# Exhibit B

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**Updated Declaration of D. Alan Shewmon, M.D., concerning Jahi McMath**

I, Doctor Daniel Alan Shewmon, do hereby submit this updated declaration freely. I am competent and prepared to testify as to the below opinions and conclusions if called upon to do so. This update supersedes and replaces my original declaration of October 3, 2014.

I have not received any financial compensation from Jahi McMath's family, or from their lawyer, Mr. Christopher Dolan. Neither am I formally retained as an expert by Mr. Dolan or any other lawyer regarding the case of Jahi McMath. The time I have put into this case and the expenses of my trip to examine her earlier this month have been freely given by me, motivated solely by my professional interest in the topic of brain death.

Mr. Dolan's request at the beginning of October, 2014 for declarations by experts regarding Jahi's vital status was under great time pressure, being required before I had an opportunity to examine her and to review all relevant data, especially all the existing video recordings of Jahi's movements in apparent response to command. I have since been able to review a total of 22 videos, which I am given to believe represents the complete set to date. I also personally visited and examined Jahi in her apartment in New Jersey on December 2 and 3, 2014. I therefore wish to state for the official record my current understanding of Jahi's condition and the evidentiary grounds for it.

This updated declaration is based solely on information directly available to me, namely Jahi's medical records, the MRI/MRA studies done at Rutgers on 9/26/2014, all 22 videos of Jahi's movements (plus information provided by Mr. Dolan and Jahi's mother, Nailah Winkfield, related to the videos), and my own physical and neurological examination. As I have not had an opportunity to examine the raw data of Jahi's electrophysiological tests, I defer to those experts who performed and/or interpreted those tests, regarding the findings.

I am a pediatric neurologist with triple board certification: in Pediatrics, Neurology (with special competence in child neurology), and Electroencephalography. I have had a particular interest in brain death and have published and lectured extensively on the topic, nationally and internationally. I recently retired as Professor of Neurology and Pediatrics at the David Geffen School of Medicine at UCLA and Chief of the Neurology Department of Olive-UCLA Medical

Center (a county hospital affiliated with UCLA), while remaining clinically active. My CV provides further details regarding my qualifications to comment on the case of Jahi McMath.

Based on all the information available to me to date, I am convinced that (1) Jahi does not fulfill the standard adult or pediatric diagnostic criteria for brain death[1] on the grounds of intermittent responsiveness to verbal command, and that, moreover, (2) she does not fulfill California's statutory definition of death on the same grounds plus presence of an additional brain function that state law, but not the standard diagnostic criteria, requires to be absent (namely, hypothalamic function causing menarche and pubertal development). In the course of explaining my reasons for these conclusions, I shall also address in footnotes relevant portions of the memo of Dr. Paul G. Fisher to Judge Evilio M. Grillo dated October 6, 2014, in response to the declarations by myself and others on October 3.

**Structural integrity of the brain**

I shall first discuss the findings of Jahi's MRI scan of 9/26/2014, because it offers a structural basis for the brain functions to be described below, which would otherwise be inexplicable.

All parts of the human body require circulation of oxygenated blood to stay alive, and the brain is no exception. The traditional understanding of brain death is that it represents the endpoint of a pathophysiological vicious cycle of brain swelling, increased intracranial pressure, and decreased cerebral blood flow, which leads to further brain damage and swelling. When the swelling becomes so severe that intracranial pressure exceeds arterial blood pressure, all blood flow to the brain ceases, and all brain cells die through a pathophysiological process called necrosis. This is the basis for the use of tests of cerebral blood flow in confirming brain death.

If the body is then technologically supported, the dead brain tissue will gradually liquefy. A totally liquefied brain is rarely seen with brain death anymore, because in the vast majority of cases, within hours of the diagnosis, or a few days at most, either organs are harvested or support is withdrawn (*Neurology* 2008;70:1234-7).[2] The older neuropathology literature used the term

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[1] Point #1 of Dr. Fisher's memo reads: "Criteria for brain death in a child are those posited in *Pediatrics* 2011;128:e720-740 (attached), as endorsed by the American Academy of Pediatrics, Child Neurology Society, American Academy of Neurology, and numerous other professional societies. 'The American Academy of Neurology's Practice Parameters for Determining Brain Death in Adults,' as referenced by Dr. Shewmon, and 'AMA (American Medical Association) guidelines,' as referenced by Dr. Prestigiacomo are not the relevant guidelines in the instance of Jahai [sic] McMath."

