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**USING COGNITIVE NEUROSCIENCE TO
PROVIDE A PROCEDURE FOR THE
INVOLUNTARY COMMITMENT OF
VIOLENT CRIMINALS AS A PART OF OR
FOLLOWING THE DURATION OF THEIR
SENTENCE**

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USING COGNITIVE NEUROSCIENCE TO PROVIDE A PROCEDURE FOR THE INVOLUNTARY COMMITMENT OF VIOLENT CRIMINALS AS A PART OF OR FOLLOWING THE DURATION OF THEIR SENTENCE

(PART II OF A TWO-PART SERIES)

THE MODEL STATUTE

By: Adam Lamparello¹

*Violent behavior is at least partly based on biology. Violent propensities have been shown to correlate with **abnormalities in the structure and function of the brain** and the central nervous system ... These abnormalities, combined with environmental factors – such as stress or drug and alcohol abuse – can increase the chances that a particular individual will become violent. Indeed, many of the risk factors measured by actuarial assessments of violence risk ... may be tied to underlying biological function. Thus, biology may explain the statistical correlations between violence and risk factors.*²

A. SUMMARY OF PART I

In Part 1 of this two-part series,³ it was argued that recent findings in cognitive neuroscience can provide an objective basis to assess future dangerousness and thus allow for the involuntary commitment of violent offenders either during or after the completion of their sentence. This Article proposes a model statutory framework for legislators that both effectuates the utilitarian goal of protecting the community while ensuring that the defendants' constitutional rights are adequately safeguarded.

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² Erica Beecher-Monas, Edgar Garcia-Rill, Ph.D., "Danger at the Edge of Chaos," 24 CARDOZO L. REV. 1845, 1860 (2003).

³ See Adam Lamparello "Using Cognitive Neuroscience As a Basis Upon Which to Accurately Predict The Future dangerousness of Violent Criminals and Thus provide A Procedure For The Involuntary Commitment of Such Individuals As A Part of or Following the Duration of their Sentence," _____ COLUMBIA HUMAN RIGHTS L. REV. _____ (Forthcoming Winter 2011).

The ability to predict future dangerousness – whether it is through expert testimony or actuarial assessment – is, in and of itself, fairly unreliable. Indeed, “[f]or nearly twenty years we have known that psychiatrists cannot predict whether a person who has committed a violent act will be violent in the future.”⁴ In fact, even “the most scientific predictions based on through examination, diagnosis of mental symptoms, past patterns of behavior, and probabilistic assessment are wrong nearly as often as they are right.”⁵ Unfortunately, however, “courts persist in circumventing any inquiry into the scientific validity of expert future dangerousness predictions.”⁶ In this way, “when a court permits the imprimatur science to be given to chicanery, justice becomes a mockery.”⁷

Importantly, due to the problematic future dangerous predictions by experts, “a series of studies was undertaken by researchers in order to improve the accuracy of such predictions.”⁸ Specifically, researchers endeavored to “develop an empirically based actuarial instrument that would reflect a state of the art understanding of the factors correlated with violence and their interrelationships.”⁹ Specifically, actuarial instruments “assess the risk of repeated violence in offenders and psychiatric patients by examining a

⁴ Monas and Rill, *supra* note 2, at 1845.

⁵ *Id.*

⁶ *Id.* at 1847.

⁷ *Id.* at 1847-1848; *see also* Brian Sites, “The Danger of Future Dangerousness in Death Penalty Use,” 34 FLA. ST. U. LAW. REV. 959 (2007); Meghan Shapiro, “An Overdose of Dangerousness: How ‘Future Dangerousness’ Captures the Least Culpable Capital Defendants and Undermines the Rationale for the Executions it Supports,” 35 AM. J. CRIM. L. 145 (2008); Mitzi Dorland and Daniel Krauss, “The Danger of Dangerousness in Capital Sentencing:” Exacerbating the Problem of Arbitrary and Capricious Decision-Making,” 29 LAW & PSYCHOL. REV. 63 (2005).

⁸ *Id.* at 1848.

⁹ Monas and Rill, *supra* note 2, at 1848.

number of factors, scored on a scale with points varying according to the particular instrument ... [and] [e]ach instrument evaluates different risk factors, and scores differently.”¹⁰ Critically, however, as commentators have explained, “an important failing of the actuarial future dangerousness instruments”¹¹ is that they fail to include “any of the biological information about violence.”¹² In other words, actuarial instruments “would be more predictive if they also included biological information about the brain,”¹³ which would include “physiological measures and assessment of neurocognitive function and how individuals process emotional information.”¹⁴ Otherwise, “no matter how accurate the instrument, it will be impossible to predict a particular individual’s behavior.”¹⁵

Thus, where expert testimony and actuarial assessments fall short, cognitive neuroscience provides an objective basis upon which to predict future dangerousness and provide for the involuntary commitment of violent offenders both during and after their sentence.¹⁶ To begin with, the field of cognitive neuroscience uses magnetic resonance imaging (MRI) and functional magnetic resonance imaging (fMRI) to study the structure

¹⁰ Erica Beecher-Monas and Edgar Garcia-Rill, “Genetic Predictions of Future Dangerousness: Is there a Blueprint for Violence,” 69-SPG LAW A& CONTEM. PROB. 301 (2006).

¹¹ Monas and Rill, *supra* note 2, at 1887.

¹² *Id.*

¹³ *Id.*

¹⁴ *Id.* (quoting M. Dolan & M. Doyle, “Violence Risk Prediction: Clinical and Actuarial Measures and the Role of the Psychopathy Checklist,” 177 BRIT. J. PSYCH. 303, 309 (2000))

¹⁵ Monas and Rill, *supra* note 2, at 1888.

¹⁶ *See, e.g.*, Kristen Gartman Rogers et al., “The Present and Future Impact of Neuroscience Evidence on Criminal Law,” 33-APR CHAMPION 18 (2009); *see also* Peggy Sasso, “Criminal Responsibility in the Age of ‘Mind Reading,’” 46 AM. CRIM. L. REV. 1191, 1221-1227 (2009).

and function of the brain.¹⁷ In assessing future violence, there are two areas that bear directly upon cognitive function, emotion and behavioral control – the *frontal lobe* (within which lies the pre-frontal cortex) and the *limbic system* (which includes the amygdala).

As neuroscientific studies have revealed, the frontal lobe is involved in the “whole brain’s ability to function and has been shown to be involved with motor control, attention, personality, emotion, language, memory, sensory-perceptual and visual-spatial functions as well as executive and cognitive abilities.”¹⁸ Damage to the frontal lobes, such as the presence of lesions (or tumors), can – and does – result in “an increased risk of aggressive and violent behavior,”¹⁹ as well as “impaired critical judgment and poor impulse control.”²⁰ In fact, “reduced blood flow, and reduced function have all been observed in the frontal cortex of violent individuals and murderers.”²¹ Ultimately, therefore, individuals with damage to their frontal lobes have shown, *inter alia*, an

¹⁷ O. Carter Snead, “Neuroimaging and the ‘Complexity’ of Capital Punishment,” 82 N.Y.U. L. REV. 1281-1282 (2007); *see also* Robert Weisberg, “The Values of Interdisciplinarity in Homicide Law Reform,” 43 U. MICH. J.L. REFORM 53, 69-71 (2009); E. Spencer Compton, “Not Guilty by Reason of Neuroimaging: The Need for Cautionary Jury Instructions for Neuroscience Evidence in Criminal Trials,” 12 VAND. J. ENT. & TECH. L. 340-341 (2010).

