oklahoma at Norman. Because of the advance degree courses, I was not allowed to take my degree through correspondence, nor was I allowed to go to study release because of the length of my sentence. I would like to [go to] this advance program at the University of Chicago after release to a workable parole program. This should take only twice as long as a full-time program and could be financed through my job earnings and my GI eligibility.

(ECF No. 435 at PageID 15755-15756; *see* ECF No. 448-18 at PageID 16516-16517, 16521-16522.)

Hutson reviewed a MMPI result from the Oklahoma State Penitentiary Psychology Department dated August 17, 1972. (ECF No. 435 at PageID 15757; *see* ECF No. 448-18 at PageID 16537.) Hutson stated that the results show what "you would expect" of "somebody who is already incarcerated" and "is basically invalid" because of the 21-point differential between the F and K scales. (ECF No. 435 at PageID 15757.) Cone presented himself in the best possible light, but there is no evidence of pathology and Cone shows as fairly bright or artistic. (*Id.*) The other results are within the normal range. (*Id.*)

Hutson reviewed a document dated May 14, 1980, regarding Cone's parole:

> Dear Mr. Bill McCollum: Since most of the jobs in this area are tourist oriented, (bartending or waiter in a bar), I am being forced to return to Chicago, Illinois until I am accepted into a law school, preferabl[y] the University of Hawaii. I would like permission to resettle in Hawaii as soon as possible as my work status is not what you or I would want. Please advise me as to who I would need to speak to in the Hawaiian Department of Corrections about resettling in Honolulu as I have already applied to the law school there for the fall semester of 1980. Thank you for your assistance, Gary B. Cone.

(*Id.* at PageID 15757-15758; *see* ECF No. 448-19 at PageID 16600.)

Hutson reviewed a document dated July 16, 1980, which states:

> Dear Mr. Bill McCollum, Interstate Compact Officer. Sir, I have enclosed my letter from the University of Arkansas School of Law granting me admission to the School of Law at Fayetteville, Arkansas beginning in the fall semester of 1980. Enroll, August 21, school starts August 25. Thank you very much for your patience in setting up a parole program that will be both beneficial to me and society. Tensions were so enormous upon my release from OSP, Oklahoma State Prison, last November that I needed a cooling off period before buckling down and salvaging some respect for myself as seen through the eyes of others as well as myself.

(ECF No. 435 at PageID 15758-15759.)

Hutson reviewed a letter dated August 3, 1980, about six days before the Memphis crimes:

> Dear Mr. McCollum: I sent my admission letter to you several weeks ago, but I have not heard from anyone in Oklahoma or Arkansas confirming the change of out

> of state parole to Arkansas. My law school classes begin on August 21st, 1980. I've spoken to the Dean of Law School Admissions and have paid a deposit on my fall semester tuition. My address is 1211 North Leverett, Fayetteville, Arkansas. Would you please inform me of the progress of my parole change to here? This new beginning in life has me very excited and eager. Thank you for assisting me . . . .

(*Id.* at PageID 15759; *see* ECF No. 448-19 at PageID 16605)

Hutson testified that, after having reviewed Cone's parole file including the specific documents referenced above, he believes that these documents support the conclusions that were made in his evaluation of Cone in 1982. (ECF No. 435 at PageID 15759-15760.)

Tennessee Department of Corrections

Hutson reviewed certified records from the Tennessee Department of Corrections about Cone's institutional record, including incident reports and weekly cell inspection reports. (*Id.* at PageID 15760-15761; *see* ECF No. 448-35 through 448-52.) Hutson stated that it was important that Cone had no history of violence in 37 years in the Tennessee Department of Corrections:

> He was involved in one altercation . . . and the disciplinary hearing was unfavorable to him, but his defense, I thought [he] was very credible and supported by witnesses. An individual—he was playing cards with three other individuals, one of the individuals apparently was a psychiatric patient or some sort of patient who is receiving medications, the nurse came with that individual's medications, the individual refused those medications, and sometimes, it's not clear how much time—they were apparently still playing cards, I would guess it was no more than two hours and probably less, that individual for some reason or another jumped on Mr. Cone. Mr. Cone was trying to hold him off or defend himself. There's no evidence that he injured or damaged or viciously responded to this guy, and Mr. Cone asked and pointed all that out in his defense. They still held both parties responsible, and other individuals said in Mr. Cone's defense that when that particular individual, the one who had initiated the assault did not take his medications he was unpredictably violent.

(ECF No. 435 at PageID 15761-15762.) Hutson found that Cone has had two write-ups in 37 years for positive marijuana screens, and "in his defense," Cone indicated that "there are probably contact highs for being with other prisoners who were smoking marijuana and he wanted his blood

drawn." (*Id.* at PageID 15762.)

Hutson noted that during weekly cell inspections, Cone was "pleasant to everybody, gets along with everyone." (*Id.* at PageID 15762-15763.) Although sometimes Cone keeps to himself and does not go to recreation, "there seemed to be some correlation . . . with winter." (*Id.* at PageID 15763.) Cone has "the biggest library collection probably in prison, at least on death row. [He] has worked in the law library for years." (*Id.*) He is "[v]ery respected by both the institutional individuals and the residents for his work there." (*Id.*)

Hutson stated that he does not know that the institutional records have "a whole lot to do with [the] evaluation in 1982." (*Id.*) The records have "a lot more to do with whether he has organic impairment or not because there is no emotional turmoil or emotional responsivity, unpredictableness, aberrant behavior reported." (*Id.*) Hutson testified that Cone's behavior is "probably more consistent than mine over the last 30 years" even given the fact that Cone lives in a very different environment. (*Id.*)

Hutson reviewed Cone's Tennessee Department of Corrections medical records in their entirety. (*Id.* at PageID 15766.) Cone has been seen by a psychologist, but there has not been a determination that he has any psychological need. (*Id.*) Cone indicated that he does not believe he has a need for psychological or psychiatric intervention. (*Id.*) There is no record in the file of any mental health diagnosis or treatment during Cone's incarceration. (*Id.* at PageID 15767.)

Cone had a mandatory mental health screening on December 8, 1986. (*Id.* at PageID 15767-15768.) The screening states that the "[r]esident exhibited appropriate affect, thought process was ordered and relevant. Perception processes were intact. Resident was oriented to time, place and person. Memory processes were intact. Judgment and insight were within normal limits for this population." (*Id.* at PageID 15768.) Cone made a joke about being insane

so the Supreme Court would not let him die, and there was a note on the side that says "suggests insanity to get Supreme Court to spring him." (*Id.*) Mental health intervention was not requested or indicated. (*Id.*)

The Trial Transcript

Hutson also reviewed the entire trial transcript for Cone's trial. (*Id.* at PageID 15769.) Hutson explained the effect that reviewing the transcript and evidence had on him:

> It really didn't have any impact on my understanding of the work we did back then. It was educational to see we were a little bit more primitive back then and less experienced, but I have been doing this a long time—37 years since then. . . . It didn't change my opinion at all.

(*Id.* at PageID 15770.)

3. The Stillman and Ryan Reports

Hutson did not see the Stillman and Ryan reports until September 2013, but he had the transcripts of their testimony from the Florida trial prior to the Memphis trial. (*Id.* at PageID 15629-15630.) Hutson testified that, although he could not say it with certainty, "Actually, I think [Dice] gave us—in hindsight, I think he gave us the transcript of Dr. Ryan and Stillman because from that transcript, we learned that there were two other doctors, and we never saw their workup or their testimony." (*Id.* at PageID 15639-15640.) Hutson testified

> the reason I believe that I got that part from Mr. Dice is because Mr. Strother would never have probably given me that. He was very unsophisticated with regard to mental health issues. It's slightly possible that Mr. Patterson would have. In reading it, though, I don't have anything from the prosecution witnesses, which I'm sure that either Mr. Patterson or Mr. Strother, if they had given it to me, would have been positive that I had. That's why I believe it came from Mr. Dice's side.

(*Id.* at PageID 15643.) Ryan's testing data was not a part of Hutson's file. (*Id.* at PageID 15630.)

Hutson testified that the biggest problem that the team had with Ryan's testimony was "it

didn't match what—or corroborate[] at all what the interview with Mr. Flynn reported within 24, 48 hours of Mr. Cone being arrested, and I understand Dr. Ryan saw him approximately four months after that." (*Id.* at PageID 15728.) Hutson stated "we were much more interested in what was going on with Mr. Cone that first week in August, not what was going on with him in January of 1981." (*Id.*) They felt the same about Stillman's testimony. (*Id.*) Hutson testified:

> It was very clear from their testimony that whatever they saw in January or so of 1981 that Mr. Cone was what we would call pretty depressed. Now, they called it other things, but they never refer to the fact that—and I don't even know if they knew that Mr. Cone was probably facing a death penalty case in Tennessee. They knew he was in some sort of trouble in Tennessee, but it doesn't—there's no way in their testimony that we see that they really talked about the seriousness of the fact that the Tennessee cases were a degree more serious, if not more so, than his Florida cases, and they didn't relate his affect, his emotional behavior or even his physical behavior to the fact that Mr. Cone was a parolee violator from Oklahoma who now was facing a capital murder case in Tennessee who has just gotten away and now had multiple cases in Florida, they were focusing on Florida cases, but his affect, which I can explain to you in more detail if we want to get into that is it's the end of the line for Mr. Cone. I would be concerned about him being suicidal. They were concerned about his psychodynamics. That's the way we saw it.

(*Id.* at PageID 15729.)

Hutson found Ryan's testimony to be more cogent than his report. (*Id.* at PageID 15738.) Hutson testified:

> I just basically wasn't impressed with the report, I didn't feel it contributed anything substantive to what we had done.
>
> . . .
>
> Well, it did not address really any of Mr. Cone's behavior in Memphis or even just prior to Memphis. I think we had a pretty good understanding about why his behavior was what it was. By me, I mean members of the forensics team. We had an explanation from Mr. Cone, we had information from other individuals, we had the police investigative reports. Although Mr. Cone was always cooperative, I can't say that everything he provided us matched all the other evidence, which is not uncommon, but Dr. Stillman—more Dr. Ryan really did not address any of the behavior. It was all—I'm going to be pejorative here and say it was psycho-babble. It had more to do with Dr. Ryan's knowledge of psychodynamics than any of the actual facts in the case. I don't know the facts, particularly in the

> Florida case that he was addressing, but to my mind, Mr. Cone—and—well, I just say my mind, the issues that Mr. Cone were facing in mid-August of 1980 were far different than the way Dr. Ryan and Dr. Stillman saw them in January of 1981. The—the Florida case probably would never have happened—it's speculative if there hadn't been the Memphis case. But the Memphis case was terminal in terms of potential consequences. Now, they may not have known at that time, but it wouldn't have taken much to figure it out. And the interesting thing is there was another interview that we haven't even talked about that occurred at that same time, very, very brief interview, and that's when Memphis Police Department confronted Mr. Cone in Florida, same time, right around the same time that Agent Flynn did and, quote, Mr. Cone said I don't want to fucking talk to you when he knew where they were from. That's behavior.

(*Id.* at PageID 15739-15740.)

Hutson noted the significance of Cone's behavior in Flynn's interview versus that in the interview with the Memphis police:

> That [Petitioner] was very cooperative with Agent Flynn, in my opinion, gave a lot of information. I won't speak to the veracity of it, but certainly parts of it were accurate. When he knew where the other officer was from, he clearly said leave me alone. Also, when he's talking to Flynn, he owned up to several of the charges, which I don't think he could have known he was being charged with at that time because he hadn't been charged in Memphis, but he clearly eliminated some of the more serious charges.

(*Id.* at PageID 15740.)

Hutson reviewed the material related to Ryan's administration of the WAIS. (*Id.* at PageID 15740-15741.) The MMHI team did not know why the test was given because there was no question of Cone's intelligence. (*Id.* at PageID 15742.) Hutson agreed that a scatter on the WAIS could be "a clue" of some types of brain damage. (ECF No. 427 at PageID 15056-15057.) He testified that the different subtests are subject to different problems. (ECF No. 435 at PageID 15751.) Digit span is basically a very short-term memory test. (*Id.* at PageID 15751-15752.) It could be an indicator of organic impairment, but

> when you have an individual [like Cone] who . . . has just been arrested when he's a parolee, and he's facing charges in another state, major, major charges, you don't

> start jumping at—and he hadn't been shot, impaired, beat up or anything—you don't jump to organic impairment before you jump to depression or an affective problem, or even a drug withdrawal problem.

(*Id.* at PageID 15752.) Hutson testified that he was taught in graduate school that "you don't use variance on the Wechsler by itself as an indicator of organic impairment" because there are many things that can cause variance. (*Id.* at PageID 15751.)

Hutson reviewed the MMPI that Ryan administered. (*Id.* at PageID 15743.) He was astonished that the depression scale on the MMPI was not high. (*Id.*) The hysteria scale was significant. (*Id.*) Mania was raised to the level of being pathological, which may be an artifact of drug withdrawal. (*Id.* at PageID 15744.) Hutson said that he could not make much sense of the MMPI based on the way the doctors described Cone's behavior. (*Id.*) Ryan's MMPI results did not change anything about Hutson's evaluation. (*Id.*)

Hutson believed that Ryan would have made a better use of his time by sitting down and talking with Cone and reviewing the facts in the Florida case. (*Id.* at PageID 15746-15747.) Hutson noted that neither report indicates what Cone was charged with. (*Id.* at PageID 15747.) Hutson saw nothing in Ryan's testing that would have caused him to refer Cone for a neuropsychological test battery. (*Id.* at PageID 15751.)

Hutson recalled that Stillman's report was more focused and made more sense than Ryan's report. (*Id.* at PageID 15747.) Hutson, however, disagreed with Stillman's ultimate conclusion. (*Id.*) Hutson leveled the same criticism against Stillman that he did against Ryan—that Stillman did not tie any of his thoughts or ideas about Cone's functioning to Cone's actions and the reasons behind them. (*Id.*)

There was "an actual clinical question" that Stillman and Ryan failed to address—"did you expect to survive this." (*Id.* at PageID 15747.) Hutson said,

> You don't shoot in the vicinity of a police officer and expect to survive generally. All Mr. Cone's previous crimes—with the exception, and that was accidental in our view, involved no police officers, involved no altercation with the law at the time, and the Memphis crime really was an accident, that it did. He had conducted a successful robbery, a significant robbery using a mode of operation that he had previously used successfully many times, but because a plain clothes—he saw a plain clothes individual in a plain unmarked police car reach for a mic, he was smart enough to realize that was not good and took off, and that was the beginning of the disaster.

(*Id.* at PageID 15747-15748.)

On cross-examination, Hutson testified that at the time he was interviewing Cone, he had access to the Florida trial transcripts where Ryan discussed his determination that Petitioner had a schizoaffective disorder; however, Hutson did not reference schizoaffective disorder in his notes or his report. (ECF No. 427 at PageID 15049-15050.)

4. Gur's Testimony

Hutson commented on Gur's testimony and the validity of his findings of brain damage:

> Dr. Gur has only given one explanation, and that is—particularly he focused on one subtest, of 11 I think there is in the Wechsler, the digit span, which is very, very sensitive to depression, and this is given to a man who five months earlier, four months earlier basically was facing among the most serious group of charges in three states of almost any individual we had ever seen at that point. Basically he was at the end of the line, and looked depressed from what their descriptions were, and depression would certainly affect this man, and especially in a man who had no history even by his own admission or by any institution admission, because he was in the Army, he was incarcerated, he was at a university, he wasn't living in a field isolated, and nobody ever reported any problems with his behavior that might be related to an organic brain or damage issue.

(ECF No. 435 at PageID 15742-15743.)

Hutson addressed Gur's testimony explaining why there were no indicators suggesting organic impairment:

> I would like to point out that even—and I was astonished he said this, Dr. Gur said 32 years later that there is no clinical manifestation or no clinical reason to do all that neuropsych testing and scanning, neurological scanning. He did it

> for—and he wasn't referred by a physician or anything of that nature, he wasn't referred because of a behavior problem of Mr. Cone.

(*Id.* at PageID 15753.)

On cross-examination, Hutson stated that his biggest concern about Gur and other experts that were testifying about evidence of Cone's brain damage was that it was based on testing done in 2013, and not being tied back to 1982. (ECF No. 427 at PageID 15072.)

5. Cone's Decision Not to Testify

Hutson explained how it came about that, during the trial while the jury was deliberating, he and Dice spoke with Cone about testifying:

> I do not recall if Mr. Dice called me by telephone, because there were no cell phones in those days or whether I was at the jail evaluating prisoners, which was highly likely, or I could have been at the jail and had gone by the trial to see if they had reached a verdict and Mr. Dice approached me then, I just don't recall how it got started.
>
> . . . .
>
> At the time of the trial, as I recall, the jury had been ordered out to deliberate on guilt or was in the process of deliberating on guilt. I wasn't there when they did whatever they did, but they were deliberating something.
>
> . . . .
>
> He asked me if I had an opinion about whether Mr. Cone should testify and—[o]n his behalf if they came back with a guilty on murders because it was a bifurcated capital case, and there's a precedence for this in Shelby County, anyway, there is a previous case, the Groseclose case where I had evaluated all three defendants, Groseclose, Workman and Britt. . . . Mr. Britt took the stand in the punishment—the punishment phase after they had been found guilty whereas the other two defendants did not and pled for mercy and, in fact, the jury gave him a different sentence, they did not give him the death sentence as they gave Mr. Groseclose and Mr. Workman.
>
> . . . .
>
> . . . And [Dice] talked about whether I thought that might be a good idea for Mr. Cone. . . . I think [Dice] thought or believed, and I think it's true that I felt like I

> had a good relationship with Mr. Cone, we had interviewed him, I had talked with him, I had found him -- he was always very open and conversant and cooperative and intelligent, and Mr. Dice asked me if I thought it might be of benefit if we went to talk together with Mr. Cone [about] taking the stand. My idea—now, this is my opinion, is that Mr. Dice really wanted him to take the stand.

(ECF No. 435 at PageID 15631-15633, 15660.) Hutson recalled that they gave Cone a little history of what happened in the *Groseclose* case, where the one defendant who testified in the penalty phase did not get the death sentence. (*Id.* at PageID 15632, 15635.) The decision not to testify in the penalty phase was Cone's decision:

> Yes, the decision . . . was Mr. Cone's, and Mr. Dice, I think, made that very clear, and eventually Mr. Cone responded and said—my recollection of what he said was I have been sitting there in this trial, I have been watching Mr. Strother, he's a smart ass, smarter than I am, he will get me, I will go off, I don't want to take the stand. That may not be an exact quote, but that was 30 something years ago.

(*Id.* at PageID 15636.) Cone may have stated that he would "lose it or get angry," but "he definitely implied that he might have trouble holding his own with Mr. Strother." (*Id.*) Hutson testified that Strother was "a formidable prosecutor." (*Id.*) Dice made it "very clear that it was [Cone's] decision, that we were not there to pressure him, but just to inform him that this had been successful." (*Id.*) Dice's description at the post-conviction evidentiary hearing of the discussions about Cone's decision not to testify at the penalty phase and their visit with Cone was a "very good description" of the events. (*Id.* at PageID 15658.) Hutson said that Cone's assertion that Dice had not discussed this issue with him was false. (*Id.*)

Hutson had a better personal and professional relationship with Dice than with Strother, the prosecutor. (*Id.* at PageID 15634.) Dice was "much more mental health savvy" than Strother. (*Id.*) Hutson did not respect the prosecution/defense dichotomy and considered himself to be operating as a friend of the court. (*Id.*) He was not surprised that Dice asked him to talk with Cone. (*Id.* at PageID 15635.)

Hutson recalled Dice talking about using family members as witnesses for mitigation. (*Id.* at PageID 15638.) There was some discussion of Cone's mother and other mitigating witnesses testifying. (*Id.* at PageID 15661.) There was a problem, though, with using Cone's sister as a witness. (*Id.*) Hutson recalled leaving Dice there to talk with Cone. (*Id.*)

Hutson used the phrase that Dice was "scrambling" about what to do in the mitigation phase, but he explained

> The problem is do we have the same understanding of scrambling. Scrambling, I thought he was pressed for time because he didn't know how soon things would happen, and I think as I indicated—now, this was my impression that Mr. Dice was expecting Mr. Cone to take the stand because Mr. Cone was very intelligent, he participated in his trial, it gave him the opportunity—and there was a surprise rebuttal witness that gave him the opportunity to get up and make his statement, and without it being part of the guilt portion, and he turned it down. I think Mr. Dice was surprised at that.

(*Id.* at PageID 15638-15639.)

Hutson testified that the only time that he saw confusion from the defense counsel was when the rebuttal witness testified. (*Id.* at PageID 15639.) Hutson stated:

> I think they were surprised then. I know that Mr. Strother had planned that as an effect, and it looked like it had been effective because they asked for more time, I remember that clearly, from the judge, before they did their cross of that witness. The witness was a female[33] that Mr. Cone knew at Key West, but as far as the preparation, as far as I know, I mean it wasn't part of the defense team or anything.

(*Id.*)

6. George Woods' Report

Hutson was asked to comment on Woods' critique of MMHI's 1982 evaluation of Cone, as presented in Woods' report dated February 26, 2014. (ECF No. 435 at PageID 15770-15771; *see* ECF No. 448-53.) Cone's habeas counsel posed certain questions to Woods for his opinion:

[33] The female rebuttal witness that is being referenced is Eileen Blankman.

1. Did the evaluation of John Hutson, Ph.D. provide a comprehensive examination of Mr. Cone at the time of the trial in 1982?

2. If Dr. Hutson's analysis was incomplete, in what specific areas was it incomplete?

3. Did Mr. Cone suffer from a mental disease or defect at the time of his offense?

4. If so, what impact did this mental disease or defect have on his ability to conform his conduct to the law he is charged with violating?