In point of fact, the pediatric guidelines published in 2011 are closely modeled after the American Academy of Neurology's Practice Parameters for Determining Brain Death in Adults, published in 1995 [*Neurology* 1995;45:1003-11] and updated in 2010 [*Neurology* 2010;74:1911-8]. The footnote to Table 3 in the pediatric guidelines states: "Criteria adapted from 2010 American Academy of Neurology criteria for brain death determination in adults (Wijdicks et al, 2010)." The pediatric guidelines differ significantly from the adult guidelines when it comes to infants and young children; for teenagers, however, the diagnostic criteria are essentially identical.

[2] Point #10 of Dr. Fisher's memo reads: "Magnetic resonance imaging (MRI), as performed on 9/26/14, provides a structural picture of the brain and is not part of the determination of brain death. A picture of persistent brain tissue inside the skull does not negate the determination of brain death. Liquefaction of the brain is not requisite to the determination of brain death. There are no specific anatomic or pathologic changes noted in brain death."

"respirator brain" to describe the extremely soft or liquefied condition of the brain at autopsy after days or weeks with no blood flow. I have had personal experience with three cases of chronic brain death with MRI or CT scans obtained after one or more years of brain death. The scans showed the brains to be totally liquefied. Two of those patients also had blood flow studies at the time, which confirmed persistent absence of intracranial blood flow.

Jahi's MRI scan of 9/26/2014, nearly 10 months after her tragic anoxic-ischemic event and diagnosis of brain death, does not even vaguely resemble those chronic brain death scans. Rather, it showed vast areas of structurally relatively preserved brain, particularly the cerebral cortex, basal ganglia and cerebellum. There is major damage to the corpus callosum and the brainstem, corresponding to the severe brainstem dysfunction evident on her examination. By contrast, the relative integrity of the cerebral hemispheres (although by no means normal) could possibly provide a structural basis for her apparent intermittent ability to understand language and to make voluntary motor responses (see below). The MR angiogram, performed on the same occasion, demonstrated intracranial blood flow, which could have been inferred anyway, since the intact brain tissue implies blood flow sufficient to keep it alive.[3]

In order for so much of Jahi's brain to remain relatively intact, there clearly could never have been a time in the past when it suffered sustained, total absence of blood flow.

I have no doubt that, at the time of her original diagnosis of brain death in December, 2013, Jahi fulfilled the adult and pediatric diagnostic criteria (essentially identical for her age), which were correctly and rigorously applied by the several doctors who independently made that diagnosis then, and reinforced by ancillary tests: four EEGs that were all isoelectric (flat), a radionuclide scan and a SPECT scan, both of which showed no detectable intracranial blood flow.

A likely explanation for the discrepancy (in fact, the only explanation that I can think of) is that (1) the standard clinical diagnostic criteria are not as absolutely, 100% reliable as commonly

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That is certainly true for the usual context of acute brain death, which is almost always diagnosed before sufficient time has elapsed for the pathophysiological consequences of lack of blood flow to fully unfold. It is this acute context that the standard diagnostic criteria were designed for. Dr. Fisher's reasoning does not apply to the situation of chronic brain death. If vast areas of the brain remain structurally intact after many months, then by inference, those parts of the brain could not possibly ever have gone through a period of sustained absence of cerebral blood flow.

[3] Point #8 of Dr. Fisher's memo states: "No cerebral blood flow radionuclide brain scan has been performed or reported in the declarations and that is the test used to determine cerebral blood flow in order to assist in the determination of brain death, not magnetic resonance angiography (MRA)."

The reason that radionuclide brain scans are endorsed by the diagnostic criteria but not MRA is because radionuclide scans are considered more reliable for demonstrating a *lack* of blood flow. But if an MRA (or any other test of blood flow) positively *shows* flow, then blood flow is unequivocally present. If I and the other declarants were claiming that Jahi was brain dead, then Dr. Fisher would have been correct to point out that an MRA showing absence of blood flow cannot be used to confirm brain death; but we were claiming the opposite, and the demonstration – by whatever means – of *presence* of blood flow is highly relevant and supportive of that claim.

Point #9 of Dr. Fisher's memo states: "MRA is not a technique used to determine cerebral blood flow." MRA cannot quantitatively measure cerebral blood flow, in standard units of milliliters of blood per 100 grams of brain tissue per minute. But it is certainly capable of demonstrating the existence of blood flow in the major vessels (otherwise, the test would serve no purpose whatsoever and would not be in clinical use at all).

believed, and (2) the commonly used blood flow studies are not sensitive enough to distinguish *no* flow from *low* flow – in technical terminology, from ischemic-penumbra-level flow, i.e., flow that is too low to support brain functioning but just enough to maintain tissue viability.