¹⁸ D. Michael Bitz, M.D., and Jean Seipp, M.D., “Incompetence in the Brain Injured Individual,” 12 ST. THOMAS L. REV. 205, 239 (1999); *see also* Joseph H. Baskin, *et al.*, “Is a Picture Worth a Thousand Words? Neuroimaging in the Courtroom,” 33 AM. J. L. & MED. 239.

¹⁹ Monas and Rill, *supra* note 10, at 329.

²⁰ *Id.*

²¹ *Id.*; *see also* Charles Fischette, “Psychopathy and Responsibility,” 90 VA. L. REV. 1423 (2004); John Matthew Fabian, “Forensic Neuropsychological Assessment and Death Penalty Litigation,” 33-APR CHAMP 24 (2009).

incapacity “to develop normal social and emotional responses while retaining other intellectual capacities.”²²

Additionally, damage to the brain’s limbic system, in particular the amygdala, can also impact an individual’s emotional state and response to incoming stimuli. More specifically, in an individual afflicted with frontal lobe disorder “there is a disruption in the neural circuit running between the limbic system (especially the amygdala) and the frontal lobes, which is a brain circuit responsible for fear conditioning, stress responses, mood regulation, and impulse control ...”²³ The amygdala “stores emotional memories of past experiences and compares incoming stimuli against those stored memories,”²⁴ and is “responsible for the rapid evaluation of incoming stimuli.”²⁵ In other words, the amygdala produces the initial, primitive emotional response to incoming experiences, and the frontal lobe, through its executive functioning powers, is responsible for “producing a coordinated response that integrates emotional perceptions with rational decision making.”²⁶ In this way, “the amygdala proposes,” and the “prefrontal lobe disposes.”²⁷ Thus, when an individual has sustained damage to the frontal lobe and to the circuit

²² Bitz, *supra* note 16, at 250; *see also* Kathryn Abrams and Hila Keren, “Who’s Afraid of Law and the Emotions?” 94 MINN. L. REV. 1977 (2010); Cassandra M. Lamb, “Behavioral Biology: The Impact of Neuroimaging and Brain Dysfunction on the Sentencing of Sexual Offenders,” 35 NEW ENG. J. ON CRIM. & CIV. CONFINEMENT 421 (2009); Peggy Sasso, “Implementing the Death Penalty: The Moral Implications of Recent Advances in Neuropsychology,” 29 CARDOZO L. REV. 765, 788-790 (2007).

²³ Richard E. Redding, “The Brain-Disordered Defendant: Neuroscience and Legal Insanity in the Twenty-First Century,” 56 AM. U. L. REV. 51 (2006); *see also* “Emotional Competence, ‘Rational Understanding,’ and the Criminal Defendant,” 43 AM. CRIM. L. REV. 1375.

²⁴ Redding, *supra* note 23, at 70.

²⁵ *Id.*

²⁶ *Id.*

²⁷ *Id.* (citation omitted).

running between the limbic system and the pre-frontal cortex, the individual becomes more likely disposed to aggressive, violent and impulsive behavior.²⁸

Significantly, therefore, the findings from neuroscientific studies have demonstrated that individuals with frontal lobe disorder – as well as neural disruption of the circuit connecting the limbic system with the frontal lobe – are prone to engage in precisely the type of conduct that society describes as both criminal and dangerous.²⁹ Thus, neuroscience can be the basis upon which to do exactly that which expert testimony and actuarial methods cannot reliably do by themselves – accurately predict future dangerousness. Furthermore, neuroscientific studies demonstrate that individuals afflicted with frontal lobe disorder and/or neural circuit disruption between the limbic system and frontal lobes (primarily the pre-frontal cortex), have a cognizable mental illness that warrants rehabilitative intervention.³⁰

Ultimately, therefore, because neuroscience can determine – with a reasonable degree of accuracy – whether a criminal defendant remains a threat to himself or others due to an identifiable mental illness, then the threshold standard for involuntary commitment of such individuals can be satisfied. As a result, neuroscience can provide a constitutional basis upon which to involuntarily confine criminal defendants either during or *after* their sentences have been completed. This type of procedure has already been implemented – and survived numerous constitutional challenges – in the context of

²⁸ *Id.* at 70-71

²⁹ See generally Owen Jones, “Behavioral Genetics and Crime, In Context,” 69-SPG LAW AND CONTEMP. PROBS. 81 (2006).

³⁰ See Henry T. Greely, “Law and the Revolution in Neuroscience: An Early look at the Field,” 42 AKRON L. REV. 687, 699-704 (2009).

sexual offenders, who, based on empirical data, are shown to be more likely than other offenders to engage in similar criminal acts.³¹

Based upon the above information, Part I of this two-part series proposed that a statutory framework be adopted so that defendants with frontal lobe disorder and neural circuit disruption between the limbic system and pre-frontal cortex can be involuntarily committed either during or after their sentence. Part I set forth a general overview of the types of provisions and elements that such a statute might include, but it did not set forth with specificity how the statute should be drafted, implemented and applied to violent offenders.

This follow-up Article does precisely that – it provides in greater detail a model statute for the involuntary commitment of violent defendants in a manner that ensures compliance with their constitutional rights. Part II briefly discusses the methods by which future dangerousness is assessed in the courts, and concludes that neuroscientific methods provide the most accurate basis upon which to render such predictions. Part III sets forth the model statute, and does so in light of Supreme Court precedent that has set forth in detail the rights of those committed against their will for either a prescribed or indeterminate amount of time. In so doing, this statute provides a paradigm upon which state legislators can begin to initiate a process that seeks both utilitarian and retributive ends – to treat the defendant and protect the public.³²

³¹ Cf. Teneille Brown & Emily Murphy, “Through a Scanner Darkly: Functional Neuroimaging as Evidence of a Criminal Defendant’s Past mental States,” 62 STAN. L. REV. 1119 (2010) (discussing the limits of functional magnetic resonance imaging).

³² See generally, Nita A. Farahany and James E. Coleman, Jr., “Considering Convergence: A Policy Dialogue about Behavioral Genetics, Neuroscience and Law,” 69-SPG LAW & CONTEMP. PROBS. 101, 111-112 (2006).

PART II

PREDICTING FUTURE DANGEROUS

As set forth *supra*, there are three methods of assessing whether a criminal defendant is likely to commit further acts of violence upon release. They are: (1) expert testimony; (2) actuarial methods; and, more recently, (3) neuroscientific studies. Based upon relevant data, the latter provides the most accurate basis upon which to predict future dangerousness.

A. EXPERT TESTIMONY

Expert testimony concerning future dangerousness is not very accurate. In 1983, in the context of long-term sentencing, the American Psychiatric Association stated as follows:

Psychiatrists should not be permitted to offer a prediction concerning long-term future dangerousness in a capital case, at least in those circumstances where the psychiatrist purports to be testifying as a medical expert possessing predictive expertise in this area ... Medical knowledge has simply not advanced to the point where long-term predictions ... may be made with even reasonable accuracy ... [E]ven under the best of conditions, psychiatric predictions of long-term future dangerousness are wrong *in at least two out of three cases*.³³

As one commentator explains, “peer reviewed research ... has more recently bolstered these conclusions.”³⁴ Specifically, “[m]ental health professionals themselves are entirely skeptical of their own predictions, [and] academics appear to have unanimously accepted that such professionals are unreliable ...”³⁵ For example, a dangerousness prediction in

³³ Shapiro, *supra* note 7, at 162 (emphasis added).