(ECF No. 435 at PageID 15772-15773; ECF No. 448-53 at PageID 18729.) Woods stated:

> I have reviewed Dr. Hutson's findings and the limited documentation[34] that is available from Midtown Mental Health Center. His team approach was neither comprehensive nor complete. His opinion was that there was no basis to support a defense of insanity. He found no evidence of significantly impairing psychiatric problems. He does endorse Mr. Cone's substance abuse history. Dr. Hutson found no evidence, other than possibly situational stress, of impairment to Mr. Cone's judgment. He does not endorse post-traumatic stress disorder, however, he does concede that "much more is known about PTSD now than was known then." Finally, Dr. Hutson did not find the evaluations of Drs. Stillman and Ryan "particularly helpful." He "[sees] virtually no value" in Dr. Watson's or Gur's recent work with regard to any explanation of Mr. Cone's behavior in 1980.

(ECF No. 448-53 at PageID 18732; *see* ECF No. 435 at PageID 15774.)

Hutson was asked to testify in response to certain comments that Woods made about Hutson's 1982 evaluation. (ECF No. 435 at PageID 15774) Woods stated:

> Based on my medical review, to a reasonable degree of medical certainty the following elements are lacking in Dr. Hutson's evaluation:
>
> 1. Mr. Cone's family history of Schizophrenia was not uncovered.
>
> 2. Dr. Hutson did not recognize Drs. Stillman and Ryan's description of cardinal symptoms of Schizophreniform Disorders.
>
> 3. These symptoms of flat affect, impaired decision making, and significant drug use were erroneously minimized by Dr. Hutson because of Mr. Cone's

[34] Hutson commented that that the files that were destroyed were Dice's treatment files not Cone's files which are the property of West Tennessee Forensic Services, a successor entity to MMHI. (ECF No. 435 at PageID 15775.)

academic success.

4. Dr. Hutson's team did not recognize Mr. Cone's neurocognitive deficits in frontal and temporal lobe functioning.

5. Neuropsychological testing and forms of neuroimaging, including the Halstead Reitan Neuropsychological Battery and air encephalograms, were available in 1980-1982, and could have been valuable in determining Mr. Cone's neurocognitive deficits. A review of the readily available materials reveals the need for such testing.

(ECF No. 448-53 at PageID 18732; *see* ECF No. 435 at PageID 15774-15775.)

In response to Woods' first point that Cone's family history of schizophrenia was not uncovered, Hutson testified:

> Mr. Cone's family history of schizophrenia was not uncovered, that is correct, because there's no knowledge—I have no knowledge either then or now that M[r]. Cone's family has any history of schizophrenia. In 1982, Mr. Cone indicated that there was no mental illness in his family. In 19—excuse me, 2014, in reviewing his Oklahoma prison files, there's a family history provided by his mother, does not indicate any family history of schizophrenia. I never heard of anybody mentioning schizophrenia in Mr. Cone's family until my deposition was taken in Mr. Hutton's office. In the files in the Oklahoma State Prison, in that family history purportedly given by his mother does indicate one sister who is described to me as being schizophrenic at the deposition, is legally blind and is probably totally blind in one eye because of measles as a child. That's the only abnormality we found in Mr. Cone's family.

(*Id.* at PageID 15775-15776.)

With regard to Woods' second point, Hutson said that he was not asked to recognize the "cardinal systems" of schizophreniform disorders and that he is not certain he understands "what a cardinal symptom is." (*Id.* at PageID 15776.)

On the third point, Hutson said that Cone's academic success is "one of his successes":

> It certainly is a very significant one, but prior to that he had a successful elementary and high school education, successful time spent in the military. Virtually, I found no evidence of any write-ups. He in four years went from a recruit to an E-5, which is not inconsiderable. There is inconsistent reports in the record, I think it was first brought up by Mr. Dice himself that Mr. Cone has a Bronze Star, but if

> you look at Mr. Cone's history very closely, these kinds of inconsistencies come up not infrequently. Another example is Mr. Cone has indicated that he has had several broken bones, but in the family history provided by his mother, she indicates the only broken bone that she was aware of as of the 1970s was a broken arm, I believe it was, when he started first grade.

(*Id.* at PageID 15777.)

On the issue of Cone's flat affect, Hutson stated that, if he had been Ryan or Stillman, he would have been concerned about Cone's potential for suicide. (*Id.* at PageID 15780.) Hutson stated:

> My opinion was that Cone should have been very depressed when he was arrested in Florida. When we saw him, of course, he did not show the depression, although he actually showed it more on the MMPI, but we did not see it in conversing with him the way he presented himself.

(*Id.* at PageID 15782.)

Hutson also testified on cross-examination in the deposition about Cone's "constricted" affect; however, Hutson stated that flat affect is a "major indicator of major depression." (ECF No. 427 at PageID 15057-15058.) He acknowledged that flat affect is one of the diagnostic signs of schizophrenic disease, but he asserted that it is "less true" that it would be a sign of an organic brain problem. (*Id.* at PageID 15058.) Hutson stated that, as Gur testified, "[w]hat you see really is more lability [or inability to regulate emotions] . . . with most brain damage," unless it's "pretty massive" trauma. (*Id.*) Hutson testified that, when considering a limited range of affect, "[i]f you weigh . . . psychological impairment [against] brain impairment," there is only a 10 to 1 ratio that there will be brain impairment – "a very, very thin sign for brain impairment." (*Id.* at PageID 15063.)

Hutson described how the nature of Cone's crimes changed:

> The last series of crimes that were committed in Florida had a different quality in so far as I know. I really don't know a lot of details about them, let's be very frank

> about that, but I do know a lot of details about his previous crimes, and they seem to have been more sloppy, but how they were committed in part was part of his modus operandi. He always committed his robberies as he reported to us, and as we saw from his history by crossing state lines or going some significant geographic distance from where he resided. He was in Key West, he went to Pompano Beach. He also knew that area. He indicated to us he went to rural areas. I don't think that's accurate, I think he generally went to municipal areas where there's enough people around it wouldn't be easy to identify the vehicle or possibly himself. It is very interesting to note—I can't speak to the accuracy of it, but I have no reason to believe it is inaccurate that his Oklahoma State records indicate the three robberies he was convicted of were all the same facility, a grocery store in Oklahoma City. Each of them was two or three months apart. And if the record is correct, most interesting thing was the very last one was committed the day he graduated from college at the University of Arkansas. Now, what better alibi to have to show up in another city and rob a place where nobody would expect you to be there because it was a celebration that you would presumably be having with your family, and his mother reports that, I believe, in the Oklahoma City records—excuse me, in the Oklahoma Correctional records in that—because she was somewhat astonished, I think.

(ECF No. 435 at PageID 15780-15781.) Further, Hutson stated that "it makes sense that [Petitioner] would write to Mr. McCollum when he did and present that letter of admission and then come to Memphis." (*Id.*)

With regard to Woods' assertions about Hutson's lack of emphasis on Cone's drug use, Hutson stated:

> We did not put in our letter to the court a diagnosis of drug abuse, and the reason being is, one, it's pejorative; two, in our contract with the State Department of Mental Health these are court evaluations, they're not for either party, and we have been trained and taught and actually is part of our agreement with the state that we will not put a lot of clinical information in the report to the court because it's for the judge, that's public record is what we have been told, and they really don't think it's fair to anybody to have that stuff in a position where the public has access to it.

(*Id.* at PageID 15781-15782.) Hutson testified that the biggest debate among their forensic team was whether Cone was a substance abuser, and if so, how serious of a substance abuser he was. (*Id.* at Page ID 15783-15784.) Hutson stated:

> He reported a lot of substance abuse, IV use at that time since he had gotten out of

> prison in Oklahoma. He also reported himself, I think, to Officer Flynn as selling drugs. I was astonished, I remember at the trial, reading the trial results, although we knew a large amount of drugs, various drugs were found in his vehicle. I don't think I even appreciated it until I read the trial transcript how much drugs were in his car, but that was post 1982.
>
> . . .
>
> The significant thing is we couldn't really make a distinction how much he was a user, how much he was a seller, because we knew money was very important to him.

(*Id.* at PageID 15784.)

On Woods' fourth point with regard to the neurocognitive deficits in frontal and temporal lobe functioning, Hutson stated "We didn't recognize them because we don't believe they're there." (*Id.* at PageID 15777.) Hutson testified:

> I reviewed Mr. Cone's behavior insofar as it was reported, insofar as it may have been reported if it would have been abnormal because it is not going to be reported if it is normal, and there is no report from now, 2014, back through his Army career. I presume he had physicals when he was in school, he was in a college situation where he functioned extraordinarily well. I know that is not the only indicator or that he could have had some deficits of functioning there, but nobody referred him, reported anything. We saw nothing. Dr. Stillman, Dr. Ryan, I guess the other two doctors, nobody has ever reported any neurocognitive deficits, and if you look at his Tennessee prison records, if I understand the medical records correctly, he had a skull series done in December of 1988. Now, he did have one potential symptom reported, and that's after he reported to prison in Tennessee of—he had a chronic history of headaches which are labeled by some as migraine headaches and others as tension headaches. He was—frequently took medication from mid-1980s up until about 1990. It's not very clear if he's still taking any medications for headaches beyond that. That was all post 1981—1980, excuse me, at the time of the incident.

(*Id.* at PageID 15777-15778.)

With regard to Woods' last comments about neuropsychological testing and neuroimaging, Hutson responded:

> I learned how to [administer] the Halstead-Reitan as it was in 1972. I don't know what an air encephalogram is, actually have never heard of that. If Mr. Cone

> had—and you asked me this in our meetings, Mr. Sutherland, if he had had some normal sort of anomaly in misbehavior or presentation that gave us a reason to believe that he had some sort of neurological problem, we would not have referred him [to] a neuropsychologist, we would have referred him to a neurologist. And we have done that—we can't say numerous, because it isn't frequent, but on maybe 20 to 30 cases over 40 years, of different ages, some are degenerative diseases, some have been trauma, gunshot wounds, car accidents because we do want an assessment of what—how much of their impairment or their capabilities is due to neurological and what may be due to intellectual, psychological or other issues. We had . . . that capability, we saw no need to spend money to do that with Mr. Cone, there was nothing that presented as a problem.

(*Id.* at PageID 15779-15780.)

With regard to post-traumatic stress disorder, Woods stated:

> Mr. Cone's father was a noncommissioned officer in the U.S. Army. Mr. Cone followed in his father's footsteps and enlisted in the military when he was 18 years old. He served in the U.S. Army from 1966 to 1969 and received an honorable discharge at the rank of E-5. "We were aware that he had marginally witnessed or been a part of a situation in which mortar rounds were reportedly fired at him. Furthermore, we were aware that he was involved in the transporting of corpses and damaged military equipment." (Hutson report, January 25, 2014, p. 3). Dr. Hutson does not elaborate on what it means to "marginally witness" mortar rounds being fired. Dr. Hutson's description of Mr. Cone's exposure to lethal violence while serving in Vietnam reflects his failure to grasp the significant trauma that is caused by the exposure to the firing of mortar rounds.

(ECF No. 448-53 at PageID 18735.) Hutson commented on Woods' opinion that he did not adequately consider post-traumatic stress disorder as it relates to Cone's exposure to mortar rounds in Vietnam:

> I think if you look at just the information we presented in our files, you couldn't read [post-traumatic stress disorder] in 1982. We saw no evidence of posttraumatic stress disorder as it is known today or as it was known then. There's no flashbacks, no nightmares. Incidentally, there was nothing reported also during this whole period of incarceration. I don't know if they would know that, but no aberrant behavior that you would see with posttraumatic stress disorder, which usually is things like exaggerated startled response, extreme paranoia and suspiciousness, difficulty in trusting others, things of this nature. Mr. Cone picked [who] to be trusted and [who not] to be trusted. He apparently trusted with the information they gave him, Officer Flynn, he clearly did not trust Officer Roby, and you can't make that distinction due to posttraumatic stress disorder. It's

> situational due to the situation that Mr. Cone found himself in in our belief in August of 1980.

(ECF No. 435 at PageID 15783.)

7. Substantially Impaired at the Time of the Crimes

After having reviewed all the reports and transcripts at the time of trial and throughout the habeas proceedings, Hutson did not believe that, at the time of the crimes, Cone was substantially impaired in his judgment as a result of mental disease, defect, or intoxication, or that his mental condition rose to the level of an insanity defense. (*Id.* at PageID 15784-15785.) Hutson believes that Cone was experiencing some environment situational stress because of the heat, the police chase, drug withdrawal, a lack of food and water at the time that he entered the Todds' house. (*Id.* at PageID 15785.) Hutson noted, however, that Cone still "had the wherewithal to pick out the right phone number to call his sister in Chicago." (*Id.*)

8. Dice's Mental Health

In 1997, Cone's habeas counsel requested medical records from Hutson regarding Cone's trial counsel Dice. (*Id.* at PageID 15644-15645.) Dice came to Hutson for treatment during two different time periods. (*Id.* at PageID 15647.) Hutson explained the two situations that resulted in Dice coming to him:

> He came— he came to me in October of 1985 on his own volition, I don't think anybody told him or anything of that nature, and actually I think his very first visit, he came with a female. I treated him—you have the record, I treated him for a period then of maybe a couple of months, came back in February of '86 about four or five months later, and I noted that he had deteriorated.
>
> . . .
>
> At some point, I hospitalized him with the assistance of Dr. Moskowitz whose name comes up below.

(*Id.* at PageID 15650-15651.) Dice's limitations were "confused thinking, impaired memory,

inability to concentrate for more than a short period of time, paranoia, grandiosity," and inappropriate behavior. (*Id.* at PageID 15651.) On February 7, 1986, Hutson told Dice that he did not consider him competent or able to carry out his professional responsibilities. (*Id.* at PageID 15651.) Dice avoided Hutson after that. (*Id.* at PageID 15652-15653.) Hutson believed that Dice never regained his ability. (*Id.* at PageID 15652.)

Dice came back for treatment in September 1986, but not on his own volition. (*Id.* at PageID 15653.) Dice's office called and said that they were sending him and asked if Hutson would see him. (*Id.*) Hutson diagnosed Dice with "bipolar disorder-depressed." (*Id.* at PageID 15649.) Dice's condition was severe enough that Hutson had him hospitalized. (*Id.* at PageID 15653.) After Dice was discharged shortly after his admission, Hutson approached Dice about going back in the hospital. (*Id.*) Dice "made a contract with me which I have never done since that he would be safe or he would contact me, and then he disappeared." (*Id.*) Dice's office contacted Hutson and said they could not find him. (*Id.*) They asked if Hutson would call the Sheriff's Department, "which I thought was odd, but I did, and asked them to put out an all[-]points bulletin for him, which I had never done before, and they did." (*Id.*) Three or four nights later while Hutson was making rounds, he got a call from a sheriff's deputy in Arkansas. (*Id.*at PageID 15654.) According to the sheriff's deputy, they had found Dice's body. (*Id.* at PageID 15654.) Dice had committed suicide. (*Id.* at PageID 15648.)

On cross-examination, Hutson testified that people with bipolar disorder can function at different times with different degrees of capacity:

> Bipolar disorder is really a swing in affect between excitable manic states to depressed states and, obviously, during a portion of the time they're in the middle range, going one way or the other way or stuck there for awhile.

(*Id.* at PageID 15655.) Hutson reviewed Dice's testimony at Cone's post-conviction evidentiary

hearing and he found that Dice seemed to be oriented to time, place and location and responsive to the questions. (*Id.* at PageID 15656.) Hutson saw manifestations of grandiosity in Dice's post-conviction testimony. (*Id.* at PageID 15652.) Hutson was not aware of any person, however, that was present at the hearing, including the judge, who called into question Dice's competency. (*Id.* at PageID 15656-15657.) Hutson testified that Dice was a fine lawyer who took some very tough cases. (*Id.* at PageID 15659-15660.) Hutson also testified that had no questions about Dice's performance at the time of trial and would have raised the issue if he did. (*Id*.)

The Court finds Hutson to be credible. Hutson conducted a very thorough evaluation of Cone in 1982, as well as a comprehensive review of the records in this case in preparation for the evidentiary hearing. Hutson made a concerted effort to be impartial, considering his work to be on behalf of the court, rather than for the defense or prosecution. The Court gives significant weight to Hutson's testimony regarding the conclusions he was able to draw from the evaluation in 1982. Additionally, although Hutson is not an expert on attorney performance, the Court does find relevant Hutson's opinion that Dice did not appear to be psychologically incompetent at the time of Cone's trial.

I. Andrew Newberg, M.D. (Emergency Medicine Radiologist)

Andrew Newberg, M.D. testified on April 7, 2014. (ECF No. 436 at PageID 15809, 15813.) Newberg is a professor in emergency medicine radiology at Thomas Jefferson University Hospital in Philadelphia, Pennsylvania and the Director of Research at the Myrna Brind Center of Integrated Medicine. (*Id.* at PageID 15813-15814.) Newberg is board certified in internal and nuclear medicine. (*Id.* at PageID 15814.) Newberg describes nuclear medicine as

"a subspecialty of radiology that involves imaging typically with radioactive materials and to look at a variety of different bodies, physiology processes and particularly my area of experience has been brain imaging." (*Id.*) He described his field of expertise as nuclear medicine, specifically brain imaging, which includes PET, single photon emission computed tomography ("SPECT"), and research related to functional MRI. (*Id.* at PageID 15815.) Most of his studies and research involve quantitative analysis of brain images and evaluation of brain function. (*Id.* at PageID 15816.) Newberg was received by the Court as a person qualified to give opinions in neuroimaging and quantitative PET analysis. (*Id.* at PageID 15817-15818.)

The information obtained from a PET scan is a measure of the metabolic activity, as measured by using the radioactive tracer fluorodeoxyglucose, in different parts of the brain. (*Id.* at PageID 15820-15821.) The scanner detects the different counts and produces an image based on the activity in that area of the brain. (*Id.* at PageID 15821.) The counts refer to the "amount of radioactivity which correlates with how much of that radioactive glucose went into the brain which is a reflection of the brain's activity." (*Id.*)

Newberg described the process for evaluating Cone's DICOM[35] data from Vanderbilt and how he came up with the quantitative measures of the Cone's brain function. (*Id.* at PageID 15818.)[36] The DICOM data is converted into an image using a program called "PET view," which allows one to look at the image and apply regions of interest to the various areas of the brain. (*Id.* at PageID 15819.) A universal template of about 100 brain regions is placed on the scan, and

[35] The DICOM format is a universal format used for digital imaging. (ECF No. 436 at PageID 15818-15819.)

[36] On cross-examination, Newberg testified that he has never spoken with Kessler, knows nothing about the process for administering the exams at Vanderbilt, and has not reviewed a clinical report from anyone at Vanderbilt. (ECF No. 436 at PageID 15862.)

then the values in each region are provided. (*Id.* at PageID 15819, 15821.) Newberg uses a process called normalization which divides each of those regions by the entire brain's value to account for individual variability. (*Id.* at PageID 15819-15820.) After normalization, Newberg takes the individual's values, compares them to a set of normative controls that have been obtained from other scans, and then determines whether the individual's scan—in this case Cone's scan—has areas that are abnormal. (*Id.* at PageID 15820.) That information is provided to Gur in the context of his neuropsychiatric evaluation. (*Id.*) Newberg also conducts a visual inspection of the scan to make sure that "in at least a gross way that the values that we're getting makes sense in the context of what we're seeing. . . ." (*Id.* at PageID 15824.)

Newberg testified about the variability of the normative group and the reliability of the results. (*Id.* at PageID 15825.) He stated that, among those people who are healthy, there is a fairly small range of values. (*Id.*) Newberg stated that, for a clinically significant finding, they are looking for a finding greater than 10% from the norm. (*Id.* at PageID 15826.) For an abnormal finding, Newberg is looking for findings that are at least 15-20% different from the norm. (*Id.*)

Cone was compared to a normative group of 16 healthy individuals with no psychiatric or neurological disorders, no medication, whose age spanned from 23 to 72 years of age with a mean age of 45 years. (*Id.* at PageID 15827.) Newberg did not have information about the ages of the individual participants. (*Id.* at PageID 15857.) The sample was half men and half women with fourteen Caucasians, one African-American, and one Asian. (*Id.* at PageID 15827.)[37]

Newberg testified that a larger normative group is better, but they felt confident that a

[37] The Court suggested that it would be useful to have the information that was available about the age and education of individuals in the normative group. (ECF No. 436 at PageID 15860.) That information, however, has not been provided.

normative group of 16 was a substantial enough number to be able to comment on what normal brain function is. (*Id.* at PageID 15828.) Newberg stated that they look at the statistical power of the group; the "power" means the "number of individuals that you need for a given study typically is dictated by the variability of a particular measure, so if there's a very large range of values, then you need more people to establish the controls." (*Id.* at PageID 15829.) Newberg testified that the brain scan studies showed a fairly narrow range, and a larger normative sample was therefore not needed. (*Id.*)

Newberg addressed Meltzer's testimony and her methodology. (*Id.* at PageID 15834.) Newberg testified that a visual interpretation of a scan is not as sensitive as a quantitative analysis. (*Id.*) Newberg testified about the advantages of quantitative analysis:

> a lot of times disorders are characterized by much more subtle differences and, therefore, the quantitative analysis is really more or less the standard approach that people would take when reporting research data, so typically if you're looking for abnormalities associated with a specific disease or specific problem or disorder, you would want to have a quantitative analysis to be able to compare people and not just say this is what we see, but this is what are the values that underlie what we see. So, you know, certainly there is value in a visual interpretation, and to a large extent, I concurred with her particular interpretation, some of the abnormalities and the decrease in the overall cortex and so forth, but even for my visualization, I know that I'm going to be able to get a general sense as to what is going on, but it's really the data and the numbers is what is ultimately very helpful in delineating all of the areas of the brain and how specifically normal or abnormal they actually are.

