

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MARYLAND**

RUTH M. LAWSON,

Plaintiff,

v.

UNITED STATES OF AMERICA

Defendant.

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Civil No. RWT 03-884

OPINION

On March 27, 2003, plaintiff Ruth M. Lawson (“Mrs. Lawson”) brought this action against the United States under the Federal Tort Claims Act, 28 U.S.C. §§ 1346(b), 2671-2680. In her Complaint, she asserted claims of medical malpractice relating to care during her second pregnancy that she received from health care providers at the Malcolm Grow Medical Center (“MGMC”) at Andrews Air Force Base.

The two basic questions raised by this case are: (1) whether the applicable standard of care required Mrs. Lawson’s health care providers at MGMC to recognize that she had an underlying neurological disease or disorder known as Chiari Type I malformation that was being exacerbated by her second pregnancy, and (2) whether the failure to recognize Mrs. Lawson’s disease in providing her treatment during and after her second pregnancy caused her to suffer serious personal injury. The trial took place without a jury from February 7 through February 17, 2006. On June 7, 2006, the parties submitted proposed findings of fact and conclusions of law.

Having considered the evidence and arguments of counsel, the Court concludes that both questions must be answered in the affirmative and now makes its findings of fact and conclusions of law.

FINDINGS OF FACT

I. Chiari Type I Malformation

Mrs. Lawson has Arnold Chiari Malformation Type I (“ACM Type I” or “Chiari I malformation”). This congenital abnormality is characterized by the underdevelopment of the bone at the base of the skull (posterior cranial fossa) and overcrowding of the normally developed hindbrain. As a result of the underdevelopment of the posterior cranial fossa and overcrowding of the hindbrain, individuals with this abnormality have a larger than normal opening at the base of the skull (foramen magnum), which permits the hindbrain/cerebellar tonsils to protrude, or herniate, into the spinal canal. The herniation of the hindbrain happens at birth or shortly thereafter. In its pure form, a Chiari I malformation shows the cerebellar tonsils down to the C1-C2 region, with normal brain stem location.¹

Chiari I malformation exists in approximately one percent of the population, and most cases are diagnosed by MRI.² Even though individuals are born with ACM Type I, those afflicted are generally unaware that they have the condition unless and until symptoms appear. Chiari I malformation can remain asymptomatic, or it can result in a gradual progression of symptoms over an individual’s life. While most Chiari Type I malformations do not result in any symptomatology

¹Robert I. Grossman & David M. Yousem, Neuroradiology: The Requisites 436 (2003).

²MRI stands for “Magnetic Resonance Imaging,” and is a procedure in which magnetic resonance imaging is used to produce computerized images of internal body tissues.

and are never detected, some individuals develop headaches in conjunction with the condition. These headaches are typically occipital (at the back of the head) in nature and may be associated with nausea and vomiting.

In some instances, age combined with triggering events such as trauma or pregnancy will cause a Chiari Type I malformation to decompensate. Decompensation produces significant cerebrospinal fluid (“CSF”) problems below the cerebellum in the posterior cranial fossa and the spinal cord. Decompensation with an associated syrinx³ leads to the progressive development of neurological symptomatology related to anatomical functions of posterior fossa brain structures, manifesting as vertigo, ataxia, focal neurological findings and severe headaches. These symptoms are similar and overlapping with symptoms of other intracranial problems, such as brain tumors.

The treatment for decompensated Chiari I malformation with syrinx is neurosurgical and involves decompression flow by performance of a craniectomy at the level of the foramen magnum, producing space to allow normal CSF flow and reabsorption of syrinx and hydromyelia fluids. A duraplasty is performed to create space around the brain tissues, thereby allowing long-term decompression and promoting CSF flow. Surgical decompression is recommended for patients with a decompensated Chiari Type I malformation and syrinx, because the presence of the syrinx portends a higher risk for problems.

³Syrinx formation denotes a condition in which diverted CSF corrodes pathways in the central nervous system, allowing for the formation of fluid filled cysts along the spinal cord and adjacent to the central canal of the cord. A decompensated Chiari I malformation results in hydromyelia, a condition in which CSF accumulates in the central canal producing an engorgement of the central canal and adema in the spinal cord.

II. Ruth Lawson's Personal History

Mrs. Lawson was born on September 17, 1966. Her parents, Gilbert and Amparo Ferro, lived in Panama at the time of her birth. Mr. Ferro, a former aircraft mechanic for the United States Air Force, worked for the Panama Canal Commission as a shipwright, and Mrs. Ferro worked as a secretary. Mrs. Lawson enjoyed good health during her youth and adolescence. She actively participated in sports including aerobics, swimming, running, and weight training, and was an avid reader. Mrs. Lawson completed her elementary and high school education in Panama. While English has always been Mrs. Lawson's primary language, she is also fluent in Spanish. She attended grades K-6 at Margarita Elementary School and grades 7-12 at Cristobal High School, from which she graduated in June 1983. Mrs. Lawson was a very good student, and participated in school activities without any physical or social limitations. She attended college at Old Dominion University in Norfolk, Virginia, receiving a B.S. degree in Business Administration and Marketing in August 1987 with a cumulative GPA of 2.7. Mrs. Lawson also apparently began working on a Master's degree while living in Panama.

From 1988 to 1989 Mrs. Lawson worked for a private travel agency in Panama, where she made regular use of her bilingual skills. She subsequently worked for the U.S. military from 1989-1995, first with the United States Navy as a lifeguard, and then with Naval Intelligence as a secretary. She then switched over to the United States Air Force, where she was employed as a secretary and then as a management assistant, progressing from a pay grade of GS-05 to a GS-08. In her most senior position, Mrs. Lawson was responsible for maintaining all of the records at Howard Air Force Base, Albrecht Air Force Station, which was on the isthmus of Panama and an air base in Honduras. Mrs. Lawson received several commendations for her work, the most

significant of which was “Records Manager of the Year for Air Combat Command,” which commends the best performing records manager throughout the entire Air Force.

While working for the Air Force, Mrs. Lawson met Erick J. Lawson, who was stationed in Panama for two years as an Air Force Intelligence Officer. They were married by a judge on November 29, 1995, and the couple was married again in a religious ceremony on March 2, 1996. After she married, Mrs. Lawson suspended outside employment to tend to her family. However, Mrs. Lawson planned to resume working when her children reached school age, finish a Master’s degree she had started in Panama, and pursue a career as a teacher or translator. Major Lawson has been an intelligence officer in the United States Air Force since 1992, and, at the time of trial, had been recently assigned to a temporary duty station in Qatar.

III. Ruth Lawson’s Medical Records

The first symptom that gave notice that Mrs. Lawson could have a neurological disease or disorder developed around her nineteenth birthday, when she began to experience headaches that were more painful and frequent than normal. In July 1995, Mrs. Lawson also began to develop migraine headaches. Mrs. Lawson’s medical records document that she reported these headaches to her health care providers at the various Air Force facilities where her husband was stationed.

In October 1996, Mrs. Lawson became pregnant with her first child, Dominick. During this pregnancy she suffered from hyperemesis gravidarum (excessive vomiting) that moderated during the second half of the pregnancy, and had occasional complaints of dizziness, especially when she rose to a standing position. Aside from an abnormal maternal serum alpha-fetoprotein finding and a single emergency room visit for dehydration, Mrs. Lawson had a normal number of prenatal visits

and did not require any unscheduled or emergency visits during her first pregnancy. Mrs. Lawson gave birth to Dominick on July 29, 1997 at the Naval Hospital in Pensacola, Florida.

During her first pregnancy and thereafter Mrs. Lawson was able to carry out her household duties and functioned independently, with only minimal assistance from others. She was healthy and had no medical problems requiring any special medical intervention. Mr. and Mrs. Lawson moved to Andrews Air Force Base in July 1998.

Mrs. Lawson became pregnant with her second child, Nicholas, in March 2000. At that time, her husband was serving as an intelligence officer for the 89th Airlift Wing at Andrews Air Force Base. Mrs. Lawson received her prenatal care at MGMC, a facility with a residency program whereby first or second year family practice residents rotate through the obstetrics clinic for a month or two. At the time of Mrs. Lawson's second pregnancy, the obstetrics clinic was staffed with seven attending obstetricians, two to three residents on a rotating basis, and two to three nurse practitioners. Under the system in place at MGMC, family practice residents often saw the patients outside the presence of an attending obstetrician. In theory, a staff obstetrician was designated to review each obstetrical patient's chart on a trimester basis, but there is no evidence of who that designated person was for Mrs. Lawson. While a patient of the MGMC, Mrs. Lawson was seen by a team of health care providers including four attending obstetricians: Dr. Bruce Erhart, Dr. Gretchen Shaar, Dr. Tracey Golden, and Dr. John Buek; three residents: Dr. Gregory Sweitzer, Dr. Edgar Rodriguez, and Dr. Nghia Phan; and two certified nurse practitioners: Mary Warwick and Patricia Jones.

Mrs. Lawson's prenatal care during her second pregnancy is documented in extensive medical records, which are discussed below.⁴ At no time during the course of Mrs. Lawson's pregnancy did any health care provider perform a neurological examination on her or refer her to a neurologist for evaluation.

On May 3, 2000, at around the eighth week of pregnancy, Mrs. Lawson entered the obstetrical clinic. During this visit, she was seen by Dr. Erhart. An ultrasound performed that day confirmed a single fetus with an estimated date of confinement of December 10, 2000. Dr. Erhart placed her on Compazine 5mg three times daily (TID) for severe nausea. On May 17, Mrs. Lawson reported that the Compazine provided her with some relief from her symptoms.

On May 25, 2000, Mrs. Lawson went to the MGMC emergency department, complaining of severe vomiting, body aches, and dizziness. She was treated by Dr. Shaar during this visit.

On June 26, 2000, at approximately sixteen weeks of pregnancy, Mrs. Lawson was seen by Dr. Sweitzer, a first-year family practice resident. Mrs. Lawson gave a history of nausea and vomiting which was somewhat helped by oral Compazine. Her presenting complaint was severe nausea, for which she was administered Compazine 10 mg IV and Benadryl 25 mg IV. She also reported to Dr. Sweitzer that she would get dizzy when she lies down, and the nurse's notes from that visit reflect that Mrs. Lawson complained to her that "lying down makes me dizzy."⁵

⁴ In addition to the visits described in detail below, Mrs. Lawson was treated for other common pregnancy complaints during her second pregnancy, including vaginal discharge, spotting, dehydration, Braxton-Hicks contractions and abdominal cramping. Doctors also treated her for a flu-like illness and an upper respiratory infection, both of which she had at the same time that her husband and son were sick.

⁵Dr. Sweitzer testified that he could not recall whether this information was brought to his attention, but he admitted that the nurse's note had been written and was there for him to read when he picked up the chart.

Dr. Sweitzer noted that Mrs. Lawson felt better after the administration of the intravenous medications. He also noted she had hyperemesis gravidarum, speculated that she should be tried on alternative medication if she did not improve, and instructed her to come back in two weeks or sooner if necessary.

On July 11, 2000, at eighteen weeks of pregnancy, Mrs. Lawson called the MGMC Health Care Information Line and complained of abdominal cramping and severe dizziness, with the room spinning around her head. She reported that the dizziness abated somewhat after she drank fluids. She was advised to go to the emergency room immediately, but informed the provider that she did not want to go that evening. The next day, Mrs. Lawson had a prenatal visit with nurse practitioner Mary Warwick and received an ultrasound to determine the health of the baby. Nurse Warwick noted that Mrs. Lawson reported four hours of lower abdominal cramping during the previous night. On July 13, 2000, the day after her visit with Nurse Warwick, Mrs. Lawson called Dr. Erhart to ask whether she could continue taking Compazine and to complain that she was still feeling dizzy. Dr. Erhart prescribed Compazine, but indicated to her that this was for nausea. The record does not indicate any medical treatment or recommendations for her complaint of dizziness.

On August 3, 2000, Mrs. Lawson had a prenatal visit and her Compazine prescription was again renewed. She indicated that Compazine provided her some relief from nausea. On August 17, 2000, at approximately twenty-three weeks, she was seen with continued symptoms of vomiting and use of Compazine. During this visit, she complained of left sciatic hip pain radiating into her leg and was prescribed Benadryl and Tylenol.

On September 5, 2000, at the beginning of her last trimester, Mrs. Lawson saw Dr. Erhart and reported that she was experiencing lower back pain. The prenatal flow sheet documents that

Dr. Erhart medicated her with Compazine and Tylenol, and also prescribed hot pads for back pain. On October 4, 2000, at 30 ½ weeks, Mrs. Lawson complained to Dr. Phan of lower back pain that was described as sharp, a "10" out of "10" on the pain scale, and persisting for several days. Dr. Phan diagnosed Mrs. Lawson with probable musculoskeletal back pain of pregnancy. She was continued on her medications, prescribed Tylenol every six hours for pain, and instructed to have twenty-four hours of bed rest. The following day, Mrs. Lawson called and spoke with Dr. Erhart and informed him that her back pain prevented her from sleeping. Dr. Erhart recorded her symptoms as pregnancy-related sciatica, and prescribed narcotic medication of Percocet to be taken one to two tablets by mouth every four to six hours as needed.

On October 11, 2000 Mrs. Lawson called the MGMC to complain that the Percocet was aggravating her nausea and vomiting. As a result, Dr. Erhart switched her narcotic medication to Darvocet by phone the following day without seeing or examining her. On October 16, 2000, Dr. Erhart saw Mrs. Lawson and noted that her back pain had improved on Darvocet. On October 24, 2000, Dr. Erhart provided her with a refill of Darvocet for her back pain in response to a telephone request. On November 14, 2000, Mrs. Lawson was given a new prescription for Darvocet to be taken every four to six hours as needed, and it was noted that she was still having lower back pain. She was placed on modified bed rest.

On November 15, 2000, at thirty-six weeks gestation, Mrs. Lawson met with Dr. Golden and continued to complain of back pain, this time with uterine contractions. She was recommended to do pelvic rocking on all fours to relieve the back pain. The next day, on November 16, 2000, she complained again of back pain to a Dr. Salgado. On November 22, 2000, Mrs. Lawson received another prescription for Darvocet, at which time she reported that her sciatica was much better.

On November 23, 2000, Mrs. Lawson reported to the labor and delivery ward with contractions and was admitted at approximately 10:30 p.m. Capt. Cheryl A. Burch performed a pre-anesthesia evaluation and noted that Mrs. Lawson had “BACK PAIN SINCE 6 MONTHS OF PREGNANCY, NO DEFINITIVE DIAGNOSIS, MEDICATED WITH DARVOCET.” (Emphasis in original). The following day, November 24, 2000, Mrs. Lawson delivered her son Nicholas following a labor of slightly more than ten hours, with the first stage being nine hours and fifty-three minutes, and the second (pushing) stage being twelve minutes in duration. Mrs. Lawson was not given the option of undergoing a cesarean section delivery.

Mrs. Lawson’s post-delivery medical notes from November 25, 2000 state that “the patient is doing well, however, c/o [(complains of)] dizziness and episode nausea with emesis last PM.” (sic). The record notes that Mrs. Lawson’s dizziness increased in the supine position (when lying on her back, or with her face upward), and that she complained of back pain with a history of chronic back pain treated with Darvocet during the pregnancy. The record also notes that following delivery, she developed a mild lateral nystagmus, an involuntary, usually rapid movement of the eyeballs (as from side to side), after rapid supination. The medical facility discharged Mrs. Lawson on November 26, 2000 with a diagnosis of uncomplicated vaginal delivery and recurrent chronic back pain.

On December 7, 2000, Mrs. Lawson met with Dr. Durkin in the family practice clinic, who documented her complaints as back pain, moles, vertigo, that she could not lie flat in bed, and that her left leg felt very heavy. Dr. Durkin’s notes also indicate Mrs. Lawson reporting the “room spinning” which she documented as starting “while pregnant – last 2 days,” and that she could not

lie flat, with vertigo worsening with position change.⁶ Dr. Durkin increased the frequency of her prescription for 600 mg of Motrin to four times daily for her back pain and referred Mrs. Lawson to physical therapy and a healthy back class. Dr. Durkin did not diagnose Mrs. Lawson with a foot drop during this visit. In connection with Mrs. Lawson's vertigo symptoms, Dr. Durkin assessed a likely viral labyrinthitis, and advised her to try Meclizine, but noted that the safety of this medication when breast feeding was questionable.

On January 4, 2001, Mrs. Lawson was seen again by Dr. Durkin for removal of moles on her upper shoulder and chest.⁷ At this visit, Mrs. Lawson again voiced a complaint about her vertigo symptoms, and Dr. Durkin clearly documented in her medical notes that Mrs. Lawson had a history of vertigo since her fifth month of pregnancy. Mrs. Lawson was taking Motrin at the time, but chose not to take Meclizine due to her concerns about contraindications while breast feeding. During the examination, Mrs. Lawson did not exhibit a nystagmus, but tested positive with the Hallpike maneuver, a procedure where the patient rapidly goes from sitting up to lying flat then back to sitting up in order to determine nystagmus and proxysmal positional vertigo. Regarding Mrs. Lawson's vertigo, Dr. Durkin thought it was likely that she had benign positional vertigo and referred her for a hearing evaluation and to neurology for an evaluation.

On January 11, 2001 Mrs. Lawson was seen by a physical therapist who noted the onset of lower back six months into the pregnancy and chief complaints of right hip pain, left foot slapping,

⁶Dr. Durkin testified that she did not recall her conversation with Mrs. Lawson and agreed that her trial testimony on the history she elicited regarding the onset of dizziness was subject to her personal interpretation of her equivocal December 7th note ("last 2 days").