³⁴ *Id.*

³⁵ *Id.*

the capital context has been described as “sobering, both in its inability to discriminate who will and will not engage in violent misconduct in prison and in the minority who fulfill the prediction.”³⁶ These studies reveal “low quality control for ... dangerousness assertions and unreliability of the predictions in general.”³⁷

Furthermore, “more recent and more methodologically sound studies indicate that mental health professionals are [only] moderately better than chance in predicting long-term dangerousness.”³⁸ Moreover, “[e]ven with extensive interviewing ... studies show that clinical predictions do not improve substantially.”³⁹ As a result, the extant literature suggests that: (1) mental health practitioners’ future violence predictions are inaccurate; (2) they lack training in making future dangerousness predictions; and (3) based upon a number of factors, clinicians often overestimate rates of future violence.⁴⁰

B. ACTUARIAL METHODS

Various actuarial methods have been adopted to ensure more accurate “future dangerousness” predictions. Specifically, actuarial methods seek an understanding of the “factors correlated with violence and their interrelationships.”⁴¹ As one commentator describes, “these risk factors would then be combined to create a scoring instrument that took into account the interrelationship of various risk factors and the population base

³⁶ *Id.* (quoting Mark D. Cunningham, Thomas J. Reidy, & Jon R. Sorensen, “Assertions of ‘Future Dangerousness’ at Federal Capital Sentencing: Rates and Correlates of Subsequent Prison Misconduct and Violence,” 31 LAW & HUM. BEHAV. 46, 61 (2008)).

³⁷ Shapiro, *supra* note 7, at 163.

³⁸ Dorland & Krauss, *supra* note 7, at 84-85.

³⁹ *Id.* at 85.

⁴⁰ *Id.* at 86.

⁴¹ Farahany and Coleman, *supra* note 29, at 318.

rates, then assigned weight to the individual risk factors.”⁴² Using this method would ultimately “yield an overall ‘score’ that ranked levels of risk.”⁴³

Importantly, “it is well accepted that actuarial instruments offer the most accurate way of making future dangerousness predictions.”⁴⁴ The primary instruments in rendering future dangerousness predictions are the Violence Risk Assessment Guide, the Sexual Offender Risk Assessment Guide, and the Rapid Risk Assessment for Sexual Offense Recidivism.⁴⁵ Professors Monas and Rill describe the function of these assessments as follows:

In each of these instruments, violent behavior ... is statistically correlated with specific factors in the person’s past behavior (a pattern of past violence, for example), circumstances (such as poverty), attitudes toward others (failure to marry or form equivalent relationship), medical and psychiatric history ... and substance abuse ... [t]hey also include factors such as whether the victim was a stranger and whether the victim was male. These factors are then used in combination to assess a level of probability of future risk. The variables considered for the instruments are drawn from empirical studies showing a statistical association with violent (or sexually violent) behavior.⁴⁶

However, “[a]lthough testimony based on actuarial instruments is more accurate than clinical predictions ... these predictions are tenuous bases for making important decisions such as sentencing a defendant to death or to *indefinite confinement*.”⁴⁷ In fact, “these actuarial instruments correlate only moderately with violence ... [and] actuarial

⁴² *Id.*

⁴³ *Id.*

⁴⁴ *Id.* (emphasis added).

⁴⁵ *Id.* at 318-319.

⁴⁶ *Id.* at 319-320.

⁴⁷ *Id.* at 321.

assessments are probabilistic risk estimates that should be acknowledged as uncertain.”⁴⁸ Stated simply, “these instruments offer a partial answer, and courts should demand more.”⁴⁹ Thus, “while these new procedures are more accurate than previous attempts to predict future violence, their accuracy is still limited.”⁵⁰ However, this is not to say that actuarial methods are of no use in the future dangerousness determination. What it does signify is that there needs to be more information connecting violent behavior with biological roots, such that individual conduct can be understood not simply as a product of environment, but as a product of forces affecting control, reasoning and judgment.

C. NEUROSCIENCE – FRONTAL LOBE DISORDER AND NEURAL CIRCUIT DISRUPTION BETWEEN THE LIMBIC SYSTEM AND FRONTAL LOBE/PRE-FRONTAL CORTEX

1. FUNCTIONAL MAGNETIC RESONANCE IMAGING

Neuroscience provides precisely the “more” that the courts are seeking to obtain when improving the accuracy of future dangerousness predictions. As Professors Monas and Gill state, “[w]hat is missing from any of the actuarial instruments is causal theory, recognition of the biology of violence, and explicit discussion of the interrelatedness of genes, organisms and their environment.”⁵¹ In other words, “a major problem with each of the risk instruments is its failure *to correlate the* risk factors with the biology of violence and to articulate a hypothesis for the mechanisms of violence.”⁵² Simply stated,

⁴⁸ *Id.* at 322.

⁴⁹ *Id.*

⁵⁰ *Id.* at 89.

⁵¹ Monas and Rill, *supra* note 10, at 322.

⁵² *Id.* (emphasis added)

“[u]ntil there is an understanding of *how violence occurs*, there will be little ability to control or predict it.”⁵³

Cognitive neuroscience is providing the explanatory foundations that trace violence, aggression, impulse-control problems and other aggressive behavior to brain-related activity. As set forth in Part I of this two-part series, neuroscientists utilize tomography scanning and magnetic resonance imaging to examine the structure and function of the brain.⁵⁴ Specifically, magnetic resonance imaging “constructs a computerized image of the brain by measuring the signal strengths of the various radio frequencies emitted by the proton nuclei of atoms in brain tissue when the protons are placed in a strong magnetic field.”⁵⁵

With respect to functional magnetic resonance imaging, scientists predicate their tests upon the premise that “there is a relationship between neuronal activity and regional cerebral blood flow—that is, blood flow to the region of the brain that is active during a given task.”⁵⁶ Thus, “once a threshold level of neuronal activity is reached ... fMRI (and other neuroimaging techniques) indirectly measure[s] highly localized brain activity by recording certain proxies associated with blood flow.”⁵⁷ Importantly, “fMRI has eclipsed all other techniques as the most widely used form of functional neuroimaging.”⁵⁸

Specifically, while other techniques rely upon the notion that “regional brain activation is

⁵³ *Id.* at 322-323 (emphasis added).

⁵⁴ Snead, *supra* note 15, at 1282.

⁵⁵ *Id.* at 1282.

⁵⁶ *Id.* at 1282-1283.

⁵⁷ *Id.* at 1283.

⁵⁸ *Id.* at 1285.

indicated by increased cerebral blood flow ... fMRI measures the surplus of oxygenated blood recruited to the active brain region under consideration.”⁵⁹ Researchers rely upon this additional measurement because “[w]hen the brain activity in a particular region increases, so too does the concentration of oxygenated blood ... while the concentration of deoxygenated blood simultaneously decreases.”⁶⁰

2. FRONTAL LOBE DISORDER -- UNCOVERING THE BIOLOGICAL AND ENVIRONMENTAL CAUSES OF BEHAVIORS ASSOCIATED WITH CRIMINALITY

The use of neuroimaging, concerning both the brain’s structure and function, has revealed that various brain disorders, including frontal lobe disorder, result from both biological *and* environmental factors. Neuroscience has not only revealed that frontal lobe disorder can lead to precisely the types of behaviors associated with criminality, i.e., aggression, rage attacks, and impulse control, but it has also, in conjunction with other research, identified the underlying factors that can cause frontal lobe disorder, which include:

- Young maternal age during pregnancy;
- Maternal alcohol, nicotine, drug use and poor diet and medical care during pregnancy;
- Fetal mal-development, minor physical abnormalities, fetal alcohol syndrome;
- Parental criminality and drug abuse;
- Domestic violence to mother during pregnancy;
- Poor offspring nutrition and medical care;
- Exposure to parental abuse and emotional neglect;
- Exposure to deplorable home conditions;
- Exposure to toxins, lead, parasites, infection;
- Poor socio-economic conditions; and

⁵⁹ *Id.*

⁶⁰ *Id.*

- Substance abuse and dependence history.⁶¹

Consequently, and in what will be critical to the Model statute *infra*, there are specific markers, due both to the specific risk factors listed above and the behavior manifestations listed below, that can guide both attorneys and the courts in identifying those offenders who are most at risk for engaging in repeated acts of violence.