(*Id.* at PageID 15835.)

Newberg stated that, in addition to Meltzer's concerns about global hypometabolism in the temporal lobe and in the cortex, he would have referred to the abnormalities in the temporal lobe as "more moderate rather than mild." (*Id.* at PageID 15839-15840.) The specific abnormalities that Newberg identified in the temporal lobe quantitatively were: (1) 17-18% decrease in metabolism in the temporal pole; and (2) decreases of 15-30% in the areas of the temporal lobe that

are involved in the limbic system and emotional processing, such as the hippocampus and amygdala. (*Id.* at PageID 15840-15842.)

Newberg agreed with Meltzer that global hypometabolism in the cortex could be caused by medication. (*Id.* at PageID 15846.) Newberg stated that hypometabolism caused by medication "would be a very global decrease that would not be quite so—it would sort of affect all parts of the brain." (*Id.* at PageID 15847.) Cone's scan showed, however, "a variety of areas that have increased activity in the brain, and that's not typically something that you would see with a medication effect." (*Id.*)

Newberg testified that there does not have to be a large amount of hypometabolism in a particular region of interest for there to be a problem with brain function. (*Id.* at PageID 15835.) Newberg recalled having seen people with "very mild abnormalities" whose scans may not appear "visually very significant," yet quantitatively "have a very big clinical impact." (*Id.* at PageID 15835-15836.) With respect to the converse, Newberg testified that it is "certainly possible" that a person could have substantial abnormalities on a scan without a discernible or significant behavioral difference. (*Id.* at PageID 15836.) According to Newberg, people can compensate very well and "get by" on a daily basis. (*Id.* at PageID 15836-15837.) Depending on the parts of the brain involved, however, it is "pretty unlikely" that somebody with substantial abnormalities would have a completely normal cognition and emotion. (*Id.*at PageID 15836.)

With regard to Meltzer's testimony that the metabolism in the corpus callosum cannot be reliably measured through PET, Newberg disagreed. (*Id*. at PageID 15843.) He testified that metabolism in this area is more difficult to measure because it is typically a lower value than the other areas of the brain. (*Id.*) Newberg agreed that this area is also "hard to evaluate visually because you're looking at that area in relation to the other structures of the brain." (*Id.*) This is a

white matter area of the brain which bridges the activity between hemispheres to allow them to communicate with each other. (*Id.* at PageID 15844.) Newberg testified that, for Cone, the metabolism was decreased in the 45% range, substantially larger than the normal variability that is seen. (*Id.* at PageID 15844-15845.) The two disorders that come to mind with that type of decreased metabolism are: (1) a head injury when a brain gets kind of pulled or stretched and those connecting fibers are broken; and (2) a developmental issue. (*Id.* at PageID 15845-15846.)

On cross-examination, Newberg testified that he has never met Cone or spoken to him. (*Id.* at PageID 15851.) He did not consider Cone's MRI in conjunction with the PET. (*Id.*) He stated that "ultimately[,] you would want to combine the PET, the MRI and specifically the neuropsychological evaluation to make sure that everything is kind of consistent, but you can also see abnormalities on PET that you don't see on MR and vice versa." (*Id.*)

Newberg testified that the normal aging process fits into the category of neurodegenerative disorders that would cause hypometabolism. (*Id.* at PageID 15852-15853.) He has written on the fact that there is an overall hypometabolism in the aging brain. (*Id.* at PageID 15853.) Newberg cited a large study in which diminished cortical metabolism was the most consistent PET finding associated with normal aging. (*Id.* at PageID 15855.) On redirect, Newberg testified that the decreases are "probably a little bit more extreme than what you would see in normal aging." (*Id.* at PageID 15871.) Newberg found that the "telling piece," however, was that certain areas of the brain were increased versus decreased in Cone and that the frontal lobes are "not specifically that affected." (*Id.* at PageID 15871-15872.)

Newberg's methodology has been used since 1993, but not between 1980-1982, the time period prior to Cone's trial. (*Id.* at PageID 15862.)

The Court finds Newberg to be generally credible, but finds his testimony to be of limited

relevance as to Cone's mental state in 1980. Newberg's comparisons of Cone and the normative sample are somewhat problematic due to the facts that his normative sample included only sixteen individuals, the ages of the individuals spanned approximately fifty years, and Newberg could not provide a precise breakdown of the age, educational level, or IQ score of the sampled individuals. More importantly, Newberg failed to explain whether the abnormalities that he found in Cone's PET scan would have appeared between 1980 and 1982, and acknowledged that events like aging and medication can cause hypometabolism. Newberg noted that substantial abnormalities may appear on a scan without any corresponding discernible or significant behavioral difference. Additionally, he conceded that the methodologies he used were not used between 1980 and 1982.

J. Christos Davatzikos, Ph.D. (Computational Neuroimager and Professor of Radiology)

Christos Davatzikos is a computational neuroimager, a professor of radiology, and the Director of the Center for Biomedical Image Computing and Computing Analysis at the University of Pennsylvania; he testified on April 7, 2014. (ECF No. 436 at PageID 15878, 15920.) Davatzikos received his Ph.D. in electrical and computer engineering from Johns Hopkins University in 1994. (*Id.* at 15879.) He also completed a year of postdoctoral training in neuroimaging at Johns Hopkins University School of Medicine. (*Id.*) Eighty-five or ninety percent of his work is in computational neuroimaging. (*Id.* at PageID 15880-15881.) He described computational neuroimaging as taking a MRI scan and looking for quantitative measurements of different aspects of the brain anatomy and function using computers driven by algorithms. (*Id.* at PageID 15881.) Davatzikos was accepted as a person who can offer opinion testimony on neuroimaging and quantitative MRI analysis. (*Id.* at PageID 15887.)[38]

[38] Davatzikos testified that Gur would be the person to comment on the functional role and

Davatzikos conducted a quantitative assessment of Cone's MRI and provided those results to Gur. (*Id.* at PageID 15887-15888.) Brain volume is directly related to the underlying number and size of neurons that are the main processing anatomies of our brain. (*Id.* at PageID 15890.) "The gray matter consists of neurons or cell bodies. The white matter consists of connections . . . ." (*Id.* at PageID 15890-15891.) Therefore, "if you have lower volume in [a] certain area, that means that you have fewer neurons to process and to perform that particular function" and that function may be impaired. (*Id.* at PageID 15891.)

Davatzikos partitioned the MRI, measured the volume using a template of anatomical regions, and compared the volumes against a normative database of 55 normal men between ages 60 and 70 taken from a normative database of about 700 people. (*Id.* at PageID 15891-15892.) Davatzikos calculated a Z-score which indicates how many standard deviations below or above average Cone was in comparison to the normative database. (*Id.* at PageID 15892.)

Davatzikos disagreed with Meltzer's statement that group norms cannot be applied to a particular individual such as Cone. (*Id.* at PageID 15897.) He stated that

> [e]verything that is done in medicine on a daily basis involves comparisons of individual patient measurements to the [normative] database. In fact, what Dr. Meltzer does on a daily basis is the same thing, except it's not quantitative. She compares a person's MRI against her mental normative database which she has sort of created over the years and over extensive training, so I do not understand this argument.

(*Id.* at PageID 15897.)

Davatzikos testified that Meltzer's visual examination of a MRI is not as precise as quantitative assessment, but the two forms of analysis are complimentary. (*Id.* at PageID 15898.) She looks at things like brain tumors, strokes, lesions, or gross or obvious abnormalities. (*Id.* at

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behavioral implications of the brain structures. (ECF No. 436 at PageID 15914.)

PageID 15919.) Davatzikos testified, "[i]n essence, this lab report and Dr. Meltzer's report are parallel [and] different complimentary evaluations of the MRI scan, but the final interpretation in terms of the clinical implications of what we find here is done typically by the neurologist or the psychiatrist or the neuropsychologist." (*Id.* at PageID 15920.)

The most significant volumetric measurement that Davatzikos found on the MRI was 2.53 standard deviations in the right superior frontal gyrus medial segment in the front part of the brain in the middle, which is an area that mediates a number of higher lever executive control functions. (*Id.* at Page ID 15899-15900, 15912-15913.) A second abnormal measure involved the hippocampus and the amygdala and was below two standard deviations in the limbic medial gray matter on the left. (*Id.* at PageID 15899, 15913; *see* ECF No. 448-60.) Other areas with significant Z-scores were the parahippocampal gyrus on the left, the limbic medial temporal gray matter on the left and right, and the anterior cingulate gyrus on the left. (ECF No. 436 at PageID 15917.) Davatzikos testified that two standard deviations is considered to be standard for an abnormal measurement. (*Id.* at PageID 15918.)

The Court finds Davatzikos to be credible as to his testimony on computational neuroimaging in 2014. Davatzikos was not, however, engaged in this field in the 1980s, nor did he review an MRI of Cone from the 1980s. Davatzikos' testimony, therefore, is limited to his finding that Cone's MRI showed certain abnormal measurements in 2014. While potentially relevant to Cone's mental state today, Davatzikos' testimony has little probative value as to Cone's mental state in 1980.

K. George Washington Woods, Jr., M.D. (Neuropsychiatrist)

Woods, a neuropsychiatrist, testified on April 8, 2014, as a rebuttal witness to Hutson's report. (ECF No. 437 at PageID 15954, 15996.) Woods is a lecturer at University of California Berkeley School of Law and an adjunct professor in the Department of Psychiatry at Morehouse School of Medicine. (ECF No. 448-61 at PageID 18858.) He was certified by the American Board of Psychiatry and Neurology in 1992. (ECF No. 437 at PageID 15956; ECF No. 448-61 at PageID 18855.) Woods became engaged in the forensic practice of psychiatry in about 1992. (ECF No. 437 at PageID 15959.) He estimated that he had performed forensic psychiatry consultations in thousands of cases. (*Id.*) Woods was qualified as a person who could render an opinion in the fields of psychiatry and neuropsychiatry. (*Id.* at PageID 15961.)

Woods testified that variance on the WAIS can mean a number of things depending on what subscales are inconsistent. (*Id.* at PageID 15962-15963.) "If you have a variance on the WAIS, . . . [the variance] could [be] an indication that this person may have . . . a neurological vulnerability, and that could lead you to then look at whether neuropsychological testing would be important." (*Id.* at PageID 15963.)

According to Woods, the scatter on the WAIS administered to Cone by Ryan would require a professional to consider conducting further neuropsychological testing for brain damage. (*Id.*) Woods testified that Cone's lowest scores were in digit span and object assembly, two subtests that are very sensitive to brain impairment. (*Id.* at PageID 15963-15964.) Woods described digit span as a test that appears to be very simple, but it requires working memory—being able to hold the idea in one's mind, attention and focus. (*Id.* at PageID 15964.) The same is true with object assembly, which requires the test subject to be able to remember what the rules are, recall what

objects look like, and be able to manipulate particular circumstances. (*Id.*) The difficulties that Cone had with these subtests "speak[s] to cognitive weaknesses within someone that obviously has a very strong intellect and should be further explored." (*Id.*)

Woods did not agree with Hutson's assertions that the scatter or low digit span score could be explained by depression. (*Id.* at PageID 15964-15965.) Woods described the type of effect depression might have:

> Depression is a global phenomenon and, consequently, when you see impairments of depression, they tend to depress an entire either neuropsychological profile or IQ profile. What we really see with Mr. Cone's WAIS here is that he obviously does very, very well on scales of information, arithmetic, similarities, and consequently this does not reflect global impairment. It really shows someone that has significant strengths and specific weaknesses.

(*Id.* at PageID 15965.)

With regard to Ryan's administration of the MMPI on Cone, Hutson testified that drug withdrawal may have impacted Cone's performance. (*Id.*) Woods disagreed:

> Again, drug withdrawal is a broad category. It's not really speaking to what type of drug. Certainly not speaking to what type of withdrawal. Drug withdrawal—and we're assuming that if we're talking about the opiate drugs that Mr. Cone alleged to have taken, we're really talking about a physiological withdrawal. A physiological withdrawal is much, much different than a neurological withdrawal, and there is no literature that speaks to the relationship between MMPI and a neurological withdrawal. If anything, you would have seen a drug withdrawal impact motor skills on a neuropsychological test rather than on a test of personality.

(*Id.* at PageID 15965-15966.) Woods stated that the MMPI is not a test of organicity, and "[w]hen you look at the validity scales"—the relation between F minus K—there is "no indication that there was any impact of drug withdrawal on this particular test." (*Id.* at PageID 15966.)

Woods addressed Hutson's criticisms of Ryan's report: that Ryan did not have references to Cone's interviews with Flynn and Roby. (*Id.* at PageID 15967-15968.) Woods pointed out

that neither officer was a trained mental health specialist. (*Id.* at PageID 15968.) He saw value in Ryan's and Stillman's reports because they were the "earliest mental health providers with specific training" to evaluate Cone. (*Id.*)

Woods testified about the signs of schizophrenic illness from Ryan's report. (*Id.*) He noted that Cone had a flat affect which is an indication of a psychotic process and differs greatly from restricted affect. (*Id.* at PageID 15969, 15971.) Woods noted Cone's rigidity of thought, difficulty in shifting cognitive set, and autistic logic. (*Id.* at PageID 15969-15970.) In Woods' opinion, a healthcare professional or psychiatrist with access to the Stillman and Ryan reports should have investigated the possibility that Cone had some sort of schizophreniform disorder. (*Id.* at PageID 15971.) Woods explained:

> Ryan clearly has a much more analytic perspective, but the symptoms are there. So we're not talking about the formulation, we're talking about the symptoms. The symptoms of flat affect, the symptoms of poorly integrated thought process, the symptoms of a lack of emotionality, the soft signs as he describes them as autistic thinking, and particularly when one sees this in someone with a significant intellect and ability, this really speaks to this is why intellect doesn't speak to brain function. This really reflects brain function as opposed to intellectual achievement, and these clues would have led someone in my opinion looking at these symptoms to further look at neuropsychological testing.

(*Id.* at PageID 15972.)

Woods testified that, if organicity is suspected, it is not always appropriate to refer the patient to a neurologist rather than a neuropsychologist for a neuropsychological battery. (*Id.* at PageID 15972.) He stated that, in 1982, it would not have been the appropriate standard of care to always refer to a neurologist and never consider neuropsychological testing. (*Id.* at PageID 15976.) Woods noted that Cone did not manifest any gross neurological deficits; he manifested subtle nuanced cognitive impairment, slippage, derailment, and lack of integrated thought, which calls more for a neuropsychologist than a neurologist. (*Id.*) Woods testified that the American

Academy of Neurology recommend neuropsychological testing as crossing the bridge between brain function and behavior, and a neurological examination is geared to capture the relationship of "ecological validity." (*Id* at PageID 15972.) Neurologists do not explain how brain difficulties translate into behavior. (*Id*.) Woods testified that there are areas of brain impairment that the Halstead-Reitan would pick up that a neurologist would not necessarily pick up including areas of executive functioning, being able to effectively weigh and deliberate, and seeing disintegrated behavior as one moves from relatively simple tasks into levels of complexity. (*Id.* at PageID 15974-15975.)

Woods testified that a psychiatrist armed with the Ryan and Stillman reports back in 1982 should have referred Cone for a Halstead-Reitan neuropsychological battery. (*Id.* at PageID 15973.) The symptoms that required a further look were present at that time. (*Id.*) Woods acknowledged, however, that Stillman and Ryan neither said that Cone was brain damaged nor recommended neuropsychological testing or neuroimaging as it existed in 1980 to 1982. (*Id.* at PageID 16009.)

Woods explained the difference between brain damage and brain impairment:

> brain damage implies there is structural damage to the brain. That does not necessarily mean that that part of the brain is impaired. It just means that it is damaged the same way that you can wreck a car, but the car can continue to drive. Brain impairment, on the other hand, there doesn't necessarily have to be structural damage to the brain. The brain can go bad from electrical waves, it can go bad biochemically, it can go bad in multiple different ways, so brain impairment implies that the wiring doesn't work. It may look okay, but the wiring doesn't work.

(*Id.* at PageID 15974.) Woods testified that the examples that Hutson gave "are really not necessarily even examples of brain damage." (*Id.*)[39]

[39] Woods noted that Watson found that Cone had clear motor problems that reflected left temporal lobe problems while Hutson found no significant motor findings. (ECF No. 437 at

Woods disagreed with Hutson's assertions that the facts showed a level of sophistication, planning, and control that was inconsistent with an insanity defense. (*Id.* at PageID 15976-15977.) Woods opined:

> I think that the offense, as terrible as it was, does not show a great degree of sophistication. Mr.—and certainly not a very degree of cool planning. Mr. Cone described himself as kind of losing it after—during the offense, and apparently one of the victims went towards the door, kind of losing his cool, losing his—and so consequently, that doesn't show a level of sophistication and planning, that is inconsistent with—it's—I would not say right or wrong, but certainly it's consistent with perhaps his inability to conform his behavior to the law, which was part of the standard at the time in 1982.

(*Id.* at PageID 15977.) Further, Woods stated that there is "no literature that supports that either the testing, the personality testing, any of the personality testing, nor Mr. Cone's presentation was consistent solely with a major depressive disorder." (*Id.* at PageID 15978.)

With regard to Hutson's review of Cone's institutional history and the lack of violent incidents as evidence of a lack of mental illness or brain impairment, Woods testified:

> But first of all, the records, including his history in the Armed Services in no way speak to him not having cognitive impairments. Again, Mr. Cone has significant neurological strengths. The cognitive impairments he has are specific and deep. So we have to keep in mind that many of the things that Mr. Cone is able to do, his level of information, his reading ability, his comprehension, those things that most of us judge intellect by and judge functioning by, are intact. The things that break down are things that have to do with increasing levels of complexity. Those would not be seen necessarily in a very structured environment, and certainly those wouldn't be seen early in his life. As far as it goes, as far as mental health, you know, the literature is very clear that most people in the United States at least that have problems with mental health are not treated, and these types of structures as a person really lend themselves to the type of stress and input and distractibility that could create problems with mental health. It's also true when one looks at the epidemiology of mental health that people that have schizophreniform disorders over time, those symptoms tend to ameliorate, that if they have—in Mr. Cone's case, he doesn't have auditory hallucinations, but if they have positive symptoms over time those symptoms tend to diminish with or without treatment. The same

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PageID 15982-15983.)

> thing is true about the types of cognitive symptoms that he has, he's in a structured environment, and those kinds of symptoms tend to not be reflected in day-to-day behaviors.

(*Id.* at PageID 15979-15981.) The symptoms of schizophreniform disorder that Cone has are amenable to the structure of incarceration. (*Id.* at PageID 15981.)

Based on Ryan's report and the information that Hutson had back in 1982, Woods would have diagnosed Cone with "a cognitive disorder not otherwise specified, and I would have put him on the schizophreniform spectrum." (*Id.*)[40] Woods testified that it "could have affected his ability" to conform to the requirements of the law. (*Id.* at PageID 15982.) A review of the readily available information concerning Cone in 1982 would have reflected that he suffered a significantly-impairing psychiatric problem. (*Id.* at PageID 15984.) Woods also believed that Cone suffered post-traumatic stress disorder and substance abuse disorder. (*Id.* at PageID 15985-15986.)

When asked on cross-examination about the materials that he reviewed, Woods stated that he reviewed the Tennessee trial transcripts, the Florida trial transcript, the Florida reports, the file from West Tennessee Forensics (MMHI), and the reports of Hutson, Meltzer, Lipman, Gur, Smith, and Bigler. (*Id.* at PageID 16006-16007.) He did not review the Tennessee Department of Corrections records; although, he thought that the records would have been relevant. (*Id.* at PageID 16029-16030.) Woods did not review Dr. Leonard Morgan's report from December 8, 1986, which discussed a mental health screening during which Cone asked Morgan to "support an insanity defense to get [the] Supreme Court to spring him." (*Id.* at PageID 16029-16032.)

[40] On cross-examination, Woods explained that his diagnosis was based on a record review, not a personal examination of Cone. (ECF No. 437 at PageID 15996.) Woods did not feel that it was required or feasible for him to conduct a personal examination of Cone for the purpose of rebutting Hutson's report. (*Id.* at PageID 16005-16006.)

Woods was aware that the jury in the Florida case heard Stillman and Ryan's testimony, still found Cone guilty, and gave him a maximum sentence of life. (*Id.* at Page ID 16009-16011.) On redirect, Woods explained that he found the Florida jury's finding to be irrelevant to whether Cone was insane based on Tennessee law because Florida had a different standard for insanity. (*Id.* at PageID 16037.) Woods testified that "[t]he types of impairments that Mr. Cone has speak to conforming one's behavior rather than understanding of right and wrong." (*Id.* at PageID 16039.)

On cross-examination, Woods acknowledged that Cone was able to pass a mental and physical examination, perform and be honorably discharged from the Army, and go to college for three and a half years. (*Id.* at PageID 16011.) Woods stated that college is "[n]ot the most structured environment, but it is a structured environment." (*Id.*) He described an unstructured environment as when Cone was using drugs, not working, and without family. (*Id.* at PageID 16012.)

Woods admitted that Cone said he was lazy and did not have any work ethic. (*Id.*) Cone "said he had done some work, but that he had problems with authority and that he chose to do illegal crimes." (*Id.*) Cone did well during his undergraduate career, and he did well robbing grocery stores to support himself. (*Id.* at PageID 16013.)

Woods admitted that one cannot plan for some things, and Cone did not plan on getting caught or having to face the "circumstances" for robbing the jewelry store. (*Id.* at PageID 16015.) Woods was asked what he would expect Cone's behavior to be given that he had spent seven and a half years in prison, had robbed a jewelry store, had shot a police officer and a bystander, and had only one thing that was standing between him and going back to prison—the Todds. (*Id.*) Woods responded,

> That's a completely speculat[ive] and impossible question to answer.
>
> . . . .
>
> If I may finish. A normal person would probably not find themselves in a situation—in that particular situation.