⁷Mrs. Lawson failed to report back on December 21st for an appointment scheduled to remove the moles.

occasional numbness, and difficulty walking up stairs. The therapist noted that Mrs. Lawson required an immediate referral to neurology. On January 17, 2001, Mrs. Lawson was seen by Dr. Overfield,⁸ a neurologist at MGMC with a chief complaint of vertigo since approximately September 2000 with a “spinning sensation (when) lying flat and looking up.” Dr. Overfield also noted that she had a left foot drop since approximately September 2000 with onset at the same time as the vertigo, as well as back pain with sharp radicular pain to the posterior leg,⁹ and tingling in the bottom of the toes.¹⁰ Dr. Overfield noted that Mrs. Lawson had rotary nystagmus, and a positive Hallpike test,¹¹ indicating a central nervous system and/or vestibular origin for her nystagmus. Dr. Overfield concluded that Mrs. Lawson suffered from (1) vertigo, (2) daily headaches (probably Motrin-induced), and (3) left foot drop, most likely lumbosacral instead of common peroneal, in view of her radicular pain. Dr. Overfield ordered an MRI and x-ray of the lumbar spine, and an EMG¹² of her left sciatic nerve. For her vertigo, he instructed her on Brandt-Daroff exercises,¹³ and

⁸Dr. Overfield did not testify at trial.

⁹Radicular pain is pain experienced along the dermatome of a nerve due to pressure on the nerve root.

¹⁰There is no indication that Dr. Overfield reviewed the medical records of Mrs. Lawson, and he did not record information on the multiple medications she took during her pregnancy.

¹¹In a Hallpike test, the patient’s head is turned to the right, the patient lies flat on the back with the head overhanging the edge of the table, and then after several seconds resumes the sitting position. Rotary nystagmus reverses when the patient changes from the lying to the sitting position. B. Bailey, 1 HEAD AND NECK SURGERY - OTOLARYNGOLOGY, 1873-74 (1993).

¹²EMG stands for “electromyogram,” which is a tracing that converts the electrical activity associated with functioning skeletal muscle into a visual record or into sound; this has been used to diagnose neuromuscular disorders and in biofeedback training. Medline Dictionary.

¹³The Brandt-Daroff is one of the several exercises intended to speed up the compensation process and end the symptoms of vertigo.

advised her to stop taking Motrin. On January 19, 2001, Mrs. Lawson obtained a lumbar spine series of x-rays which were normal. On January 30, 2001, Mrs. Lawson obtained the scheduled EMG/nerve conduction study of her left leg. Based upon the findings of this test, Dr. Overfield concluded that she had an “intracranial spinal lesion affecting the L5 root.”

Mrs. Lawson reported to Dr. Overfield that she was unable to participate in the MRI scheduled for February 4, 2001 because of her claustrophobia and because of the extreme dizziness she experienced when lying flat. As a result, Mrs. Lawson required an open MRI, which had to be performed off base. The scheduling of this MRI and the logistics with the government-sponsored Tricare insurance plan took time to be resolved, and Mrs. Lawson did not receive the MRI of her lumbar spine until February 27, 2001. Dr. Edward N. Smith, who interpreted the scan, noted that “there is abnormal signal of the conus medullaris, suspicious of a mass lesion,” and recommended a dedicated thoracic spine examination.

On the basis of this finding, Dr. Overfield ordered a complete MRI of the spine, which Mrs. Lawson was unable to do in light of her inability to lie flat. Mrs. Lawson was referred to Dr. James Ecklund,¹⁴ a neurosurgeon at Walter Reed Army Medical Center (“WRAMC”), who saw

¹⁴ Dr. Ecklund was called to testify as Mrs. Lawson’s first witness, and was not designated as an expert by either side. Dr. Ecklund was asked certain questions by the Court, and Lawson did not object to any of the Court’s questions. The Fourth Circuit requires that objections be made at the time evidence is offered. *DiPaola v. Riddle*, 581 F.2d 1111, 1113 (4th Cir. 1978). After Dr. Ecklund’s testimony was concluded, Mrs. Lawson moved to strike certain portions of his testimony responding to the Court’s questions. Even overlooking the untimeliness of the motion, the law grants wide latitude to a judge to inquire of witnesses in order to ensure that the judges understand the issues being tried before him. *Parodi v. United States*, 703 F.2d 768, 775 (4th Cir. 1983). Dr. Ecklund’s designation as a fact rather than an expert witness does not alter the Court’s affirmative duty to ensure that justice is served, and the questions asked of Dr. Ecklund were in furtherance of this duty. Accordingly, the Court will, by separate order, deny Mrs. Lawson’s Amended Motion to Strike Certain Trial Testimony of Dr. James Ecklund [Paper No. 45].

her on March 22, 2001. Dr. Ecklund noted in his evaluation that Mrs. Lawson exhibited lower back pain during pregnancy which traveled to the left lower extremity, she was placed on Darvocet, her pain was excruciating, Tylenol #3 and Percocet did not work, and she suffered from left foot drop. He noted that Mrs. Lawson had multiple emergency room visits related to pain, that she could not lie flat on account of vertigo, could not look up or down rapidly, and that with the onset of vertigo the “room spins.” Dr. Ecklund further noted that Mrs. Lawson had worsening right neck pain, could not lie down flat without passing out, had daily occipital headaches, and needed to sleep sitting up since September 2000. He also noted that her gait was characterized by a slapping left foot, that she leaned to her left, and was unable to go up on her toes. He also noted a positive Romberg’s sign (unsteadiness when closing eyes) and positive ataxia (inability to coordinate muscles in the execution of voluntary movement). Finally, Dr. Ecklund noted that Mrs. Lawson lacked sensitivity in her left foot, and that she had paraspinous pain in the right neck shooting up to behind her right ear. In reviewing the February 27, 2001 MRI, Dr. Ecklund noted a questionable syrinx.

Based on this history and physical examination, Dr. Ecklund concluded that Mrs. Lawson had a Chiari I malformation or other cord/brain lesion, and ordered an MRI of the head and of the spine to confirm his diagnosis. The Court finds that this is the first time that Mrs. Lawson was told that her persistent and worsening symptomatology was attributable to a neurological problem. The Court also finds that Dr. Ecklund’s March 22, 2001 notes accurately reflect Mrs. Lawson’s history and the progress of her illness.

On March 28, 2001 Mrs. Lawson was seen by Dr. Daniel J. Fleming¹⁵ at the MGMC Department of Otolaryngology. Dr. Fleming confirmed Mrs. Lawson's history of dizziness when lying down since September 2000, with the sensation that she was remaining still while the room was spinning around her. He also noted her history of left foot drop, inability to walk on her heels, and numbness in her left lower leg, starting at the same time as the dizziness. He further confirmed the presence of nystagmus, as well as the positive Romberg's sign. Dr. Fleming did not find any evidence of hearing loss or any cochlear illness related to the internal ear to explain Mrs. Lawson's history of recurrent dizziness and neurological symptoms. Dr. Fleming noted that he agreed with the absolute need for an MRI.

On April 1, 2001 Mrs. Lawson underwent an MRI examination of her brain, cervical spine, and thoracic spine at WRAMC. The stated indication for the procedure was "34 yr. old female with progressive SXS [(signs and symptoms)], i.e., positional vertigo, occipital HA [(headaches)] QD [(every day)] over one year; r/o Chiari or other cord/brain lesions." The MRI findings on April 1, 2001 were reported as follows:

Both in coronal, FLAIR and sagittal T1w imaging there is fairly gross deformity of the combination of pons, medullary cervical junction and lower cerebellum which I believe includes the vermis in addition to the cerebellar tonsils. This caudal placement of cerebellar structures extends down to the lower aspect of C2, obliterating all of the usual posterior spaces at the cisterna magna. This is seen in combination with fairly striking syrinx formation through all cervical levels with particular dilation of the central canal at the T1-2 level and immediately below. This dilatation of the central canal becomes very broad and smooth through the lower thorax to the termination of the cord at T12-L1. The dilatation of the central canal where it is broad in the upper thoracic level and just above the conus is in the order of 6.5mm. No vertebral axis bony abnormality is detected through the cervical or thoracic levels.

¹⁵Dr. Fleming did not testify at trial.

The conclusion of the MRI study was as follows:

CONCLUSION: STRIKING CHIARI MALFORMATION TO INCLUDE THIRD VENTRICULAR AND POSTERIOR FOSSA CHANGES WITH THE CERVICOMEDULLARY JUNCTION AT C2 AND WITH BOTH CEREBELLAR VERMIS AND TONSIL ECTOPIA DOWN TO LOW C2.

THERE IS HYDROMYELIA THROUGH THE ENTIRE CERVICAL AND THORACIC CORD WITH MOST EXTREME DILATATION AT THE UPPER AND LOWER THORACIC LEVELS, AS DESCRIBED ABOVE.

On April 3, 2001, Mrs. Lawson returned to Dr. Ecklund, who confirmed the diagnosis of a Type I Chiari malformation with tonsils down to C2 and a near total cord syrinx. At the time of this visit, Dr. Ecklund noted that Mrs. Lawson was walking unassisted, but with a limp. In light of his findings, Dr. Ecklund advised her that she needed urgent neurosurgical decompression of her Chiari Type I malformation and a duraplasty procedure, and that without these procedures she would otherwise face further neurological deterioration and potentially death.

Physical examination of Mrs. **Lawson on April 12, 2001, by** Dr. Richard Gullick, Dr. Ecklund's chief/senior resident, revealed right neck pain, upward and lateral nystagmus, left foot drop, new onset lower extremity weakness on the right side, and cerebellar findings of positive Romberg test, positive ataxia, and a wide-based gait. That same day, Mrs. Lawson underwent Chiari decompression. During the procedure, Mrs. Lawson also underwent a right partial cerebellar tonsillectomy and a duraplasty to close off the affected areas of decompression. Dr. Ecklund's operative findings of April 12, 2001 were as follows:

The patient is a 34-year old female with a progressive history of occipital neck pain and left lower extremity weakness along with headache. MRI revealed a Chiari I malformation with herniation of the tonsils down to the level of C2 as well as a syrinx within the spinal cord....The craniectomy was 5 x 4 cm in diameter. The dura was opened in a Y-shaped fashion and flapped back utilizing 4-0 Nurolon sutures. A large venous lake on the right-hand side was occluded using titanium microclips. The subarachnoid space was entered, and sharp dissection was used to free the

tonsils up from surrounding dura and other structures. The tonsils were freed up, and spontaneous CSF from the fourth ventricle was obtained. Bipolar electrocautery was used to shrink the tonsils away from the spinal canal and up towards the intercranial compartment, and a minimal debulking of the right tonsil which was particularly large was performed with bipolar electrocautery and suction....The subarachnoid space was copiously irrigated with bacitracin containing normal saline before closing. After completing the suturing, multiple Valsalva maneuvers failed to show any evidence of CSF leak.

A CT scan of Mrs. Lawson's head and posterior fossa on April 13, 2001, confirmed the Chiari I decompression without complicated findings.

Mrs. Lawson returned to see Dr. Ecklund on May 10, 2001. He noted that her limp had improved and that she did not appear to exhibit a left foot **drop**. She still exhibited nystagmus on her lateral gaze, but was able to look upward. In a second follow-up visit on June 5, 2001, she saw Dr. Ecklund again, at which time he noted that she had improved flexibility in her neck, but was unable to touch her chin to her chest. Dr. Ecklund noted that her gait remained wide-based, but appeared more steady.

The Lawsons lived in Panama from mid-August 2001 to March 2002, and during this time Mrs. Lawson received medical treatment from health care providers there. In a report dated February 22, 2002, Dr. Espinosa, a neurosurgeon, noted that he had examined Mrs. Lawson on August 22 and December 6, 2001. Dr. Espinosa recorded her initial complaint as cervical pain, migraine, and difficulty moving without a wide-base support, as well as weakness in the lower left extremity. Dr. Espinosa prescribed medications that included Percocet, in addition to other drugs. When she returned to Dr. Espinosa in December still complaining of migraines, he prescribed Neurontin and Lasix. In the December report, Dr. Espinosa also noted that Mrs. Lawson was walking with slight weakness of the left extremities.

From August 2002 to 2004, Mrs. Lawson was treated at Womack AFB in Fayetteville, North Carolina. The health care providers there assessed her status as post-surgical decompression, with catamenial migraines (induced by menstrual cycles). During this time she reported pain in her neck at the surgical site and a wide-based gait. Dr. Albert Martins, Mrs. Lawson's treating neurologist at Womack Army Medical Base, examined Mrs. Lawson on October 1, 2002, and did not find any evidence of brain stem injury.

IV. Lay Testimony

During the two-week trial, the Court heard extensive lay testimony regarding Mrs. Lawson's medical condition and symptoms between May 2000 and April 2001. The Court is aware that not all of the symptoms described by this lay testimony were reflected in Mrs. Lawson's prenatal medical records; specifically, the Court acknowledges that her prenatal records do not contain documentation regarding her left foot drop, describe the severity and occipital nature of her headaches, or reflect that she had to sleep upright in a chair due to her severe dizziness. Nonetheless, the Court finds the lay testimony to this effect to be persuasive. It is uncontradicted that multiple individuals observed these symptoms, and Major Lawson testified that he was with his wife when she reported these symptoms to her treating doctors. Additionally, once Mrs. Lawson was evaluated by board-certified physicians and other specialists, rather than primarily first and second year family practice residents, her treating physicians elicited the same history of extreme nausea, headaches, vertigo, vomiting, and foot drop that Dr. Ecklund thought suggested a Chiari I malformation when he finally saw Mrs. Lawson in

March 2001.¹⁶ As was noted by Dr. Michael Ross, an obstetrician/gynecologist called to testify for the plaintiff, “[a]ny reasonable effort to put the whole package together and ask the right questions, every time it was done subsequent to her delivery, the same story came out . . . [H]ad an attempt been made, they could’ve elicited it at any time during [her pregnancy].” Trial Tr. Feb. 8, 2006, 105:18-106:7. (“Tr.”).

That some of Mrs. Lawson’s symptoms are not reflected in her prenatal medical records is therefore not the end of the story.¹⁷ The Court also finds at least one clear example in the record where the symptoms reported by the Lawsons were not fully documented.¹⁸ Specifically, regarding her June 26th visit with Dr. Sweitzer, the Court accepts testimony that the Lawsons reported the severity of Mrs. Lawson’s dizziness, vomiting and headaches, and notes that despite these reports,

¹⁶These include Dr. Elizabeth Durkin, a family practice doctor who evaluated Mrs. Lawson on December 7, 2000, and January 4, 2001; a physical therapist who evaluated her on January 11, 2001; Dr. Overfield, a neurologist who evaluated Mrs. Lawson on January 17 and 30, 2001; Ada Haber-Perez, an audiologist who evaluated Mrs. Lawson on February 7, 2001; Dr. Fleming, an otolaryngologist who evaluated her on March 28, 2001; Nurse Bartosz and Dr. Gullick, Dr. Ecklund’s nurse and chief resident who performed Mrs. Lawson’s pre-operative history and physical on April 12; and, of course, Dr. Ecklund, the neurosurgeon who ultimately diagnosed Mrs. Lawson’s ACM and performed her decompression surgery.

¹⁷Furthermore, the record is replete with expert testimony that this Court accepts which indicated that neurological referral was required during Mrs. Lawson’s pregnancy based only on those symptoms explicitly documented in her medical records; for instance, Dr. Norell testified that even without considering Mrs. Lawson’s foot drop, her back pain, sciatica, and vertigo symptoms were enough to warrant referral.

¹⁸Especially in light of this Court’s finding, see Expert Testimony, *infra*, that Mrs. Lawson’s doctors failed to properly follow up with her reported symptoms and elicit a proper medical history, it would be absurd to hold omissions in the medical records against Mrs. Lawson. Lay testimony offered at trial filled in the gaps in the records of Mrs. Lawson’s prenatal providers, and this testimony was confirmed by the records of post-delivery doctors who actually explored the scope of her symptomatology, its duration and its severity.

Mrs. Lawson's contemporaneous medical records do not clearly indicate these quite pertinent details regarding the severity of her symptoms and condition, and how different her symptoms were from those experienced during her first pregnancy.

In short, it does not appear that all details provided to Mrs. Lawson's treating doctors were fully documented.¹⁹ Therefore, the Court accepts the lay witness testimony provided in Mrs. Lawson's case in chief, and finds that this testimony consistently supplements, rather than contradicts, the facts as set forth in her contemporaneously-written medical records.²⁰

¹⁹Additionally, based on the testimony that this Court heard at trial, it is clear that even if this information had been recorded in Mrs. Lawson's prenatal medical records, such information would not necessarily have been brought to the attention of her doctors. For example, Dr. Sweitzer testified that he could not remember if he would have read or accounted for a nurse's note of Mrs. Lawson's inability to lie flat, and also testified that non-routine visits, such as her emergency room visit, would not automatically be incorporated into a patient's record, and that treating doctors might not necessarily know of such visits and symptoms.