3. THE MANIFESTATIONS THAT INDICATE THE PRESENCE OF FRONTAL LOBE DISORDER AND DAMAGE TO THE LIMBIC SYSTEM

Professor Redding has set forth a non-exhaustive list of symptoms associated with frontal lobe disorder, which include the following:⁶²

- Impaired self control;
- Low conformance to societal values;
- Insensitivity toward others;
- Violence occurring within background of flat affect;
- Impaired ability to modulate or fine-tune complex behavior;
- Impaired ability to modulate emotional response during sustained social interaction;
- Spontaneous, florid confabulations with psychotic qualities⁶³

These studies reveal a connection between frontal lobe disorder and criminal behavior because “reduction in the frontal lobes may be responsible for impaired critical judgment and poor impulse control.”⁶⁴ As Professor Redding further explains, because “[i]t is the job of the frontal lobes to focus attention and to modify and inhibit behavioral

⁶¹ Fabian, *supra* note 19, at 25-26.

⁶² It is important to note that individuals affected with frontal lobe disorder and/or amygdalar injury still know the difference between legal and illegal conduct, namely, they retain their overall intellectual capacities and can reason rationally about social and moral situations...” In other words, these individuals know that their actions are wrong, but their judgment is impaired and they are unable to use their knowledge to behave in a way that comports with societal norms.

⁶³ Redding, *supra* note 21, at 59-60.

⁶⁴ Monas and Gill, *supra* note 10, at 329.

impulses that surge up from other parts of the brain ... [f]rontally damaged people often cannot keep their behavior within the general rules of society.”⁶⁵

In other words, “some persons with FLD show the behavioral responses associated with criminality.”⁶⁶ For example, “[a] person suffering from frontal lobe dysfunction could have an impairment in judgment, and could commit impulsive or violent acts even though such acts would normally be against that person’s nature.”⁶⁷ Additionally, “people with frontal lobe damage often lose control over their own behavior and are prone to ‘rage’ attacks as the frontal lobe acts as a braking mechanism for human behavior.”⁶⁸ Similarly, frontal lobe damage can lead to an “inability to perceive social situations correctly and act accordingly, an inability to control behavior, and an inability to act rationally during social situations.”⁶⁹

Also, a “lack of empathy ... may result from damage to the amygdala (part of the limbic system and neural circuit connecting it with the frontal lobe).”⁷⁰ Specifically, studies relating to “amygdalar function suggest that damage to this part of the brain might lead to disengagement and lack of empathy.”⁷¹ Thus, “[w]hile electrically stimulating the amygdala can elicit the physiological and behavioral signs of emotional states, lesions to

⁶⁵ Redding, *supra* note 21, at 60.

⁶⁶ *Id.*

⁶⁷ *Id.* at 60-61.

⁶⁸ *Id.* at 61.

⁶⁹ *Id.*

⁷⁰ Monas and Rill, *supra* note 10, at 329.

⁷¹ *Id.*

the amygdala induce an unusually placid and emotionally unengaged individual ...”⁷² As a result, “[t]hose affected are unable to recognize or respond emotionally to a situation that elicits emotional responses in others ... [and] [s]uch lack of empathy may be at the root of multiple, premeditated, and serial ... killing.”⁷³

From these studies comes “[w]hat is missing from any of the actuarial instruments,”⁷⁴ namely, a causal theory of violence predicated upon biological roots. Neuroscientific studies are beginning to demonstrate that certain behaviors – including those associated with criminality – can be traced to identifiable brain injuries that are responsible for cognitive decision-making and the processing of emotions. As a result, there exists a firm, more objective, and reliable basis upon which to understand *why*, in some circumstances, individuals engage in acts of violence. The discovery of the “why” invariably has implications for the “how,” namely, the method by which we predict future dangerousness, and sentence those defendants who are guilty of a violent crime yet suffer from these brain disorders.

In essence, neuroscience has provided courts with two important contributions to the criminal law. First, neuroimaging, in conjunction with other variables, can serve as the most accurate method for assessing future dangerousness and identifying those individuals who are most likely to engage in further criminal acts. Second, neuroscience has demonstrated that frontal lobe disorder, and neural circuit disruption between the limbic system and frontal pre-cortex, is a cognizable mental disorder, defect or

⁷² *Id.*

⁷³ *Id.* at 330.

⁷⁴ Dorland & Krauss, *supra* note 7, at 89.

abnormality that warrants intervention by the State in the form of involuntary confinement. Furthermore, by enhancing future dangerous predictions, the State can more readily show that a defendant is a danger to himself or others, which only bolsters the case for involuntary confinement either during or after the offender's sentence.

This Article now sets forth a model statutory scheme which provides a method by which violent offenders can be subject to involuntary confinement in a manner that is consistent with procedural and substantive due process. The purpose is both utilitarian and rehabilitative – to protect the public by reducing recidivism, and to assist the individual in treating these disorders such that they will become manageable and allow the offender to successfully assimilate into the community.

PART III

THE MODEL STATUTE

In this section, the purpose of drafting a model statute is to provide a framework within which violent criminal offenders, who suffer from frontal lobe disorder and/or amygdalar dysfunction, can be involuntarily committed during or after the completion of their sentence. The objective is to guide lawmakers who strive to effectuate this goal, while ensuring that such a law complies with all relevant constitutional safeguards that Supreme Court precedent has set forth in the area of involuntary commitment jurisprudence. Thus, before setting forth the statute, it is critical to review the constitutional constraints within which this statute must be implemented and administered.

A. RELEVANT DECISIONAL LAW

1. O'CONNOR V. DONALDSON

In *O'Connor*, an individual who was confined for almost fifteen years as a mental patient in a Florida state hospital initiated an action pursuant to 42 U.S.C. §1983, claiming that he had been deprived of his constitutional right to liberty.⁷⁵ Respondent's confinement was ordered after a hearing in which he was found to be a paranoid schizophrenic, for the purpose of "care maintenance and treatment."⁷⁶ Importantly, however, there was no determination that Respondent posed a danger to himself or others, and upon this basis, the Supreme Court held that his continued confinement was constitutionally impermissible:

A finding of 'mental illness' alone cannot justify a State's locking a person up against his will and keeping him indefinitely in simple custodial confinement. Assuming that the term can be given a reasonably precise content and that the 'mentally ill' can be identified with reasonable accuracy, there is still no constitutional basis for confining such persons involuntarily if they are a danger to no one and can live safely in freedom.⁷⁷

Thus, "the mere presence of mental illness does not disqualify a person from preferring his home to the comforts of an institution ... incarceration is rarely, if ever, a necessary condition for raising the living standards of those capable of surviving safely in freedom, on their own or with the help of family and friends."⁷⁸ Accordingly, "a State cannot

⁷⁵ 422 U.S. 563 (1975).