(*Id.* at PageID 16015-16016.) Woods admitted that normal people do commit robberies, and there are lots of people in the penitentiary who do not suffer mental illness. (*Id.* at PageID 16016, 16018.) He stated, however, that "[t]he idea of forensic psychiatry is not to somehow assume and have expectations of what someone would do." (*Id.* at PageID 16016.) Woods "can't justify [Cone's] behaviors as somehow being normal or reasonable. I am just not able to do that. Certainly from a psychiatric point of view, I'm not able to do that." (*Id.* at PageID 16018.) Woods stated that Cone made the decision to bludgeon two elderly people to death, but it was a bad decision that came from the very behaviors that we are describing. (*Id.*) "Somehow to make that sound reasonable, I can't do that, I can't describe that as somehow being reasonable." (*Id.*)

Woods agreed that the letter dated July 16, 1980, to Cone's parole officer indicated an individual who is goal-oriented, thoughtful, deliberate, and making plans to go to school. (*Id.* at PageID 16027-16028.)

On redirect, Woods stated that he reviewed the MMHI file to determine whether there was evidence from that file, especially as it relates to what happened in the Todds' house, which affected Woods' opinions about Cone's mental illness. (*Id.* at PageID 16043-16044.) Woods said that there is support in the MMHI file for Cone's psychiatric illness and the cognitive impairments. (*Id.*) With respect to psychiatric illness, Woods noted the intern's assessment of Cone's affect as being quite limited and similar to the impaired emotional reactivity that Stillman, Ryan and Watson addressed. (*Id.* at PageID 16044.) Cone's statement that he flew in a rage relates to the cognitive impairments. (*Id.* at PageID 16045.) Woods testified that "these deep

crevices of once things become too complex, his very good coping skills break down, so they're fragile in that sense, and that is the piece that made me believe that he may have been unable to conform his behavior to the law." (*Id.*)

The Court finds that Woods lacks credibility based on: (1) his predisposition for the defense and (2) the fact that, despite claiming to have performed a very thorough records review, Woods lacked knowledge of various facts, such as what Cone did after he fled to Florida after murdering the Todds and what Cone said when he confessed to Dr. Matthew Jaremko. As previously noted, Woods has worked only on behalf of the defense in habeas capital cases. More importantly, Woods did not examine Cone, or make any effort to examine Cone, in making his diagnosis. Additionally, Woods did not review the Tennessee Department of Corrections or Oklahoma institutional records, although he acknowledged that they would have been relevant. Given that Woods agreed that normal people can be criminals, Woods struggled to articulate what about Cone's behavior in killing the Todds was so abnormal as to indicate mental illness or impairment, in light of Cone's circumstances and otherwise rational behavior at the time of commission of the crime.

L. Erin Bigler, Ph.D. (Neuropsychologist)

Erin Bigler is a professor of psychology and neuroscience, the director of the magnetic resonance imaging center at Brigham Young University, and a clinical neuropsychologist. (ECF No. 433 at PageID 15344, 15348, 15350.) Bigler testified by deposition on March 27, 2014. (*Id.*) His areas of expertise are neuropsychology and neuroimaging. (*Id.* at PageID 15351.) Cone moved the Court, without objection, to allow Bigler to provide opinion testimony as an expert in neuropsychology and neuroimaging. (*Id.* at PageID 15356.)

Bigler explained that quantitative morphometry refers to something that is quantitatively or physically measured in some way. (*Id.* at PageID 15360.) Volumetric analysis specifically measures the volume of a particular structure, often referred to as a "region of interest." (*Id.*) Bigler explained how volumetric analysis works with brain analysis:

> so on imaging, there's a slice thickness and then there may be a gap between the slices or there may not be and then there'd be the number of slices, and so if you identify the area that is, in fact, the brain and you know the slice thickness and you know the distance between slices or whether there is not any distance and the number of slices, then by defining that region of interest, you can identify the volume, you can calculate the volume.

(*Id.* at PageID 15360-15361.) A "region of interest" is a "classic area" that has been understood "from the very beginning of individuals anatomically examining the brain." (*Id.* at PageID 15361.) Such "classic areas" include the two cerebral hemispheres (right and left) and the four lobes (frontal, parietal, occipital, and temporal). (*Id.*) Once certain landmarks are used to identify the location of these "classic areas," their volmes can be calculated. (*Id.*)

Bigler explained why volumetric analysis of the brain is used by demonstrating "the Goldie Locks [*sic*] Principle." (*Id.* at PageID 15361-15362.) Size relates to function in the brain—as it does other organs. (*Id.* at PageID 15362.) Brain volume needs to be within a certain range:

> there is a normal or typical size of a particular region of the brain, and if that size deviates from what is the norm, then that may be an indication of some aspect of either abnormal development or some pathologic state.

(*Id.*) The "whole area of neuroimaging and neuropsychiatry and neuropsychology" operates on the assumption of a size-function rule and a relationship between the size of the brain and certain functions of the brain. (*Id.* at PageID 15363.)

Before neuroimaging became possible, studying the relationship between brain volume and behavior could only be done by measuring the size of the head, which Bigler testified was not

very effective. (*Id.*) There was a technique called pneumoencephalography that provided an image of the internal cavity of the brain called the ventricle. (*Id.* at PageID 15363-15364.) To perform a pneumoencephalography, cerebrospinal fluid was drained out and replaced with air, which created a contrast between the air and ventricle that could be measured. (*Id.* at PageID 15364.) This method was used before CT scans. (*Id.* at PageID 15363.) In the mid-1970s with the advent of CT scans, Bigler began taking measurements of the brain, including the volume. (*Id.*) With the advent of MRI in the mid-1980s, they could refine the measurement techniques. (*Id.*) MRI is far superior to CT for volumetrics. (*Id.*)

In Bigler's report, he stated that "every behavior has anatomy." (*Id.* at PageID 15365; *see* ECF No. 433-2 at PageID 15507.) He explained

> that the brain is there for a purpose and that no behavior, whether it's something that's occurring internally, such as a thought, or externally, such as movement, all of that is mediated by the brain. There is a very basic physiologic premise that brain structure and function underlies everything that we engage in that we would describe as behavior . . . .

(ECF No. 433 at PageID 15365.) The foundation is that there are certain regional differences in the brain that relate to function. (*Id.* at PageID 15366.) "[I]f you can identify . . . a difference from a normative change, then that gives you insight into the biologic basis of a particular behavior." (*Id.*)

Bigler addressed the normal distribution related to size and function in brain morphology:

> An overriding basic principle in all of life science and medicine is that there tends to be a normal distribution with regards to size and function. This is certainly true in regards to brain morphology and, likewise, is true with regards to neuropsychological function. If one calculates the average, then that is a metric that can be used to compare any individual to what the group average is.

(*Id.* at PageID 15367; *see* ECF No. 433-2 at PageID 15507.) He explained that every organ, muscle, or bone conforms to the bell curve, and there is a restricted range that allows the creation

of the bell curve. (ECF No. 433 at PageID 15368.) The normal distribution applies to the brain in the size of every structure within the brain. (*Id.*)

The distribution allows the clinician to have normative data and look for individual variation. (*Id.* at PageID 15369.) He explained how the distribution works for clinical neuropsychology:

> So in clinical neuropsychology, for example, the IQ scores that we use are based on normative samples that are several thousand individuals, but we take the one individual that we're testing one on one and we compare those individual scores of that person to the normative sample that we have and we use these different statistical comparisons, T scores, Z scores, percentile scores, standard scores, scale scores, and notice that they all basically conform in a unified way so that you can go from percentile score to Z score to T score, etc., and this is—this is the basis of all of science, in fact.

(*Id.*) He stated that these statistics are done at a group level before bringing it back to the individual level and finding any deviation from the norm that might have some particular relevance. (*Id.* at PageID 15370.)

Bigler described Gur's use of one to two standard deviations as showing something potentially clinically significant and two standard deviations or more reflecting abnormality as standard in all research and clinical work in the field of neuropsychological assessment. (*Id.*; *see* ECF No. 433-2 at PageID 15507.) According to Bigler, less than two percent of a sample falls below two standard deviations from the mean,[41] and that is an indication that there may be something that is potentially clinically important to understand why this structure is either so small or so big. (ECF No. 433 at PageID 15372.)

[41] Bigler appears to have misspoken. The portion of a sample that is at least two standard deviations below the mean in a normal distribution—as is at issue here (*see* ECF No. 433 at PageID 15367 (noting "there tends to be a normal distribution with regards to size and function"))—represents approximately 2.5% of the sample. *See, e.g.*, *Waisome v. Port Auth. of New York & New Jersey*, 948 F.2d 1370, 1376 (2d Cir. 1991); *Equal Employment Opportunity Comm'n v. Am. Nat'l Bank*, 652 F.2d 1176, 1192 (4th Cir. 1981).

Bigler addressed his assertion that there does not have to be a reduction in volume to an abnormal range to have an adverse influence on behavior. (*Id.* at PageID 15373-15374; *see* ECF No. 433-2 at PageID 15509.) He stated that volume is "a very gross indicator of tissue/brain health" and even small changes in volume on a MRI may reflect substantial cellular pathology. (ECF No. 433-2 at PageID 15509.) Bigler explained that it is estimated that we have between 80 to 100 billion neurons, and the supportive cells referred to as glial cells are about one and a half times more frequent than the neurons, resulting in around 200 billion very small brain cells. (ECF No. 433 at PageID 15374.) Brain cells are measured in microns, a millionth of a meter, so even subtle difference in brain structure could be affecting hundreds of thousands of cells. (*Id.*) An image may look normal, but the quantitative findings may show that an underlying neuronal loss has occurred. (*Id.*)

Bigler applied a NeuroQuant analysis to Cone's imaging. (*Id.* at PageID 15375.) NeuroQuant is "a standard program that takes the imaging information and it goes through a process that segments and then classifies the brain into various regions of interest." (*Id.*) NeuroQuant applies the metric of the bell curve to brain anatomy and is accepted in the scientific community as a valid and reliable measurement tool. (*Id.*) NeuroQuant is limited to the brain regions involving the hippocampus and inferior lateral ventricle. (*Id.* at PageID 15399-15400.) Bigler stated that Cone's MRI at Vanderbilt can be reliably compared through NeuroQuant because it takes into consideration different field strengths, platforms, and manufacturer for scanners so long as it is a volume acquisition scan. (*Id.* at PageID 15381.) Another benefit of NeuroQuant is that it takes into account the normal aging process because it compares to people of Cone's age. (*Id.* at PageID 15389.)

With regard to Meltzer's analysis, Bigler stated "the clinical view of the scan is an eyes on

assessment of the scan using the individual who's performing that as their own normative reference, it's their eye and having looked and examined numerous scans." (*Id.* at PageID 15377.) He stated that "you develop your own internal normative database" from looking at these scans. (*Id.*) Bigler noted two general principles of what to look for on scans that are applied in the clinical aspect: (1) symmetry; and (2) similarity. (*Id.*) However, a neuroradiologist is always looking for major gross abnormalities that are medically significant. (*Id.* at PageID 15377-15378.) Bigler stated that "the clinical overview cannot get into the subtleties of being able to identify anatomical areas that may be subtly different or subtly abnormal in a way that has relevance to behavior." (*Id.* at PageID 15378.)

In Bigler's opinion, the volumetric analysis is a better approach for understanding brain morphometry and behavior. (*Id.*) "Morphometry allows us to go specifically into the bell curve and say, you know what, brain volume is thus and such. . . . It gives us a quantitative number." (*Id.*) He then described how neuropsychology has treated the volumetric information:

> you look at the—the different measures of human behavior and then you look at the dimensions of the quantitative analysis from the MRI and you tend to look for correlations, how is the reduction in one function related to the reduction in another; in other words, reduction in behavior from [the] neuropsychology standpoint related to a reduction in the size of a particular structure.

(*Id.* at PageID 15379.)

In response to Meltzer's concerns about the application of group data, Bigler used the example of taking a child to a pediatrician and comparing the child to the growth chart, which is essentially a bell curve that takes normative data and applies it to the individual to see where he falls on the curve. (*Id.* at PageID 15380-15381.)

Bigler stated that Cone's NeuroQuant findings indicate that he has larger temporal horn volume and reduced hippocampal volume. (*Id.* at PageID 15381-15382.) Cone is at the 12th

percentile of hippocampal volume for his age group, which is between one and two standard deviations below the mean. (*Id.* at PageID 15382-15383; *see* ECF No. 433-3 at PageID 15510.) Reduced hippocampal volume has been related to post-traumatic stress. (ECF No. 433 at PageID 15387.)

Bigler explained that there is a robust relationship between the inferior lateral ventricle, also known as the temporal horn, and the hippocampus because as hippocampal volume goes down, temporal horn volume goes up. (*Id.* at PageID 15384-15386.) The internal cavity of the brain is the ventricular system, and the inferior lateral ventricles are within the cerebral hemispheres. (*Id.* at PageID 15384.) The anterior horn, the body, the temporal horn, atria, and the inferior horn go down to the temporal lobe. (*Id.* at PageID 15384.) The hippocampus sits in the floor of the inferior or temporal horn. (*Id.*) Cerebrospinal fluid is pressurized because the brain is a very soft organ, and without an internal pressure gradient that pushes the brain tissue out, it would collapse in on itself. (*Id.*) The internal pressure gradient is held in check by brain volume. (*Id.*) If a brain structure fails to develop or atrophies, the ventricle expands to fill the void creating a larger ventricle. (*Id.*) "[W]hen you get increased ventricular size in the temporal horn," this is an indication of a nonspecific difference in the temporal lobe itself or "in other words, it is smaller than what it should be." (*Id.* at PageID 15384, 15386-15387.)

Cone's volume in the inferior lateral ventricle is in the 91st percentile. (*Id.* at PageID 15385; *see* ECF No. 433-3 at PageID 15510.) The volume measurement is a measurement of cerebrospinal fluid for this structure, not tissue. (ECF No. 433 at PageID 15386.) Bigler testified that understanding what is going on in the temporal lobe has relevance in trying to understand memory, emotion, and executive ability because of its proximity to the amygdala. (*Id.* at PageID 15388.)

Bigler's findings were consistent with Gur's findings. (*Id.* at PageID 15388-15389.) Gur talked about the hippocampus, the amygdala, reduced size, and the temporal lobes in his report, and those are similar to the findings from NeuroQuant. (*Id.* at PageID 15389.) On cross-examination, Bigler explained that the findings on the NeuroQuant, however, were between one and two standard deviations from the norm—"on the border of one[-]and-a-half standard deviations below the norm." (*Id.* at PageID 15400.) The findings were in the "borderline" range and "potentially clinically significant"; however, without having examined Cone, Bigler could not integrate those findings into an overall clinical perspective. (*Id.* at PageID 15401-15402; *see* ECF No. 433-2 at PageID 15507, 15509.) Clinical correlation is used to identify false positives and false negatives. (ECF No. 433 at PageID 15402.) Bigler stated,

> So the fields of neurology, psychology, clinical neuropsychology are taking this kind of information and then looking at it in the context of other test results, clinical history, and then putting it together into the big picture. It may be that the clinician rejects the information from neuroimaging and assumes that it is a normal variant; on the other hand, it may be highly relevant in terms of the signs and symptoms that have occurred and they deem it to be appropriate to relate. So it's really clinical decision making.

(*Id.* at PageID 15408-15409.)

Bigler discussed, on direct, the issue of baseline and where the baseline for comparison should be. (*Id.* at PageID 15389-15390.) He noted that Cone has a college degree, and typically someone with an increased educational background may have a somewhat larger brain volume because there is a relationship between brain size and intellectual ability. (*Id.* at PageID 15390.) NeuroQuant does not take into account Cone's education or intellectual ability, so the normative comparison may not be completely accurate, and the mid-point line may need to be adjusted upwards. (*Id.*)

Bigler testified that, based on the scans, there are no tumors and no aggressive atrophy

characteristic of dementia. (*Id*.) The assumption is that the reduced volume results from more chronic pathologies. (*Id.* at PageID 15391.)

The Court finds Bigler to be a credible witness. Bigler's testimony was consistent with Gur's, but largely limited to NeuroQuant analysis. Bigler, however, relied on modern technology in his analysis. Although CT scans were available in the 1980s, Bigler did not review a CT scan of Cone's brain. According to Bigler, MRI was available in the mid-1980s, but today's MRI technology is far superior. Bigler also noted that his NeuroQuant findings could not be integrated without having examined Cone, and that a clinician might accept or reject the findings depending on apparent clinical signs and symptoms. For these reasons, Bigler's testimony, although credible, is not particularly helpful to evaluating what neuropsychological testing would have shown, had it been requested prior to Cone's trial.

V. ANALYSIS

Cone's claims turn on whether he received constitutionally ineffective assistance of counsel at trial. A claim that a defendant has been deprived of his Sixth Amendment right to counsel is controlled by the standards stated in *Strickland v. Washington*, 466 U.S. 668 (1984), which has two prongs: (1) that "counsel provided deficient assistance," *Harrington v. Richter*, 562 U.S. 86, 104 (2011); and (2) "that there was prejudice as a result." *Id.* To demonstrate deficient performance by counsel, a petitioner must establish that "counsel's representation fell below an objective standard of reasonableness." *Strickland*, 466 U.S. at 688.

> A court considering a claim of ineffective assistance must apply a "strong presumption" that counsel's representation was within the "wide range" of reasonable professional assistance. [*Strickland*, 466 U.S.] at 688. The challenger's burden is to show "that counsel made errors so serious that counsel was not functioning as the 'counsel' guaranteed the defendant by the Sixth Amendment." *Id.*, at 687.

Richter, 562 U.S. at 104. A petitioner is not entitled to "perfect advocacy," but only the "'reasonable competence' the right to counsel guarantees." *Maryland v. Kulbicki*, 136 S. Ct. 2, 4 (2015) (per curiam).

To demonstrate prejudice, a prisoner must establish "a reasonable probability that, but for counsel's unprofessional errors, the result of the proceeding would have been different." *Strickland*, 466 U.S. at 694.[42] "A reasonable probability is a probability sufficient to undermine confidence in the outcome." *Id.*

> It is not enough "to show that the errors had some conceivable effect on the outcome of the proceeding." [*Strickland*, 466 U.S.] at 693, 104 S. Ct. 2052. Counsel's errors must be "so serious as to deprive the defendant of a fair trial, a trial whose result is reliable." *Id.*, at 687, 104 S. Ct. 2052.

Richter, 562 U.S. at 104; *see also id.* at 111 ("In assessing prejudice under *Strickland*, the question is not whether a court can be certain counsel's performance had no effect on the outcome or whether it is possible a reasonable doubt might have been established if counsel acted differently. . . . The likelihood of a different result must be substantial, not just conceivable." (citations omitted)); *Wong v. Belmontes*, 558 U.S. 15, 27 (2009) (per curiam) ("But *Strickland* does not require the State to 'rule out' [a more favorable outcome] to prevail. Rather, *Strickland* places the burden on the defendant, not the State, to show a 'reasonable probability' that the result would have been different." (citing *Strickland*, 466 U.S. at 694)).

"Surmounting Strickland's high bar is never an easy task." *Padilla v. Kentucky*, 559 U.S. 356, 371 (2010).

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[42] "[A] court need not determine whether counsel's performance was deficient before examining the prejudice suffered by the defendant." *Strickland*, 466 U.S. at 697. If a reviewing court finds a lack of prejudice, it need not determine whether, in fact, counsel's performance was deficient. *Id.*

> An ineffective-assistance claim can function as a way to escape rules of waiver and forfeiture and raise issues not presented at trial, and so the *Strickland* standard must be applied with scrupulous care, lest "intrusive post-trial inquiry" threaten the integrity of the very adversary process the right to counsel is meant to serve. *Strickland*, 466 U.S., at 689-690, 104 S. Ct. 2052. Even under *de novo* review, the standard for judging counsel's representation is a most deferential one. Unlike a later reviewing court, the attorney observed the relevant proceedings, knew of materials outside the record, and interacted with the client, with opposing counsel, and with the judge. It is "all too tempting" to "second-guess counsel's assistance after conviction or adverse sentence." *Id.*, at 689, 104 S. Ct. 2052; *see also Bell v. Cone*, 535 U.S. 685, 702, 122 S. Ct. 1843, 152 L. Ed. 2d 914 (2002); *Lockhart v. Fretwell*, 506 U.S. 364, 372, 113 S. Ct. 838, 122 L. Ed. 2d 180 (1993). The question is whether an attorney's representation amounted to incompetence under "prevailing professional norms," not whether it deviated from best practices or most common custom. *Strickland*, 466 U.S., at 690, 104 S. Ct. 2052.

Richter, 562 U.S. at 105.

A. The Application of *Martinez*

Because Cone's claims were previously procedurally defaulted, the Court must look to *Martinez v. Ryan*, 132 S. Ct. 1309 (2012) and *Trevino v. Thaler*, 133 S. Ct. 1911 (2013) to determine whether Cone can overcome procedural default. In *Martinez*, the Supreme Court created "a narrow exception" to the general rule of *Coleman v. Thompson*, 501 U.S. 722, 756–57 (1991), that a habeas petitioner cannot use ineffective assistance of collateral review counsel as cause to excuse a procedural default. The *Martinez* exception allows inadequate assistance of counsel at initial review collateral proceedings to establish cause for a prisoner's procedural default of a "substantial" claim of ineffective assistance of trial counsel. *Martinez*, 132 S. Ct. at 1318, 1320. The Sixth Circuit Court of Appeals determined that the ineffective assistance of post-conviction trial counsel may constitute cause to excuse the procedural default of ineffective assistance of trial counsel claims in Tennessee. *See Sutton v. Carpenter*, 745 F.3d 787, 795–96 (6th Cir. 2014). Neither the Supreme Court nor the Sixth Circuit, however, has provided

guidance as to how district courts reviewing habeas petitions are to implement the rulings in *Martinez* and *Trevino*. *Duncan v. Carpenter*, No. 3:88-00992, 2014 WL 3905440, at *18 (M.D. Tenn. Aug. 11, 2014); *Quintero v. Carpenter*, No. 3:09-CV-00106, 2014 WL 7139987, at *79 (M.D. Tenn. Dec. 12, 2014) (same).