²⁰Much of the authority cited by the defendant in support of its position that the Court should ignore the lay testimony offered by Mrs. Lawson and the documentation of her post-delivery health care providers does not directly support the defendant's position. For example, in *United States v. U.S. Gypsum Co.*, 333 U.S. 364, 393-397 (1948), the defendants attempted to contradict contemporaneous documentary evidence using only their own testimony; here, however, both lay witness testimony and contemporaneous records from the physicians who treated Mrs. Lawson during the December 2000 - April 2001 time period supplemented contemporaneous documentary evidence from Mrs. Lawson's prenatal records. Additionally, unlike the case of *Montgomery Coca-Cola Bottling Co., Inc. v. United States*, 615 F.2d 1318, 1327 (Cl. Ct. 1980), there is no self-serving purpose that Mrs. Lawson's friends and treating doctors would have for their testimony and contemporaneous records. Finally, *Cucuras v. Secretary of Dept. of Health and Human Serv.*, 993 F.2d 1525, 1528 (Fed. Cir. 1993), is distinguishable because in that case, the parents of the injured plaintiff child offered testimony that was inconsistent with the child's contemporaneous medical records. Here, much of the testimony was offered by non-party lay witnesses and was confirmed by the notes of later treating physicians (who were employed by the defendant), and therefore should not reflexively be accorded "little weight."

- Major Erick Lawson

Major Lawson testified that his wife's second pregnancy was far different than her first, in that she experienced much more severe headaches, severe dizziness, and the sensation that the room was spinning around her when she would lie down. As a result of these symptoms, Major Lawson testified that she was unable to attend to her household or childcare duties and needed constant assistance. Major Lawson indicated that although he traveled as part of his job, he attended as many prenatal visits as possible with his wife, and was present when she reported her complaints to health care providers on multiple occasions. According to Major Lawson's testimony, her doctors continuously reassured her that her symptoms were all pregnancy-related and would be relieved after delivery.

Major Lawson specifically testified about Mrs. Lawson's June 26, 2000 prenatal visit with Dr. Sweitzer, which he attended. Major Lawson indicated that at that time, she reported her persistent symptoms of dizziness when lying down, which required her to sleep in a recliner, debilitating posterior headaches, and severe nausea and vomiting. In relating these symptoms, he testified that Mrs. Lawson communicated to Dr. Sweitzer that all of these symptoms were very different than her first pregnancy.

Major Lawson testified that Mrs. Lawson's headaches in her second pregnancy were very different in that they were located in the back of her head (as opposed to a frontal headache) and required stronger medications which only dulled her pain. Major Lawson also stated that the dizziness his wife experienced was markedly different from that of her first pregnancy, in that it was severe, constant, occurred primarily when she was lying down, and resulted in the room spinning

around her eyes. Finally, Major Lawson noted that although she experienced nausea and vomiting in her first pregnancy, it was much worse during her second pregnancy, occurred daily, and was usually not triggered by anything in particular, whereas her nausea of her first pregnancy was always triggered by eating.

Major Lawson testified that Dr. Sweitzer reassured them that her symptoms were normal, pregnancy-related, and would go away after she delivered her child. Major Lawson also testified that Mrs. Lawson had numerous visits and telephone calls with MGMC, and testified that he was aware that his wife was repeatedly reassured that all of her symptoms were normal and secondary to her pregnancy. The Court finds this testimony persuasive, and consistent with Mrs. Lawson's ongoing use of Compazine for nausea, multiple unscheduled visits and telephone consultations, and use of narcotics in an attempt to regulate her pain.

Major Lawson also testified that beginning in September 2000, his wife began to experience excruciating back pain that she had never experienced in her first pregnancy, as well as left foot weakness and a loss of motor control that caused her to drag her left foot when she walked. Major Lawson testified that Mrs. Lawson would routinely inform him that she complained to her health care providers at MGMC about her symptoms, including her left leg weakness, difficulty walking, and severe back pain beginning in September. The Court finds Major Lawson's testimony about Mrs. Lawson's increased pain and symptomatology compelling, and notes that her medical records reflect several visits corresponding with this time period and these symptoms: an October 4th visit with Dr. Phan at which she complained of severe back pain, and she reported pain of a "10" on a 1-10 scale; a visit the next day with Dr. Rodriguez at which she reported that her extreme pain prevented sleep, and she received a prescription for the narcotic Percocet; her

complaint on October 11th that the Percocet aggravated her already severe nausea and vomiting, at which time Dr. Erhart switched her to Darvocet; her receipt of a Darvocet refill on October 23; and a November 14th visit with Nurse Practitioner Jones, at which she complained of continued back pain requiring Darvocet and heating pads.

Major Lawson testified that despite his wife's use of Darvocet, Compazine, and heating pads, her symptoms of pain, nausea and dizziness never subsided during her pregnancy, and that she had difficulty walking, and was unable to take care of her son, tend to her household tasks or sleep in a recumbent position. Major Lawson also testified that her symptoms did not disappear after her November 24, 2000 delivery, as she had been reassured by her health care providers throughout her pregnancy. Rather, all of the symptoms persisted and worsened, including her left foot weakness, difficulty walking, supine dizziness, occipital headaches, nausea, vomiting, and severe lower back pain.

- Michelle Miller

Michelle Miller, a registered nurse, is a friend and former neighbor of the Lawson family.²¹ Ms. Miller testified that both she and Mrs. Lawson participated in a carpool for their children in the September 2000 time frame. Ms. Miller observed many of the physical symptoms about which Major Lawson testified; specifically, she noted that she suffered from severe nausea and vomiting, that she complained of severe and daily headaches to the back of her head, severe dizziness that forced her to sleep sitting upright in a chair, and left leg weaknesses that affected her gait. Ms. Miller testified that she observed Mrs. Lawson dragging her left leg when she walked beginning

²¹Although Ms. Miller is a nurse, she did not testify as an expert, but rather testified as a lay witness in her capacity as the Lawsons' former neighbor.

in September 2000, the same time she could no longer able to fulfill her carpool duties. She further testified that she often observed Mrs. Lawson looking quite ill, unable to play with her son Dominick, and unable to care for her family and home due to her physical symptoms.

Ms. Miller indicated she was not aware that Mrs. Lawson, prior to her second pregnancy, had experienced such headaches in the back of her head, dizziness, difficulty walking, or difficulty caring for herself, her son, her family, or her household. Ms. Miller testified that she was aware that Mrs. Lawson had consulted her health care providers about her physical symptoms and was repeatedly reassured that they were normal pregnancy-related symptoms. Consistent with Major Lawson's testimony, Ms. Miller noted that following the delivery of Nicholas, Mrs. Lawson's symptoms persisted, she was unable to care for her family and home herself, and that she required the assistance of family from out of town. With regard to Mrs. Lawson's current state, Ms. Miller testified that she remains unable to care for her family and home independently, exhibits short term memory deficits, and has visual impairments, an unsteady gait and continued pain.

- Jean Rizzo

Jean Rizzo, who has known Mrs. Lawson since their childhood in Panama, testified as another lay witness. Ms. Rizzo indicated that in approximately September 2000, she visited Mrs. Lawson and observed her looking extremely ill and swollen. Ms. Rizzo noted that during that visit she endured persistent explosive vomiting, became dizzy when she would lie down so she had to sleep in a chair, and experienced left leg weakness that interfered with her ability to walk. Like Ms. Miller, Ms. Rizzo testified that Mrs. Lawson's symptoms interfered with her ability to care for her son Dominick and her household, and often required her to call upon neighbors for assistance. For these reasons, Ms. Rizzo testified that she would cook dinner and clean for Mrs. Lawson during

her visits to the Lawson home during the summer and fall of 2000. Ms. Rizzo testified that Mrs. Lawson's symptoms persisted through her second pregnancy.

Ms. Rizzo also testified about her current observations of Mrs. Lawson. Ms. Rizzo indicated that Mrs. Lawson suffers from severe neck and back pain, visual defects, short-term memory loss, has difficulty walking and using stairs, that she cannot cook, has difficulty writing and is unable to play with her children.

- Marcus Alexander

Second Lieutenant Marcus Alexander, a close friend and former next door neighbor of the Lawsons, was a medical student during Mrs. Lawson's second pregnancy.²² He testified that throughout the fall of 2000, Mrs. Lawson complained of severe occipital headaches, persistent and worsening nausea (despite her use of anti-nausea medications), and supine dizziness. Mrs. Lawson described her dizziness to Mr. Alexander as a "room-spinning kind of dizziness" that was so bad when she laid down that she had resorted to sleeping upright in a chair. Lt. Alexander also observed in the fall of 2000 that Mrs. Lawson was walking abnormally, and complaining about significant pain and weakness in her legs. Lt. Alexander testified that he urged her to report these symptoms to her health care providers, and that Mrs. Lawson acknowledged that she had done so, only to be told that all of her symptoms were related to her pregnancy. Despite these assurances, Lt. Alexander

²²The Court did not permit Mr. Alexander to testify as an expert. Overruling the defendant's objection to his testimony, the Court noted that "certainly, a medical student's observation of his next door neighbor or neighbors and their condition are facts he can report. [However,] I'm not about to let him come in and give an opinion that the standard of care was not observed and that she should have been referred for an immediate consult because he identified that this was the syndrome himself....I'm not going to consider him as an expert witness giving opinions..." Tr. Feb. 7, 2006, 8:14-20, 25. Like the testimony of Nurse Miller, therefore, the Court considered Dr. Alexander's testimony as that of a lay witness only.

testified that he remained concerned, and examined Mrs. Lawson's left lower extremity, noting some general weakness.

Like the other lay witnesses, Lt. Alexander testified that Mrs. Lawson's symptoms did not improve after she delivered Nicholas, and instead that she was still complaining of the same symptoms and that her leg symptoms were probably even getting worse. Lt. Alexander also testified that Mrs. Lawson currently cannot care for her children by herself, falls frequently, and requires assistance whenever Major Lawson is traveling out of town. Lt. Alexander noted that Mrs. Lawson now regularly repeats herself during conversations, including repeating whole stories, which she never did prior to her pregnancy with Nicholas.

V. Ruth Lawson's Present Condition

Expert and lay testimony provided the Court with a bleak portrait of Mrs. Lawson's current state, which was alluded to briefly in the preceding paragraphs. The Court finds that Mrs. Lawson's neurological impairments have resulted in severe problems with balance and coordination. These problems are manifested by ambulatory difficulties, frequent falls, and a need for assistance in daily life activities. Mrs. Lawson endures recurrent weakness in her lower extremities, with occasional periods when her loss of strength is so great that she cannot ambulate on her own. Mrs. Lawson also experiences upper extremity weakness, poor fine motor coordination, and poor hand-eye coordination. In addition, Mrs. Lawson continues to suffer from persistent headaches that are primarily occipital in nature, and experiences cognitive and memory difficulties. Her impairments have resulted in severe depression.

At trial, Thomas J. Spicuzza, M.D., a neurologist with board certification in neurological rehabilitation, summed up Mrs. Lawson's condition following surgery as follows:

When I saw her this past week, she was obviously depressed. She required assistance of her husband or the wall to get into the office. My thought watching her walk to the office was, the woman really ought to be in a wheelchair because she's dangerous to herself trying to ambulate without assistance. She has eye movements that are nonstop. She cannot look down. She can't see down. She can see upwards, but she can't read because her eyes are constantly moving. It makes life very difficult if you're trying to focus on something. She still has generalized weakness that's probably -- I didn't do any detailed muscle testing -- a little greater on the left than the right and a little greater in the leg, particularly towards the foot, than in the arm. She's just not the robust woman that was described by her husband when he first met her this morning when she was a lifeguard and running five miles a day.

Her cerebellar examination was remarkable for what we call perpendicular tremors in both upper extremities and you try to get your finger to your nose and you go perpendicular to it and you may miss it altogether. And trunkle ataxia, which means she just has a real difficult time maintaining balance, and that's complicated by diminished position sense in both feet. If you can't tell where your feet are on the ground, you can't send the message to your inner ear to your cerebellum and back down the spinal cord to make the minute corrections that we make when we stand, particularly with our eyes closed. That's what causes a positive Romberg. It can either be vestibular or cerebellar or peripheral nerve in origin, and then by the history you'd start sorting out which one of these it is. Reflexes remain very active. Very brisk. She's got three to four extra beats of clonus at each ankle which translates into functional weakness. She has got very brisk reflexes at the knees. They are approximately symmetrical now. They weren't the last time I saw her. She had more on the left than the right. So, that's calmed down a little bit, but this is after six years. She's not going to get any better, and the aging process is not going to help her along either as she gets older.

Tr. Feb. 9, 2006, 175:20-177:17. Mrs. Lawson's treating physicians have noted her impairments and have attempted various treatments with limited success. She has been medicated with many different drugs, and for daily living she currently requires such medications as Lexapro, Topamax, Maxalt, Skelaxin, and prescription-strength Motrin.

- Mental and Cognitive Limitations ²³

On the cognitive level, Mrs. Lawson has been diagnosed with significant memory, attention, and concentration problems. She is also slow in processing information. Thus, she has trouble remembering things, has to double-check everything she does, and is plagued with insecurity and fear that she is making a mistake. She has lost the ability to make decisions, and has many periods when her mind turns blank, leaving her greatly confused and anxious. She also has periods where she is extremely somnolent or where her level of consciousness is severely depressed.

Paul Fedio, Ph.D., an expert neuropsychologist and former Chief of Clinical Neuropsychology at the National Institute of Health, Neurological Disease and Stroke Division testified that in neuropsychological testing, Mrs. Lawson exhibits intact vocabulary and reasoning ability, but scored very low on intellectual performance tests. She ranked in the fifth percentile in reading comprehension and in the first percentile in reading speed.²⁴ She demonstrated no evidence of malingering. Dr. Fedio testified that Mrs. Lawson suffers from cerebellar cognitive and emotional syndrome resulting in cognition, memory, speech, language, and emotionality deficits.²⁵ Dr. Fedio noted that Mrs. Lawson has a very unsteady gait, tends to repeat herself several times, has

²³The defendant disputes that Mrs. Lawson's cognitive difficulties were caused by any alleged negligence. The causation issue will be discussed in greater detail below. Here, however, the Court merely finds as a matter of fact that she suffers from mental and cognitive difficulties in her present state.

²⁴Major Lawson testified that his wife has difficulty reading because of the constant eye movements of her nystagmus, and that she can only successfully read on a limited basis by holding papers at arms-length and attempting to read them out of the top of her field of vision.

²⁵ Dr. Fedio explained that the cerebellum has connections to the frontal lobe, temporal lobe and parietal lobe, and that damage to the cerebellum breaks the normal brain circuitry, causing cognitive deficiencies. This relationship will be discussed in greater detail below.

difficulty with her visual and spatial skills, is disfluent, exhibits memory problems, and has a dysexecutive dysfunction that interferes with her ability to successfully complete normal life tasks.

Mrs. Lawson also suffers from poor attention span and an inability to concentrate on specific issues. She is confused during most of the day, experiences organizational difficulties, and suffers from short-term and long-term memory problems. It is difficult for her to respond to questions with precise answers.

Mrs. Lawson's disabilities have also affected her mental health and have caused severe depression. Major Lawson travels frequently on work-related trips, during which time she is dependent on her children or other family members for assistance, as she cannot be alone in the house for any extended period. For her depression, she has been placed on anti-depressant medications such as Zoloft, Prozac, Celexa, and Lexapro, but despite adhering to these medications, she remains extremely depressed. Dr. Thomas Goldman, plaintiff's psychiatric expert, presented a troubling description of her psychiatric diagnosis:

[T]he major one is major depressed mood and typical neuro-vegetative signs, loss of sleep, loss of energy and inability to concentrate and pay attention, loss of ability to experience pleasure or anhedonia and general decline in functioning, along with depressed mood, sadness, diminished self-esteem, diminished self-confidence, frequent crying [-] [a] pretty classic picture of major depression.

Tr. Feb. 10, 2006, 203:1-9. The Court finds that this state is "very much so" related to Mrs. Lawson's neurological disability. *Id.* at 206:3.

- Physical Limitations

Mrs. Lawson displays significant nystagmus in all directions. She has tenderness in the occipital area of the head, as well as limitations in the range of motion of her neck. She displays a wide-based gait and is unstable on her feet, a condition known as ataxia. She exhibits poor fine and

gross motor coordination. She has generalized weakness in her arms and legs, greater on the left side, as well as decreased position sense in her feet.

As a result of her loss of sense of space, it is difficult for her to use her hands and perform manual tasks that require speed and coordination. Further, she frequently falls when she attempts to walk without a cane or outside support because she does not know the position of her body. Repetitive falls have left bruises all over her legs and body. She reports being dizzy when she lies down and often feels like the world is rotating around her head. When standing up she feels a pressure headache in the back of her head, which forces her to lie down or sit. Her inability to keep her balance makes it impossible for her carry children in her arms or even small items from one room to another, or walk short distances. In many cases, when she stands, she begins to sway back and forth and will fall down if she does not stretch out her arms to hold her body erect. She is also unable to stand with closed eyes.

Mrs. Lawson continues to experience constant headaches. The pain is in the back of her head, and sometimes radiates down her neck or seems to shoot out her ears. Major Lawson testified that she takes medicines that help to dull the pain, but they do not alleviate these headaches.

Finally, Mrs. Lawson, who is left-handed, has a feeling that the left side of her body is slightly paralyzed. Her left foot feels heavy and she has a tingling sensation as if her foot is “asleep” all the time. Her left and right upper extremities, from shoulder to hand, are also very weak, especially on the left side. She also has a constant sense that her upper extremities are numb and sleeping, with a feeling of tingling and reduced sensation, which is worse on her left side. Her left grip is very weak, whereas her right hand grip is a little stronger.