⁷⁶ *Id.* at 556-557.

⁷⁷ *Id.* at 575.

⁷⁸ *Id.*

constitutionally confine without more a nondangerous individual who is capable of surviving safely in freedom by himself ...”⁷⁹

2. ADDINGTON V. TEXAS

In *Addington*,⁸⁰ the appellant was committed on various occasions to a Texas state mental hospital, and for indefinite periods in the Austin State Hospital.⁸¹ The State proffered evidence that “appellant suffered from serious delusions, that he often had threatened to injure both of his parents and others, that he had been involved in several assaultive episodes while hospitalized and that he had caused substantial property damage both at his own apartment and at his parent’s home.”⁸² Based on these facts, two psychiatrists testified that appellant suffered from paranoid schizophrenia and represented a danger to himself and to others.⁸³ As a result of this testimony, a jury found – based on clear, unequivocal and convincing evidence – that the appellant was a danger to himself or others.⁸⁴ Consequently, the Court ordered defendant’s involuntary confinement for an indefinite period.⁸⁵

The appellant appealed this decision, contending that the standard for involuntary commitment should be the same as that used in criminal proceedings, namely, beyond a

⁷⁹ *Id.*

⁸⁰ 441 U.S. 418 (1979).

⁸¹ *Id.* at 420.

⁸² *Id.* at 420-421.

⁸³ *Id.* at 421.

⁸⁴ *Id.*

⁸⁵ *Id.*

reasonable doubt.⁸⁶ In confronting the burden that the State must satisfy for purposes of ordering the involuntary commitment of an individual, the Supreme Court held that a “clear and convincing” standard is constitutional adequate.⁸⁷ In so holding, the Court explicitly rejected the notion that the State must prove beyond a reasonable doubt that the defendant is both mentally ill and dangerous, in part because involuntary commitment is not punitive and psychiatric diagnosis is not sufficiently precise to satisfy this burden.⁸⁸ Importantly, however, the Court also held that a preponderance of the evidence does not satisfy due process standards, thus leaving the “clear and convincing” evidence standard as a reasonable balance between these competing alternatives.

3. VITEK V. JONES

In *Vitek*,⁸⁹ a Nebraska statute authorized the transfer of an offender from a prison to a mental institution if it was determined that such prisoner suffered from a “mental disease or defect,” such that he “cannot be given proper treatment in that facility.”⁹⁰ The statute provided that the prisoner may be returned to the Department of Corrections prior to the end of his sentence but, if, upon the expiration of such sentence, the State desires to retain the prisoner in a mental hospital, formal civil commitment proceedings must be instituted.⁹¹

⁸⁶ *Id.* at 421-422.

⁸⁷ *Id.* at 433.

⁸⁸ *Id.* at 428, 432.

⁸⁹ 445 U.S. 480 (1980).

⁹⁰ *Id.* at 483.

⁹¹ *Id.* at 483-484.

With respect to Nebraska’s statutory scheme, the Court held that the transfer of a prisoner from incarceration to a mental hospital implicates a constitutional liberty interest that warrants minimal procedural due process protections.⁹² The Court held that “[a] criminal conviction and sentence of imprisonment extinguishes an individual’s right to freedom from confinement for the term of his sentence, but they do not authorize the State to classify him as mentally ill and to subject him to involuntary psychiatric treatment without affording him additional procedural due process protections.”⁹³ Importantly, these protections were applicable to any prisoners who were faced with transfer to a mental hospital during the duration of their sentence.

4. MILLS V. ROGERS

In *Mills*,⁹⁴ the Court confronted the issue of whether “an involuntarily committed mental patient has a constitutional right to refuse treatment with anti-psychotic drugs.”⁹⁵ The Court held that “the Constitution recognizes a liberty interest in avoiding the unwanted administration of antipsychotic drugs.”⁹⁶ On the other hand, however, the Court acknowledged that there are circumstances when the state interest involved may outweigh this interest.⁹⁷ Thus, in this area, it is likely that a court would apply a fact-sensitive balancing test should the State seek to administer anti-psychotic drugs without the offender’s consent.

⁹² *Id.* at 490-491.

⁹³ *Id.* at 494.

⁹⁴ 457 U.S. 291.

⁹⁵ *Id.* at 298-299.

⁹⁶ *Id.* at 299.

⁹⁷ *Id.*

5. YOUNGBERG V. ROMEO

In *Youngberg*,⁹⁸ the Court addressed the issue of whether a mentally retarded person's constitutionally protected liberty interests were implicated where, at a state mental hospital he was repeatedly injured by his own violence, the reactions of others, and subject to bodily restraint.⁹⁹ The plaintiff alleged that he had been injured on sixty-three occasions, that preventative measures were not taken, and that he was subject to restraint for prolonged periods of time.¹⁰⁰

The Court held that plaintiff's claims implicated protected liberty interests that did not terminate merely because he was confined in a mental hospital. The Court held that "the right to personal security constitutes a 'historic liberty interest' protected substantively by the Due Process Clause."¹⁰¹ The Court also explained that "[w]hen a person is institutionalized – and wholly dependent on the State ... a duty to provide certain services and care does exist, although even then a State necessarily has considerable discretion in determining the nature and scope of its responsibilities."¹⁰²

⁹⁸ 457 U.S. 307.

⁹⁹ *Id.* at 310-311.

¹⁰⁰ *Id.*

¹⁰¹ *Id.* at 315.

¹⁰² *Id.* at 317. For a more thorough discussion of issues surrounding both civil and criminal confinement, see John Parry, "Involuntary Civil Commitment in the 90s: A Constitutional Perspective," 18 MENTAL & PHYSICAL DISABILITY L. REP 320 (1994); John Kip Cornwell, "Protection and Treatment: The Permissible Civil Detention of Sexual Predators," 53 WASH. & LEE L. REV. 1293 (1996); John Kip Cornwell, "Confining Mentally Disordered 'Super Criminals': A Realignment of Rights in the Nineties," 33 HOUS. L. REV. 651 (1996); Steven I. Friedland, "On Treatment, Punishment, and the Civil Commitment of Sex Offenders," 70 U. COLO. L. REV. 73 (1999); Sarah E. Spierling, "Lock them Up and Throw Away the Key: How Washington's Violent Sexual Predator Law will Shape the Future Balance Between Punishment and Prevention," 9 J. L. & POL'Y 879 (2001); and Kristina M. Campbell, "Blurring the Lines of the Danger Zone," 16 NOTRE DAME J. L. ETHICS & PUB. POL'Y 173.

6. KANSAS V. HENDRICKS AND KANSAS V. CRANE

In *Kansas v. Hendricks*¹⁰³ and *Kansas v. Crane*,¹⁰⁴ the Court addressed the constitutionality of the Kansas Sexually Violent Predator Act (KSVA), which allowed for the involuntary commitment of individuals who – *after* completion of their sentence – suffered from a “mental abnormality” or a “personality disorder” rendering them likely to engage in “predatory acts of sexual violence.”¹⁰⁵

In holding that *post-sentence* involuntary commitment was constitutionally permissible, the Court held that Kansas’s statutory scheme not only required proof of mental illness and the likelihood of committing further violence, but *also* that the defendant suffered from a condition that rendered him unable to *control his behavior*.¹⁰⁶ The Court emphasized that the Kansas statute mandates “findings of future dangerousness, and then links that finding to the existence of a mental abnormality or personality disorder that makes it difficult, if not impossible, for the person to *control his dangerous behavior*.”¹⁰⁷ Put differently, involuntary commitment is limited “to those who suffer from a volitional impairment rendering them dangerous beyond their control.”¹⁰⁸

Likewise, in *Crane*, the Court held that, before there could be a post-sentence commitment of a violent sexual predator, there must be a lack of control determination.¹⁰⁹

¹⁰³ 521 U.S. 346.