Over a decade ago the Brazilian neurologist Cicero Coimbra proposed the idea of "global ischemic penumbra" (extending to the whole brain a concept from the field of stroke) as a condition of marginal cerebral blood flow that in principle could mimic clinical brain death in every respect, yet the brain is not dead, and some of its suppressed functions are potentially recoverable. (Braz J Med Biol Res 1999;32:1479-87) Up to now this has remained a plausible but unproved hypothesis. Jahi has proved that it can occur in clinical reality.

**Pubertal development, a hypothalamic function**

The medical and nursing records document that around 8 months after the formal diagnosis of brain death, Jahi underwent menarche and had her first menstrual period beginning August 6. In the second week of September she had her second menstrual period, around a month after the first. (No subsequent periods had occurred as of my visit on December 2, 2014; it is usually the case with menarche that the first several cycles do not yet establish a regular pattern.) Jahi also began breast development after the diagnosis of brain death. I could not find any mention of staging of pubertal development in the records from either Oakland Children's Hospital or St. Peter's University Hospital, but her mother and family members state that, at the time of her admission to Oakland Children's in December 2013, she was flat-chested. Over the course of the subsequent year her breasts have gradually developed and are now (as of early December, 2014) at Tanner stage 3, in my estimation.

The female menstrual cycle involves hormonal interaction between the hypothalamus (part of the brain), the pituitary gland, and the ovaries. Other aspects of pubertal development also require hypothalamic function. (This is not to imply that Jahi's hypothalamus is functioning normally; it is not: she has diabetes insipidus and hypothalamic hypothyroidism. The point is simply that some hypothalamic function is present, and a rather remarkable one at that.) Corpses do not menstruate. Neither do corpses undergo sexual maturation. Neither is there any precedent in the medical literature of a brain-dead body developing onset of menarche and thelarche.

The pediatric diagnostic criteria for brain death state nothing explicitly one way or the other whether pubertal development is compatible or not with a diagnosis of brain death. The reason for this omission is no doubt that the drafters of the criteria never envisioned a scenario in which a brain-dead prepubertal 13-year-old would be supported long enough that pubertal changes could even become a theoretical question.[4]

[4] This is why Dr. Fisher's point # 12 states: "Menarche and menstrual cycles are not relevant to the determination of brain death." But the mere lack of mention of these phenomena in the published criteria (because their very possibility was never envisioned), does not mean that they are irrelevant to the concept of brain death, i.e., to the concept of "irreversible cessation of all functions of the entire brain."

Nevertheless, the standard brain death diagnostic criteria do allow for presence of another hypothalamic function, namely regulation of water balance by antidiuretic hormone secretion (lack of which results in an outpouring of dilute urine, a condition called diabetes insipidus). This brain function is in fact present in about one-third of actual brain death diagnoses. By declaring absence of diabetes insipidus to be compatible with the diagnosis of brain death, the diagnostic criteria contradict the statutory definitions of death in all fifty states, which universally require the "irreversible cessation of *all* functions of the *entire* brain."[5] This definition is also quoted and endorsed by the various medical specialty societies that published the recent pediatric guidelines criteria (*Pediatrics* 2011;128:e720-740, immediately preceding the "Methods" section). The published adult and pediatric diagnostic criteria do not offer any reason for allowing a brain function that both the law and their own definition exclude. This anomaly in the diagnostic criteria has been pointed out by many commentators in the medical literature, and there is no convincing physiological or conceptual justification for it.[6]

Jahi's case highlights this discrepancy and brings to the fore an internal inconsistency in the statutory definition of death itself. Immediately following the sentence about "all functions of the entire brain," the Uniform Determination of Death Act and the California Health and Safety Code state: "A determination of death must be made in accordance with accepted medical standards." But, as regards hypothalamic function, the "accepted medical standards" allow for a diagnosis of death that contradicts the "irreversible cessation of all functions of the entire brain." This discrepancy has been with us for decades.

Jahi's onset of puberty while supposedly brain dead forces a choice between two parts of the UDDA and the Health and Safety Code: either the part about "all functions of the entire brain" or the part about "accepted medical standards". When it comes to hypothalamic function, they cannot both be fulfilled. Which sentence should trump the other? The question has never before been raised in the legal system, but the answer seems clear: the drafters of the brain death law no doubt assumed that the medical profession would establish its "accepted standards" in accordance with the law's definition.