VI. Expert Testimony; Breach of the Standard of Care

The Court also makes findings of fact regarding the nature of Mrs. Lawson's condition and how her treating health care providers should have managed her care consistent with applicable standards of care. These findings are based on expert testimony heard by the Court.

-Chiari I malformations

ACM is a congenital condition that is not often encountered in pregnant women. Dr. Michael Ross, plaintiff's obstetrical expert, testified that he had treated only one pregnant patient with ACM in his twenty-five year career, and defense expert Dr. Robert Knuppel, who supervised over 100,000 births as the Chairman of Obstetrics at the College of New Jersey, testified that he had never encountered ACM in a pregnant patient. However, ACM is not a particularly rare or unusual neurological *disorder*. The Court accepts the testimony of Dr. David Yousem, chair of neuroradiology at Johns Hopkins University Hospital, who noted that "Chiari I is not an uncommon disorder," and that "as far as congenital malformations or congenital abnormalities of the brain go, this is one of the more common of those and it is something that is readily detected and diagnosed by MRI scanning." Tr. Feb. 7, 2006, 124:17-20. A person's temporary status as a pregnant individual cannot serve as a basis for doctors to disregard the symptomatology of the "not uncommon" ACM disorder, and when neurological symptoms are presented by a pregnant patient, a neurology referral is required.

-Need for a differential diagnosis

At no time during Mrs. Lawson's pregnancy with her son Nicholas did any of her health care providers entertain a differential diagnosis to explain her persistent symptoms of dizziness, nausea, and back pain. Four different physicians testified that a differential diagnosis is a method used by

physicians to rank the potential diagnostic possibilities most consistent with a patient's complaints, and the Court finds that a differential diagnosis should have been made no later than September 2000 to diagnose Mrs. Lawson's severe occipital headaches and persistent vertigo.

-Need for a neurological evaluation of Mrs. Lawson

In light of the quality, severity and duration of her symptoms, the Court finds that Mrs. Lawson should have had a neurological evaluation as early as July 2000 and no later than the end of September 2000 in order to comply with reasonable standards of care.²⁶ Mrs. Lawson exhibited symptoms including persistent supine dizziness, explosive vomiting, severe occipital headaches, severe lower back pain, radiating sciatic pain, and left foot drop. The significance of Mrs. Lawson's symptoms was confirmed by the frequency of her unscheduled visits and calls to the MGMC and the variety and amount of narcotics and non-narcotic medications she was prescribed. These prescriptions, including Benadryl, Compazine, Darvocet, and Percocet, support the finding that her signs and symptoms were far in excess of what is seen in a normal pregnancy. Dr. Ecklund, the neurosurgeon at the WRAMC who ultimately performed her decompression surgery, stated that headache is the most common symptom of Chiari I malformation, and that usual symptoms include dizziness, vertigo and rotary nystagmus. A neurological examination was clearly warranted during her pregnancy.

²⁶Dr. Ross testified that referral either to a neurologist or ENT was warranted after Mrs. Lawson's June 26th visit because she was way out of the normal range for nausea and had been experiencing vertigo since the beginning of May. Alternatively, Dr. Norell opined that the standard of care required neurological workup around the September 2000 timeframe when Mrs. Lawson's symptom complex became more complicated. The Court finds that this range – June/July to September 2000 – represents the acceptable timeframe in which Mrs. Lawson should have been referred for a neurological evaluation.

Mrs. Lawson's doctors should have been on notice as early as June 2000 that her symptoms suggested a need for a neurological evaluation. As discussed above, in addition to complaining about her vertigo and excessive vomiting, Mrs. Lawson complained to her health care providers at that time about severe and unrelenting headaches in the back of her head. Dr. Yousem testified that patients receive MRI scans for headaches "very, very frequently,"²⁷ and [that] the typical presentation or the typical reason for getting an MRI scan in a patient who has headaches is there is either increased frequency of headaches from their baseline . . . or a change in the nature of the headaches from the baseline." Tr. Feb. 7, 2006, 151:16-25. Although Mrs. Lawson had a history of headaches, the Court accepts the testimony that her headaches became more persistent, intense, and changed in nature to become occipital.²⁸

Additionally, the dizziness experienced by Mrs. Lawson - vertigo - is not the type of dizziness typically seen in pregnant patients. The Court accepts the testimony of Dr. Ross that vertigo tends to be a short-term phenomenon, usually lasting ten days to two weeks. In both pregnant and non-pregnant patients, a six to seven week history of vertigo is highly unusual, suggests a chronic condition, and needs to be evaluated. The persistence of Mrs. Lawson's vertigo

²⁷Specifically, Dr. Yousem testified that the outpatient service at Johns Hopkins performs about six of these a day. Tr. Feb. 7, 2006, 153:1-5.

²⁸Dr. Yousem noted that "the typical indication for performing MRI scans increase in the frequency, severity or character of the headache, and in my view she was having headaches almost daily. So, there was increased frequency. She described them intermittently as 10 out of 10, which means they were fairly bad severity. At least in the pre-term - before she was pregnant, the headaches were largely described as frontal, and now she has the more typical compression Chiari Malformation-type headache of an occipital headache, which is - which is a change in the nature and character of the headache. So, on all three accounts she has an indication that she needs imaging." Tr. Feb. 7, 2006, 177:6-19.

also counseled in favor of neurological workup and MRI.²⁹ Dr. Yousem explained that “[i]t seemed that she was having vertigo over a lengthy period of time that, by its description, was not what . . . we would expect from dehydration, in that there w[ere] no orthostatic components to it and that it was worse when she was lying down, rather than sitting up. On the basis of that, she should have a neurologic evaluation. If it was - came to imaging, which is my field, it would be an MRI scan.” Tr Feb. 7, 2006, 172:24-173:7. Even Dr. Allan Genut, the defendant’s expert neurologist, noted that “most reasonable physicians would [] get a neurology consultation” in situations where “vertigo fails to respond to normal therapy,” which, as discussed repeatedly, occurred with Mrs. Lawson. Tr. Feb. 15, 2006, 149:21-24. The Court finds, consistent with the testimony of Drs. Yousem and Spicuzza, that at the point at which it became clear that Mrs. Lawson’s dizziness was actually vertigo, and when the vertigo did not resolve after two weeks, she had a symptomology that warranted a neurological evaluation. Despite these changes, her doctors failed to recommend neurological evaluation or MRI.

Mrs. Lawson also experienced persistent and severe nausea and vomiting throughout her pregnancy. Dr. Ross testified that it is unusual for a pregnant woman to have hyperemesis gravidarum after six months of pregnancy, and that explosive vomiting is not normally seen in obstetrical hyperemesis. The Court finds, consistent with this testimony, that such a condition required thorough investigation.

²⁹Dr. Ross also testified that when presented with a patient who complains of severe occipital headaches and back pain and dizziness when lying down, it is likely that the patient has vertigo deriving from a neurological or ear, nose and throat pathology, and that such a patient requires referral and a neurological examination.

Independently, and taken together with Mrs. Lawson's other symptoms, the development of extreme back pain and foot drop in the August - September 2000 time frame also required further investigation and neurological evaluation. The Court accepts Dr. Yousem's unequivocal testimony that "if a patient has a foot drop, it means they have a neurologic deficit on the motor side....and therefore they get evaluated."³⁰ Tr. Feb. 7, 2006, 178:6-9. Dr. Ross concurred in this assessment:

She now has new onset back pain that is severe. . . . There are several things that needed to be done. She needed to have some reasonable neurologic exam to see what the cause of the back pain was. Was she having a kidney stone? Did she have [polio]? Did she have any weakness in her legs? Were her reflexes normal? She needed a reasonable evaluation of this.

Ross Tr. Feb. 8, 2006, 75:14-22. Of course, Mrs. Lawson not only developed a foot drop, but also experienced severe and "unremitting pain to the point where she's taking narcotics virtually around the clock....[I]f you're talking about someone who for months is having back pain for which they require narcotics, that in and of itself might be a reason to do an MRI scan."³¹ Tr. Feb. 7, 2006, 180:14-22. This back pain was atypical, according to Dr. Ross; he testified that most back pain seen in pregnancy is unilateral, while Mrs. Lawson experienced midline pain radiation to both flanks.³² The Court also accepts the testimony of Dr. Ross, and finds that the medical records

³⁰In such situations, Dr. Yousem advised that a lumbar spine MRI scan would be performed.

³¹Dr. Yousem testified that in his practice, MRIs of the spinal cord/brain for findings of foot drop or unremitting back pain are performed about twenty to twenty-five times a day. Tr. Feb. 7, 2006 at 181:19-20.

³²The need for referral became more pressing in the month of October, as the medical records from October 4 and 10 clearly indicate that Mrs. Lawson's back pain was persisting and not improving. Dr. Ross testified at this point "she needs an evaluation, and this time, the evaluation should come from a neurologist or a neurosurgeon - most likely a neurologist." Tr. Feb. 8, 2006, 77:23 - 78:6 ("it is now . . . August 17 when her first complaint of back and hip pain presented. Not only is it not getting better, I think ten out of ten speaks for itself. This is bad pain. Its been going on for six weeks now. Narcotics and heat and those things have not made it better.")

from MGMC detailing Mrs. Lawson's prenatal care were inadequate and left large gaps in the evaluation of her condition; this testimony further supports the Court's finding that Mrs. Lawson required a neurological evaluation for her serious symptoms. The Court accepts Dr. Ross' testimony regarding how the health care providers in MGMC fell short in their treatment of Mrs. Lawson, specifically in failing to elicit adequate histories:

[E]ach encounter or many of the encounters - certainly the gross majority of both the phone conversations, the patient examinations, the emergency visits seem to be blinded. They were dealing with an individual problem, never followed up on preexisting problems, that problems that she had never completely resolved . . . everything was just said to be, gee, this can happen with pregnancy. It's okay. And there w[ere] no special physical exams, there were no follow up questions. Everybody appeared to operate in a vacuum.

Tr. Feb. 8, 2006, 102:17-103:4. In this case, there was no continuity of Mrs. Lawson's care or acknowledgment of the severity of her symptoms, which clearly required neurological referral and evaluation; "[e]verybody was [] looking at [Mrs. Lawson] with blinders. There's no follow up, no continuity to make sure what happened before has resolved." Tr. Feb. 8, 2006, 73:10-12. In this way too, her doctors failed her; "[i]t is the doctor's job to ask the correct questions in order to elicit the proper diagnosis." Tr. Feb. 8, 2006, 182:22-24.

The Court finds that the entries in Mrs. Lawson's prenatal record were inadequate, that her health care providers failed to evaluate her serious symptomatology, and that Mrs. Lawson's multiple ailments during her pregnancy required a neurological examination and neurological imaging. As Dr. Yousem eloquently noted, "the issue is the nature of the symptoms, the severity of the symptoms, the frequency of the symptoms, and the degree of the symptoms in the

Dr. Ross further opined that he would expect such a specialist to do a thorough history and physical, and prescribe an MRI of her spine and head.

individual.” Tr. Feb. 7, 2006, 228:5-8. Her symptoms changed in nature, severity, frequency, and degree; this strongly suggested that something neurological might be going on, and required further examination.

- MRI imaging in pregnant women

The Court finds that neurological referral and neurological imaging was clearly warranted by the constellation of symptoms exhibited by Mrs. Lawson. Although there was some dispute about the advisability of performing an MRI on a pregnant woman, all experts agreed that when sufficient indications exist, the performance of MRIs during pregnancy is appropriate. Notwithstanding this fact, defendant’s experts strongly suggested that neuro-imaging in pregnant patients is not advised unless one is *certain* of the condition due to the unknown risks to the fetus, and contended that the most prudent course in many cases is to delay imaging on a pregnant patient until after the person delivers.³³ However, defendant’s expert neurologist, Dr. Abraham Genut, conceded that he would defer to the chairman of neuroradiology at Johns Hopkins Hospital,

³³In its proposed findings, the defendant contends that had Mrs. Lawson been referred to Dr. Ecklund during her pregnancy with her symptoms, he would have deferred imaging until after she delivered. Tr. Feb. 7, 2006, 107-09. (“I certainly wouldn’t be doing MRIs of everything.”). The record does not support such a finding. In fact, when asked by the Court about Mrs. Lawson’s documented complaints, including vertigo, he stated that he would “probably refer her to ENT or neurology to be worked up for other causes – more common causes for those type of symptoms.” Tr. Feb. 7, 2006, 107:3-6. The point here is that the defendant’s own treating neurosurgeon believed that Mrs. Lawson’s documented symptoms, especially vertigo, warranted a referral to an ENT or neurologist, something that was simply not done until after the delivery of Mrs. Lawson’s second child. Based on the record before the Court, it concludes that had the standard of care been followed when Mrs. Lawson’s documented symptoms included vertigo and persistent headaches, she would have been referred to an ENT or neurologist. Had such a referral been made, and an adequate history taken, the Court has little doubt, based on the testimony of Drs. Yousem and Ross, that MRI examinations would have resulted and the Chiari I malformation would have been detected prior to the birth of Nicholas.

plaintiff's expert David Yousem, regarding safety issues and the indications for imaging pregnant women with progressive neurological symptoms, and also conceded that if valid indications exist for performing an MRI on a pregnant patient, then it needs to be done. Even Dr Robert Knuppel, defendant's obstetrical expert, agreed that a patient who develops serious neurological symptoms during pregnancy requires a diagnosis and a referral to a neurologist, and testified that if the treating physician suspects that a pregnant patient has an intracranial illness, then he must refer her for neuroimaging.

The concessions regarding the imaging of pregnant women made by defendant's experts are consistent with the Court's finding that there is no contraindication to doing an MRI on pregnant women in appropriate cases, especially in the later trimesters. Drs. Yousem and Spicuzza testified that there are no known harms from doing such imaging, and that doctors are more comfortable doing MRIs in the second or third trimesters. Dr. Ross testified that he prescribes MRIs for pregnant patients, and that such imaging can be safely performed during pregnancy.³⁴ In light of the testimony from experts for both sides, the Court finds that although neuroimaging of pregnant women may not occur frequently and certainly should not be done improvidently, such imaging is not contraindicated, especially in the second and third trimester, and is advisable and part of the proper course of treatment in a patient who exhibits the range of neurological symptoms

³⁴Dr. Ross further explained how an obstetrician should go the distance to reassure other medical professionals that imaging was safe. He testified that if Mrs. Lawson had been referred to a neurologist with her symptoms and the neurologist did not order an MRI of the brain, then he would follow through with an inquiry about why imaging was not to be performed. Dr. Ross explained that he would emphasize and "make it clear to the doctor that . . . this is important and it doesn't damage the baby and we do it for many other reasons during the pregnancy. If you think this study or test is important to changing our management or doing something to improve the condition, please go ahead and do it." Tr. Feb. 8, 2006, 112:14-19.

reported by Mrs. Lawson.

- Imaging performed during Mrs. Lawson's pregnancy would have revealed ACM

The imaging that was ultimately done of Mrs. Lawson revealed an extreme case of ACM. The Court finds that if doctors had recommended neurological evaluation and referral during her pregnancy,³⁵ Mrs. Lawson's condition would have been revealed and diagnosed. Dr. Yousem unequivocally testified that if a neurological and neuroradiological exam had been performed during Mrs. Lawson's pregnancy, the exam and MRI "would have definitely shown a Chiari I malformation and a severe one." Tr. Feb. 7, 2006, 173:14-16. Dr. Spicuzza also testified that if she had been referred to a neurologist following her June 26, 2000 doctor visit, a neurological imaging would have discovered her ACM. Tr. Feb. 8, 2006, 156:17-18; 173:15-21. Dr. Ross concurred in this assessment, opining that as early as mid-July, neuroimaging studies would have revealed enough of an abnormality to complete the workup, and that the malformation would have been noted. On this point, the Court specifically finds that Mrs. Lawson's condition would have been discovered through an MRI of either the lumbar spine or the brain; "the lumbar spine MRI would have suggested the presence of a syrinx. That would have elicited additional imaging that would have identified the source of the syrinx as being the Chiari I. So either of those examinations would have led to her final correct diagnosis." Tr. Feb. 7, 2006, 173:21-174:1.

- Management of pregnancy in ACM patients

The Court heard testimony from plaintiff's experts Drs. Yousem, Spicuzza, and Norell

³⁵CT scanning could have also been effective; "with the extent of the Chiari I Malformation that Mrs. Lawson had, [it] would not be [] difficult [to] diagnos[e] with CT scanning." Tr. Feb. 7, 2006, 137:6-9.

regarding the effects of pregnancy, and the intracranial pressure caused thereby, on patients with Chiari I malformation. The Valsalva maneuver, which involves forced expiratory effort with closed nose and mouth to inflate the eustachian tubes and middle ears, should be avoided in patients with Chiari Type I malformation because of the risk of increasing intracranial pressure. For pregnant women this is particularly pertinent because the evidence demonstrated that the pushing associated with labor is essentially a prolonged and forced series of Valsalva maneuvers. The Court accepts the testimony of these doctors that normal labor and delivery, especially maternal voluntary exclusive efforts, are associated with Valsalva-like pressures that can contribute to herniation of already crowded brain structures through the foramen magnum, the opening at the base of the skull.³⁶ Based on this, the Court finds that normal labor and delivery creates a significant risk of brain stem and spinal cord crowding and compression injury, and therefore should be avoided in patients like Mrs. Lawson who had symptomatic ACM.