¹⁰⁴ 534 U.S. 407.

¹⁰⁵ 521 U.S. at 346.

¹⁰⁶ *Id.* at 360 (emphasis added).

¹⁰⁷ *Id.* at 358 (emphasis added).

¹⁰⁸ *Id.*

¹⁰⁹ 534 U.S. at 412-413.

The Court stated that, in defining sexual offenders as suffering from a serious mental disorder, the State must show a “special and serious lack of ability to control behavior.”¹¹⁰ In setting forth “proof of serious difficulty in controlling behavior,”¹¹¹ the State essentially distinguishes the sexual offender from the “typical recidivist convicted in an ordinary criminal case.”¹¹² That distinguishing factor is critical because it not only enhances the accuracy of the State’s future dangerousness determination, but it accurately describes the illness afflicting violent sexual offenders, namely, as individuals “unable to control their dangerousness.”¹¹³

B. THE STATUTORY FRAMEWORK

Based upon the above information, State legislatures can – consistent with procedural and substantive due process -- draft a statute allowing for the involuntary commitment of violent offenders either during or after their sentence. What follows is a model statute that will, for purposes of this Article, be called the “Violent Brain Injured Offender and Rehabilitative Incarceration Act (“VBIORIA”).

¹¹⁰ *Id.* at 413.

¹¹¹ *Id.*

¹¹² *Id.*

¹¹³ *Id.* at 415 (citation omitted).

§ 1.10 STATEMENT OF PURPOSE

At the outset, the legislature recognizes that there are other statutory enactments – in the civil and criminal context -- that address the involuntary confinement of individuals who have mental illnesses that cause them to be a danger to themselves or others. The purpose of VBIORIA, however, is to identify those individuals who suffer from brain-injuries that render them likely to engage in future acts of violence due to impulse control problems, impaired judgment, and violent tendencies. In so doing, this VBIORIA shall rely primarily upon neuroscientific evidence when determining whether the involuntary commitment of criminal offenders – either during or after their sentence – is warranted, based upon the threat of future violence that is presented.

.....

The purpose of the Violent Brain Injured Offender and Rehabilitative Commitment Act is to identify those individuals who, due both to environmental factors and biological markers, are likely to engage in repeated acts of violent behavior either during or *after* their release from prison. Importantly, VBIORIA is being drafted in direct response to neuroscientific studies showing that individuals with specific brain injuries, namely, frontal lobe disorder and neural circuit disruption between the limbic system and pre-frontal cortex, are likely to have impulse-control problems (difficulty in controlling their behavior). Furthermore, this research has revealed that individuals with these disorders are prone to aggression, rage attacks, and impaired judgment. For this reason, the legislative intent underlying VBIORIA is to classify frontal lobe disorder and limbic system damage as a cognizable mental illnesses, abnormalities, or defects that render an offender a danger to himself and others, due to an inability to control behavior and thus comport with societal and community standards.

This Act is designed to identify, through the use of functional magnetic resonance imaging (fMRI), those individuals most at risk for engaging in repeated acts of violence. A fMRI examination can show the presence of lesions, tumors or other abnormalities that directly implicate and have a specific impact upon volition, reasoning and executive function. In determining whether an individual falls with a “high risk” category for committing future acts of violence, VBIORIA also permits the use of actuarial instruments. However, the factors associated with these instruments cannot alone serve as the basis for any period of involuntary confinement. Instead, these markers may be used in one of two ways: (1) to provide a threshold evidentiary foundation that warrants an

initial fMRI examination; and (2) to support a finding of brain-injury that is consistent with neuroscientific findings.

The goal of VBIORIA is neither punitive nor retributive. Instead, it is designed to effectuate utilitarian and rehabilitative objectives. VBIORIA recognizes that public safety and reducing rates of repeated criminal activity are cornerstone objectives of the criminal law. In furtherance of this objective, the legislature recognizes that recidivism rates are likely to remain unchanged if violent offenders – who are afflicted with brain disorders and volitional impairments -- fail to receive appropriate treatment while incarcerated or after the termination of their sentence.

Accordingly, to effectuate the utilitarian purpose of VBIORIA, the legislature has included a rehabilitative scheme which is designed to ensure effective treatment for those individuals diagnosed with frontal lobe disorder, limbic system damage, and any other brain-related injury that affects impulse control, judgment, empathy toward others, aggression and related violent tendencies. While this is often found in the form of tumors or lesions on certain parts of the brain, such as the frontal lobe, pre-frontal cortex or amygdala, VBIORIA shall allow for any evidence that may be relevant as neuroscientific studies progress. In essence, this Act will be the mechanism by which focused, individualized and consistent treatment will be provided for whatever period is needed to ensure effective and sustained recovery for brain-disordered offenders.

This Act is also designed to ensure safe, hospitable, and secure conditions for those that are subject to treatment either during or after their sentences. As set forth below, stringent rules have been adopted to ensure that every offender's procedural and substantive due process protections are safeguarded. The goal is not to retain, but to release, offenders as soon as practicable, particularly during post-sentence confinement. The function, operation and administration of this program will be conducted in an open and transparent manner, subject to oversight by relevant authorities, and continually monitored to ensure the best possible treatment to those subject to confinement. Ultimately, VBIORIA hopes to ensure public safety by rehabilitating the offender, thus allowing for that offender to successfully assimilate back into the community without the threat of engaging in violent behavior.

§ 1.12 DEFINITIONS

For purposes of VBIORIA, the following definitions shall apply:

“Future Dangerousness:” While admittedly imprecise, “future dangerousness” shall refer to a determination, by a court of law, after a plenary hearing in which an offender, through his attorney, having had the opportunity to present, among other things, *any* relevant evidence concerning his character, prior history, current behaviors and clinical evaluations, that the defendant is at “high risk” for engaging in future acts of violence while imprisoned or after completion of his sentence.

“High Risk:” A determination of “high risk” may be made only where the State proffers evidence establishing by “clear and convincing evidence” that the offender suffers from a: (1) brain-related mental abnormality, defect or illness; that (2) renders the offender dangerous because of a difficulty or inability to exercise volitional control, that it, to comport his behavior to the requirements of law.

“Mental Abnormality, Defect, or Illness:” An offender may be classified as suffering from a mental abnormality, defect or illness *only* if, as a result of such illness, the offender has difficulty, or an inability to control his behavior and comport with societal norms and relevant legal rules. Such abnormalities may include, but are not necessarily limited to, frontal lobe disorder, limbic system injuries, and dementia; and other brain-related mental illnesses classified in the DSM-IV as causing impulsive, aggressive or other violent tendencies.

“Violent Criminals:” For purposes of this statute, a violent criminal is an individual who has been convicted in a court of law of an offense in which he has inflicted bodily injury upon another person. Crimes eligible under this category include both felonies and misdemeanors, but there must be a mandatory time of incarceration before an offender may be eligible for involuntary commitment under the provisions of this Statute.