Martinez did not dispense with the "actual prejudice" requirement in *Coleman*. *Coleman*, 501 U.S. at 750. To obtain relief under *Martinez* and *Trevino*, a petitioner must show a "substantial" underlying claim of ineffective assistance of trial counsel. *See Trevino*, 133 S. Ct. at 1918; *Martinez*, 132 S. Ct. at 1318–19. To establish that the underlying claim is "'substantial," the petitioner must show that it has "some merit" under *Strickland*. *Martinez*, 132 S. Ct. at 1318.

In *Clabourne v. Ryan* the Ninth Circuit held that to establish that a petitioner's claim is "substantial" he must "show that his post-conviction relief counsel was ineffective under *Strickland v. Washington*." 745 F.3d 362, 376 (9th Cir. 2014), *overruled on other grounds by McKinney v. Ryan*, 813 F.3d 798 (9th Cir. 2015). That is, the petitioner must show both that his post-conviction counsel's performance was constitutionally deficient and that the petitioner was prejudiced by the deficiency. *Clabourne*, 745 F.3d at 376. According to the Ninth Circuit, "actual prejudice," for purposes of the *Coleman* analysis in the *Martinez* context, requires a showing that "the underlying ineffective-assistance-of-trial-counsel claim is a substantial one, which is to say that the claim has some merit." *Clabourne*, 745 F.3d at 377 (quoting *Martinez*, 132 S. Ct. at 1318). The *Clabourne* court recognized some "overlap" between the two prejudice requirements:

> Within the "cause" prong there is an element of "prejudice" that must be established: to show ineffective assistance of post-conviction relief counsel, a petitioner must establish a reasonable probability that the result of the post-conviction proceeding would have been different. The reasonable probability that the result of the post-conviction proceedings would have been

> different, absent deficient performance by post-conviction counsel, is necessarily connected to the strength of the argument that trial counsel's assistance was ineffective. The prejudice at issue is prejudice at the post-conviction relief level, but if the claim of ineffective assistance of trial counsel is implausible, then there could not be a reasonable probability that the result of post-conviction proceedings would have been different.

Clabourne, 745 F.3d at 377.

Several opinions from the United States District Court for the Middle District of Tennessee have determined that, in seeking to overcome procedural default under *Martinez*, it will be more efficient for the reviewing court to consider, in the first instance, whether the alleged underlying ineffective assistance of trial counsel claim was "substantial" enough to satisfy the "actual prejudice" prong of *Coleman*. *See Davis v. Johnson*, No. 3:11-CV-0613, 2014 WL 3784342, at *10 (M.D. Tenn. Aug. 1, 2014), *appeal filed*, No. 14-15985 (6th Cir. 2014); *Thorne v. Hollway*, No. 3:14-CV-0695, 2014 WL 4411680, at *23 (M.D. Tenn. Sept. 8, 2014) (same); *Duncan*, 2014 WL 3905440, at *18 (same); *Webb v. Parris*, No. 3:14-CV-01548, 2014 WL 5465340, at *20 (M.D. Tenn. Oct. 28, 2014); *White v. Johnson*, No. 3:14-CV-01281, 2014 WL 4805049, at *10 (M.D. Tenn. Sept. 26, 2014) (same).

This Court has determined that the above-named relevant claims are "substantial" under *Martinez* and allowed an evidentiary hearing to prove ineffective assistance of post-conviction counsel and the merits of the claim. (*See* ECF No. 323 at 87-88; ECF No. 391 at 84-85.) Based on *Clabourne*, the Court must now resolve: (1) for the purposes of demonstrating cause, whether post-conviction counsel was, in fact, deficient in his performance, and (2) whether trial counsel was ineffective (both deficient performance and prejudice) on the claims at issue.

B. Ineffective Assistance of Post-Conviction Counsel

Cone relies on *Detrich v. Ryan*, 740 F.3d 1237 (9th Cir. 2013), *cert. denied*, 142 S. Ct. 2662 (2014), for the application of *Martinez* to establish cause and prejudice by showing ineffective assistance of post-conviction counsel for the failure to exhaust his ineffective assistance of trial counsel claims. (ECF No. 451 at 9-11.) To prove cause and prejudice, Cone relies on the fact that his post-conviction counsel James Kopernak had never previously worked on a capital case or a post-conviction proceeding and did not raise the specific claims of ineffective assistance of trial counsel that are now raised in the habeas proceedings. (*Id.* at 11.) Cone argues that Kopernak did not obtain the Florida psychological reports or contact Cone's Florida trial counsel Michael Doddo. (*Id.*) Cone also asserts that Kopernak had no strategic reasoning for not presenting a claim of ineffective assistance of trial counsel for failure to investigate mental health evidence from Cone's Florida proceedings. (*Id.*) Cone avers that, given his mental state defense, Kopernak acknowledges that it would have been important to obtain those mental health records to investigate the claim and that he (Kopernak) would have provided those records to experts for review during the post-conviction proceedings. (*Id.* at 12.) Kopernak testified that he presented all the ineffective assistance claims that he thought were available and that he did not decide to withhold a potential claim based on a tactical reason. (*Id.* at 13.) Cone argues that post-conviction counsel presented no expert testimony related to Petitioner's mental state and mental health at the post-conviction hearing. (*Id.* at 14.)

Respondent states that Cone must show that post-conviction counsel's performance was both deficient and that he was prejudiced. (ECF No. 457 at 103-104.) Respondent states that the prejudice inquiry for ineffective assistance of post-conviction counsel necessitates that the Court

determine whether trial counsel rendered ineffective assistance on the underlying claim. (*Id.* at 104.) Respondent disagrees with the Court's findings that the claims in ¶ 40(a)(i), 40(a)(ii)(1), 40(c), and 40(d) are substantial. (*Id.* at 105, 133, 141, 149.) Respondent also makes specific arguments related to each claim about why post-conviction counsel's performance was reasonable under *Strickland*.

Cone replies that Kopernak's failure to raise the substantial ineffectiveness claims presented in the habeas petition were "based on ignorance, not strategy," and his performance was deficient under *Strickland.* (ECF No. 458 at 10.)

The Court will address the arguments as to both the ineffective assistance of post-conviction counsel and ineffective assistance of trial counsel as it relates to each claim below.

C. Florida Charges and Trial (Petition ¶ 40(a)(i))

Cone alleges that:

> Counsel failed to investigate the circumstances surrounding Mr. Cone's criminal charges and trial in the State of Florida (including obtaining records of the trial), and failed to present this evidence at trial. Had counsel investigated the circumstances surrounding the events in Florida, counsel would have learned, inter alia, that Dr. William Grady Ryan, Ph.D., found that Mr. Cone had a schizo-affective disorder and was insane at the time of the offense. Dr. Ryan reported that Mr. Cone's manic and schizophrenic profile combined with toxic drugs would make Mr. Cone uncontrollable. Furthermore, Dr. Arthur T. Stillman, M.D., found that at the time of the Florida offense the petitioner was insane and incompetent and that petitioner had been under the influence of large quantities of polydrugs, including cocaine, amphetamines, and marijuana. In his report, Dr. Stillman also found that in a structured situation, such as a prison or in the armed forces, Mr. Cone would function well. They also noted Mr. Cone's extensive drug problem. Also, their reports contain abundant mental health and mitigating evidence, which should have been obtained and presented at trial. However, counsel failed to obtain their records, interview them, and/or use their evidence in any way at either the guilt or sentencing phases of trial.

(ECF No. 71 at 18.) The focus of Cone's post-evidentiary hearing brief is the information that

could have been presented to the jury from the Florida trial, especially the Stillman and Ryan reports, as it relates to Cone's mental defect, insanity, the corroboration of drug use, and the evidence of frontal lobe brain damage. Cone asserts that he was prejudiced at both the guilt and sentencing phases of trial by counsel's failures. (ECF No. 451 at 20.)[43]

1. Post-Conviction Counsel

Respondent argues that Cone has failed to establish cause and prejudice to overcome the procedural default of this claim and disagrees with the Court's finding that this claim is substantial. (ECF No. 457 at 105.) Respondent argues that Cone failed to establish that post-conviction counsel was deficient under *Strickland.* (*Id.* at 105.) Kopernak worked on this case *pro bono*, at Dice's request, because Dice was a friend. (*Id.* at 106-107.) Respondent asserts that Kopernak worked diligently on the case, talked with Cone a number of times about the Florida cases and other issues, and noted that it was not easy to get witnesses for the penalty phase. (*Id.*) Kopernak personally knew defense expert Jonathan Lipman and thought he was extremely bright. (*Id.* at 107-108.) Kopernak raised the claims for relief that he thought had a chance of success, but he also admitted that he did not believe he contacted Doddo and that he did not obtain the Florida reports. (*Id.* at 108.)

Respondent asserts that the question for this Court is whether Kopernak's failure to obtain Ryan's and Stillman's reports was objectively unreasonable in light of the facts and circumstances viewed at the time of Cone's post-conviction proceedings. (*Id.* at 109.) Respondent further asserts that Kopernak's performance was not unreasonable because Dice had retained two expert witnesses and presented an insanity defense, which the jury rejected, and that Kopernak and Cone

[43] Cone addresses his mental health ineffectiveness claims globally without specially addressing the individual claims that he has raised in his petition because the Florida records provide a foundation for his claims in Petition ¶¶ 40(b)-40(e) and 40(k). (*See* ECF No. 451 at 18.)

had discussed the Florida case. (*Id.*) Respondent turns to Dice's post-conviction testimony to give context to the issue:

> Q In the course of Gary's representation on criminal charges in the State of Florida, wasn't there a psychological workup done on Mr. Cone?
>
> A If you want to call it that. I don't think Mr. Cone agrees with that.
>
> Q Did you ever see it?
>
> A No, I didn't because I called down and they didn't raise Vietnam Stress Syndrome down there. They saw Mr. Cone for a very brief amount of time and his lawyer told me it was absolutely worthless. Of course, it didn't address the specific issue of what was the state of mind of Gary Cone at the time of the killing in Memphis.
>
> Q Were those records ever reviewed as to whether or not they would be useful as to mitigating circumstances under the meaning of *Lockett v. Ohio*?
>
> A I didn't review them because in discussing with my client about them and talking with his lawyer about them and in talking with Doctor J[a]remko about them, I felt it would not have been.

(ECF No. 233-3 at PageID 3304-3305.)[44]

Respondent notes that Cone was in the courtroom when Dice testified and did not dispute Dice's testimony about his view of the Florida mental health evaluation. (ECF No. 457 at 110.) Respondent asserts that "[c]ertainly had Cone disagreed with Dice at the time he would have made that known to Kopernak and would have provided the post-conviction court with testimony to this effect." (*Id.*) According to Respondent, the decisions about what investigation to perform depends critically on the information provided by defendant, and counsel's failure to pursue a line of investigation is not unreasonable where the defendant has given counsel reason to believe that pursuing certain investigations would be fruitless or harmful. (*Id.*) Respondent asserts that

[44] Cone asserts that Dice was suffering from severe mental disturbance at the time of the post-conviction testimony. (ECF No. 451 at 30 n.1.) Hutson testified about Dice's state of mind at the time of the post-conviction hearing, *see supra* pp. 186-187.

Kopernak's view of the Florida "psychological workup" was influenced by Cone. (*Id.*) Respondent contends that Kopernak's failure to obtain those records was not objectively unreasonable. (*Id.*) Respondent, therefore, asserts that Cone cannot establish cause for the procedural default of this claim. (*Id.* at 110-111.)

Cone insists that there is a "gaping hole" in Respondent's logic because Dice himself said that he never secured the records. (ECF No. 458 at 10.) Cone argues that the only way for Kopernak to investigate whether Dice violated *Strickland* was to obtain the records himself, which Kopernak failed to do. (*Id.*) Cone asserts that Dice and Kopernak "made the identical, fatal mistake under *Strickland*" by failing to secure the Florida records and use them to defend Cone. (*Id.* at 10-11.)

There is no dispute that although Dice and Kopernak were both aware of the Florida psychological reports, neither obtained a copy of them. (*See* ECF No. 458 at 2.) Dice testified that he talked to Cone's Florida counsel, Jaremko, and Cone about the reports, but Doddo does not recall talking to anyone from Memphis about Cone. (*See id.* at 3.) The question as it relates to post-conviction counsel's performance is whether it was reasonable for Kopernak to rely on Dice's assertion that the Florida psychological defense was not useful without obtaining the reports and investigating for himself.

The Sixth Amendment requires defense counsel to reasonably investigate a defendant's background, and the failure to conduct such an investigation and present mitigating evidence to the jury can constitute ineffective assistance. *Watkins v. Lafler*, 517 F. App'x 488, 497 (6th Cir. 2013), *cert. denied sub nom. Watkins v. MacLaren*, 134 S. Ct. 210 (2013). Basic expectations for such an investigation include reviewing prison, educational, and medical records, as well as attempting to contact and interview family members. *Bobby v. Van Hook*, 558 U.S. 4 (2009); *see*

Roberts v. Warden, San Quentin State Prison, No. CIV S-93-0254 GEB, 2013 WL 416346, at *75 (E.D. Cal. Jan. 31, 2013) (holding that counsel must inquire into a defendant's social background and obtain and examine mental and physical health records, school records, and criminal records). Counsel's performance is deficient where he fails to take the first step of requesting records. *Porter v. McCollum*, 558 U.S. 30, 39 (2009) (per curiam). A decision not to investigate must be directly assessed for reasonableness under all the circumstances, applying a heavy measure of deference to counsel's judgments. *See Morrow v. Tennessee*, 588 F. App'x 415, 422 (6th Cir. 2014).

Kopernak was obligated to find out the facts, not to guess or assume or suppose that facts may be useless or adverse, especially as it related to Cone's psychological health. *See Hamblin v. Mitchell*, 354 F.3d 482, 492 (6th Cir. 2003). Kopernak should have, at a minimum, obtained the Florida reports and investigated to determine if they would have been relevant to Cone's defense in the Memphis trial. Post-conviction counsel's performance was deficient, and the claim requires review on the merits.

2. Trial Counsel

Cone asserts that his trial counsel failed to secure the reports of Ryan, Stillman, and Eichert, although he knew the records existed. (ECF No. 451 at 26.) Cone contends that, as Gur testified, the Florida reports provide a wealth of mental health evidence recounting Cone's behaviors and actions that confirm that he suffered brain damage and mental illness when he committed these offenses in 1980. (*Id.* at 26.) Cone notes that, in the post-conviction proceedings, Dice claimed that he had "called down" to Florida and was told that "they saw Mr. Cone for a very brief amount of time and his lawyer said it was absolutely worthless." (*Id.* at 29.) Further, Dice noted that the Florida reports did not address the specific issue of Cone's state of

mind at the time of the murders in Memphis. (*Id.*) Cone relies on Doddo's testimony that no one who represented Cone in Tennessee contacted him about these reports. (*Id.* at 28.) Cone contends that Dice should have obtained the Florida records and evaluated them on the basis of Tennessee law for purposes of establishing a defense. (*Id.* at 30.)

Cone relies on April Goode's habeas testimony that she could not see a reasonable basis for not using the Florida records to establish and support a defense of psychosis. (*Id.* at 32.) Goode believes that the records would have supported a mental state defense and would have been invaluable. She believes that Ryan's evaluation would have explained what happened in the house with the victims in this case. (*Id.* at 33.)[45] She also argues that the expert reports would have provided additional proof of Cone's drug use. (*Id.*)

Cone asserts that his counsel was constitutionally obligated under *Williams v. Taylor*, 529 U.S. 362 (2000), to conduct a thorough investigation of Cone's background and to secure the previous psychiatric and psychological evaluations. (ECF No. 451 at 34.) Cone asserts that "any reasonable attorney satisfying his or her constitutional duty to investigate would have to first secure the records, personally review them and evaluate them with experts, and then apply Tennessee law to the contents of those records for purpose of using the records in Tennessee. (*Id.* at 35 n.2.) Cone asserts that, because counsel failed to meet that duty and the records were not "worthless" but a "gold mine of mental state and mitigation evidence," trial counsel's performance was deficient under *Strickland.* (*Id.* at 34.)

Cone asserts that "there can be no question that no one—defense counsel included—ever

[45] Goode primarily conducted research for the case at the time, *see supra* p. 54, and her post-mortem evaluation of what trial counsel should have done without knowledge of the extent of investigation on the case, the communications with the experts, and the tactical decisions that Dice made does not provide convincing proof of deficient performance.

saw the critical reports and raw data from Drs. Stillman and Ryan." (*Id.* at 39.) Cone argues that Dice could not make a tactical decision not to use the Florida records because Dice had not obtained the records and therefore could not make a strategic decision not to use evidence which he had not fully reviewed and evaluated. (*Id.* at 35; ECF No. 457 at 7.)[46] Cone contends that because Dice failed to investigate, he was left scrambling at sentencing, and Dice's last minute attempt to put together a mitigation case also constitutes deficient performance. (ECF No. 451 at 35, 36 n.4.)

Cone relies on the reports of Ryan and Stillman—and Eichert's reference to Cone's description of the Florida robbery as "a bad dream"—to assert that this was evidence supporting "a perfect case for insanity" under Tennessee law. (ECF No. 451 at 39-48.) Cone asserts that the WAIS assists in localizing brain damage. (*Id.* at 51.) Gur testified that a sign of brain damage is when someone does very well in a number of measures on the WAIS, but does very poorly in one or more other measures. (*Id.* at 52.) Gur stated that by 1980, clinical psychologists were trained to review WAIS scores to look for the discrepancies to identify brain damage. (*Id.*) Gur noted that Ryan picked up the symptoms of frontal lobe damage and described them in his report including Cone's flat affect, Cone's concrete thought processes despite his intelligence, and his difficulty dealing with abstract relations. (*Id.* at 53-54.) Gur found that the description of Cone as "de-emotionalized," depersonalized, automatic, bland, and with an "other world aura" to indicate that this was "textbook" frontal lobe damage syndrome. (*Id.* at 54.) He also focused on Cone's lack of integration of thought, feeling, and behavior as evidence of frontal lobe syndrome and rigidity of thinking. (*Id.* at 55.)

[46] Cone asserts that the problem with Dice's choice of the Vietnam Vets Syndrome defense is that it was chosen without proper investigation into the Florida records. (ECF No. 458 at 7.)

Gur testified that the markedly lower score on Digit Span shows dysfunction in Cone's dorsolateral prefrontal cortex. (*Id.* at 55.) He noted that the stark deviations in Cone's scaled scores of 18 on certain subtests and the scores on Digit Span and Object Assembly show that some brain systems are not working. (*Id.* at 56.) Gur noted certain scores that indicate right hemisphere dysfunction. (*Id.* at 56.) Further, Gur contends that the elevated mania scale on the MMPI is a symptom of frontal lobe damage. (*Id.*)

Cone argues that Stillman noted behaviors and thought processes that indicated frontal lobe impairment including "very poor planning and decision-making capacity," "flat affect," and the inability to assign value to experiences. (*Id.* at 57-58.) Gur explained that Eichert's description of Cone being in "a bad dream" was consistent with someone being in a dissociative state and damage to the precuneus, part of the parietal lobe. (*Id.* at 57.) Cone asserts that the brain damage revealed by the Florida testing was confirmed by neuropsychological testing. (*Id.* at 58.)

Cone argues that analysis of the Florida test results and reports reasonably would have entailed further neuropsychological testing in the form of the Halstead-Reitan Neuropsychological Battery. (*Id.* at 58.) He contends that, had counsel undertaken the available neuropsychological testing in preparation for the Tennessee trial, they would have confirmed what the Florida reports show—that Cone suffers brain dysfunction. (*Id.* at 59.)

Cone contends that Watson's neuropsychological testing is consistent with the testing done in 1981, showing frontal lobe and right hemisphere dysfunction, and that the frontal lobe dysfunction had a direct impact on Cone's commission of the homicides. (*Id.* at 61-65.) Gur stated that the difference between Cone's performance and verbal IQ would classify Cone as having brain dysfunction, and the poor performance on digit span would suggest frontal lobe

dysfunction. (*Id.* at 65.) Cones asserts that his frontal lobe dysfunction had a direct impact on his commission of the homicides, especially as it relates to him being under stress and flying into a rage when confronted by the victims. (*Id.* at 65-67.)

Gur testified that Cone's inability to remember the sequence of events is a sign of brain damage in the dorsolateral prefrontal cortex. (*Id*. at 67.)[47] Cone asserts that "where Dr. Ryan made clear that under situational stress, Gary Cone would turn psychotic, there is little question that a reasonable juror could conclude that Gary Cone's violence was truly a product of his frontal lobe dysfunction and/or schizophreniform disease, as Dr. Ryan also found." (*Id.* at 68.)

Cone disagrees with John Hutson's assertions that the crime showed a level of sophistication and control. (*Id.* at 68 n.23.) Cone contends that Hutson failed to account for "what actually happened in the house" and that "Cone's own description of the circumstances within the house . . . confirm [his] inability to conform his conduct to the dictates of law *at the time of the murder*." (*Id.*) Cone refers to Woods' testimony that "Mr. Cone described himself as kind of losing it after—during the offense, and apparently one of the victims went towards the door, kind of losing his cool, losing his—and so consequently, that doesn't show a level of sophistication and planning." (ECF No. 437 at PageID 15977.)