Had Mrs. Lawson been diagnosed with Chiari I malformation, this Court concludes that Mrs. Lawson would have been recognized as a patient with a high risk pregnancy who required multi-disciplinary management of her pregnancy. Mrs. Lawson was neither managed by such a team nor afforded the benefit of an individualized plan of care at any time during her pregnancy with Nicholas. Dr. Knuppel, the defendant's obstetrical expert, conceded that in a pregnant patient

³⁶Dr. Yousem explained the phenomenon in a simple analogy. After clinically describing how "the episodes where you increase your intracranial pressure will force the cerebellar tonsils more inferiorly, and this compression of the cerebellar tonsils can either have a direct effect on the cerebellar tonsils, the brain stem, the blood vessels, the vertebral arteries and the basil arteries....as well as the secondary effect of obstructing cerebral spinal fluid flowing," Dr. Yousem explained - "[i]t's effectively like plugging up your drain in your bathtub, in that things will back up under higher pressure." Tr. Feb. 7, 2006, 129:15-24. Even Dr. Knuppel, defendant's obstetrical expert, conceded that Valsalva maneuvers increase pressure.

known to have symptomatic Chiari I malformation, the mode of delivery and anesthesia choices should be individualized after the benefits and risks of each option are carefully considered by a multidisciplinary team.

In light of the risks of intracranial pressure discussed above, recognition of ACM Type I in a pregnant woman requires that physicians take steps to protect the patient.³⁷ The Court specifically finds that in light of the risks associated with the Valsalva maneuver, a multidisciplinary team managing Mrs. Lawson's pregnancy as high risk would seek to accomplish labor and delivery without allowing elevations of intracranial pressure to occur. To accomplish this, in cases where a pregnant woman is displaying symptoms of Chiari I malformation, the Court finds that cesarean section is a prudent course of treatment and should be recommend to avoid risks associated with intracranial pressure. As Dr. Norell testified, there is "general consensus that vaginal delivery should be avoided because of the . . . physiologic changes that occur with straining." Tr. Feb. 8, 2006, 232:5-8 . Vaginal delivery by Mrs. Lawson caused an impacting of her cerebellar tonsils and a worsening of her symptoms. Tr. Feb. 7, 2006, 201-202.

The Court is unpersuaded by the testimony of defendant's experts that the mode of delivery is inconsequential and cesarean section is not advised in patients with symptomatic ACM.³⁸ Defense expert Dr. Knuppel conceded that, according to the literature at the time of Mrs. Lawson's

³⁷ Mrs. Lawson's uncomplicated vaginal delivery of her first son does not alter this conclusion. The severity of neurological symptoms she displayed during her second pregnancy were simply not present to complicate her first pregnancy.

³⁸ The defendant suggested that anesthesia administered to perform a cesarean section could also increase intracranial pressure. The Court finds that the increase in intracranial pressure caused by anesthesia administered to a cesarean-section patient, if any, is far less significant than the increased pressure caused by normal labor and delivery.

pregnancy, the majority of women with known and uncorrected Chiari Type I malformations underwent cesarean section deliveries. Tr. Feb. 14, 2006, 123-24, 131-32. Dr. Knuppel acknowledged that this was due to the fact that Valsalva maneuvers increase intracranial pressure, and further testified that he would not recommend withholding anesthesia in a patient like Mrs. Lawson who is at risk for increased intracranial pressure. Knuppel Tr. Feb. 14, 2006, 119-120, 122. The absence of large studies on the management of pregnancy in ACM patients does not alter the Court's findings. As Dr. Ross explained,

What happens in patients like this is you use your knowledge, training and experience of normal body physiology, in consultation with your neurologist and neurosurgeon to make your best guess about how I can do the least harm. You are not going to find well-controlled studies looking at a thousand or a hundred patients. You use what you know about normal physiology . . . You know that pushing increases intracranial pressure and you want to avoid th[is]. In other words, at this point you want to minimize any further injury and that would be your approach.

Tr. Feb. 8, 2006, 117:21-118:8. The Court agrees with Dr. Ross' testimony that "based on the Arnold Chiari malformation and the fact that this patient was symptomatic from the abnormality[,] [i]ncreasing intracerebral pressure with pushing and valsalvaing to deliver the baby vaginally would not have been a good" choice. Tr. Feb. 8, 2006, 114:21-115:1.

In sum, the Court finds that: Mrs. Lawson's MGMC health care providers failed to allow multidisciplinary supervision of her pregnancy; they failed to manage her pregnancy as a high risk pregnancy; that she was never offered or recommended the alternative of a cesarean section; and that she was subjected to vaginal delivery without anesthesia. These events subjected Mrs. Lawson to unnecessary and injurious intracranial pressure elevations during her labor and delivery.

- Medical Propriety of an elective cesarean section delivery at thirty-four to thirty-six weeks gestation

The Court heard expert testimony from defense obstetrical expert Dr. Knuppel, who indicated that early cesarean section delivery between thirty-four and thirty-six weeks gestation would expose Mrs. Lawson's unborn son to a higher risk of morbidity and mortality secondary to infection, respiratory complications, and other illnesses. While the Court does not suggest that early delivery is without its attendant complications, the Court is more persuaded by other testimony that when proper indications exist, early delivery is the proper course of treatment and does not pose an unreasonable risk of harm. Dr. Ross explained that while there are some risks to delivering at thirty-four to thirty-six weeks gestation, the child "would likely not have severe respiratory problems, would have some feeding problems, [and] would be a little jaundiced [,] [but] with an overwhelming certainty would leave the [intensive care] nursery in anywhere from two to four weeks with no long-term disabilities and normal development. Overwhelmingly so." Tr. Feb 8, 2006, 116:4-9; Id. 114.

Dr. Marcus Hermansen, a neonatology expert, also testified for the plaintiff in rebuttal that early delivery during this gestation period was routinely done in the United States in the year 2000 and did not present any serious risks for the unborn child. Tr. Feb. 16, 2006, 7:17-22. Dr. Hermansen testified that the mortality of babies who are delivered between thirty-four and thirty-six weeks gestation is "[v]irtually zero. It's no higher than that of a term baby." Tr. Feb. 16, 2006, 19:10-11. From a neonatologic perspective, he indicated that there would be no objection to a delivery at thirty four to thirty-six weeks gestation if there were a maternal indication for delivery at this time. The Court accepts this testimony and finds that when maternal indications exist, as was the case in Mrs. Lawson's pregnancy, delivery at thirty four to thirty six weeks

gestation is prudent and does not harm the child. In short, the risks to the child were minimal to non-existent, while the risk to the mother was enormous.

-Gaps in Mrs. Lawson's treatment post-delivery

The Court finds that Mrs. Lawson's treating doctors continued to ignore her progressive and new symptoms after her November 24th delivery. Immediately following delivery, Mrs. Lawson developed nystagmus as a new finding. However, during her November 26th discharge evaluation from MGMC, Mrs. Lawson was evaluated by Dr. Teodor Huzji, who ignored her new onset nystagmus and simply instructed her to come back for a routine postpartum checkup in six weeks. Dr. Ross testified that it was a breach of the standard of care not to perform a neurological exam and consultation on Mrs. Lawson prior to her discharge. This finding is supported by the testimony of Dr. Spicuzza, who opined that Mrs. Lawson's development of a nystagmus the day after her delivery implies that her brain stem and cerebellum were compromised during delivery. In addition, after her delivery Mrs. Lawson's left foot drop worsened, and she exhibited persistent symptoms of headache, ataxia, weak lower limbs, and positive Romberg and Hallpike maneuvers.

Medical experts for both plaintiff and defendant explained that a combination of vertigo, nystagmus and ataxia are strong indicators of a cerebellar pathology. As Dr. Yousem testified, "these are demonstration of progressive symptoms, new symptoms that occurred and therefore not a static process but a process that is ongoing and potentially getting more severe and therefore should be evaluated neuroradiologically."³⁹ Tr. Feb. 7, 2006, 175:6-10. The physicians who

³⁹Consistent with the testimony that imaging done during Mrs. Lawson's pregnancy would have revealed her condition, Dr. Yousem testified that imaging performed post-delivery would have been abnormal.

attended to Mrs. Lawson following her delivery, specifically Dr. Huzij and Drs. Durkin and Overfield, failed to evaluate Mrs. Lawson's pre-pregnancy records and did not respond to the progressive nature of her symptoms in a timely fashion, allowing an additional four months to elapse from the date of her delivery to the date of her ultimate MRI diagnosis of ACM. The Court accepts Dr. Spicuzza's testimony that the ongoing compression, to which her posterior fossa and cervical spinal cord structures were persistently exposed following her delivery, subjected her to increased ischemia. Mrs. Lawson required neurological referral after her labor and delivery, and a reasonable neurologist evaluating her would have recommended imaging, which would have revealed her ACM.

- ACM should not have resulted in permanent injury

The Court is persuaded by the testimony of Drs. Yousem and Spicuzza that Mrs. Lawson would likely have recovered without serious neurological damage if she had been diagnosed and treated in a timely manner. As Dr. Spicuzza testified, the five-month delay⁴⁰ in performing decompression surgery on Mrs. Lawson was "very significant," and "she would've been a normal 39 year old female raising two healthy children today if intervention had been undertaken appropriately." Tr. Feb. 9, 2006, 167:10-14; Id. 175:6-7.

⁴⁰This five months is determined by the Court finding that the standard of care required neurological evaluation during Mrs. Lawson's pregnancy; that neurological evaluation would have revealed her ACM; that proper management of her pregnancy would have led to multidisciplinary management of her pregnancy and elective cesarean section at thirty-four to thirty-six weeks; and that decompression surgery would have been performed a few weeks later. Under this time frame, Mrs. Lawson's decompression surgery should have been performed in December 2000, five months before her April 2001 surgery actually took place.

The decompensation of Mrs. Lawson's Chiari Type I malformation, with associated syrinx and hydromyelia, started in the second or third trimester of her pregnancy and was progressive in nature, leading to significant expansion of the syrinx with the development of maximum hydromelia

over a period of eight months.⁴¹ The Court concludes that vaginal labor and delivery aggravated Mrs. Lawson's decompensated Chiari Type I malformation and caused progressive loss of central nervous system tissue between January 1, 2001 and April 12, 2001, the date of her decompression surgery. The Court finds that following labor and delivery, persistently high CSF pressure began to cause irreversible neuronal injury and neurological sequelae secondary to erosion of CNS tissue

⁴¹During the trial, much was made about the large syrinx found on Mrs. Lawson's spinal cord prior to receiving decompression surgery. The Court finds that the syrinx was the result of abnormal flow dynamics that was caused by her ACM. The syrinx developed rather quickly, and the fact that Mrs. Lawson's very significant syrinx nearly completely resolved after her surgery confirmed that the ACM caused the syrinx. Dr. Yousem testified that Mrs. Lawson could have developed the syrinx in the same time frame in which it resolved (approximately 4-5 months), and explained that he did not think that the syrinx developed much sooner:

After she delivered the first time, there was a period of time when she was asymptomatic. So I can't say that there was injury that occurred there, because there's no consequence to that injury. There's no damage that I'm able to point to based on her clinical symptoms.

Tr. Feb. 7, 2006, 220:14-19; Tr. Feb. 9, 2006, 62-63. Dr. Norell's testimony further supports this finding. He opined that the syrinx formed over a matter of months, and suggested that four to six months may have been a reasonable time frame. All of this confirms the need for early diagnosis and treatment, and explains the serious consequences resulting from the failure to do so.

The Court therefore rejects the testimony from defense experts that the syrinx developed slowly and therefore that surgery performed four months earlier would not have had any effect on Mrs. Lawson's present condition. In the alternative, however, the Court finds that *even if* the syrinx developed slowly over a larger time frame, "there gets to be a point where the cascade really starts to fall, and that's [what Mrs. Lawson] was in," as a result of the delay in her treatment. Norell Tr. Feb. 8, 2006, 238:5-7. The delay therefore still caused Mrs. Lawson serious harm.

in the spinal cord, cerebellum, and other brain structures of the posterior fossa. The increase in Mrs. Lawson's symptomatology after her delivery is consistent with further decompensation of the posterior fossa brain structure that occurred around the time of labor and delivery.

An important explanation for the persistence of Mrs. Lawson's signs and symptoms following her surgery of April 12, 2001 is provided by the finding of a spinal cord lesion at the C3 level in her MRI scan of August 24, 2001. This lesion was not initially noted at the time of her preoperative study, but can be seen in retrospect; it appears to be a site of ischemic injury to the spinal cord at the C3 level. Drs. Yousem and Norrell testified that Mrs. Lawson's ischemic C3 spinal cord injury was caused by compression from the crowded and displaced posterior fossa structures, as well as by compression from the ascending maximal syrinx, the combination of which reduced blood flow causing the C3 infarction. Drs. Spicuzza and Norrell testified that the C3 lesion was probably a late occurrence in Mrs. Lawson's cascade of symptomatology and likely occurred in the April 2001 time frame; Dr. Spicuzza explained that Mrs. Lawson's new onset of neck pain during that time was probably reflective of the C3 infarction. The Court is satisfied from the testimony of Dr. Yousem, Dr. Spicuzza, and Dr. Norrell that this area of ischemia was more likely than not caused by the compression of Mrs. Lawson's displaced brain structures and cervical spinal cord prior to the decompression surgery, and it is more likely than not that if neurosurgery had been performed in a timely manner before January 1, 2001, Mrs. Lawson's permanent central nervous system injuries, including the ischemic infarction of C3, would have been prevented.

Additionally, the late onset of Mrs. Lawson's right neck pain and right lower extremity weakness in March -April 2001 demonstrated that her ACM and syrinx were evolving progressive

lesions that were being exacerbated.⁴² The record documents left lower extremity weakness, left foot drop, positive Romberg's sign, inability to go up on left toes, new onset of right lower extremity weakness, plantar and extensor weakness both left and right, left lateral and instep inability to distinguish sharp from dull sensation, positive ataxia, and gait disturbance immediately prior to her surgery. All of these symptoms progressively developed after Mrs. Lawson's delivery, and after the time at which the Court finds surgery should have been performed.

The Court notes that the diagnosis of Mrs. Lawson's Chiari I malformation was confirmed within ten days of Dr. Ecklund's first neurological examination, and that within eleven days of her radiological diagnosis, Mrs. Lawson underwent decompression surgery. The Court also notes that when Dr. Ecklund performed the decompression surgery, he had to do a laminectomy down to the C-2 level. Dr. Yousem testified that this "suggests that it was a severe type of Chiari I and that things were a lot tighter than the typical surgery that's performed and they had to expand the space even greater than the routine Chiari I malformation." Tr. Feb. 7, 2006, 187:2-6. This sequence of events provides decisive proof that earlier management and attention would have enabled Mrs. Lawson's health care providers to diagnose her neurological condition within days of a proper neurological examination, and perform surgery to relieve her symptoms.

Dr. Ecklund, the defendant neurosurgeon who performed Mrs. Lawson's decompression surgery, testified that it is always better to treat symptomatic ACM sooner rather than later; "if you have a progression of symptom complex and neurologic disease, the sooner you treat in that

⁴²The Court also finds that the loculated pocket of CSF visible on the July 23, 2003 MRI of the brain offers no explanation for Mrs. Lawson's injuries because her injuries pre-dated this study and because this finding resolved on subsequent imaging.

progressive cascade, the better shot you have of aborting any further deterioration and possibly getting improvement.”⁴³ Tr. Feb. 7, 2006, 65:7-11. Dr. Allen Genut, the defendant’s expert neurologist, testified similarly that “progressive neurological symptoms in a patient who has Chiari I malformation will worsen over time if they’re not treated.” Tr. Feb. 15, 2006, 184:17-21. Dr. Genut also admitted that “early diagnosis of Chiari I in patients who have progressive neurological symptoms is important to the wellness of the patient,” and that once the radiological diagnosis has been established, “the sooner you treat[,] the better.”⁴⁴ Id. at 185:16-186:14. Against

⁴³Dr. Ecklund also affirmed his deposition statement that “if it’s a progressive symptomatology, then if you decompress sooner, you don’t always get reversal of symptoms but you can often halt the progression of symptoms. So, in that case, intervening early would be better, certainly.” Tr. Feb. 7, 2006, 65:23-66:6.

Dr. Yousem supported this, explaining that “as time goes on, there is irreparable damage so we say that, you know, time is deficit. The longer things go on, the more likely the deficit is - becomes permanent and the more severe the deficit will become.” Tr. Feb. 9, 2006, 44:12-17.