“Cognitive Neuroscience:” Under this Act, Cognitive Neuroscience refers to an area of scientific research, focusing upon the function and structure of the brain, which can reveal brain injuries that may assist the Court in determining, by clear and convincing evidence, that an individual suffers from a mental abnormality, defect or illness that renders him likely to engage in future acts of violence due to an inability to control behavior. The method upon which the Court may admit evidence of brain injury will be through functional magnetic resonance imaging, which examines parts of the brain which are responsible for factors arguably associated with criminal behavior, including, but not limited to, impulse control,

aggression, rage attacks, lack of sensitivity towards others, and flat affect. The Court shall determine the appropriate weight that such evidence will be given, although the Legislature recommends that the Court recognize the probative value of this evidence, and the fact that such evidence is likely to be accepted by the scientific community.

“Environmental and Personality Traits”: The Courts may rely upon environmental factors and personality traits (including personality disorders as listed and properly diagnosable in the DSM-IV) in determining whether a defendant suffers from a brain-related mental abnormality, illness or defect that renders it difficult, if not impossible, to control his conduct. *However, these factors may only be relied upon to the extent that they provide a nexus between the environment/personality and the brain injury itself.* The types of factors upon which the Court may rely upon include, but are not limited to, those specified in the Violence Risk Assessment Guide, the Historical/Clinical Risk Management 20-item scale, and the Psychopathy Checklist. These factors are set forth below. Importantly, a Court may not enter a finding of a brain-related mental abnormality, defect or illness, *or* future dangerousness, based upon actuarial assessments alone. The Court’s finding must be supported by objective scientific findings which show the presence of a brain injury which can result in, among other things, impaired judgment and impulse control problems.

“Involuntary Commitment:” Involuntary Commitment refers to the transfer of an offender to a State hospital or mental facility – without the offender’s consent (either informed or uninformed) – for the purpose of treatment for a recognized brain abnormality, illness or defect. The initial, involuntary transfer of an offender under this Act, either during or after termination of his sentence, shall not affect the offender’s right to challenge his continued confinement after specific periods of time as delineated by this Statute. In addition, the failure to challenge continued confinement at a specific date as provided by this Statute shall not be construed as a waiver to contest future challenges on further specified dates.

“Treatment:” Under VBIORIA, the offender shall be entitled to specific, sustained and individualized treatment for the purpose that supported the original confinement. Such treatment shall include, but not necessarily be limited to, the administration of appropriate medication, therapeutic intervention from licensed psychologists and/or social workers, and frequent meetings with other offenders confined for substantially similar reasons. The offender shall be entitled to a safe, sanitary, and secure environment, whereby his treatment is designed to facilitate the earliest release possible, and if prolonged release is necessary, an explanatory basis will be so required.

“Procedures”: The word “procedure” as referenced herein, shall be construed in two contexts: (1) the first plenary hearing in which an offender’s initial

confinement in ordered; and (2) subsequent challenges to confinement a delineated below.

**§ 1.15 THE VIOLENT BRAIN-INJURED OFFENDER REHABILITATIVE
INCARCERATION COMMITMENT ACT**

Whoever, after being convicted of a felony which mandates a term of incarceration, is found to suffer from a brain-related mental abnormality, defect or illness, such that, after a plenary hearing before a Court of law, there exists clear and convincing evidence that such offender represents a danger to himself or others due to an inability to control his behavior or otherwise comply with the requirements of law, the Court may enter an Order requiring the involuntary confinement of such offender, either during or after his sentence, for a designated period of time necessary to successfully treat said brain-related mental abnormality, illness or defect.

The Order shall not be deemed to meet the “clear and convincing” evidence standard unless and until there exists objective scientific evidence, provided through current scientific technology, i.e., functional magnetic resonance imaging, that demonstrates the presence of a brain injury that substantially, if not entirely, prevents the offender from controlling his behavior or impulses, such that conformity with the law is impaired.

§ 1.16 PROCEDURE

§1.16(a) THE PETITION

Should the State believe that a particular offender is suffering from a brain disorder that renders him likely to engage in future acts of violence, then it must draft a petition for the Court seeking an order to involuntarily confine the offender either during or after the his sentence.

Prior to being permitted to use any scientific evidence to support its claim that the offender suffers from a brain injury warranting confinement, the State must demonstrate, by clear and convincing evidence, that the offender has manifested symptoms of a particular and recognized brain injury. Specifically, the State must show that the offender’s behavior is consistent with at least three of the following factors, which are associated with, among other brain injuries, frontal lobe disorder and limbic system damage:

- Impaired self control;
- Low conformance to societal values;
- Insensitivity toward others;

- Violence occurring within background of flat affect;
- Impaired ability to modulate or fine-tune complex behavior;
- Impaired ability to modulate emotional response during sustained social interaction; and
- Spontaneous, florid confabulations with psychotic qualities;
- Lack of empathy toward others¹¹⁴

The petition must not only allege each of these facts with particularity, but must be submitted with at least two certifications by qualified experts (including a psychiatrist), that have examined the offender and testify, under penalty of perjury, that the offender suffers from a particular brain-related disorder, and why that particular offender is likely to engage in violent acts if not subject to involuntary confinement upon release.

Once the State has met this initial burden, it will be allowed to conduct a functional magnetic resonance imaging test upon the offender, to test for the presence of any brain-related injury that make cause, among other things, impulse control problems, disposition toward violence and aggression, and/or impaired judgment. If the results from this examination identify a specific brain injury, such as frontal lobe disorder, and the State proffers experts that interpret these results and testify that the offender is indeed likely to engage in future acts of violence, then the State shall be deemed to satisfy the “clear and convincing” evidence standard.

§1.16(b) THE DEFENDANT’S EVIDENCE

At such hearing, the offender, either *pro se* or through counsel, may proffer any relevant evidence disputing the State’s assertion that the offender suffers from a mental defect, abnormality or illness, or that the offender is likely to engage in repeated acts of violence during the remainder of his sentence or upon completion thereof. The Rules of Evidence shall not apply to this hearing and the offender shall be permitted to introduce any and all probative evidence relating to the above elements. In so doing, the offender may rely upon past history, including environmental, social, personality and behavioral factors, as well as evidence of his behavior while incarcerated. In addition, the offender

¹¹⁴ Redding, *supra* note 21, at 59-60.

shall have the right to a state-appointed psychiatrist to examine and determine whether the requisite elements for involuntary commitment have been satisfied.

Furthermore, the offender shall also have the right to undergo functional magnetic resonance imaging, paid for by the State, to demonstrate that he does not suffer from any brain abnormalities that would qualify him as suffering from a brain-related mental abnormality, defect or illness rendering him likely to engage in future acts of violence. Unlike the State, the offender shall not be required to make any threshold determination before being permitted to undergo such examination.

§1.17 THE COURT'S DECISION

§1.17(a) ENVIRONMENTAL AND PERSONALITY FACTORS

In making the commitment determination, the Court may, at its discretion, choose to rely in part on the following non-exhaustive list of environmental factors and personality traits. Such factors, without neuro-scientific data, shall not be deemed to substitute for or be sufficient to support a finding of brain-related mental abnormality, illness or defect *or* future dangerousness.