But regardless of that potentially esoteric legal debate, any reasonable person will understand that dead bodies decay; they do not improve in general health, as Jahi did after transfer to St. Peter's, nor do they undergo sexual maturation.

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[5] The quoted wording is taken from the Uniform Determination of Death Act, which was proposed by the President's Commission in 1981 and adopted essentially verbatim by every state that subsequently revised its death statute to accommodate neurological criteria. It is the literal wording of California's current statutory definition of death (Health and Safety Code, Section 7180(a)).

[6] The mainstream theoretical rationale for why brain death should equate with death itself is that it represents the cessation of the functioning of the "organism as a whole." But the regulation of water balance is certainly more important for the integrated functioning of the organism than is a pupillary light reflex, which the criteria insist be absent. It makes no sense to require absence of a brain function that has nothing to do with organismal integration and not to require absence of one that does. One could speculate about an unspoken utilitarian motivation of wanting to make the criteria as broad as possible to maximize organ donation. This is even the explicit reason for certain more recent proposals to relax the diagnostic criteria. (*Neurology* 2011;76:119-24)

**Intermittent responsiveness**

But even apart from hypothalamic function, Jahi no longer fulfills standard brain death criteria on account of intermittent responsiveness. Starting several months after the diagnosis of brain death, her family began to notice that she sometimes seemed to respond to verbal commands, in the form of a simple movement of the requested body part. When I first heard of such reports, I gave little credence to them, assuming that the movements were merely spinal reflexes or spinal cord-originating spontaneous movements that sometimes by chance happened to follow a verbal command and were misinterpreted by loving family members in denial and grasping for signs of recovery. When Mr. Dolan told me that he had seen such responses with his own eyes and that they seemed real, I became more intrigued and encouraged video documentation of as many putative responses as possible, so that those with expertise in distinguishing cord mediated from brain mediated movements could see and decide for themselves. My initial declaration of October 3, 2014 was based partly on my review of several such videos. Since then, more videos have been provided to me, totaling 22.

The distinction between random cord-originating movements and true responses to command is extremely important for the diagnosis of brain death, since the very first of the "three cardinal findings in brain death," (to borrow a phrase from the AAN criteria) is unresponsiveness. The published 2011 pediatric criteria detail in their "Table 3" the "neurologic examination components to assess for brain death in neonates, infants and children". The very first component is: "Coma. The patient must exhibit *complete loss of consciousness*, vocalization and *volitional activity*. Patients *must lack all evidence of responsiveness*." (*Pediatrics* 2011;128:e724, emphasis added) If the movements were indeed true responses, they would imply that Jahi was conscious at the time and could not only hear but even understand simple verbal requests (e.g., "move your hand," "move your foot") and make anatomically correct voluntary motor responses. Regardless whether she was unresponsive in December 2013, and regardless what the rest of her neurological examination might show now, if she truly responds to command – even only sometimes – then she *ipso facto* does not meet brain death criteria.

Intermittent minimal responsiveness is not unusual in patients with severe brain damage. In a patient emerging from unresponsive wakefulness syndrome (formerly known as "vegetative state"), for example, intermittent minimal responsiveness suffices to elevate the diagnostic label to a so-called "minimally conscious state." Fluctuation in the degree of responsiveness in severely brain-damaged patients could be due to a variety of possible causes, usually unknown in a particular case. Factors affecting responsiveness could include electrolyte imbalance, decreased thyroid or adrenal function, disordered emergent sleep-wake cycling, cognitive exhaustion from previous efforts to respond, distraction by internally perceived pain or discomfort, etc., etc.

The intermittency of Jahi's reported responsiveness makes professional assessment of it difficult. If she were to be examined by a neurologist and happened to demonstrate reproducible responsiveness on the occasion, the responsiveness would be easily confirmed. But if she happened not to respond to command during a typical 10- to 20-minute exam session, that would by no means invalidate the claim of intermittent responsiveness.

My own neurologic examination on December 2, 2014 documented absence of all the brainstem reflexes that are part of a standard brain death assessment. Jahi also did not make any respiratory effort during approximately 20 seconds off the ventilator.[7] The extent of clinical brainstem dysfunction was not surprising, given the degree of structural damage to the brainstem evident on MRI and given the documentation of absent brainstem reflexes in the medical records from St. Peter's University Hospital. Jahi readily exhibited flexion withdrawal responses and mass body movements in reaction to various kinds of tactile stimulation (though not to stimulation on the face or in the nose or oropharynx, or to tracheal suction). In my presence she did not respond to most verbal requests to move a specific body part. A few times there was a slight movement of the requested body part, but it was not reproducible, and some of those times other body parts moved simultaneously. Such movements were suggestive of a possible effort to respond to the command, but they were not sufficiently convincing to me.