⁴⁴Although Dr. Genut opined that the delay in diagnosis and surgery had no effect on Mrs. Lawson’s current condition, the Court finds that the facts do not support this conclusion, and that prudent and reasonable obstetricians would not likely expose a pregnant woman to the rigors of labor and delivery if they had known that the patient had Chiari Type I malformation with progressive neurological symptomatology. The Court also rejects the testimony of Dr. Kimmell that Mrs. Lawson’s doctors acted appropriately in not referring her for neurological consultation. This testimony is unpersuasive, contradictory to the majority of testimony presented, and unsupported, because Dr. Kimmell admitted that he failed to take into account several documented instances of Mrs. Lawson’s pain and symptoms.

this background, the Court finds that Mrs. Lawson's injuries were clearly caused by the delay in obtaining a neurological consultation, and that with timely diagnosis and treatment, Mrs. Lawson would not suffer from the serious physical and mental difficulties she now experiences.⁴⁵

-Summary of findings of fact based on expert testimony

In sum, the Court finds that ACM is a condition that exhibits symptoms suggesting neurological abnormalities and require further evaluation. The Court notes that while the manifestation of ACM in pregnant women is relatively rare, ACM is nonetheless common in the realm of neurologic disorders that can and should be diagnosed through proper neurological examination when a patient (pregnant or not) exhibits neurological symptoms such as vertigo, occipital headaches, persistent nausea and vomiting, and severe back pain.⁴⁶ The Court finds that the nature, severity, and duration of Mrs. Lawson's symptoms were "outside two standard

⁴⁵The Court specifically rejects the testimony of Dr. Dan Hafez, defendant's neurosurgical expert, who testified that even many years of delay of diagnosis are insignificant in this condition. The Court rejects Dr. Hafez' testimony in view of the fact that he disregarded the presence of an expanding syrinx in Mrs. Lawson and because the vast majority of his opinions (which, in any event contradict the views of all other experts and treating physicians) were belatedly disclosed for the first time at trial. The Court is persuaded by the testimony of Dr. Ecklund, Mrs. Lawson's treating neurosurgeon, who testified that timely diagnosis and treatment are critically important. The Court also accepts testimony from Drs. Spicuzza, Norell and Yousem that Mrs. Lawson had classic signs and symptoms of an intracranial condition, and that early diagnosis and treatment reduce morbidity and mortality.

⁴⁶The Court agrees with the assessment of plaintiff's obstetrical expert, Dr. Ross, who testified that the standard of care does not require an obstetrician to look at a pregnant patient any differently with respect to necessary referrals or diagnostic procedures. Tr. Feb. 8, 2006, 30:19-23.

deviations,” and that her doctors therefore should have referred her for neurological examination and treatment.⁴⁷ This referral could have occurred as early as July 2000, but certainly no later than September 2000. If referred, the Court finds that Mrs. Lawson should have received an MRI despite her status as a pregnant woman. Such imaging would have timely diagnosed her condition, required that she be managed as a high risk pregnant patient, and required the performance of an early cesarean section delivery with the avoidance of labor and increased intracranial pressure. The Court acknowledges that early cesarean delivery is not without some risks to the child, but is unlikely to cause serious long term harm and remains the most prudent course of action in a patient like Mrs. Lawson who is afflicted by a neurological condition that necessitates avoiding increases in intracranial pressure. The Court finds that had Mrs. Lawson’s condition been timely diagnosed, her pregnancy managed as high-risk, and her surgery performed shortly after an early cesarean delivery, she would not have the extreme permanent neurological injury that she has suffered.

VII. Causal Connection Between the Breach of the Standard of Care and Mrs. Lawson’s Injuries

Mrs. Lawson has proved by a preponderance of the evidence that the standard of care required a timely neurological evaluation during her pregnancy, which she did not receive. Had Mrs. Lawson been properly diagnosed as having ACM, her pregnancy should have been managed as a high risk pregnancy. A cesarean section delivery would have prevented the elevations in

⁴⁷The failure of her doctor’s to do so is consistent with this Court’s finding that Mrs. Lawson’s visits were “blinder’s visit[s]” where her doctors failed to follow-through with her past and recurring symptoms. As Dr. Ross noted, “certainly someone has to stand back at some point and say, this woman has been sick since the beginning of May. She’s very sick. She’s having projectile vomiting. She’s having headaches. This is outside two standard deviations. Gee, golly whillikers. [*sic*] We hope it’s pregnancy-related, but we need to prove that it is. This is way out of the normal.” Ross. Tr. Feb. 8, 2006, 65:12 - 66:1. See also discussion, *supra*.

intracranial pressure that typically arise secondary to the normal physiological efforts associated with normal labor and vaginal delivery, and would have prevented migration of the posterior fossa contents below the foramen magnum at the base of the skull.⁴⁸ Furthermore, Mrs. Lawson demonstrated by a preponderance of the evidence that if decompression surgery had been carried out shortly after a cesarean section delivery, she would have been spared ischemic infarction of her spinal cord and would not have sustained permanent damage to brain structures that were compressed against the foramen magnum and other bony structures at the base of the skull.

-Aggravation of Mrs. Lawson's preexisting condition

Mrs. Lawson's Chiari I malformation was clearly a pre-existing condition. However, she had not suffered any permanent injury or disability on account of this condition prior to the defendant's negligent act. *Cf. Mayer v. North American Hospital Association, Inc.*, 145 Md. App. 235, 802 A.2d 483 (2002), *cert. denied*, 371 Md. 70, 806 A.2d 680. While there is evidence that this malformation caused Mrs. Lawson to suffer severe nausea, hyperemesis, and supine dizziness, as well as left foot weakness and back pain during her pregnancy, the preponderance of the evidence demonstrates that these signs and symptoms of her underlying condition were provoked by her pregnancy, and that timely intervention by Mrs. Lawson's physicians during and immediately following the pregnancy would have prevented any of these signs and symptoms from becoming permanent in nature. Mrs. Lawson's preexisting condition would not have caused her to suffer any permanent neurological injury or disability if her treating physicians had acted in a

⁴⁸Although Mrs. Lawson's second "pushing" stage was fairly short, it still caused her some damage; "even though she had a relatively short second stage . . . she did push. She did increase her intracranial pressure. The day after delivery she had a new neurological symptom which is clearly related to the abnormality [-] to the Arnold Chiari malformation. It was not a prudent thing to do." Tr. Feb. 8, 2006, 120:10-17.

timely and appropriate manner to recognize her serious neurological symptoms and treat her disorder. The Court is persuaded by the testimony of **Drs. Ecklund, Yousem and Spicuzza that Mrs. Lawson would likely have recovered without residual neurological symptomatology if she had been diagnosed and treated in a timely manner, and that Mrs. Lawson's congenital malformation should not have led to the development of a permanent neurological sequelae;** if she had been referred to Dr. Ecklund in a timely manner she would have likely been spared permanent injuries. In sum, the Court is persuaded that timely treatment in accordance with the standard of care would have left Mrs. Lawson in the same neurological condition existing at the outset of the pregnancy, that is, vulnerable to occasional headaches but otherwise functionally normal.

- Mrs. Lawson would have consented to necessary diagnosis and treatment

The defendant suggests that Mrs. Lawson cannot establish proximate causation because she failed to establish that she would have consented to an MRI or premature delivery. In support of its argument, the defendant points to two instances in the record to suggest that Mrs. Lawson would have declined these procedures if they had been presented to her. Specifically, the defendant points to Mrs. Lawson's post-delivery request for cough medicine without codeine because of the risks of codeine affecting the baby via breast milk, and her decision to not take Meclazine for her vertigo, in light of the unknown risks of using the drug while breast feeding.

The Court is not persuaded by the defendant's contentions. If Mrs. Lawson had been given the option of undergoing an MRI to diagnose her symptoms and give birth via cesarean delivery to avoid serious and potentially permanent neurological damage, the Court has little doubt that she would have consented thereto. The defendant concedes that the examples it cites to support its position were "less difficult choices," a characterization that this Court finds to be an

understatement. Mrs. Lawson's desire to treat a simple cold with less potent cold medicine, and to avoid taking a drug with unknown side effects can hardly be interpreted as a rigid position that under no set of circumstances, no matter how dire the risks for her own personal health, would Mrs. Lawson consent to procedures that are recommended as necessary or important to her health. It is understandable and indeed commendable that Mrs. Lawson expressed concern for the safety of her child while breast feeding, and decide to forego certain minor medications to avoid such risks. It is disingenuous to suggest that based on this, that if faced with the reality that the failure to undergo an MRI, and premature delivery, might seriously and adversely and permanently impact her health, Mrs. Lawson would decline such procedures.⁴⁹

The Court also accepts Major Lawson's testimony in which he indicated regarding a cesarean section that "if it was necessary for her to do that, to save her or the baby *at any given time*, then that would be exactly what we would do." (Emphasis added). Tr. Feb. 9, 2006, 80:6-9. Furthermore, when the Lawsons were informed by Dr. Ecklund that the decompression surgery was necessary to prevent further injury to Mrs. Lawson and her possible death, Major Lawson testified unequivocally that they were willing to do whatever was necessary to treat her condition. He stated "we were shocked...and by all means we said yes, we need to have this surge[ry]." *Id.* at 88:15-18. This testimony further supports the Court's view of Mrs. Lawson as a woman understandably concerned about harming her child, but quite willing to take steps - even those with unknown or possibly negative effects on her second son - to address her own serious neurological condition. Therefore, far from being just as probable that Mrs. Lawson would decline an MRI and premature

⁴⁹The Court further notes the codeine Mrs. Lawson declined has *known* risks to a nursing child, whereas the risks of an MRI on a pregnant woman are, at worst, unknown.

delivery, this Court concludes by a preponderance of the evidence that if properly apprised of the seriousness of her symptoms and neurological condition, Mrs. Lawson would have in fact consented to such procedures.

-Timely diagnosis would have alleviated Mrs. Lawson's injuries

The Court also concludes, as a matter of law, that timely diagnosis would have alleviated Mrs. Lawson's injuries. Extensive expert testimony supports the findings of fact regarding the rapid worsening of Mrs. Lawson's neurologic symptomatology, and the critical need for timely diagnosis and treatment. The failure of her doctors to recognize her disorder caused aggravation of her ACM symptoms and left her with permanent damage.

- Mrs. Lawson's cognitive impairments resulted from the untimely diagnosis of her ACM

The defendant contends that Mrs. Lawson failed to establish that her memory and cognitive impairments are causally related to the negligence of her health care providers. The defendant notes that during none of the twenty-five different visits during her pregnancy did any health care provider note any memory or cognitive impairments, nor did any provider who saw her from December 2000 to April 2001 note any memory or cognitive problems. Dr. Ecklund testified that cognitive and memory impairment is "not really part of the Arnold Chiari" because "memory is - memory comes from - not the cerebellum. It comes from the hippocampus which is temporal lobe." Tr. Feb. 8, 2006, 97:10-12. Some of Mrs. Lawson's experts agreed that the complete loss of concentration is not typically described in patients with a Chiari I malformation. As a result, the defendant requests that the Court bar recovery of any damages attributable to Mrs. Lawson's memory and cognitive impairments, including her lost earning damages, her live-in attendant, personal care attendant, child care and housekeeper damages.

These contentions ignore both the testimony regarding the relationship between cerebellar abnormalities and cognitive function, as well as the testimony explaining the cognitive effects of Mrs. Lawson's depression. Dr. Norell explained that "cognitive problems . . . [are] a recognized complication to have Chiari Malformation from the brain stem and the brain stem being involved. We thought - - for years we thought the cognitive problems were just from the frontal lobes of the brain or the temporal lobe of the brain, but the brain stem plays an important part in cognition." Tr. Feb. 8, 2006, 265:4-11. The Court accepts the testimony of Drs. Norell, Fedio and Spicuzza that cerebellar injuries are in fact related to cognitive defects. Dr. Spicuzza explained

I don't know that she's had so much ischemia of the brain stem and the brain itself, but she certainly had cerebellar damage from the compression and has got cerebellar signs that she didn't have. Whether you want to say it's ischemia or just compression and the nerves got squashed or a combination of both, I don't think it matters. The end result is there.

She's got cognitive deficits too, and its only been in the last few years that it's become really obvious how much of a role the cerebellum plays in cognition and memory. To me the cerebellum - you know, when I was training it was just purely coordination: How well could you do this or this or how well could you hit a golf ball, but it's far more complex than that and we know that it affects learning.

We have ample data in the literature, particularly in children with posterior fossa problems that these children have a really difficult time cognitively processing learning, and I like to think of the cerebellum as sort of the gate through which everything has to go and if that gate doesn't open properly; it doesn't get fed to the hemispheres in the way it should be, and then the person has difficulty interpreting what's going on and processing it into long-term memory. That, coupled with all the physical deficits she has, leads to this overwhelming depression that she's going to have to deal with for a long time to come.

Tr. Feb. 9, 2006, 178:1 - 179:3. Dr. Spicuzza also noted that "cerebellar deficits in conjunction with temporal defects can be devastating in terms of memory." Tr. Feb. 9, 2006, 213:16-18. This is consistent with the testimony of neuropsychologist Dr. Fedio, who explained

It's a relatively new concept. Years ago, because of - it you look at the configuration of the cerebellum, the back room joke was, it's the cabbage patch because of the particular kind of shape it has. But what has happened, not only with regard to the cerebellum, with regard to advancing our understanding of brain functions is we now have made tremendous technological advances.

We now have neuroimaging. You can really look at the cerebellum. You can look at any brain structure while it is doing something. As a result, we have made - there's been a tremendous explosion of information about the cerebellum. Again, before we thought that it was involved strictly in terms of motor activities: Walking, balance, gait and so forth. Much to our surprise we realized that it has a lot of influence with regard to cognition, to memory, speech, language and emotionality. The reason for that is because of our understanding of neuroimaging.

We now see that when you ask an individual to remember something or to speak or to do something, the cerebellum is active. Then, anatomically we are also beginning to realize the cerebellum has connections to the frontal lobe, to the temporal lobe, to the parietal lobe. So, it acts in conjunction - in harmony, if you will, to the best (sic) of the brain. So if you damage the cerebellum, what you really do is you break that circuitry. The normal or the availability of the cerebellum in a specific function is interrupted, so you are definitely going to get deficits.

Tr. Feb. 14, 2006, 28:1-29:6.

Furthermore, the Court concludes that causation with regard to Mrs. Lawson's cognitive impairments is also demonstrated by the connection between her depression, which this Court earlier found stems from her injuries, because it has an effect on cognitive functioning and abilities. As Dr. Ecklund noted immediately after acknowledging that cognitive and memory impairments are "not really part of the Arnold Chiari," a "chronic illness of any type - chronic pain, chronic illness can certainly cause depression and there can be . . . memory implications of that."

Tr. Feb. 7, 2006, 97:10-20.

VIII. Damages

-Past medical expenses

Mrs. Lawson has incurred substantial out-of-pocket expenses in attempting to meet her needs for child care and attendant care services. Her husband travels frequently for lengthy periods of time as part of his military duties. In order to obtain the child care and attendant care she has needed during her husband's duty-related absences, Mrs. Lawson has relied on family in Panama. Two of her aunts have traveled from Panama to the United States on several occasions to stay with her and assist in meeting her care needs. Because her aunts were compelled to return to Panama, Mrs. Lawson had to travel with her children to Panama to continue to receive the needed care. Mrs. Lawson incurred travel expenses and long-distance telephone expenses as a result of this travel. In addition, Mrs. Lawson incurred costs for child care in Panama that the family could not provide. Mrs. Lawson also presented evidence of medical care and related expenses that she has incurred since her injuries. Her out-of-pocket costs totaled \$11,252.01.⁵⁰ The Court finds that these expenses for past medical care and related needs were reasonable, necessary and caused by defendant's deviations from the standard of care.

- Future medical care and related needs

The Court was presented with extensive testimony regarding the future medical needs of Mrs. Lawson in the face of her many serious neurological disabilities and related neuropsychological and psychiatric impairments. Dr. Spicuzza, an expert neurologist and neurorehabilitation specialist, testified that he fully supported the treatment needs and services

⁵⁰This sum does not include any amount for services rendered by Mrs. Lawson's relatives in Panama, nor any amount for services provided by CHAMPUS/Tricare.

outlined by Priscilla Phillips, R.N. of the Coordinating Center, an experienced and certified life care planner. Mrs. Lawson's Life Care Plan was endorsed by Dr. Spicuzza at trial with three modifications: (a) a one time ophthalmologic surgery was added to Appendix 1 to reduce Mrs. Lawson's nystagmus-related deficits, (b) Blood testing – BUN and Creatinine – were added to Appendix 2 to monitor medication side-effects, and (c) the ankle/foot orthotic device was deleted from Appendix 4. Mrs. Lawson's Life Care Plan was fully supported by Dr. Spicuzza as reasonable and necessary and was admitted without objection. Mrs. Lawson's economic expert, Dr. Richard Lurito, testified that the present value of her Life Care Plan was in the range of \$2,794,247.00 - \$3,724,423.00.

Mrs. Lawson's Life Care Plan was also substantially endorsed at trial by defendant's neuropsychiatry expert Thomas Gualtieri, M.D. Dr. Gualtieri agreed that Mrs. Lawson had sustained severe neurological injuries, physical disabilities, and emotional deficits and supported the need to treat those injuries with significant rehabilitation efforts. The only monetary change Dr. Gualtieri made to plaintiff's Life Care Plan was to decrease the monthly cost of cognitive remediation services, a total decrease of only \$16,500.00. Dr. Gualtieri further testified that it is important to "be generous" with medications and medical interventions for patients like Mrs. Lawson who are handicapped because new technologies will be coming available in the next 20-30 years which are likely to be expensive. While Dr. Gualtieri did not support the attendant care services for Mrs. Lawson set forth in Appendix 5 of her Life Care Plan, he recommended that she be placed in a Day Treatment Program and that the funds saved on attendant care be used for such a program, resulting in no monetary change to the cost of Mrs. Lawson's Life Care Plan.

The Court heard testimony from Nurse Phillips that following a brain injury, the goal of a life care plan is to provide continuity of care for a program that goes beyond acute care and lasts for the remainder of the individual's life. Nurse Phillips further testified that Mrs. Lawson's Life Care Plan includes a comprehensive summary of therapeutic modalities, attendant care services, medical and psychological follow-up, equipment needs, supplies, household management and childcare services, and pharmaceuticals. The Court finds that the treatment needs and services provided for Mrs. Lawson in Nurse Phillips' life care plan are adequately supported by the testimony of Dr. Spicuzza, plaintiff's neuropsychology expert Paul Fedio, Ph.D., and plaintiff's psychiatry expert Thomas Goldman, M.D.