Cone asserts that MRI was not available in 1980, but CT scans were. (ECF No. 451 at 72.) Gur testified that a CT scan would have yielded similar frontal lobe findings and similar findings regarding enlargement of the ventricles. (*Id.*) Gur testified that PET was available in 1982, though not widely available. (*Id.*) Cone contends that MRI, CT, or PET results merely complement the findings of brain damage and lack of behavioral control revealed by Cone's 1981

[47] Cone stated that he hit both of the Todds "a bunch of times," and Gur stated that this action shows signs of brain dysfunction in the dorsolateral prefrontal context because Cone did not recall the sequence of events. (ECF No. 436 at PageID 15941-15942.)

WAIS result, the Florida expert reports, and the Halstead Reitan – all of which were available at the time of Cone's trial in 1982. (*Id.* at 72-73.) Cone asserts that "[u]sing the Florida findings and records as a starting point, trial counsel could have established Cone's brain damage and resulting behavior to the jury, with or without employing additional neuroimaging." (*Id.* at 73.)

According to Cone, the Tennessee law governing insanity was set forth in *Graham v. State*, 547 S.W.2d 531 (Tenn. 1977), which stated:

> A person is not responsible for criminal conduct if at the time of such conduct as a result of mental disease or defect he lacks substantial capacity either to appreciate the wrongfulness of his conduct or to conform his conduct to the requirements of law.

Id. at 543. (ECF No. 451 at 74.) Cone asserts that, under *Graham*, the burden was on the prosecution to prove sanity beyond a reasonable doubt:

> If the evidence adduced either by the defendant or the State raises a reasonable doubt as to the defendant's sanity, the burden of proof on that issue shifts to the State. The State must then establish the defendant's sanity to the satisfaction of the jury and beyond a reasonable doubt.

Id. at 544. (*Id.*) Cone argues that the operative question under *Strickland* is whether, absent counsel's deficient performance, there is a reasonable probability that the jury would have had a reasonable doubt whether Gary Cone was "substantially unable to conform his conduct to the requirements of the law at the time of the killing." (*Id.* at 75.) Cone states that he has shown that, he not only suffered frontal lobe damage at the time of killings, but that brain damage made him substantially unable to control his conduct and conform it to the dictates of law. (*Id.*) As a result of that defect, Cone claims he "flew in a rage," an indisputable sign of frontal lobe damage and a perfect, textbook description of someone who could not conform his conduct to the dictates of law. (*Id.*)

Cone argues that had his trial counsel simply obtained the Florida records and integrated

them into an insanity defense, Cone would have had a compelling, coherent, insanity defense that would have established reasonable doubt about his sanity. (*Id.* at 75-76.) Cone argues that Respondent has presented no psychological or neuropsychological proof to contradict Cone's proof on the following points: (1) Cone's 1981 WAIS shows frontal lobe damage; (2) Cone's Halstead-Reitan shows brain damage; (3) Ryan and Stillman describe numerous symptoms of frontal lobe damage; and (4) Cone's description of the offense shows frontal lobe damage. (*Id.* at 76-77.) Cone contends that one cannot claim that a jury would have rejected this compelling, coherent presentation of Cone's insanity defense focused on brain dysfunction solely because a jury rejected Cone's original insanity defense. (*Id.* at 78.) He asserts that the jury rejected Cone's defense and returned such a quick verdict "precisely because it failed to incorporate the Florida findings and elements of brain damage now described." (*Id.*; ECF No. 458 at 8.) He asserts that defense counsel left the insanity defense vulnerable by failure "to shore up Cone's drug use history" with outside evidence from Smith and corroborative evidence from prison records and mental health examiners. (ECF No. 451 at 78-79.) Further, Cone contends that the post-crime observations of law enforcement officials untrained in mental health cannot be used in Tennessee as evidence of insanity at the time of the crime. (*Id.* at 80.)

Cone argues that he was further prejudiced when Dice presented no evidence or closing argument and waited until the last minute to prepare for sentencing. (ECF No. 451 at 81.) He also argues that Dice's placement of the burden on Cone to identify who should testify is further evidence of Dice's ineffective assistance at sentencing. (ECF No. 458 at 8.) Cone argues that Dice's decision not to present any mitigating evidence at sentencing was unreasonable and was predicated on his failure to timely investigate matters such as the Florida mental health evaluation. (*Id.*)

The Court finds that Cone's assertions that Dice made no preparation for the sentencing phase are not supported by the evidence, especially given the considerable amount of mitigation evidence presented at trial in the guilt phase. Cone's argument fails because the Supreme Court, in *Bell v. Cone*, 535 U.S. 685, 696-702 (2002), determined that there was no ineffective assistance of counsel in this case where trial counsel presented evidence in the guilt phase related to mitigation, relied on that evidence in the penalty phase, and waived final argument.

Cone argues that he was prejudiced at sentencing by the failure of counsel to obtain, use, and present evidence of frontal lobe impairment that would have provided a compelling, coherent, and mitigating "physiological explanation for [Cone's] violent and anti-social behavior." (ECF No. 451 at 87.) He contends that powerful aggravating circumstances do not preclude a finding of prejudice where the jury never heard evidence of brain impairments. (*Id.* at 88.) He asserts that "where identical mitigating evidence of frontal lobe damage was not properly investigated or presented by defense counsel," the Sixth Circuit has found prejudice. (*Id.*) He contends that there is a reasonable probability that at least one juror's assessment of the appropriate penalty would have been altered by the evidence. (*Id.*)

Cone argues that he certainly meets the prejudice standard when considering that the mitigating Florida records provide additional proof that he suffered schizoaffective disorder and was addicted to drugs at the time. (*Id.*) He asserts that the Florida records prove the existence of his drug addiction at the time and "contain a coherent explanation as to why and how [he] became addicted." (*Id.*) Ryan addressed the physiological and psychological affects of Cone's drug abuse, *see supra* pp. 7-8. Stillman addressed the effects of Cone's drug abuse and that cocaine made him prone to hear sounds and entertain paranoid delusions that people were watching him, *see supra* p. 18. (ECF No. 448-6 at PageID 16400.) Stillman described that Cone's history of

drug use, including his use while in the Army, involved the use of psychedelics, amphetamines, Demerol, Dilaudid, and marijuana, *see supra* pp. 17-18. (*Id.* at PageID 16400-16401.) Cone argues that his reported drug use was consistent across numerous examiners in Florida, and that the Florida records provide a valid, psychological explanation for his addiction. (ECF No. 451 at 88.) He asserts that the Florida records support expert testimony that he "indeed did suffer severe drug addiction at the time of the crimes, which affected his behavior." (*Id.* at 89.) Cone argues, that with Hutson's admission that Cone suffered substance abuse, there is "little question that counsel's failure to show brain damage—coupled with counsel's failure to prove up Gary Cone's drug addiction using the Florida records and evidence from other sources—was prejudicial at sentencing." (*Id.* at 89.)

Respondent argues that Cone cannot establish that Dice was ineffective because Cone's suggestion that Dice failed to obtain and use Ryan's and Stillman's reports in an effort to present "a better insanity defense" at the guilt phase does not, alone, demonstrate deficient performance by Dice. (ECF No. 457 at 111.) Respondent contends that Cone's claims must be evaluated in light of the state court's factual findings that Dice conducted a thorough investigation and preparation of Cone's defense, and that these findings are entitled to a presumption of correctness under 28 U.S.C. § 2254(e)(1). Respondent asserts that this factual finding must be overcome by clear and convincing evidence. (*Id.* at 112.) According to Respondent, Dice specifically addressed why he did not use the Florida reports. (*Id.* at 112-113.) Respondent asserts that April Goode testified at the post-conviction evidentiary hearing that her notes showed that the Florida mental health evaluation had been referenced by Doctor Jaremko, but Goode was not a part of the discussions with Jaremko or Dice. (*Id.* at 113; *see* ECF No. 233-2 at PageID 3189.)

Respondent acknowledges that Hutson stated on an insurance form that, as of February 7,

1986, Dice suffered from some significant psychological problems. (ECF No. 457 at 115-116.) Respondent notes, however, that Hutson testified, after reviewing Dice's testimony from the post-conviction evidentiary hearing, that Dice appeared oriented to time, place, and location, and appropriately responsive to questions asked of him. *See supra* pp. 186-87. (ECF No. 457 at 115-116; ECF No. 435 at PageID 15650, 15652, 15656-15658.) Respondent argues that Doddo's testimony, 32 years after the trial, that he does not recall any contact with Dice does not diminish Dice's specific testimony at the post-conviction hearing, particularly since Doddo had virtually no memory of Cone's case. (ECF No. 457 at 116.)

Respondent argues that Dice's decision not to obtain the reports was objectively reasonable because his team had investigated Cone's educational background, military records, conducted a thorough social background investigation and "knew just about everything there was to know" about Cone. (*Id.* at 117.) Dice testified that his team discovered that "before Vietnam[,] Cone was a person who had a normal life, except that he was brilliant, and after Vietnam, he was a person who was hard on drugs and became involved in a life of crime." (*Id.*; *see* ECF No. 233-2 at PageID 3236.) Respondent argues that Dice developed and presented "what at the time was a novel insanity defense tied to Cone's Vietnam experience." (ECF No. 457 at 118.) Respondent asserts that, Dice must have felt, based on Cone's life, that they needed something to "trigger" his use of drugs and criminal activity. (*Id.*)

Respondent argues that Cone's insanity defense in Florida was a failed defense resulting in him receiving the maximum sentence on all charged offenses. (*Id.*) The Florida reports did not focus on the Vietnam experience. (*Id.* at 118-119.) In contrast to Ryan and Stillman's suggestion that Cone could not function in society, Respondent asserts that the facts presented by Dice show that Cone had indeed spent three-and-a-half years in society, living on his own and

supporting himself while excelling in studies at the University of Arkansas, and obtaining a degree in banking and finance with honors. (*Id.* at 119-120.)

Respondent asserts that Cone was not prejudiced in the guilt and penalty phases of trial. (*Id.* at 120.) He asserts that there is not a reasonable probability that the result of the guilt phase would have been different based on the Florida reports. (*Id.* at 120-121.) He contends that the evidence of Cone's sanity before, during, and after the murders was overwhelming. (*Id.* at 121.) Respondent asserts that Cone's demeanor, conduct, and statements—during and after the murders of Shipley and Cleopatra Todd—refuted his claim of insanity. (*Id.*) Further, Respondent cites specific evidence disputing Cone's insanity defense that was presented:

- Cone's theft of a license plate to disguise his vehicle prior to the armed robbery;
- Cone's cogent and intelligent interaction with employees and patrons of Brodnax Jewelry during the armed robbery;
- Cone's change of clothes following the robbery;
- Cone's ability to elude police in a citywide manhunt and travel from Memphis to Key West;
- Cone's purchase of an Air Florida airline ticket to fly to Key West;
- Cone's normal interactions with Ilene Blankman;
- Cone's change of appearance;
- Cone's change of identity to Gerald Mason Harmon;
- Cone's ability to study for and pass a written driver's license examination; and
- Cone's statement to Agent Flynn that he had no physical or mental problems except for slight withdrawal and a slight cold and that he suffered no memory problems or blackouts; no need for medication; that Cone has a college degree and was about to enter law school; and his admissions about his travel from Memphis, that he altered his appearance, that he flew to Key West and stayed with a friend, that he obtained a voter registration card, and that he changed his identity to avoid detection, shot a police officer, robbed a jewelry store while in Memphis, and could be positively identified while still denying that he killed the Todds.

(*Id.* at 122-124.)

Respondent asserts that there is uncertainty and danger associated with utilizing Ryan and Stillman's findings. (*Id.* at 124.) Respondent argues that Ryan and Stillman evaluated Cone's

sanity as of August 13, 1980, the date he committed the Florida crimes, which was several days after the Todds' murder in Memphis, and were not asked to address the question of Cone's mental state at the time of the murders in Memphis. (*Id.*) Respondent notes that neither Ryan nor Stillman were called on to testify in these habeas corpus proceedings. (*Id.*) Therefore, the nature of any testimony that they would have presented at Cone's trial is only speculation. (*Id.*) Respondent notes that Stillman and Ryan did not consider Cone's statement to Flynn following Cone's arrest or Blankman's testimony when they determined that he was insane. (*Id.* at 125.) Further, Respondent asserts that, had Cone allowed the testimony of Ryan and Stillman, it would have opened the door to the fact that he was arrested and evaluated for Florida crimes. (*Id.*)

Respondent argues that Ryan's and Stillman's Florida findings simply did not focus on Cone's service in Vietnam, which was the strategy chosen by Dice. (*Id.* at 125.) Respondent asserts that Dice would have been in the "unenviable position of having to explain to Cone's Tennessee jury how Ryan and Stillman found Cone insane while barely mentioning his service in Vietnam when both of Cone's Tennessee experts had focused on Vietnam as the trigger for Cone's problem." (*Id.* at 125-126.)

Respondent asserts that the State of Tennessee could rely on the testimony of Hutson, Bursten, and Taubel in refuting claims that Cone was insane. (*Id.* at 126.) Respondent contends that the overwhelming weight of the evidence refutes any claim that Cone met the criteria for insanity at the time he murdered the Todds. (*Id.*) Respondent argues that Cone's flight, ability to avoid detection, and awareness of the need to change his appearance and to obtain false identification, were not lost on the jury, who needed just 1 hour and 40 minutes to reach a guilt determination. (*Id.*)

Respondent asserts that there is no reasonable probability that the result at sentencing

would have been different if Dice had presented the testimony of Ryan and Stillman. (ECF No. 457 at 127.) Respondent notes that one of the mitigating circumstances on which the jury was instructed was:

> The capacity of the defendant to appreciate the wrongfulness of his conduct or to conform his conduct to the requirements of the law was substantially impaired as a result of mental disease or defect or intoxication which was insufficient to establish a defense to the crime but which substantially affected his judgment.

(*Id.* at 127-128.) According to Respondent, despite Cone's contention that Ryan and Stillman's testimony would have provided additional evidence that "while not serving as a defense to the murders would have provided sufficient mitigation that the jury would not have sentenced him to death," Cone's brief fails to discuss and analyze the importance of Ryan and Stillman's unknown testimony in light of the overwhelming evidence of aggravating circumstances with which the jury was confronted. (*Id.* at 128.) Respondent notes the overwhelming evidence presented to the jury and the fact that the jury came back in only 45 minutes to return a sentence of death. (*Id.*)

Respondent notes that Cone blamed his criminal history on "a feeling of disgruntlement over my economic status. . . . Greed and material desires are the reason I am in prison." (*Id.* at 130, 131; *see* ECF No. 232-11 at PageID 2937.)

Cone argues that, because the defense was explicitly investigating insanity, the Florida records were directly relevant to the question of Cone's sanity. (ECF No. 458 at 2.) He contends that "[t]here is simply no set of circumstances under which counsel, having explicitly decided to cho[o]se a *mens rea* defense, can legitimately ignore the obligation to personally secure records going directly to that defense." (*Id.* at 3.) Cone also argues that Dice did not have a proper understanding of what constitutes mitigating evidence. (*Id.*) He asserts that it was Dice's obligation to obtain and review the records and make his own independent legal determination of

their significance, value, and potential use. (*Id.* at 4.)

With regard to prejudice, Cone argues that the fact that the lack of "direct proof"[48] concerning Cone's mental state at the time of the murders is why Ryan's and Stillman's reports, their proper interpretation by a neuropsychologist such as Dr. Gur, and the presentation of neuropsychological testimony and/or testimony from Ryan and Stillman, were critical to a jury determination of Cone's sanity. (*Id.* at 5-6.) Cone asserts that these reports contain descriptions that confirm both brain damage and the symptoms and signs identified by Ryan, Stillman, and Eichert. (*Id.* at 6.) Cone argues that, when one considers the Florida experts' descriptions and analyses of Cone as being mentally ill, the WAIS results, and the description of the crime itself in a way that confirms the existence of brain damage, there is a reasonable probability that the jury would have had a reasonable doubt about Cone's sanity had counsel properly investigated Cone's mental state at the time of the offense. (*Id.*) Cone asserts that he has presented "*undisputed* proof that [his] own description of the offense shows frontal lobe damage and inability to control his behavior under Tennessee's insanity test." (*Id.* at 6-7 (emphasis added).)

The Tennessee Court of Criminal Appeals made a factual finding related to counsel's investigation of the facts and the law:

> Trial counsel made a diligent and thorough investigation of the facts and the law. Although the appellant was without funds, trial counsel was able to procure a defense team composed of himself, a research expert, medical experts, and an investigator. No stone was left unturned in the preparation of the appellant's defense. Trial counsel was very conscientious in representing the appellant and placed much thought and effort into the tactical aspects of this case. However, trial counsel's work and diligence could not remove the overwhelming evidence against the appellant, both on the factual issue and insanity issue. In our view, the findings

[48] This statement is somewhat disingenuous because expert proof was offered at Cone's Memphis trial related to his mental state (including his drug addiction), just as it was offered at the Florida trial. Cone's habeas counsel simply disagrees about the nature of the testimony or proof related to mental state that should have been offered in the trial in Memphis.

> of guilt and the imposition of the death penalty were based upon the facts and the law—not by shortcomings of counsel.

Cone v. State, 747 S.W.2d 353, 357-58 (Tenn. Crim. App. 1987). The Court, even on *de novo* review, must accept the finding of fact that trial counsel made a diligent and thorough investigation, unless it is rebutted by clear and convincing evidence. 28 U.S.C. § 2254(e)(1); *Matthews v. Ishee*, 486 F.3d 883, 891-92 (6th Cir. 2007). Cone has presented substantial evidence to contradict the factual determination as it relates to Cone's mental state. The Court will address the issue to determine whether Cone's habeas counsel has rebutted the presumption by clear and convincing evidence.

Despite the state court finding that there was a "thorough" investigation, there appears to be no question that Dice did not obtain and review the Stillman and Ryan reports. Dice explicitly stated that he did not review the reports. (ECF No. 233-3 at PageID 3305.) To that extent, the presumption is rebutted by evidence that Dice failed to obtain relevant mental health records.

The Court notes that, despite Dice's failure to obtain the records, he was aware that Cone's insanity defense failed in Florida. Additionally, there is some evidence that Dice may have obtained and/or reviewed the transcripts of Stillman's and Ryan's testimony from the Florida trial, *see supra* pp. 56 and 171, and that Jaremko's notes may have referenced the Florida psychological workup. (*See* ECF No. 233-2 at PageID 3189.) Given the fact that Ryan's and Stillman's findings did not convince the Florida jury that Cone was insane, there is a question of whether Dice's performance was deficient for not, at a minimum, obtaining and reviewing the Stillman, Ryan, and Eichert reports or whether it was a reasonable strategy to simply disregard the records because they supported what appeared to be a failing defense.

As stated previously in relation to Kopernak, counsel had a duty to investigate Cone's

mental health records. Dice's failure to obtain and review the complete Florida mental health records (reports, transcripts, files, etc.) related to Cone's Florida offenses which occurred approximately three days after the Memphis crimes constitutes deficient performance because a reasonable attorney would have investigated what mental health professionals who testified for both the prosecution and defense opined about Cone's mental state during this relevant time period. In *Fitzpatrick v. Robinson*, 723 F.3d 624, 637 (6th Cir. 2013), *cert. denied*, 134 S. Ct. 1939 (2014), the Sixth Circuit stated, "[i]t is clearly established that an attorney's failure to reasonably investigate the defendant's background and present mitigating evidence at sentencing can constitute ineffective assistance of counsel." The Court determined that counsel is entitled to rely on expert opinions; however, "counsel cannot willfully blind himself to the expertise of such an expert." *Id.* at 637. In *Fitzpatrick*, the Sixth Circuit found that counsel's investigation could not be considered a reasonable inquiry into the defendant's mental state when counsel "refused to receive the IQ test results" that may have provided the petitioner with an intellectual disability defense. (*Id.*) Similarly, in the instant case, Dice refused to investigate Cone's prior experts' mental health records and instead chose an alternative, yet somewhat related, mens rea and mental health mitigation defense.

Dice's purported tactical reason for not obtaining and reviewing the Florida mental health records fails to demonstrate that his performance was reasonable. In *Strickland*, the Court stated:

> strategic choices made after less than complete investigation are reasonable precisely to the extent that reasonable professional judgments support the limitations on investigation. In other words, counsel has a duty to make reasonable investigations or to make a reasonable decision that makes particular investigations unnecessary.

Strickland, 466 U.S. at 690-691; *see Wiggins v. Smith*, 539 U.S. 510, 521 (2003). Dice could not make a reasoned and objective decision about the appropriate defense to pursue without a

complete investigation, including Cone's Florida mental health records. Cone's trial counsel's performance was deficient.

To determine prejudice in the guilt phase, the Court must determine whether (1) counsel could create reasonable doubt as to Cone's sanity based on the information obtained from the Florida reports; and (2) if so, whether the State could establish Cone's sanity to the satisfaction of the jury and beyond a reasonable doubt, *see supra* pp. 42-43, 215-216. The Court also notes that in addition to the burden shifting aspect of Cone's insanity defense stated in *Graham*, the Tennessee Supreme Court's opinion in *Forbes* related to "cyclic, periodic or episodic" mental illness is relevant to Cone's claim, to the extent he has asserted that his mental illness is triggered by stress and that he is otherwise able to function in a structured environment. The Tennessee Supreme Court stated,

> It is our view that when any defendant, suffering from a mental illness that is cyclic, periodic or episodic in nature, characterized by periods of remission, interposes a plea of not guilty by reason of insanity, it is incumbent upon him to make out a prima facie case of insanity by offering evidence of non-remission at the time of the commission of the crime. To hold that general proof of such a mental illness, without proof of non-remission, operates to shift the burden of going forward with the proof to the prosecution, would cast an unfair and impossible burden upon the state.