To assess the claim of intermittent responsiveness, therefore, I have carefully reviewed and analyzed all the videos made on some of Jahi's more responsive days, when intermittent responsiveness was in fact claimed. Nevertheless, my in-person visit was indirectly useful for evaluating intermittent responsiveness, insofar as I spent approximately 8 hours in Jahi's apartment, much of it observing her myself, and all 8 hours were recorded on video by Mr. Dolan's official videographer, Matthew Kimmins. From this experience I can personally verify that the baseline frequency spontaneous movements similar to the putative responses in the videos is extremely low. In fact, most of the kinds of putative-response movements did not occur at all during my 8 hours of direct observation and documentation. This corroborates statements made independently to me by Jahi's family members and nurses regarding the extremely low to non-existent frequency of baseline spontaneous movements similar the motor responses at issue. (The gross body movements described in the previous paragraph are obviously reflexive in nature and are entirely different from the movements of individual body parts in the absence of tactile stimuli, which are the putative motor responses in the videos.)

Of the 22 videos provided to me to date (which are believed by Jahi's mother and Mr. Dolan to represent the entire collection), four were not useful for assessing response to verbal command, one recorded a failed attempt (i.e., it shows a command not followed by a response), and 17 showed one or more commands followed by anatomically corresponding motor responses. Ms. Winkfield estimated to me that they made probably around 15 additional attempts to video-record motor responses to command, but after 2 to 5 minutes of unresponsiveness, they stopped the recording and deleted it.

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[7] When oxygen saturation began to drop, the ventilator was immediately reconnected. A formal, pre-hyperoxygenated apnea test was not undertaken, due to the risks in a non-hospital setting and the inability to document $pCO_2$, but especially because the goal was not to prove that she is apneic but rather to see if evidence might easily emerge that she might *not* be apneic. In the absence of a formal apnea test, my understanding of Jahi's case therefore assumes that she continues to lack respiratory drive.

These comments address Dr. Fisher's points #4 and 5: "4. No apnea test has been performed or reported in the declarations, as required for a determination of brain death. 5. A repeat apnea test would not cause harm to Jahai [sic] McMath." The risks of apnea testing even in a hospital setting are well documented, and there would be no justification to subject Jahi to even greater risks in an apartment, especially since no one is challenging the assumption that she is apneic.

Many of the 17 videos leave no doubt in my mind that Jahi was truly responding intentionally to the verbal command. There are several reasons for asserting this. (1) The movements are limited to particular body parts, almost always the requested part (head/neck, shoulder, hand, thumb, leg, or foot). (2) One video demonstrates correct laterality of movement, when right and left hands are requested separately in the same video. (3) The movements do not resemble any known spinal cord mediated reflex, myoclonus or automatism. (4) They are not stereotyped, as spinal movements tend to be: they vary in complexity, duration, and detail. (5) They occur relatively soon after the verbal request, with latencies ranging from 1 to 85 seconds, with a mean of 16 and median of 11 seconds.[8] (6) The kinds of movement at issue occurred spontaneously (in the absence of verbal request or stimulation) with such low frequency (if at all) that the probability of even one of them, let alone 17, occurring by chance within such a short time from a verbal command is essentially zero.

Given the degree of brainstem damage and dysfunction, the severity of Jahi's motor deficit is not surprising. By comparison, the MRI scan reveals her cerebral hemispheres to be relatively grossly preserved (although by no means normal). It is the cerebral hemispheres, not the brainstem, that mediate understanding of language and initiation of voluntary movement. How the auditory signals of the verbal commands pass from her ears to her cerebral hemispheres through the damaged brainstem, I do not know. Clearly the brainstem damage, though extensive, is only partial, because motor signals clearly pass through it in the opposite direction, from cerebral hemispheres to spinal cord, to create the observed motor responses. (Also, the MRI shows heavy damage to the brainstem, but not complete destruction of it.)

In the face of the video data and the knowledge that such movements do not occur spontaneously with any sort of baseline frequency, we are left with a choice between only two possible conclusions: (1) that the responses are real, even though their neuroanatomical basis in the total clinical context is difficult to understand; or (2) that the videos represent wholesale fraud, involving very skilled professional manipulation of the videos and an elaborate and amazingly executed conspiracy on the part of Jahi's family, nurses, and Mr. Dolan. Having met the family, several of the nurses, and Mr. Dolan, I consider the probability of #2 to be so much less than the probability of #1 that it is not even worth a thought.