Mrs. Lawson's medical condition also requires that she be evaluated periodically by a multidisciplinary team comprised of specialists familiar with decompensated Chiari Type I malformation following neurosurgical decompression. Nurse Phillips and Dr. Spicuzza testified that Mrs. Lawson's general medical health needs and disabilities will require quarterly visits with an internist, semi-annual visits with a neurologist and neuro-ophthalmologist, and annual visits with a physiatrist. The Court heard testimony from Nurse Phillips, Dr. Spicuzza, Dr. Fedio, and Dr. Goldman, Mrs. Lawson's expert psychiatrist, regarding the anticipated need for special assistance with Mrs. Lawson's mental rehabilitation and emotional well-being. Nurse Phillips testified that Mrs. Lawson will require psychiatric services every four to twelve weeks over her lifetime to monitor her psychotropic medications. Supportive treatment and counseling for Mrs. Lawson requires that she be provided with individual counseling on a weekly basis for three years and thereafter on a monthly basis for the remainder of her life. Monthly family counseling is also required for Mrs. Lawson's family in the first year, and then an additional six to eight times

in the future. At trial, Dr. Spicuzza prescribed a one-time ophthalmological surgical procedure to fixate Mrs. Lawson's eyes and provide some relief from her severe nystagmus. This procedure would include hospital, anesthesia, and physician services.

Dr. Spicuzza and Nurse Phillips presented testimony regarding pharmacotherapy needs and related supplies that Mrs. Lawson is likely to require over her lifetime. Nurse Phillips further testified that Mrs. Lawson is likely to require significant treatment, including pharmacotherapy, to deal with her chronic and severe occipital headaches and back pain and for her pervasive and profound depression. In addition, it is anticipated that Mrs. Lawson will require medications to prevent convulsive disorders and for memory assistance. Dr. Spicuzza further recommended at trial blood urea nitrogen and creatinine blood levels every six months, beginning at age fifty, to monitor renal function secondary to long-term nonsteroidal anti-inflammatory use (e.g. Motrin).

The Court heard testimony from Nurse Phillips that Mrs. Lawson will also require physical therapy, occupational therapy, and cognitive rehabilitation services for an intense period of relatively short duration. Most of these therapies will be required for up to two years to provide Mrs. Lawson with professional retraining to enhance her proprioception, balance, and upper extremity strength and to improve her memory. Thereafter, Mrs. Lawson will require ten sessions per year of physical therapy secondary to her permanent lower extremity weakness, balance deficits, and gait disturbance. Dr. Gualtieri agreed with all elements of the rehabilitation portion of Mrs. Lawson's Life Care Plan with the exception of the unit cost for cognitive remediation, which he testified would cost \$50/month. This revision would decrease Mrs. Lawson's Life Care Plan by, at most, \$300.

Nurse Phillips also testified that Mrs. Lawson will require various mobile units for ambulatory assistance as she will never be a functional community ambulator. Additional adaptive equipment and housing modification needs will include a quad cane, bath bench, four-wheeled scooter, ramp, bathroom grab bars, hallway railings, and scooter carrier and hitch. Dr. Spicuzza testified at trial that the ankle/foot orthotic brace should be eliminated from Mrs. Lawson's Life Care Plan because plaintiff's permanent left foot weakness would no longer benefit from this device.

The Court heard evidence on the daily care needs for Mrs. Lawson and her family on account of her injuries. Daily care need requirements included a housekeeper for 6 hours per day for five days per week for thirty-nine weeks per year until Mrs. Lawson reaches age fifty-five. Thereafter she would require housekeeper services for four hours per day for five days per week for fifty-two weeks per year for the performance of day to day household chores and management which Mrs. Lawson is incapable of providing. In addition, the life care plan provides for childcare needs for those times when Major Lawson is unavailable because of his multiple travel assignments. In addition, Mrs. Lawson will require live-in attendant care services and personal care attendant services (i.e., non-live-in). The live-in services will be needed for Mrs. Lawson between the ages of forty-eight and fifty-five for thirteen to twenty-six weeks per year. The personal attendant care services are needed from the present through age fifty-six for four hours each day and from age fifty-six through her life expectancy for eight hours per day. These services are required to cover for Mrs. Lawson's needs secondary to her neurological and physical disabilities. Dr. Gualtieri supported the need for these services, with the exception of attendant care

services, which he recommended be replaced with a Day Treatment Program and/or tutoring services for the Lawson children, at the same cost.

- Conclusion

The Court has carefully considered all of the alternatives presented regarding Mrs. Lawson's future care needs. The Court adopts plaintiff's Life Care Plan whereby Mrs. Lawson remains as independent as reasonably possible, recognizing the need for Mrs. Lawson to have a multi-disciplinary team of health care providers, medications and supplies, medical and rehabilitative services, attendant care, child care services, and household care. The Court finds that it is not possible for Mrs. Lawson to return to her pre-injury state of health, and that she will require lifelong assistance. Given her severe neurological, physical and emotional impairment, the Court finds that Mrs. Lawson's Life Care Plan best meets her lifetime needs and is both reasonable and necessary to prevent further deterioration of her physical and mental well-being, as well as to maximize her quality of life. In reviewing the range of costs needed to fund the Life Care Plan of Mrs. Lawson, the Court finds that the higher range estimates provided by Nurse Phillips (plaintiff's Life Care Planner) and utilized by Dr. Lurito (plaintiff's economist) are appropriate and necessary. In view of the general agreement among all experts at trial, which affirm the permanent nature of Mrs. Lawson's brain and spinal cord injuries and her extensive need for remedial care, there is no real dispute that the funds awarded by the Court will find their necessary use in the medical and related care needs of the plaintiff.

- Probable future vocational course absent injury

There was also persuasive expert and lay evidence presented that Mrs. Lawson was a good student, earned a Bachelor of Science degree in business administration, planned to complete a

Master's degree which she had begun before her injury, planned to return to part-time employment following her children's entry into elementary school, and planned to resume full-time employment when her children entered high school. Witnesses who knew Mrs. Lawson prior to her injuries testified that she was a thoroughly motivated wife and mother, a "go-to" person, a caring and trusted friend, and a person with high expectations for herself both personally and professionally.

Dr. Estelle Davis, Mrs. Lawson's vocational expert, testified that absent injury she would have (a) completed her Master's degree by the time her children were in high school, if not before, (b) returned to part-time employment when her children reached school age in 2006 (as many women with her skills do) earning \$13.50 to \$15.50 per hour, and (c) returned to full-time employment in her area of vocational interest when her children were in high school in the year 2014 earning an annual wage of \$60,000. Dr. Davis also testified that as a result of Mrs. Lawson's injuries, she will be unemployable in any setting (competitive or sheltered) and will be unable to resume her educational endeavors. Dr. Lurito testified that the present value of Mrs. Lawson's lost earnings is \$938,982.

The Court finds the evidence overwhelming that the damage suffered by Mrs. Lawson to multiple brain and spinal cord structures makes it unlikely that she will be able to pursue higher education or find gainful or sheltered employment. The Court is persuaded that she will be severely impaired for the duration of her life expectancy. The Court is also persuaded that Mrs. Lawson is incapable of earning a Master's degree or completing any systematic training in preparation for a career because she lacks the cognitive, physical, visual, and emotional abilities needed, as well as the brain tissue which is required for normal functioning. The Court does not accept the

defendant's argument that Mrs. Lawson is currently employable and would not have earned her Master's degree or returned to work absent injury.

- Non-economic loss

Dr. Spicuzza (Mrs. Lawson's neurologist), Dr. Norrell (Mrs. Lawson's neurosurgeon), Dr. Fedio (Mrs. Lawson's neuropsychologist), Dr. Goldman (Mrs. Lawson's psychiatrist) and Dr. Gualtieri (defendant's neuropsychiatrist) testified that Mrs. Lawson sustained a brain stem injury resulting in cognitive deficits, reduced mental speed and reaction time, difficulties with memory and attention, decreased psychomotor and processing speed, nystagmus, severe depression, decreased strength and balance, and an abnormal wide-based gait. Neither Dr. Fedio nor Dr. Gualtieri found any evidence of malingering and Dr. Gualtieri specifically testified that "in the two days that [Mrs. Lawson] and her husband were with me, they were as honest and straightforward as the day is long." Tr. Feb. 14, 2006, 41:16-18; Tr. Feb. 16, 2006, 60:24 - 61:1. Dr. Goldman testified that Mrs. Lawson likes to put the best face on things, but that after you talk to her for a couple minutes, she starts to cry, the facade breaks down, and you can see she's in a lot of distress. Dr. Goldman further testified that Mrs. Lawson is committed to the struggle, that she wants to be in life and do all she can, but that she finds it very hard. Jean Rizzo testified that Mrs. Lawson is never going to be able to do cartwheels with her kids or play soccer with them – all the things that we love and hope to do with our kids she can't do – which is just sad. Mr. Lawson testified that his wife feels less of a woman, feels that she has failed as a wife and mother, and acknowledges that she can no longer provide for her husband and children. Drs. Spicuzza and Fedio both testified that the aging process will afflict Mrs. Lawson more severely. Beyond these few references, the Court finds that the trial record attests to many other losses and a great deal of

pain, suffering, and mental anguish suffered by Mrs. Lawson as a result of defendant's negligence. Based on the testimony of all expert and lay witnesses, as well as the medical records, the court finds that plaintiff's claim for pain and suffering far exceeds the statutory cap of \$590,000.00.

- Potential discounting of Mrs. Lawson's future medical care costs

The defendant has requested that the projection of future medical expenses be reduced to offset the amount that has been covered⁵¹ or will be covered by Tricare/CHAMPUS on the basis that Tricare/CHAMPUS benefits are not a collateral source. *U.S. v. Mays*, 806 F.2d 976, 977 (10th Cir. 1986). The collateral source law in Maryland⁵² permits "an injured person to recover in tort the full amount of his provable damages regardless of the amount of compensation which the person has received for his injuries from sources unrelated to the tortfeasor." *Motor Vehicle Admin. of the Maryland Dept. of Transp. v. Seidel Chevrolet, Inc.*, 326 Md. 237, 253, 604 A.2d 473 (Md..1992).

As a threshold issue, when analyzing whether a source of funding is a collateral source, the majority of courts have turned to the origin of the funds. *See e.g., Mays*, 806 F.2d at 977. Special funds that are "separate and distinct from general government revenues," are considered collateral sources. *Mays* 806 F.2d at 977. Under this analysis, at least one judge in this circuit has concluded that CHAMPUS is in fact a collateral source because it is akin to paying a premium for

⁵¹Mrs. Lawson has not made any claim for expenses already covered by Tricare/CHAMPUS; accordingly, the only issue is the extent to which future medical expenses should be reduced by anticipated benefits.

⁵²Under the Federal Tort Claims Act, the federal courts are required to apply to the United States the tort law of the state in which the act or omission occurred. 28 U.S.C.A. § 1346(b); *Richards v. United States*, 369 U.S. 1, 11 (1962). Hence this Court applies Maryland law to this case.

medical insurance. *Murphy v. U.S.*, 836 F. Supp. 350, 352 (1993). Judge Morgan concluded that a pool of money set aside for one's health benefits was distinct from general government revenues. *Id.* Following Judge Morgan's logic in *Murphy*, this Court could decline the government's request because CHAMPUS is a collateral source.

The vast majority of courts to consider this issue, however, have concluded that Tricare/CHAMPUS benefits are *not* a collateral source, holding that they are benefits derived from general revenues of the United States, and that an award must be reduced to the extent of such benefits. *See e.g., Mays*, 806 F.2d at 977. These courts have thus offset awards to avoid "double recovery of ... medical expenses or, perhaps more accurately, a recovery for a non-existent loss." *Overton*, 619 F.2d at 1305. Federal appellate courts to consider this issue have only done so in the case of retrospective health benefits. *Mays*, 806 F.2d at 977; *Overton*, 619 F.2d at 1305. For example, the *Overton* Court concluded that the monies the "plaintiff *received* in Medicare benefits must be deducted from the plaintiff's total award." 619 F.2d at 1309 (emphasis added). Similarly, the *Mays* court remanded the case with direction for the lower court to modify the damages award based on the compensation "already paid" through the CHAMPUS program. 806 F.2d at 978.

Were this simply a case in which Mrs. Lawson had suffered an acute injury prior to the time of the lawsuit, and where Tricare/CHAMPUS or some other third party had already rendered and paid for all of her related medical bills, the Court would be inclined to agree with the defendant on this issue. However, these are not the facts of Mrs. Lawson's case. The defendant's negligence in treating Mrs. Lawson did not produce an acute injury with finite associated medical costs that have already been paid. As a result of the medical malpractice of the defendant's agents, Mrs. Lawson now suffers from a chronic, disabling condition for which she will require care for

the rest of her life. The defendant has argued that because Mrs. Lawson's husband is a Major in the Air Force, and because he has testified that it is "his goal" to continue his Air Force employment until he has served 20 years and is eligible for retirement benefits, the damages awarded to Mrs. Lawson should be reduced by the anticipated Tricare/CHAMPUS benefits.

As the Court noted on the record during the trial, the primary defect in the defendant's request for an offset is the assumption that Major Lawson will in fact remain with the military until he reaches twenty years of service. Although Mrs. Lawson currently is eligible for Tricare/CHAMPUS benefits as the spouse of a member of the United States Air Force, these benefits are not guaranteed. Major Lawson has served only thirteen and a half years with the Air Force and requires an additional six and a half years before he and his wife would be eligible for retiree benefits. Despite Major Lawson's expressed intention, it would be imprudent and speculative for the Court to presume that he will remain with the Air Force to complete his twenty years of service. It is certainly not unusual for the private sector to lure talented and valuable military personnel with job offers that cause such individuals to engage in a career change before fulfilling their twenty years with the military. Furthermore, Major Lawson testified that by 2011, the Air Force intends to lay off 40,000 personnel of various ranks, and he may suffer the fate of being involuntarily discharged through no fault of his own through this reduction in force.

In light of Mrs. Lawson's serious impairments, it is not unreasonable to assume that her medical condition and inability to care for herself and her family may force Major Lawson to make the difficult choice to leave the military for more lucrative compensation in the private sector before he is able to retire with full pension and benefits. Finally, there can be no assurance that the Tricare/CHAMPUS program will continue for the balance of Mrs. Lawson's life, nor that the

benefit levels will never change. An offset based on speculative benefits would be an injustice because it would force Mrs. Lawson alone to bear the entire risk that her husband will continue to be employed by the Air Force, and that he will do so for the time required for him to attain retirement benefits which will continue without change for the rest of her life. Thus the Court declines to offset Mrs. Lawson's damages award for anticipated benefits that may never be received.

Although the Court declines to reduce Mrs. Lawson's award at this time, the Court is sympathetic to the defendant's argument that there exists a risk of "double-dipping" (i.e., allowing Mrs. Lawson the full amount of the judgment and also the ability to seek Tricare/CHAMPUS benefits for her condition). Accordingly, the Court would be amenable to a motion to alter or amend the judgment to suggest a remedy that would reduce this risk. The Court invites the defendant to develop a solution, hopefully one on which all parties agree, that would prohibit Mrs. Lawson from applying for or receiving Tricare/CHAMPUS benefits for those services covered by the Life Care Plan until such a time when Mrs. Lawson has exhausted the award granted to her by the Court for medical expenses.

CONCLUSIONS OF LAW

Under the Federal Tort Claims Act ("FTCA"), the United States is liable "in the same manner and to the same extent as a private individual under like circumstances..." 28 U.S.C. § 2674. Mrs. Lawson was a patient at MGMC, and therefore is a proper claimant under the FTCA. Jurisdiction is proper in this Court pursuant to 28 U.S.C. §§ 1346(b); 2671 *et seq.* Since the allegedly negligent act(s) exposing the defendant to liability occurred in Maryland, Mrs. Lawson's claims are governed by Maryland law. 28 U.S.C. §§ 1346(b), 2674; *United States v. Muniz*,

374 U.S.150, 153 (1963).

In Maryland, a prima facie case establishing medical malpractice must (1) determine the applicable standard of care; (2) demonstrate that this standard has been breached; and (3) develop a causal relationship between the violation and the injury. *Weimer v. Hetrick*, 309 Md. 536, 553, 525 A.2d 643, 651 (1987); *Waffen v. U.S. Dept. of Health & Human Servs.*, 799 F.2d 911, 915 (4th Cir. 1986); *Muenstermann v. United States*, 787 F. Supp. 499, 510-14 (D.Md. 1992). It is well established in Maryland that

[T]he burden of proof in a malpractice case is on the plaintiff to show a lack of the requisite skill or care on the part of the physician and that such want of skill or care was a direct cause of the injury . . . General rules of negligence apply to malpractice cases. . . [and] [t]herefore, to constitute actionable negligence, there must be not only causal connection between the negligence complained of and the injury suffered . . . but it must be the proximate cause.

Reed v. Campagnolo, 332 Md. 226, 232-33, 630 A.2d 1145, 1148 (1993)(internal citations omitted). The law in Maryland is clear that a tortfeasor is responsible for any aggravation of a pre-existing condition, even where that condition constitutes an injury or disability. *Harris v. Jones*, 281 Md. 560, 570 n.2, 380 A.2d 611, 616 (1977); *Feeney v. Dolan*, 35 Md. App. 538, 554, 371 A.2d 679, 688 (1977).