Forbes v. Tennessee, 559 S.W. 2d 318, 328-29 (Tenn. 1977).

Cone's diagnoses and determinations as to his sanity both prior to and subsequent to trial have varied from expert to expert. The only consistency amongst the various mental health experts who evaluated Cone from 1980 to the present is that he is highly intelligent and that he had a substance abuse problem. With regard to the Florida offenses, Ryan diagnosed Cone as having an underlying schizo-affective disorder and stated Cone "in psychological probability" knew right from wrong when he committed the Florida crimes, *see supra* pp. 7-8, 15. Ryan determined that

Cone was competent to stand trial, but was not competent at the time of the crimes and unable to meet the M'Naughten criteria, *see supra* p. 8. Stillman noted a nuclear depression, paranoid delusions with drugs, psychotic types of behavior without drugs, and anomie, *see supra* pp. 17-19, 23. He determined that although Cone was competent to stand trial, he was not competent and had been temporarily insane at the time of the Florida crimes, *see supra* pp. 19, 21-22. Taubel, in contrast, found no evidence of any mental illness or psychotic disorder, *see supra* pp. 25-27. Taubel determined that Cone was competent to stand trial and, that at the time of the crimes, he was capable of understanding both the difference between right and wrong and the nature and consequences of his actions, *see supra id*. Eichert determined that Cone was competent to stand trial and at the time of the Florida crimes, but that he did not have sufficient judgment to control his behavior because of his drug use, *see supra* pp. 24-25. Eichert also found that Cone had no symptoms to suggest psychosis, *see supra* p. 25. Eichert also found no evidence of confusion or disorientation that suggest organic brain dysfunction, *see supra id.* Both Ryan and Stillman noted that Cone's mental defect was subtle and would not be apparent to a lay person, e.g., the jury that Cone had to convince that there was at least a reasonable probability that he was insane, *see supra* pp. 8, 10, 12, 13, 19, and 21.

At the Memphis trial, the Court heard evidence from Hutson, Bursten, Jaremko, and Lipman. (*See* ECF No. 322 at PageID 8317-8326, 8332-8334.) The Memphis Mental Health Center team found no history of any significantly impairing psychiatric problem and no evidence of mental disease or defect rising to the level of an insanity defense, *see supra* p. 9. Hutson's opinion was that on August 9-10, 1980, Cone did not suffer mental illness or defect, did not lack the ability to appreciate the wrongfulness of his conduct, and could conform his conduct to the requirements of the law. (*See* ECF No. 232-6 at PageID 2617-2618.) Bursten testified that he

saw nothing in his evaluation to support a finding of Vietnam stress reaction and no evidence of a mental disease or defect. (*Id.* at PageID 2591-2592.) Bursten found no evidence that Cone was unable to understand his actions or the wrongfulness of those actions, or that he was unable to conform his conduct to the requirements of the law. (*Id.* at PageID 2592.) Jaremko diagnosed Cone with Vietnam Veterans Syndrome and substance abuse disorder. (ECF No. 232-4 at PageID 2297.) Jaremko believed that Cone's illness rendered him substantially incapable of conforming his conduct to the requirements of the law, but he could not say that Cone's mental illness prevented him from knowing the wrongfulness of his conduct. (*Id.* at PageID 2301-2302.) Jonathan Lipman, although not a mental health professional, testified at trial based on his knowledge of neuropharmacology. (ECF No. 232-5 at PageID 2389.) According to Lipman, Cone suffered chronic amphetamine psychosis, which was a mental illness that could prevent Cone from knowing the wrongfulness of his acts and render him substantially incapable of conforming his conduct to the law. (ECF No. 232-5 at PageID 2389.)

Although there was no mental health evidence presented in the initial post-conviction proceedings, Gur, Watson, Bigler, and Woods testified on Cone's behalf in the 2014 federal habeas evidentiary hearing. Gur used his behavioral imaging algorithm to determine areas of brain damage and/or brain dysfunction in Cone's brain based on MRI and PET images—neither of which was available for use by mental health experts working in a forensic or clinical capacity at the time of Cone's Memphis trial. Gur also made efforts to relate Stillman, Ryan, and Eichert's findings to his own findings of brain damage or dysfunction. Gur has never met or spoken with Cone personally and cannot relate his findings to behaviors that he has observed. Gur further stated even if we assume that the abnormalities that he identified in Cone existed at the time of the crime, Gur cannot determine what effect those abnormalities had on Cone's behavior, *see supra* p.

122.

Watson used neuropsychological testing to locate areas of brain damage or dysfunction. He noted evidence of moderate brain dysfunction in someone with a very high IQ, *see supra* pp. 58-59. Watson used the Halstead Reitan battery which was available for use at the time of Cone's trial along with the WAIS and other neuropsychological tests. Watson did not review any of Cone's medical records or records related to the crime, *see supra* p. 68. He did not address the question of whether Cone had deficits or deficiencies in intellectual or neuropsychological function that may have affected his judgment and behavior at the time of the Memphis crimes, and he testified that he did not think he was able to answer that question, *see supra* p. 69. Of the experts that Cone presented in the habeas proceedings, Watson was the only one who actually had met and spoken with Cone, yet he had no conclusion about whether Cone's deficits or deficiencies in intellectual or neuropsychological function may have affected his judgment and behavior at the time of the Memphis crimes, *see supra id.*

As to the reasonableness of Cone's counsel using neuropsychological testing like Watson's in Cone's trial, the Court notes that neither Stillman, Ryan, nor any of the other mental health professionals at the time of the Memphis and Florida trials determined that Cone should be referred for neuropsychological testing. These facts support the conclusion that Dice would have had no indication, even with the Stillman and Ryan reports, that Cone should be referred for neuropsychological testing. Further, as Ryan and Stillman stated, Cone's mental defect was subtle and not obvious to lay people.

Bigler used NeuroQuant findings to conduct a volumetric analysis and determine whether Cone had brain damage or dysfunction in the hippocampus and inferior lateral ventricle regions of the brain, *see supra* pp. 209-210. Bigler, like Gur, has also never met or spoken with Cone.

Bigler noted the importance of the clinical perspective for putting findings from volumetric analysis into context as it relates to an individual's behavior, *see supra* p. 211.

Woods diagnosed Cone with cognitive disorder not otherwise specified, substance abuse disorder, and post-traumatic stress disorder and stated that he would put Cone on the schizophreniform spectrum, *see supra* p. 201. Woods determined that Cone's type of disorder impaired his ability to conform his behavior to the dictates of the law, *see supra* pp. 200, 202.

In contrast to the neuroimaging testimony that Cone presented related to brain damage and brain dysfunction, Respondent offered Meltzer, a neuroradiologist, as a witness. Meltzer concluded from her clinical reading of Cone's MRI and PET that the scans were normal with age-related changes, noted some hypometabolism in the anterior temporal lobes, and found "mild overall hypometabolism" in the cerebral cortex, *see supra* p. 135. Meltzer stated that MRI and PET findings have no definite clinical significance, *see supra* pp. 136-137. Meltzer believed that many people who fall in the normal range for brain function would have abnormal or clinically significant findings using Gur's methodology, *see supra* pp. 138-140. Meltzer testified that brain imaging findings have "limited application to the primary question of the court of determining criminal intent" and that the practice of performing imaging studies to shed light on brain function or state of mind at the time of a prior criminal act was "problematic." Meltzer further testified about how these conclusions were reached at a 2013 Multidisciplinary Consensus Conference that was attended by Gur and published in the American Journal of Neuroradiology, *see supra* pp. 152-153.

The expert testimony is crucial to a determination of whether trial counsel was ineffective. The jury is the true determinant, however, of whether Cone's insanity defense would pass muster. There must be a reasonable doubt about Cone's sanity by showing that he had a mental disease or

defect and lacked the substantial capacity either to appreciate the wrongfulness of his conduct or to conform his conduct to the dictates of law, *see supra* pp. 225-226.

The brain damage and dysfunction testimony is based on technologies that were: (1) not available to trial counsel at the time of Cone's trial; (2) not conclusive; (3) had no direct clinical correlation to Cone's behavior; (4) and may not be appropriately used in the criminal context for determining mental state. Cone's brain imaging was conducted more than thirty years after the relevant crimes, and the purported damage has no clear etiology or correlation to his behavior. Despite Gur's assertions that Cone's brain damage appears to have resulted from a blow to the back of the head, *supra* p. 93, Cone has reported no history of a head injury and no clinical symptoms giving rise to his evaluation. Therefore, unlike a petitioner who has a proven history of head injury, Cone cannot demonstrate that his counsel was unreasonable for failing to investigate brain damage or that he was prejudiced by such a failure. *See Frazier v. Huffman*, 343 F.3d 780, 794-795 (6th Cir. 2003); *see also Caro v. Woodford*, 280 F.3d 1247, 1253 (9th Cir. 2002) (granting habeas relief where petitioner suffered multiple head injuries, exhibited symptoms of both harmful exposure and resulting brain damage, and experts were unanimous in the opinion that he suffered brain damage).

In *Kulbicki*, the Supreme Court of the United States addressed the "natural tendency to speculate as to whether a different trial strategy might have been more successful" and "the rule of contemporary assessment of counsel's conduct." 136 S. Ct. 2, 4 (2015) (per curiam). The Court determined that counsel's performance was not deficient for "dedicating their time and focus to elements of the defense that did not involve poking methodological holes in a then-uncontroversial" and widely accepted forensic tool to form a defense. *Id.* Similarly, in the instant case, the Court cannot now rely on technologies that were not available to Cone's defense

counsel to determine deficient performance. A contemporary assessment of the tools available to Dice at the time of Cone's trial must be conducted, none of which included PET, MRI, NeuroQuant, or a Behavioral Imaging Assessment.

Clark v. Mitchell, 425 F.3d 270 (6th Cir. 2005) is instructive. In *Clark*, the Sixth Circuit found that the failure of trial counsel to employ a neuropsychologist does not necessarily amount to ineffective assistance of counsel. *Id.* at 281-83, 284-86. Neither the psychologist nor the psychiatrist relied on by defense counsel in *Clark* "suggested that Clark suffered from organic brain damage or that Clark required any additional mental health testing." *Id.* at 285. As a result, the Sixth Circuit held that "[i]t was not unreasonable for Clark's counsel, untrained in the field of mental health, to rely on the opinions of these professionals" in failing to refer Clark for neuropsychological testing. *Id.* None of the mental health professionals whose opinions were available at the time of Cone's trial expressed specific concern about Cone having brain damage or requiring neuropsychological testing or brain imaging. It is therefore unlikely that any attorney untrained in the field of mental health would have had such testing done—and *Clark* necessitates a finding that it would not have been ineffective assistance of counsel to fail to do so.

The Court finds that, considering all of the evidence presented in the post-conviction proceedings, there is still not a reasonable doubt as to Cone's sanity. Even if the burden shifted to the prosecution, the MMHI team's evaluation consisting of the opinions of three mental health professionals, the opinions of Taubel and Eichert, the facts of the Memphis crime, and Cone's social history contradict the notion that Cone was insane under Tennessee law. *See Al-Khalil v. Davis*, 435 F. App'x 493, 498 (6th Cir. 2011) (holding that conflicting conclusions about mental state do not prove ineffective assistance, but simply establish that professionals might disagree).

None of the Florida experts testified in this case, so the Court can only speculate as to what

their testimony would reveal if they had been given Cone's full social history and information about the Memphis crimes. Even if the most compelling aspects of Ryan's and Stillman's reports and testimony had been presented to the jury, there is not a reasonable probability that the outcome of Cone's case in the guilt phase would have been different. Ryan testified at the Florida trial that Cone has significantly less ability to adapt his behavior in response to changing information than most people. (*See* ECF No. 448-31 at PageID 16909.) According to Ryan, when

> [Cone] has a fixed idea, he has difficulty in shifting, changing his set, so to speak. And the fixed idea almost takes on not a noiselike quality, but it's like a pressure. That's a very predominant thought. At that point that's the thought that's going to be focused on and go to conclusion.

(*Id.*) Ryan elaborated that "when he got a fixed idea in his head, and when you had some of that—the aggression churned up within, that really clouds the thinking process. And he would have a lot of difficulty distinguishing right from wrong." (*Id.* at PageID 16920.) Stillman described in his report Cone's significant difficulties in functioning in the outside world—and the serious consequences such an unstructured environment can have on Cone. (*See* ECF No. 448-6 at PageID 16403.) According to Stillman, when Cone functioned

> without structure, without limits of an external nature and cannot create them for himself[,] [that] result[s] in a decompensation in which his behavior becomes adverse and indicates that he does not discern rightness from wrongness, nor is he, indeed, fully aware of the nature of his behavior and can give no consideration to the consequences of his behavior.

(*Id.*)

Although Cone would like for the Court to rely on the reports and testimony of Ryan and Stillman as "undisputed" (*see* ECF No. 458 at 6-7), there was contrary evidence in the Florida case about Cone's mental state that was convincing to the jury on the issue of Cone's sanity. Had Cone's counsel presented Ryan and Stillman's testimony, it would have surely been contradicted

by Eichert and Taubel's testimony or by other qualified experts. Despite the likely rebuttal evidence, it is not beyond the realm of possibility that a reasonable jury—if they were presented with the evidence introduced in the course of the post-conviction proceedings—could have found Cone not guilty by reason of insanity. A jury could have concluded that Cone, at the time of the murders, had a mental defect that caused such a rigidity in decision-making that he could not "conform his conduct to the requirements of law." *Graham*, 547 S.W.2d at 540.

In light of the testimony that was adduced at trial, the Court finds this possibility to be very slim. The testimony of Jaremko and Lipman, which was before the jury at trial, provided an arguably stronger justification for a reasonable jury to find Cone legally insane. At trial, the evidence presented a very different—and disquieting—picture of Cone than Petitioner's experts have portrayed during the course of post-conviction proceedings. Cone was an extremely intelligent, well-educated person who had the support of his family and the opportunity to go to law school. After being paroled from prison and being given a second chance of integrating into society, Cone, just days before school started, chose to rob a jewelry store, shoot a police officer and a bystander, and beat an elderly couple to death in their home.[49] Despite his addiction, Cone was able to function to accomplish the things that he wanted in life and was motivated by his self-admitted greed and laziness. Cone was able to escape a police manhunt in Memphis, travel to Florida, and change his identity. Cone was self-directed and self-determined. Even if a jury were to conclude that he had some mental disease or defect, there is little evidence to show that he lacked the substantial capacity either to know the wrongfulness of his actions or to conform his conduct to the law. Cone simply did not care to conform his conduct. Cone was focused,

[49] The crime scene pictures demonstrate the heinous nature of Cone's crimes. (*See* ECF Nos. 287-12 through 287-18, 287-20 through 287-22.)

deliberate, and goal-directed for his own purposes, not legally insane. There is no reasonable probability that a jury would have returned a different verdict were they presented with the evidence that Cone argues his attorney ineffectively failed to introduce. The Court finds that Cone was not prejudiced in the guilt phase.

With regard to Cone's assertions about the failure to present evidence in the mitigation phase, the Court must keep in mind the Supreme Court's determination in *Bell v. Cone,* 535 U.S. at 699-701, that counsel was not ineffective for failing to present evidence at the mitigation phase given the onerous task of defending a drug-addicted client who had committed a brutal and senseless crime, despite a relatively normal upbringing. The new expert testimony as it relates to Cone's mental state and/or brain damage relies on a multitude of tests, scans, diagnoses, and testimony that fail to present a complete, cohesive, or reliable picture of Cone's mental state, brain damage, or dysfunction. This evidence would not cause a jury to empathize with Cone's situation or understand why he committed this crime against innocent victims in their home.

Ryan and Stillman did not have optimistic prognoses for Cone and could only suggest that he remain in a structured environment—prison. Although this might suggest to some that a life sentence would be appropriate, there were two main issues about Cone's past prison life that were not addressed: (1) Cone escaped from prison in Oklahoma; and (2) Cone used and sold drugs in prison in Oklahoma. These behaviors do not make him a model prisoner or support a life sentence. In fact, the presentation of the Stillman and Ryan findings would engender less sympathy with the jury by informing them about the nature of Cone's escape and the crimes that he committed in Florida. Cone was on a crime spree and used violent means, without limitation, to prevent his capture.

When looking at prejudice in the sentencing stage of a capital trial, the answer as to

whether there was reasonable probability that the outcome would be different is based on taking the mitigating citcumstances that were presented, adding the ones that should have been presented but were not, and then considering the total mitigating circumstance against the total aggravating circumstances. *See Lynch v. Sec'y, Florida Dep't of Corr.*, 776 F.3d 1209, 1226 (11th Cir. 2015). The jury found that four aggravating circumstances had been proven: (1) that Cone's previous convictions for a felony involved "the use or threat of violence to the person"; (2) that Cone "knowingly created a great risk of death to two or more persons, other than the victim murdered, during his act of murder"; (3) that the murder was "especially heinous, atrocious, or cruel in that it involved torture or depravity of mind"; and (4) that "the murder was committed for the purpose of avoiding, interfering with, or preventing a lawful arrest or prosecution of the defendant or another." (ECF No. 232-9 at PageID 2797-2799.) The jury unanimously found that there were "no mitigating circumstances sufficiently substantial to outweigh the statutory aggravating . . . circumstances." (*Id.* at PageID 2798.) The jury decided the punishment would be death for the murders of both Shipley Todd and Cleopatra Todd. (*Id.*) The evidence presented at the evidentiary hearing is not necessarily mitigating and does not outweigh the aggravating circumstances presented at trial. As in *Lynch*, the prosecution's overwhelming evidence of these heinous and cruel murders and the deliberate manner in which Cone executed the murders and his escape undercut the new evidence that he may have been mentally impaired. *Lynch*, 776 F.3d at 1227. Cone has not created a reasonable probability that the outcome of the penalty phase would have differed if the jury had been aware of the evidence now available to this Court. Cone's new evidence does not diminish confidence in the outcome of his sentence. The Court finds that Cone has failed to prove prejudice under *Strickland*.

D. Jerry Pelley (Petition ¶ 40(a)(ii)(1))

Cone alleged that his counsel failed to fully investigate Cone's background by failing to adequately investigate Jerry Pelley who would have been available to testify about Cone's use of cocaine, morphine, Dilaudid, speed, heroin, LSD, marijuana, Valium, barbiturates and numerous other drugs. (ECF No. 71 at 19.) Pelley did not testify. Pelley's declaration was reviewed by Murray Smith who used it to corroborate Cone's drug use. (ECF No. 451 at 79 n.36.) Pelley's declaration stated that Pelley was Cone's cellmate in Oklahoma and that Cone "liked to use laid back drugs such as valium and dilaudid and lots of weed." (ECF No. 448-13 at PageID 16429.) Pelley stated that Cone's drug use was pretty constant, almost every day, and that Cone also used speed, cocaine, and LSD. (*Id.*)

Respondent disagrees with the Court's determination that the claim is substantial. (ECF No. 457 at 133.) He asserts that Cone's post-conviction counsel were not deficient as it relates to this claim. (ECF No. 457 at 134.) Respondent states that Kopernak had no memory of Cone mentioning Pelley as a witness and testified that he would have concerns about presenting the testimony of a convicted felon and former inmate, *see supra* pp. 38-39. (*Id.*)

Respondent asserts that Cone makes no argument in support of this ineffective assistance of trial counsel claim in his post-evidentiary hearing brief and only references Pelley in a footnote discussing the testimony of Dr. Murray Smith. (ECF No. 457 at 133; *see* ECF No. 451 at 12, 79 n.36.) Respondent argues that Pelley's unsworn declaration contradicts the information Cone provided Smith who testified at the evidentiary hearing. (ECF No. 457 at 134.) Smith testified that Cone's drug use in prison in Oklahoma was "sporadic, . . . he could not do it on a very regular basis." (*Id.*; ECF No. 434 at PageID 15529.) Respondent asserts that, based on Smith's

testimony, Pelley's statement that he and Cone used drugs every day in prison lacks credibility. (ECF No. 457 at 134.) Respondent states that there is no evidence that Cone told Dice about Pelley's existence, and it is hard to imagine that trial counsel could locate such a witness without Cone having told him. (*Id.* at 135.) The fact that Pelley was a convicted felon who was in prison would have presented uncertain and potentially damaging credibility issues. (*Id.*) Respondent asserts that Cone has not demonstrated deficient performance for trial counsel's failure to present Pelley's testimony. (*Id.* at 135-136.)

Respondent further argues that Cone was not prejudiced because the jury heard evidence that Cone was a drug user. (*Id.* at 136.) Respondent contends that "the dubious statements contained in Pelley's hearsay declaration could just as easily [have] harmed an already incredible defense of insanity, as well as harmed any request to spare Cone's life in light of the overwhelming evidence of aggravating circumstances." (*Id*. at 136-137.) Respondent argues that Cone's drug use created a two-edged sword which could harm him at sentencing. (*Id*. at 137.)

Cone has not clearly demonstrated ineffective assistance of post-conviction counsel because Kopernak had no knowledge of Pelley and, according to his testimony, would have had concerns about putting a convicted criminal on the stand on Cone's behalf. Given these concerns, Kopernak's failure to investigate and present Pelley's testimony is not deficient performance. The Court finds that Cone's claim is procedurally defaulted.