Given that someone's life versus death hangs in the balance, the burden of proof falls squarely on the side of anyone who would dismissively claim that the 27 responses documented in the 17 videos are merely purposeless spinal automatisms. Even if an independent neurologist were to examine Jahi at some future time and find her unresponsive, that would prove only that she is not always responsive – a fact we already know. It would not vitiate the certainty that on the days of the videos, she was truly responsive.

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[8] From the 17 videos, 27 command-response pairs were captured. Response latency was measured from the time of the first request for a specific movement (not counting ongoing coaxing). With 10 responses, the time of the first command was unknown, because the video recording began after the initial command had been given and only coaxing was documented prior to the movement. Those 10 movements were excluded from the latency data stated above; nevertheless, they are still noteworthy for occurring at all and for involving the correct body part.

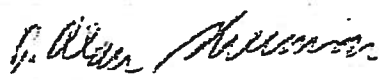
Thus, the very first of the "three cardinal findings in brain death" is no longer fulfilled, even if it was in December, 2013.

**Summary**

Time has proven that Jahi McMath has not followed the trajectory of imminent total body deterioration and collapse that was predicted categorically back in December, 2013 on the basis of the diagnosis of brain death. Her brain is clearly not "dead" in a neuropathological sense (i.e., necrotic). She unequivocally does not fulfill California's statutory definition of death, which requires the irreversible absence of *all* brain functions, because she exhibits hypothalamic function and intermittent responsiveness to verbal command. She does not fulfill the pediatric or adult diagnostic criteria for brain death on the grounds of intermittent responsiveness.

That Jahi McMath is currently not brain dead means that she never was truly brain dead, despite initially fulfilling the standard diagnostic criteria for brain death, because by definition brain death is the "*irreversible* cessation of all functions of the entire brain." Much less is she dead in the ordinary sense of the term. She is an extremely disabled but very much alive teenage girl. Jahi's death certificate was issued on 1/3/2014 according to proper protocol at the time; but now in retrospect, in light of the evidence that she is currently alive, the death certificate should be rescinded.

Signed this 10th day of December, 2014, in Los Angeles California under penalty of perjury,



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# Exhibit C

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**SUPERIOR COURT OF CALIFORNIA**
**COUNTY OF ALAMEDA**

LATASHA WINKFIELD, an individual parent and guardian of Jahi McMath, a minor

Plaintiff,

v.

CHILDREN'S HOSPITAL & RESEARCH CENTER AT OAKLAND, Dr. David Durand M.D. and DOES 1 through 10, inclusive

Defendants.

Case No. PR13-707598

DECLARATION OF PHILIP DEFINA, Ph.D., IN SUPPORT OF PLAINTIFF'S WRIT OF ERROR CORAM NOBIS AND REQUEST FOR REVERES OF JUDICIAL DETERMINATION OF BRAIN DEATH OF JAHI McMATH

I, Philip DeFina, Ph.D., declare as follows:

1. I am an adult natural person and I make this declaration of my own personal knowledge in support of Plaintiff's Petition regarding Jahi McMath's status as living or brain dead. If called upon to testify, I could testify to the following which are matters known to me personally:

2. Attached to this Declaration is a true and correct copy of my Curriculum Vitae as Exhibit "A." It is incorporated herein, is made of my own personal knowledge and constitutes a Business Record under the California Evidence Code.

3. In 1978, I received by Bachelors of Arts in Psychology and in 1980 I received my Masters in Psychology from the New York University. In 1995, I went on to receive my Ph.D. in Clinical Psychology form the Fielding Graduate Institute.

4. I am a Diplomat of the American Board of School Neuropsychology.

5. Currently I am a Research Assistant Professor, in the Department Psychiatry, at New York University. I was previously appointed the Director of Neuropsychology for the Fielding Graduate Institute for Rehabilitation

6. Previously I have been a professor at the New York University School of Medicine.

7. Previously I served as the Chief Consultant for the Severe Disorders of Consciousness Program at the Kessler Institute for Rehabilitation.

8. Previously I have been a Guest Researcher at the National Institute of Mental Health (NIMH) Laboratory of Clinical and Experimental Neuropsychology.

9. I am also the Chief Scientific Officer for the International Brain Research Foundation (IBRF), a Non-Profit Organization which works extensively with brain damaged individuals, including those described as brain dead. The IBRF has an FDA approved protocol for treating people with disorders of consciousness.

10. Through the IBRF I have been involved in conducting research, as the Principal Investigator, into The Disorders of Consciousness Advanced Care Protocol pursuant to a $6,400,000.000 grant from the Department of Defense.