§1.17(a)(1)

At the plenary hearing, the Court may rely upon a non-exhaustive list of environmental factors to guide its discretionary determination, including, but not limited to:

(1) parental abuse and neglect; (2) prior substance abuse; (3) severe brain/head injuries; (4) fetal mal-development; (5) parental criminality and drug abuse; (6) poor nutrition and medication care; and (7) poor socio-economic conditions. *These factors must be set forth in the offender's initial pre-sentence report, and kept on file prior to the State's petition, whenever that may arise. The State, however, may retain the right to introduce new information in this area as it becomes discoverable.*

§1.17(a)(2)

At the plenary hearing, the Court may rely in part upon the following non-exhaustive list of personality factors to guide its discretionary determination, which include the following:

(1) glibness/superficial charm; (2) grandiose sense of self-worth; (3) pathological lying; (4) cunning and/or manipulative behavior; (5) lack of remorse or guilt; (6) shallow affect; (7) callous/lack of empathy; and failure of the offender to accept responsibility for his actions. In addition, an offender's case /social history may be considered, including factors such as: (1) need for stimulation/proneness to boredom; (2) parasitic lifestyle; (3) poor behavioral control; (4) promiscuous sexual behavior; (5) lack of realistic long-term goals; (6) impulsivity; (7) irresponsibility; (8) juvenile delinquency; (9) anti-social behavior; and (10) early behavior problem ***These factors must be set forth in the offender's initial pre-sentence report, and kept on file prior to the State's petition, whenever that may arise. The State, however, may retain the right to introduce new information in this area as it becomes discoverable.***

Furthermore, while these actuarial assessments by themselves may not correlate accurately with a finding of future dangerousness, they may, in conjunction with neuro-scientific evidence, contribute to such finding.

§1.17(a)(3) THE COURT'S DECISION

§1.17(a)(3)(1) THE OPINION

After conducting a plenary hearing during which all relevant evidence shall be considered, the Court must issue a written decision setting forth with particularity the reason justifying its decision concerning whether the offender: (1) has a brain-related mental abnormality, defect or illness; and (2) represents a danger to himself or others due to an inability to control his behavior. The Court's written opinion shall set forth with specificity the following findings:

- The precise evidence that was relied upon in arriving at its determination;
- The weight that was given to each item of evidence that was considered;
- The specific environmental factors that the Court found present in the offender's history;

- The specific personality traits or cognizable mental illnesses that the Court found present in the offender's past or current medical history, as supported by the relevant expert testimony, and why such evidence supports a finding of: (1) a brain-related mental abnormality, defect or illness; and (2) a likelihood of future dangerousness based upon an inability to control behavior;
- The *specific neuroscientific data* upon which the Court relied in determining that the offender suffers from a brain injury which impairs his ability to control his behavior, which shall include, but not necessarily be limited to, frontal lobe disorder, damage to the limbic system, including amygdalar injury, tumors or lesions on any parts of the brain responsible, among other things, for reasoning, judgment, and impulse control (such as the pre-frontal cortex), and any other injuries found to be connected to the aforementioned behavioral impairments. Critically, the Court's consideration of and decision that the offender suffers from a cognizable brain injury must be a part of its determination that confinement is warranted.

§1.17(A)(3)(2) THE LENGTH OF CONFINEMENT

Should the Court determine that involuntary confinement is warranted, a subsequent hearing shall be held to determine the length of initial confinement. At such hearing, the Court shall rely upon the testimony of experts who specialize in the particular area of brain abnormalities, defects or illnesses that the offender is found to be suffering from and which render him dangerous to himself or others. Such testimony shall discuss in detail the precise treatment regimen that the offender is likely to undergo, including the type and number of specialists that will be treating the offender, such as psychologists, social workers and the like, whether the offender is likely to be administered any medications and, if so, the names or categories of such medications, whether the offender will undergo other aspects of treatment that are generally accepted by the psychiatric community as effective in treatment individuals with similar brain-related mental defects, abnormalities or illnesses, and if so, the precise nature of such treatment, and any other aspects that are relevant to the offender's confinement, including living conditions, food and medical care, and anything that may bear upon the effective treatment of the offender.

After the offender's treatment plan is proffered to the Court, the State's experts shall set forth a specific time frame within which, considering the offender's mental condition and likelihood of engaging in future acts of violence, successful treatment is

likely to be effectuated. This time-frame shall be all-inclusive and take into account the time necessary for all elements of the treatment plan to effectively address those issues that led to the initial determination warranting confinement.

After the State's expert sets forth a desired time frame for successful treatment, i.e., 60 days, the Court shall enter an Order setting forth the duration of the offender's initial confinement in a state mental hospital or institution. It is suggested that the Court weigh heavily the recommendation set forth by the State's experts. In fact, pursuant to this provision, the time-frame set forth by experts shall be *presumptively valid* unless the Court finds *substantial* and *compelling* reasons to depart therefrom.

§1.18 SUBSEQUENT HEARING AND APPEALS

Should the Court adopt the timeframe set forth by the State's experts, the offender shall remain confined for such period and be provided with all aspects of treatment as set forth in the original treatment plan. At the end of the initial period ordered by the Court, there will be a second hearing in which the State, through its experts, will provide an update regarding the offender's treatment plan and progress toward successful rehabilitation. At this time, the State must produce further evidence, through expert testimony or otherwise, that justifies continued confinement, and it cannot do so merely by relying upon the evidence that supported the original confinement Order. Rather, the State must set forth with specificity *why* the treatment plan has not yet effectuated successful rehabilitation, and how much longer the State believes confinement is necessary to treat the offender's brain-related mental abnormality, defect or illness. In so doing, the State must again recommend a new timeframe which it believes is necessary to achieve these objectives, although the Court, at this hearing, need not give such recommendation presumptive weight in light of the knowledge it has gained from the offender's initial confinement and treatment.

At this hearing, the offender may also petition the Court for his immediate release. In so doing, the offender shall be allowed to proffer all relevant and probative evidence demonstrating that his brain injury has been successfully treated and that he no longer remains a threat to himself or others. In addition, should further confinement be ordered, the offender shall still be afforded the opportunity to challenge the conditions of

his confinement, including, but not limited to: (1) not receiving the care as outlined in the treatment plan; (2) poor living conditions; (3) lack of medical care; and (4) failure to foster a supportive environment.

In any case, should the Court order continued further confinement for a specified period, i.e., 60 days, the defendant shall have the right to petition the Court for immediate release at any time during the second, extended confinement period. The grounds for immediate release include, but are limited to: (1) successful treatment of the offender's mental condition; (2) restoration of the offender's ability to control his behavior; (3) the State's failure to abide by the terms of the treatment plan; and (4) the State's failure to provide the offender with safe, secure and habitable living conditions. At such hearing, the State shall have the opportunity to introduce evidence supporting the continued confinement, and the burden will be on the offender to demonstrate, by clear and convincing evidence, that his continued confinement is not warranted.

CONCLUSION

The future of criminal law lies in preventing individuals from committing violent acts before they happen. Unfortunately, we are not yet at that stage. What we do know, however, is that criminal behavior has biological, and not just cognitive origins. The cornerstone of the criminal law – that individuals act with free will and deliberative choice – has now been challenged to such a degree that the way we judge, and the way we sentence, must be reconsidered. Individuals with brain-injuries have a serious mental illness that renders them likely to commit future acts of violence, but these facts do not necessarily call for lesser or harsher sentences – they call for different sentences, namely those that strive to protect the public by treating the offender.

Retribution or deterrence is not in the best interest of the Court, the State, or the offender when criminal behavior is the result of impulse rather than intent, and the aims of criminal law should be adjusted to serve the public good where neuroscience clearly

provides the diagnosis for which we can provide treatment. In the final analysis, the success of our criminal justice system should be predicated upon whether we can accurately predict “future dangerousness” to such a degree that we can ensure that once an individual commits a violent offense they are unlikely to do it again. Cognitive neuroscience has provided an important contribution towards achieving this objective, and should be an integral part of our criminal justice system.