On the merits of the ineffective assistance of trial counsel claim, without Pelley's actual testimony tested under cross-examination, Cone has not met his burden of proving this claim. There are contradictory statements from Cone and the psychologists related to the extent of Cone's drug use in jail. There are also Oklahoma prison records that indicate that Cone was definitely in possession of drugs in jail. These records were available and presented at trial. There was no

real doubt that Cone was a drug user based on Lipman's and Roby's testimony at trial. There only appeared to be the question of whether he also sold drugs. Further, Cone had been out of prison for nearly 10 months when he killed the Todds, and his drug use in prison is not as relevant as his use at the time of the murders. Trial counsel's performance was not deficient for not having Pelley testify about Cone's drug use in jail. Cone was not prejudiced.

Therefore, the Court finds that the allegations in ¶ 40(a)(ii)(1) of the Petition are both procedurally defaulted and without merit.

E. Alice Jane Schmidt (Petition ¶ 40(a)(ii)(2))

Cone alleges that his counsel was ineffective for failing to investigate and present the testimony of Alice Jane Schmidt who could have testified about his drug use. (ECF No. 71 at 19.) Respondent notes that Cone failed to present any evidence at the evidentiary hearing in support of this claim and failed to make any specific argument in his post-hearing brief. (ECF No. 457 at 138.) Respondent argues that the claim should be dismissed as procedurally defaulted. (*Id.*) Cone acknowledges that he has not presented any additional proof on this claim and may not be entitled to establish entitlement to relief. (ECF No. 464 at 1.)

Cone provided no testimony from Schmidt and made no argument in his post-evidentiary hearing briefs. Without evidence related to the ineffective assistance of post-conviction or trial counsel, Cone has failed to meet his burden as it relates to this claim. The Court finds that the allegations in ¶ 40(a)(ii)(2) are procedurally defaulted and without merit.

F. Cone's Headaches From Being Beaten on the Head with a 2X4 (Petition ¶ 40(a)(ii)(4)(i))

Cone alleges that his counsel was ineffective for failing to investigate and present testimony and information about Cone suffering headaches from being beaten on the head. (ECF No. 71 at 19-20.) Respondent states that Cone failed to present any evidence at the evidentiary hearing in support of this claim and failed to make any specific argument in his post-hearing brief. (ECF No. 457 at 138-139.) Respondent argues that the claim should be dismissed as procedurally defaulted. (*Id.*) Cone acknowledges that he has not presented any additional proof on this claim and may not be entitled to establish entitlement to relief. (ECF No. 464 at 1.)

Cone provided no evidence at the evidentiary hearing and made no argument in his post-evidentiary hearing brief related to this claim. Without evidence related to the ineffective assistance of post-conviction or trial counsel, Cone has failed to meet his burden as it relates to this claim. The Court finds that the allegations in ¶ 40(a)(ii)(4)(i) are procedurally defaulted and without merit.

G. Cone's Mental Health and Adequate Expert Assistance to Defend Cone (Petition ¶ 40(b))

Cone alleges that his trial counsel was ineffective for failing to fully investigate and present relevant evidence of Cone's mental health, to secure adequate expert assistance to defend him, and to establish that Cone suffered Post-Traumatic Stress Syndrome and mental disturbance—not only from his service in Vietnam—but as a result of numerous combined traumas in his life, including the murder of his fiancée, the death of his brother, and the death of his father. (*Id.*) Cone asserts that Kopernak did not raise this claim during post-conviction proceedings and that he had no strategic reason for not raising such a claim. (ECF No. 451 at 12-13.) Cone argues that

post-conviction counsel's failure to secure and use the Florida records "when they were known, available, and critical, constitutes deficient performance" and serves as the clear foundation for all his mental health ineffectiveness claims. (*Id*. at 17-18.) Respondent argues that Cone failed to present any evidence to establish cause and prejudice to overcome the procedural default of this claim. (ECF No. 457 at 139.) He notes that Cone's post-evidentiary hearing brief makes no specific argument as it relates to ¶ 40(b). (*Id*.)

At trial, Jaremko presented evidence about post-traumatic stress disorder. *See State v. Cone*, 665 S.W.2d 87, 91 (Tenn. 1984). No evidence was presented that Kopernak had reason to investigate other traumas on Cone's mental health as it relates to a diagnosis of post-traumatic stress disorder. Cone has not met his burden of demonstrating that Kopernak's performance was deficient for failing to raise this claim as it relates to post-traumatic stress disorder.

Cone has not met his burden for proving his ineffective assistance of trial counsel claim on the merits. At the evidentiary hearing, Cone presented no evidence related to the alleged "numerous combined traumas" in his life. Cone presented limited evidence related to post-traumatic stress disorder. Gur testified that reduced metabolism in the limbic system and reduced hippocampal volume has been related to findings of post-traumatic stress disorder. (ECF No. 428 at PageID 15252-15253; *see* ECF No. 433 at PageID 15387.) Bigler also testified that reduced hippocampal volume could be indicative of post-traumatic stress disorder. (ECF No. 433 at PageID 15387.) In contrast, Meltzer testified that that there is no reliable way of diagnosing post-traumatic stress disorder from MRI or PET technologies. (ECF No. 426 at PageID 14984-14985.) Woods testified that Cone suffered post-traumatic stress. (ECF No. 437 at PageID 15985-15986.) Jaremko presented evidence related to Cone's post-traumatic stress disorder to the jury at trial; there was, therefore, no prejudice to Cone. With regard to mental

disturbance, Cone's claim fails for the reasons stated above for ¶ 40(a)(i).

The Court finds that the allegations in ¶ 40(b) of the Petition are procedurally defaulted and without merit.

H. Cone's History of Drug Use (Petition ¶ 40(c))

Cone alleges that his trial counsel was ineffective for failing to investigate Cone's "history and drug usage to demonstrate that his personality was consistent with that of a drug user, and that the traumas of his past led him to the use of drugs, and/or to have Cone examined physically to demonstrate that he was indeed a heavy drug user." (ECF No. 71 at 21.) Cone argues that Kopernak did not raise this claim during post-conviction proceedings and had no strategic reason not to do so. (ECF No. 451 at 13.) Respondent argues that Cone failed to establish cause and prejudice for the procedural default of this claim and made no specific delineated argument addressing this claim. (ECF No. 457 at 140.) Respondent asserts that the argument must be "divined from sporadic references to the testimony of Dr. Murray Smith." (*Id.*) Respondent asserts that the only evidence Cone presented to the Court in support of this claim is Pelley's declaration and the testimony of Murray Smith. (*Id.* at 140-141.)

Respondent notes that Kopernak, in hindsight, thought it might have been important to find witnesses to corroborate Cone's drug use. (*Id.* at 141-142.) Respondent asserts, however, that the effectiveness of counsel should not be judged in hindsight. (*Id.* at 142.) Respondent asserts that although it might be ideal to have eyewitnesses to Cone's drug use, Cone failed to present "a single such witness." (*Id.*) Respondent further notes that Smith testified that "the nature of addictive behavior is to be hidden and secret" and intelligent individuals are often addicts for many years before valid evidence of their addiction is discoverable. (*Id.* at 143.)

Respondent asserts that a witness such as Smith would have added virtually nothing to a claim by Kopernak that trial counsel was ineffective for failing to investigate Cone's history of drug usage. (*Id.*) Respondent contends that Smith's testimony—that as of August 1980, Cone met the diagnostic criteria for polysubstance chemical dependence—would have been subject to exclusion as cumulative of testimony by trial expert Lipman that Cone suffered from addiction. (*Id.*) Respondent argues that even if Smith's testimony were allowed, the only eyewitness account of Cone's drug use that Smith relied on was Pelley's statement and a hearsay statement from Rita Cone, Cone's sister, that he smoked pot on one occasion after he left prison. (*Id.* at 144.) Respondent asserts that Cone failed to address the allegations that his trial counsel should have had him physically examined to demonstrate drug use. (*Id.*)

Respondent asserts that Smith's testimony merely corroborated the fact or extent of drug use that was claimed by Cone at trial. (*Id.*) Specifically, Respondent cites the following evidence that corroborated Cone's drug use for Smith:

> (1) the un-notarized, unauthenticated, hearsay statement of convicted felon and former fellow inmate Jerry Pelley, discussed above (ECF No. 434, PageID 15563, ln. 5-19),
>
> (2) A prison misconduct report dated June 18, 1975, in which a mail room package addressed, but not received by Cone, contained amphetamines (ECF No. 434, PageID 15563 ln. 20 through PageID 15565 ln. 16),
>
> (3) A prison misconduct report dated August 20, 1979, in which Cone was found to be in possession of 21 joints of marijuana and a half pint of Old Charter Whiskey (ECF No. 434 PageID 15571 ln. 21 through PageID 15574 ln. 8),
>
> (4) An August 27, 1980, interview with Cone's sister Rita who stated that while visiting Cone in prison in Oklahoma she felt Cone was under the influence and that she saw Cone smoke pot on one occasion after he got out of prison (ECF No. 434, PageID 15584, ln. 6 through PageID 15586 ln. 10 (emphasis omitted)), and
>
> (5) Cone's conviction for misdemeanor marijuana possession which was shipped to him from Vietnam upon his return home. (ECF No. 434, PageID 15544, ln. 6-10.)

(ECF No. 457 at 144 n.40.) Respondent asserts that Dice testified in the post-conviction hearing that Cone instructed him not to interview Blankman, the one witness who arguably spent the most time with Cone between the time he left prison and the murders. (*Id.* at 145 n.41.)

Respondent cites the Sixth Circuit's statement related to Cone's former *Brady* claim to show that there was no prejudice to Cone from counsel's failure to fully investigate Cone's drug use: "[i]t would not have been news to jurors that Cone was a 'drug user.'" (*Id.* at 146.) *See Cone v. Bell*, 492 F.3d 743, 757 (6th Cir. 2007). Respondent argues that Cone's biggest hurdles with the jury were his demeanor, his conduct before, during, and after the murders, and his own statements, all of which overwhelmingly refute his claim of insanity. (ECF No. 457 at 147.) According to Respondent, additional evidence would not have changed the jury's verdict in part because of his drug addiction, in part because he failed to provide any mitigating evidence, and in part because of the undisputed evidence contained in three aggravating circumstances found beyond a reasonable doubt by the jury. (*Id.*) Respondent asserts that, while the extent of Cone's drug use remains subject to debate, the effect on his mental state is not. (*Id.*) Respondent asserts that there is no reasonable probability that Pelley's testimony or that of Smith could have changed the jury's mind that death was the appropriate sentence. (*Id.*)

The jury heard substantial direct evidence that Cone was a drug user, including testimony from two experts, Cone's mother, and testimony about drugs found in Cone's car. *Cone*, 492 F.3d at 757. This Court has previously noted the evidence presented at trial that Cone was a drug user included Lipman's testimony, drugs found in the car, and the "loose syringes, broken pills, pipes, and marijuana butts" found in the Cone's car. (*See* ECF No. 322 at 86-88, 92-94, 103-109, 150.)

Cone used the Florida reports to show consistency in Cone's reports of his drug use. Ryan spoke of the drugs as exacerbating "the already schizo-affective psychotic behavior which would occur in [Cone] independent of drug usage" and believed that Cone suffered more from psychological turmoil than drugs, *see supra* pp. 7-8 and 10. Stillman reported Cone's extensive drug usage, how the drugs seemed to quiet his anxiety, and that Cone was prone to paranoid delusions without drugs, *see supra* pp. 17-19 and 21. Eichert reported occasional drug use while Cone was in prison in Oklahoma, and constant drug use upon his release, causing him not to be able to control his behavior, *see supra* pp. 24-25. Taubel believed that Cone's problem was related to drug use and was not psychological, *see supra* pp. 26 and 39-30. Hutson also offered substantial, consistent evidence about Cone's drug use, *see supra* pp. 156-159, 161-163, 165-166. Although Cone's reports of drug use to mental health professionals were consistent, reports about drug use while Cone was in prison varied. Although each mental health professional who considered Cone's drug use determined that he had a substance abuse problem, they had different opinions about the level of Cone's intoxication around the time of the murders.

There were no firsthand accounts of Cone's drug use presented in the evidentiary hearing other than Pelley's declaration. Although Smith was offered as Cone's expert, Smith's testimony was similar to Lipman's testimony at trial. The main differences were that Smith is a medical doctor and Lipman was a neuropharmacologist. Lipman was much more detailed about the nature and extent of Cone's drug use and the effect on his mental state. The Court notes that there was not a board certification in addiction medicine at the time of Cone's trial, *see supra* p. 123, so Cone's trial counsel could not have had a witness with Smith's credentials testify at trial.

The additional evidence that purportedly corroborates Cone's drug use did not create a reasonable probability that the outcome of the case would have changed given the extensive and

detailed testimony from Lipman about Cone's drug use, the varying opinions about how that drug use affected Cone's mental state at the time of the murders, the facts surrounding Cone's behavior at the time of the murders, and the clear indication, as stated by the Sixth Circuit, to the jury that it was "not news" that Cone was a drug user. The Court finds that the allegations in ¶ 40(c) are without merit.

I. Brain Damage (Petition ¶ 40(d))

Cone alleges that his trial counsel was ineffective for failing to investigate and/or demonstrate that he suffers brain damage. (ECF No. 71 at 21.) This claim is the crux of Cone's argument, as it relates to ¶ 40(a)(i) above. For the reasons stated *supra*, the allegations in ¶ 40(d) of the Petition fail on the merits.

J. Adequate Expert Assistance (Petition ¶ 40(e))

Cone alleges that his counsel failed to obtain adequate expert assistance including a psychiatrist to give a psychiatric diagnosis at the guilt and sentencing phases of trial. (ECF No. 71 at 21.) Respondent argues that Cone has offered no evidence other than the Ryan and Stillman reports and evidence related to the brain damage claim (¶ 40(d)) in support of this claim, and it should be dismissed. (ECF No. 457 at 163.) This claim is also closely related to the allegations in ¶ 40(a)(i).

Stillman, Taubel, Eichert, and Bursten are all psychiatrists who evaluated Cone prior to trial. Further, Cone offered the expert testimony of psychiatrist George Woods. In addition to the psychiatrists' testimony, there was the testimony of psychologists Dale Watson and John Hutson and neuropsychologists Erin Bigler and Ruben Gur. The question for this Court is whether the diagnoses offered by these psychiatrists and psychologists would have made a

difference at the guilt and sentencing phases of trial. This question has been addressed in the context of ¶ 40(a)(i), especially as it relates to prejudice from counsel's failure to present different or additional experts. For the reasons stated above, the allegations in ¶ 40(e) of the Petition are without merit.

K. Investigation of Cone's Background, Personal and Medical History (Petition ¶ 40(k))

Cone alleges that his trial counsel failed to adequately investigate his background and personal and medical history for the existence of mitigating evidence and to present such evidence during the penalty phase of trial. (ECF No. 71 at 21.) Respondent argues that Cone has offered no other evidence in support of ¶ 40(k) other than the Ryan and Stillman reports and evidence related to ¶ 40(c) (Cone's history of drug use) and ¶ 40(d) (brain damage claim). (ECF No. 457 at 164.) There is a mention of Cone having a family history of schizophrenia in Woods' report, but no detail. (ECF No. 448-53 at PageID 18732.) Cone's Tennessee Department of Corrections medical records were also introduced at the hearing. Respondent—not Cone—addressed these records. Further, there was no mitigating evidence in the records presented. Cone presented no additional personal and medical history evidence that he tied to this claim. Cone has failed to meet his burden of demonstrating that either post-conviction counsel was deficient for failing to bring this claim or that that his trial counsel was ineffective. The Court finds that the allegations in ¶ 40(k) of the Petition are without merit.

L. Witnesses for the Penalty Phase (Petition ¶ 40(p))

Cone alleges that his trial counsel failed to adequately investigate and prepare witnesses for the penalty phase of trial to demonstrate all aspects of Cone's character and background that would

support a sentence less than death. (ECF No. 71 at 22.) Respondent asserts that Cone presents no specific arguments in support of this claim, and this claim should be dismissed. (ECF No. 457 at 165.) Cone appears to present no evidence or specific argument related to this claim. The Court does not engage in speculation as to a party's position. To the extent that Cone may be asserting that Stillman and Ryan should have been investigated and prepared as witnesses for trial, however, this argument fails for the reasons stated as to ¶ 40(a)(i), *see supra* p. 241. The Court finds that Cone has failed to meet his burden of overcoming procedural default or establishing the merits of the allegations in ¶ 40(p) of the Petition.

M. Available Medical and Psychiatric Records (Petition ¶ 40(nn))

Cone alleges that counsel failed to investigate and present available medical and psychiatric records at both phases of the trial. (ECF No. 71 at 24.) Respondent argues that Cone had no history of diagnosis or treatment of any mental illness prior to his crimes in August 1980, and no reported relevant medical history. (ECF No. 457 at 166.) Respondent argues that this claim should be dismissed. (*Id.*) The only medical and psychiatric records prior to Cone's trial appear to be the Florida reports and testimony. For the reasons stated *supra* with regard to ¶ 40(a)(i), Cone has failed to meet his burden of overcoming procedural default and establishing the merits of the allegations in ¶ 40(nn).

N. Prosecutor's Statements (Petition ¶¶ 40(z), 59, & 69)

Cone alleges that his trial counsel "failed to object to the prosecutor's improper, inflammatory, prejudicial, inappropriate and misleading or inaccurate statements concerning the law, the evidence or the petitioner during voir dire, opening, direct examination, cross examination, closing, and rebuttal closing at the guilt phase of petitioner's trial, and during

opening, direct examination, cross examination, closing and rebuttal closing at the penalty phase of petitioner's trial" (¶ 40(z)), as it relates to: (1) presenting "unconstitutional, inflammatory, and prejudicial argument at the guilt phase, in which the State ridiculed petitioner's indigence, argued facts not in evidence, derogated the death of petitioner's fiancée, and made other derogatory remarks about the petitioner" (¶ 59); and (2) calling the defendant an "animal" in final argument (¶ 69). (ECF No. 71 at 23, 35, 37.) Respondent asserts that Cone failed to present any evidence in relation to this claim and failed to address the claim in his post-evidentiary hearing brief. (ECF No. 457 at 166 n.51.) Respondent states that Cone "has presumably abandoned review of claim 40z." (*Id.*) Cone asserts that because his lead trial counsel John Dice is now deceased, Cone has not been able to present any additional proof from Dice regarding ¶ 40(z) as it relates to ¶¶ 59 and 69 of the Petition. (ECF No. 464 at 1-2.) Cone asserts that he did present limited proof on that issue from co-counsel at trial and relies on that proof and the record to support these claims. (*Id.* at 2.) Goode testified that she would have looked to Dice for an objection or jumped up and objected in court. (ECF No. 419 at PageID 12970-12971.)

In the instant case, Cone has the burden of overcoming procedural default. Cone has not presented any evidence or argument related to Kopernak's performance as it relates to these claims or trial counsel's performance. Cone has failed to meet his burden of overcoming procedural default and establishing the merits of the allegations in ¶ 40(z), as it relates to ¶¶ 59 and 69 of the Petition.

VI. CONCLUSION

For the reasons stated above, the allegations in ¶¶ 40(a)(i); 40(a)(ii)(1, 2, & 4(i)); 40(b-e); 40(k) excluding evidence on family background; 40(p); 40(nn); and 40(z) as it relates to ¶¶ 59 and

69 are either procedurally defaulted or without merit and DENIED. With Cone's *Brady* and *Martinez* claims having been addressed on remand, Cone's petition filed pursuant to 28 U.S.C. § 2254 is DENIED.

VII. APPEAL ISSUES

There is no absolute entitlement to appeal a district court's denial of a § 2254 petition. *Miller-El v. Cockrell*, 537 U.S. 322, 335 (2003); *Bradley v. Birkett*, 156 F. App'x 771, 772 (6th Cir. 2005). The Court must issue or deny a certificate of appealability ("COA") when it enters a final order adverse to a § 2254 petitioner. Rule 11, Rules Governing Section 2254 Cases in the United States District Courts ("Section 2254 Rules"). A petitioner may not take an appeal unless a circuit or district judge issues a COA. 28 U.S.C. § 2253(c)(1); Fed. R. App. P. 22(b)(1).

A COA may issue only if the petitioner has made a substantial showing of the denial of a constitutional right, and the COA must indicate the specific issue or issues that satisfy the required showing. 28 U.S.C. §§ 2253(c)(2) & (3). A "substantial showing" is made when the petitioner demonstrates that "reasonable jurists could debate whether (or, for that matter, agree that) the petition should have been resolved in a different manner or that the issues presented were adequate to deserve encouragement to proceed further." *Miller-El*, 537 U.S. at 336; *see also Henley v. Bell*, 308 F. App'x 989, 990 (6th Cir. 2009) (per curiam) (same). A COA does not require a showing that the appeal will succeed. *Miller-El*, 537 U.S. at 337; *Caldwell v. Lewis*, 414 F. App'x 809, 814-15 (6th Cir. 2011). Courts should not issue a COA as a matter of course. *Bradley*, 156 F. App'x at 773. Because any appeal by Petitioner on the issues raised in the § 2254 Petition does not merit further review, the Court DENIES a certificate of appealability.

Rule 24(a)(1) of the Federal Rules of Appellate Procedure provides that a party seeking

pauper status on appeal must first file a motion in the district court, along with a supporting affidavit. However, if the district court certifies that an appeal would not be taken in good faith, or otherwise denies leave to appeal in forma pauperis, the prisoner must file his motion to proceed in forma pauperis in the appellate court. See Fed. R. App. P. 24(a)(4)-(5). In this case, for the same reasons the Court denies a certificate of appealability, the Court determines that any appeal would not be taken in good faith. It is therefore CERTIFIED, pursuant to Federal Rule of Appellate Procedure 24(a), that any appeal in this matter would not be taken in good faith, and leave to appeal in forma pauperis is DENIED.

IT IS SO ORDERED this 31st day of March, 2015.

/s/ Jon P. McCalla
U.S. DISTRICT JUDGE