11. I have reviewed the following material: (1) the MRI of Jahi McMath's brain, (2) the MRA of Jahi McMath's brain and (3) the EEG testing preformed on Jahi.

12. As a neuroscientist I have worked collaboratively with physicians, electro encephalographers, and other neuroscientists in evaluating and diagnosing severe disorders of consciousness and brain death. As part of my research and teaching, I have significant experience

in reviewing EEG's, MRI's, CT scans, etc. I have participated in numerous multi-disciplinary teams which have diagnosed and treated people who suffer from severe disorders of consciousness. I understand the definition of brain death as the total and irreversible cessation of all neurological activity, including in the brain stem.

13. Through my research I am familiar with how brain death affects the brain structure over time.

14. I was present during Jahi McMath's recent diagnostic MRI and EEG testing and I have personally reviewed the same. I have also had the opportunity to discuss Ms. McMath's diagnostic testing and her past medical history with many other doctors including Dr. Charles Prestigiacomo, Chair, Department of Neurological Surgery Rutgers New Jersey Medical School, Dr. Calixto Machado, Chair of the Department of Clinical Neurophysiology from the Institute of Neurology and Neurosurgery in Havana Cuba, Dr. Allen Shewmon, Former Chief of the Neurology Department of Olive-UCLA Medical Center, and Elena Labkovsky PhD., expert in Clinical Electroencephalography and QEEG and currently a Research Associate, Department of Psychology, Institute for Neuroscience, Northwestern University

15. I personally have seen only one other case such as Jahi McMath's wherein a person pronounced brain dead, and confirmed by more than five (5) United States Doctors was, with more sensitive testing, of the type preformed on Jahi McMath, found at a date remote from the insult to the brain, determined to have activity in the brain. That individual has been treated through the IBRF using an FDA approved protocol for brain death patients and shown improvement in her state of altered consciousness. That patient was recently the subject of a peer-reviewed poster publication.

16. I personally became involved in the Jahi McMath case earlier this year when I was contacted by Christopher Dolan who told me that he had a pediatric patient as a client who had

suffered severe blood loss, a loss of oxygen to the brain and had been pronounced brain dead. He indicated that he wanted to see if the IBRF could help in any way. It is my understanding that Children's Hospital Oakland would not permit any doctor not already credentialed and with privileges to come in and examine Jahi or to provide her treatment. I therefore told Mr. Dolan that I could not provide much in the way of assistance. Mr. Dolan asked me if I knew of any facilities that might accept Jahi and I made an inquiry. I was unable to assist him and thought that matter would, unfortunately, be resolved by the death of Jahi McMath which is how most of these cases end up: a pronouncement of brain death, a very short window for families to prepare themselves, then removal of the ventilator.

17. Following discharge from Children's Hospital Oakland, the IBRF kept in touch with Mr. Dolan and the McMath family offering information and support wherever possible. Mr. Dolan informed me that Jahi was in New Jersey and reached out to the IBRF again to see if we might be of assistance in evaluating and/or providing the IBRF treatment protocol to Jahi. We were unable to do so until just recently when Jahi was discharged from the hospital. I did, however, suggest to Mr. Dolan that he have his clients try and capture movements which the family indicated were being undertaken by Jahi in response to her mother's direction/command.

18. After Jahi's discharge from the New Jersey hospital, I arranged to have her undergo a series of sensitive tests to determine if she was brain dead or not. The IBRF undertook these tests as a humanitarian effort to assist Ms. Winkfield in deciding what future course of care she would take with her daughter. Ms. Winkfield had reported activity with Jahi that was inconsistent with the declaration of brain death such as purposeful movement of her extremities following command by her mother to do so. Additionally, if indeed Jahi, who had been pronounced brain dead 8 months prior, had brain structure and was responding then I knew this could provide a great contribution to science in developing a better understanding of brain death.

19. Before undertaking extensive and expensive testing, I used a BIS monitor to determine if Jahi demonstrated any activity that could indicate that she may have brain function. A BIS monitor is used during surgery when a patient is under anesthesia to determine their level of consciousness. This is important, as you do not want to have the patient in an elevated level of consciousness where they may experience pain. The BIS monitor indicated that there was activity of some sort in Jahi's brain.

20. I then arranged to have Dr. Labkovsky undertake a detailed EEG readings using very sensitive modern equipment. I felt this was important as I wanted to make sure that the BIS monitor findings were not errant.

21. Dr. Labkovsky undertook this examination in early September. Mr. Dolan was present and photographed the method and manner in which the electrodes were attached and how the equipment was set up to reduce the possibility of any artifacts coming from the ventilator and the other electronics in the room. This test was also preformed to see if further testing, using MRI /MRA was warranted.

22. I myself witnessed the EEG testing. I am familiar with the methods commonly practiced within the community of scientists, doctors and EEG technicians for the administration of these tests. I have participated in numerous such exams as an independent witness. I saw evidence of brain activity, not brain artifacts, in the EEG. One of the most poignant moments was when Nailah Winkfield came into the room and spoke to her daughter saying words to the effect of; "Jahi you need to help me, these people think you are brain dead, I need you to help me show them that you are not." She then began crying and, at that point, the electrical activity in Jahi's brain, as described more fully in Dr. Labkovsky's and Dr. Marchado's reports, was readily identifiable and profound. I had seen video of Jahi moving on command but this was especially significant as it registered that Jahi had a change in her brain function in response to her mother's

voice.

23. After that testing, I consulted with Dr. Charles Prestigiacomo. I had previously alerted him to Jahi's case and our desire to conduct testing to see if she had intact brain structure to any degree. This is significant because a truly brain dead person with no blood flow to the brain will have their brain liquefy and then there will be no preserved brain structure. He arranged for Jahi McMath to be examined, using Rutgers MRI/MRA, to see if Jahi had brain structure and/or cerebral blood flow.

24. I flew in Dr. Machado to oversee and review these studies. Dr. Machado is a world leader in the field of brain function and brain death. I wanted him present because he is a staunch defender of the concept of brain death and I knew he would have no hesitation to say that Jahi had brain structure or not. If there was no brain structure then the EEG results could not be confirmed as being possible. Quite simply, no brain structure, no brain activity and therefore you have a confirmation of Brain Death.

25. Before the testing, I had counseled Nailah that if the tests showed no brain structure, and/or no EEG activity, she would have to accept the brain death diagnosis as being irreversible. She tearfully agreed and said, "I know she is in there. People say I am crazy but I know she is in there. I am willing to hear the news, I just need to know."

26. I personally was present at the time of the MRI/MRA at all times. I witnessed Jahi being placed into the MRI and I agreed with Dr. Machado that the best results would be obtained with 1 millimeter slices for the greatest accuracy. Mr. Dolan requested that he be allowed to have the examination documented photographically which after the signing of much legal paperwork, such permission was granted.

27. The MRI/MRA exam was very thorough and lasted approximately one hour.

28. As the exam was underway Dr. Machado, the MRI tech and I watched the results

on a computer monitor. We unequivocally saw the presence of brain structure including the evidence of ribbons in the brain. This is critical as it showed that the brain, although damaged, was there structurally. Given that it had been nine months since she was declared brain dead I would have expected to see her brain had liquefied. It clearly was not.

29. Additionally we looked for evidence of blood flow. We did not use contrast as Jahi had been out of a hospital setting and we had not done a complete blood workup and we had a limited window to use the MRI. Blood flow was clearly evident. This does not happen if a patient is brain dead.

30. I am also aware that Jahi has entered puberty with the onset of menarche. She has also now had a regular cycle. This onset is as recent as several months ago. This does not happen if there is the total and irreversible cessation of all neurological function. The hypothalamus and pituitary must be functioning to have this occur. The hypothalamus and pituitary glands are part of the brain. Therefore this means that she is not brain dead.

31. I have seen many videos where Jahi is responding to specific commands by her mother. This is significant when considered in combination with the EEG findings and MRI/MRA. This is indicative of a patient who is not brain dead. Brain dead people do not respond to voice commands.

32. It is my professional opinion as a PhD neuroscientist, who has observed hundreds of Brain Exams, and Brain Death Exams, EEGs and MRIs that Jahi McMath is not brain dead.

33. I do believe that, quite possibly, when Dr. Fischer preformed his exam Jahi was under suboptimal conditions and that her brain swelling could have caused her to fail the EEG and cerebral blood flow exams and to be unable to move as she does today.

34. The fact that Jahi has brain structure and EEG findings could not have been determined previously as I have been informed by Mr. Dolan that the New Jersey facility she was

determined previously as I have been informed by Mr. Dolan that the New Jersey facility she was in did not wish to be drawn into this public controversy and, therefore, would not perform such tests.

I declare under the penalty of perjury under the laws of the State of California that the forgoing is true and correct.

Signed October 12, 2014, in The City of, Glendora, CA Country of

Phillip De Fina, Ph.D