Physicians owe a duty to use the care expected of a reasonably competent practitioner of the same class and acting in the same or similar circumstances.⁵³ *Figueiredo-Torres v. Nickel*, 321 Md. 642, 650, 584 A.2d 69, 73 (1991); *Shilkret*, 276 Md. at 200, 349 A.2d at 252. The trier of fact must take into account the specialized knowledge or skill of the defendant when evaluating a patient's treatment. *Shilkret*, 276 Md. at 200-01, 349 A.2d at 253. "[T]he defendant's use of

⁵³A doctor's treatment is evaluated against a national standard of care. *Shilkret v. Annapolis Emergency Hospital Ass'n*, 276 Md. 187, 199-200, 349 A.2d at 252 (1975).

suitable professional skill is generally a topic calling for expert testimony only.” *Hopkins v. Genda*, 255 Md. 616, 623, 258 A.2d 595, 599 (1969).

In a medical malpractice case, the plaintiff bears the burden of proving by the preponderance of the evidence that the defendant’s breach proximately caused the injury for which damages are sought. *Robin Exp. Transfer, Inc. v. Canton R.R. Co.*, 26 Md. App. 321, 334-35, 338 A.2d 335, 343 (1975). Departure from the standard of care in and of itself does not warrant a finding of medical malpractice; it is the plaintiff’s burden to show that such want of skill or care directly caused the injury, and the negligence must be uninterrupted in order for the plaintiff to recover. *Lane v. Calvert*, 215 Md. 457, 462, 138 A.2d 902, 905 (1960); *Mackey v Dorsey*, 104 Md. App. 250, 270, 655 A.2d 1333, 1343 (1995). In demonstrating proximate causation, “. . . the plaintiff must prove the defendant’s breach of duty was more likely than not (*i.e.*, probably) the cause of the injury.” *Hurley v. United States*, 923 F.2d 1091, 1094 (4th Cir. 1991). This cannot be established based solely on speculation or conjecture. *Baulsir v. Sugar*, 266 Md. 390, 395, 293 A.2d 253, 255 (1972)(noting the “plaintiff has not met his burden if he presents merely a scintilla of evidence where the jury must resort to surmise and conjecture to declare his right to recover.”).

Regarding damages, the law of the state where the alleged misconduct occurred governs substantive tort liability under the FTCA, including the nature and measure of damages to be awarded. *Richards v. United States*, 369 U.S. 1, 6, 13-14 (1962). Maryland law entitles a plaintiff to recover the reasonable value of all damages caused by a defendant’s wrongful conduct, including damages for past medical care, *Walston v. Dobbins*, 10 Md. App. 490, 496-497, 271 A.2d 367, 371 (1970), and damages for future medical care, *Mt. Royal Cab Co., Inc. v. Dolan*, 166 Md. 581, 581, 171 A. 854, 854 (1934). Future expenses are recoverable if it is more likely than not that the

expense will be incurred. *Burke v. United States*, 605 F. Supp. 981, 988 (D. Md. 1985). Maryland also recognizes the right to recover for the value of material services rendered to an injured plaintiff. *Muenstermann v. United States*, 787 F. Supp. at 522.

I. The Applicable Standard of Care.

In the instant case, the Court is persuaded that the standard of care required that the neurological basis of Mrs. Lawson's complaints be investigated and diagnosed during her pregnancy, and that the management of her pregnancy be modified in light of her Chiari Type I malformation. The Court finds that the standard of care also required that her treating doctors follow up on her symptoms in subsequent visits, instead of just treating each visit and complaint in total isolation. Furthermore, as both plaintiff and defense witnesses agreed that Valsalva-like maneuvers should be avoided in a pregnant patient with a Chiari Type I malformation, the Court is persuaded that the applicable standard of care was to not allow Mrs. Lawson to undergo a normal labor and vaginal delivery, with voluntary pushing in the second stage of labor.

- Compliance with the standard of care required a recognition of Mrs. Lawson's neurological symptoms as unusual and required neurological referral

Mrs. Lawson's documented symptomatology included headaches, nausea, vomiting, vertigo and lower back pain. It is true that most of these symptoms, albeit not normal for an individual, are common pregnancy-related complaints, and it is also undisputed that Mrs. Lawson suffered from many of these symptoms during her first pregnancy. However, as the factual findings above indicate, the extent and severity of these symptoms were quite different than the experience of her first pregnancy, and their quality suggested a potentially serious neurological problem that required a referral and further examination. As Dr. Ross explained, "the standard of care [] requir[es] that the thought process be gone through and the doctors . . . taking care of Mrs. Lawson realize that

the duration of the complaints, the severity of the complaints were all out of the normal for pregnancy and that they needed to get help in finding out what was going on.” Tr. Feb. 8, 2006, 107:18-24.

It is especially noteworthy that “dizziness,” while a common complaint during pregnancy, may be of two types. One type is fairly normal, and the other is quite abnormal if it is persistent. Dizziness that is manifested as lightheadedness is fairly routine in pregnancy and may be caused by low blood pressure resulting from lack of fluids or lack of blood. On the other hand, persistent vertigo in any patient is abnormal and warrants evaluation by a specialist such as an otolaryngologist or neurologist. Lightheadedness is associated with rising or sitting up, and the resultant reduction of blood flow to the brain, while vertigo is associated with lying down. Mrs. Lawson’s “dizziness” complaints were of persistent vertigo, a complaint that is not common in patients, pregnant or otherwise. As Dr. Ross explained: “now we’re talking about almost a six or seven week history of vertigo, and that is highly unusual during pregnancy or nonpregnant. It is a now more of a chronic condition and it needs to be evaluated.” Tr. Feb. 8, 2006, 46:12-15. When asked to explain the significance of Mrs. Lawson reporting that she preferred to sit at a 45-degree angle versus lying on her side and that lying down made her dizzy, Dr Ross explained:

Two things. Number one this is a clear description of vertigo, as I discussed a few seconds ago. Number two is it’s directly opposite to what we normally see during pregnancy. In other words, given a choice, because of blood flow issues, most women are much more comfortable on their side than they are sitting up. They have less lightheadedness, they have better blood flow to their brain and to the baby so that they are normally more comfortable on their side during pregnancy, the left or the right. Classically, we say the left is better. So, this is sort of different. It’s a different situation. It’s not the usual. Tr. Feb. 8, 2006, 48:14-49:1.

At no time during Mrs. Lawson's pregnancy with her son Nicholas did any of her health care providers entertain a differential diagnosis to explain her persistent symptoms of dizziness, nausea, and back pain. Drs. Ross, Yousem, Spicuzza, and Norrell testified that a differential diagnosis is a method used by physicians to rank the potential diagnostic possibilities most consistent with a patient's complaints, and the Court finds that to comply with the applicable standard of care, a differential diagnosis should have been made no later than September 2000 to diagnose her severe occipital headaches and persistent vertigo. In addition, the standard of care required that Mrs. Lawson receive an evaluation when she developed left leg weakness and severe back pain that would include an MRI of the lumbar spine in September/October 2000.⁵⁴ The Court's conclusion of law regarding Mrs. Lawson's doctors' deviation from the standard of care by failing to neurologically evaluate Mrs. Lawson and perform neuroimaging takes into account the earlier finding of fact that when sufficient indications exist, the performance of an MRI during pregnancy, especially in the second or third trimester, is appropriate.

The defendant seems to rely on the rarity of imaging of pregnant woman to suggest that the decision not to image Mrs. Lawson was inherently correct. The rarity of neurological imaging in pregnant women alone is not sufficient to answer the question of whether doctors complied with the standard of care in failing to order such tests. In fact, in this case, it begs the question of whether, in light of the severity of her symptoms, Mrs. Lawson was the admittedly rare patient who

⁵⁴As discussed above, the defendant makes much of the fact that Mrs. Lawson's foot drop and left leg weakness is not recorded in her contemporaneous pregnancy records. The mere fact that these symptoms were not recorded in her records does not necessarily mean that they were not reported to her treating doctors, however. *See* discussion of Lay Testimony, *supra*. Furthermore, Mrs. Lawson's experts consistently testified that her documented persistent vomiting, nausea, vertigo, and occipital headaches, coupled with the onset of extreme lower back pain were sufficient to warrant imaging of her lumbar spine in September/October of 2000.

required such imaging. The Court concludes that although imaging of pregnant women certainly should not be done “willy-nilly,” in light of the constellation of neurological symptoms exhibited by Mrs. Lawson, it was in fact imprudent and violative of the applicable standard of care for her health care providers not to recommend such imaging in an attempt to uncover what could have been (and in fact was) a serious condition causing her symptoms.

-The standard of care required special management of Mrs. Lawson’s pregnancy

The Court also concludes that the standard of care required special treatment of Mrs. Lawson’s pregnancy following the discovery of her medical condition. As noted in the findings of fact, *supra*, cesarean section is the most provident course of delivery for a woman with symptomatic ACM, in light of the risk of Valsalva pressures further displacing intracranial structures and promoting crowding of brain tissue in the medullar-cervical juncture, and should be avoided in symptomatic Chiari I patients. In the year 2000, the standard of care required that Mrs. Lawson be recognized as a high risk patient and delivered early by cesarean section delivery.

The standard of care required Mrs. Lawson’s doctors to recommend a cesarean delivery at thirty-four to thirty-six weeks gestation. Had she delivered at this time, Mrs. Lawson then could have been treated neurosurgically to relieve her ACM and syrinx formation within a few weeks of Nicholas’ birth. The Court concludes that the standard of care required this timely neurosurgical correction, which would have averted the syrinx formation and severe ischemic and compression injuries to Mrs. Lawson’s brain and spinal cord.

II. Breach of the Standard of Care

The Court concludes that Mrs. Lawson has met her burden of demonstrating, by a preponderance of the evidence, that her health care providers breached the applicable standard of

care by not evaluating and diagnosing her neurological disorder prior to her admission to the MGMC for labor and delivery. Mrs. Lawson was not afforded a neurological evaluation until January 17, 2001, nearly eight weeks after she delivered her second son Nicholas. Even then, appropriate imaging studies were not promptly obtained, such that the diagnosis of her Chiari Type I malformation was further delayed until April 1, 2001. Thus, Mrs. Lawson was subjected to a nearly ten hour first stage of labor and twelve minutes of pushing (akin to multiple Valsalva-like maneuvers) associated with the second stage of labor. Furthermore, despite the documented development of new neurological symptoms following her delivery, her doctors still failed to put the pieces together regarding the severity of her condition. In each of these respects, the Court finds that the standard of care was violated by Mrs. Lawson's health care providers.

Mrs. Lawson should have received a neurological work-up no later than the end of September 2000 to comply with reasonable standards of care. The Court concludes that the defendant's failure to do so breached the standard of care. As discussed in the findings of fact, Mrs. Lawson experienced a constellation of documented neurological symptoms during her pregnancy, including persistent supine dizziness (vertigo), explosive vomiting, severe occipital headaches, severe lower back pain, sciatic pain, and left foot drop. Nonetheless, her treating physicians violated the standard of care in failing to follow up on her symptoms and assess the severity of the totality of her symptomatology. Instead, her doctors appeared to wear blinders - failing to revisit prior complaints, know what physical symptoms might be significant and elicit information about these, or explore why her symptoms persisted, despite treatment.

The significance of Mrs. Lawson's symptomatology was also borne out by the variety and amount of medications she was prescribed, including Benadryl, Compazine, Darvocet and Percocet.

These prescriptions offer strong support for the conclusion that her signs and symptoms were far in excess of what is normally seen in pregnancy, and required further inquiry instead of being summarily dismissed as signs of a “normal” pregnancy.⁵⁵ A patient with symptoms like those exhibited by Mrs. Lawson required a neurological consultation and an inevitable magnetic resonance imaging of her brain. Dr. Spicuzza explained that “it’s a gross breach of standard of practice not to image and image immediately” when a patient presents with the constellation of symptoms documented by Mrs. Lawson’s doctors. Tr. Feb. 8, 2006, 145:19-24. The Court agrees that this was the proper standard of care, and that the failure of Mrs. Lawson’s doctors to do so was a breach thereof. This failure caused her doctors to again breach the standard of care by failing to recommend special management of her pregnancy and delivery.

As discussed in the findings of fact, *supra*, after the vaginal delivery of her son Nicholas, Mrs. Lawson’s neurological symptoms did not improve. Contrary to what she was told by the physicians and nurses at MGMC, her neurological symptoms worsened. Mrs. Lawson continued to suffer from severe occipital headaches and back pain, persistent supine vertigo and left foot drop.

⁵⁵Dr. Ross explained why it was not consistent with the standard of care to say that all of Mrs. Lawson’s symptoms could be explained away by her pregnancy:

....it’s not that individual symptoms don’t happen during pregnancy. They do. I’ve been very fair and honest about saying a lot of these things happen, but the severity and the duration of the symptoms with the exception of the vertigo, which is not pregnancy-related at all, that those symptoms were severe, progressive in some cases, including the weakness in the leg, for the back pain and unrelenting and required major narcotics.

It’s not that these things don’t occur. It’s just there’s a difference between having it for a week or two weeks and having it for two months, three months or four months, and it was that that required special attention. These things do happen during pregnancy. This whole spectrum is unusual, but certainly the severity and duration very, very unusual and required consultation. Tr. Feb. 8, 2006, 125:11-126:3.

Although her vomiting decreased after delivery, she developed nystagmus, severe ataxia, right lower extremity weakness, neck pain, and was unable to attend to the needs of her newborn son. The Court finds that the attending health care providers breached the standard of care by failing to recognize that Mrs. Lawson's symptoms were not primarily caused by her pregnancy but rather were severe manifestations of a neurological illness that was aggravated by her pregnancy. Specifically, the Court notes that Mrs. Lawson developed new onset nystagmus on November 25, 2000, the day after her delivery, which is indicative of brain stem injury and should have been recognized and acted on promptly by her providers. Defendant's internist Dr. Kimmel testified that "nystagmus is a symptom that generally comes from a brain or brain stem problem - a central nervous system problem. When we see nystagmus, we are very concerned about intracranial - inside the head lesions, as opposed to an inner ear problem or a viral problem." Tr. Feb. 14, 2006, 176:24 - 177:4. The failure of Mrs. Lawson's doctors to recognize the severity of her neurological symptoms post-delivery also breached the standard of care.

It took Mrs. Lawson's doctors almost four months after her first neurological consultation to identify her Chiari and arrange for decompression surgery. This occurred despite Mrs. Lawson's new development of nystagmus post-delivery, worsening left foot drop, and exhibition of persistent symptoms of headache, ataxia, weak lower limbs, and an inability to close her eyes without falling (e.g., positive Romberg and Hallpike maneuvers). From November 24, 2000 until March 22, 2001, Mrs. Lawson lacked a differential diagnosis for her neurological abnormalities and did not receive the benefit of a neurosurgical or neuroradiological evaluation. This delay also represents a breach of reasonable medical standards of care.

III. Causation

As has been explained in detail in the Court's Findings of Fact, the Court has concluded the defendant's breach of the standard of care has caused substantial damages to Mrs. Lawson. A causal connection between the breach of the standard of care and her damages has been proven by a preponderance of the evidence.

IV. Damages

- Past and future medical care needs

Damages for past medical care costs are recoverable under Maryland Law. *Walston v. Dobbins*, 10 Md. App. 490, 496-97, 271 A.2d 367, 371 (1970). Based on the findings set forth above, the Court concludes that plaintiff is entitled to \$11,252.01 in damages for past medical care and related expenses.

Damages for future medical care costs are also recoverable under Maryland law. *Mt. Royal Cab Co., Inc. v. Dolan*, 166 Md. 581, 581 (1934). An item of future expense is recoverable if it is more likely than not that the expense will be incurred. *Burke v. United States*, 605 F. Supp. 981, 988 (D.Md. 1985); *Pierce v. Johns-Manville Sales Corp.*, 296 Md. 656, 666, 464 A.2d 1020, 1026 (1983); *Davidson v. Miller*, 276 Md. 54, 61-62, 344 A.2d 422, 427 (1975). Relying on the findings of fact set forth above, the Court concludes that the future medical and related expenses projected by Mrs. Lawson are fair, reasonable, and likely to be incurred. These needs include quarterly visits with an internist for primary care or referral purposes, semi-annual visits with a neurologist and neuro-ophthalmologist, annual visits with a physiatrist, thirteen visits per year with a psychiatrist, additional visits for individual and family counseling, plus a one time ophthalmologic surgical procedure (including hospital, anesthesia and physician fees).

In addition, the Court is persuaded that Mrs. Lawson is entitled to recover for future household, child, and attendant care. These are proper items of damage, and are not subject to the Maryland cap on non-economic loss. *Muenstermann v. United States*, 787 F. Supp. at 522 (D. Md. 1992); *United States v. Searle*, 322 Md. 1, 5-7, 584 A.2d 1263, 1265-66 (1991). Although defendant disputes these items of damage, the Court finds that Mrs. Lawson currently requires household, child and attendant care, and that such needs are permanent and likely to increase in the future. The Court finds that Mrs. Lawson is unable to safely care for her children when her husband is absent from home due to work assignments and that child care services are reasonable and necessary until the youngest child Nicholas is age thirteen. The Court also finds that household, child care, and attendant care services are recoverable even though such care is being provided by other family members. Maryland recognizes the right to recover for the value of material services rendered to an injury plaintiff. *Muenstermann v. United States*, 787 F. Supp. at 522. See *Lester v. Dunn*, 475 F.2d 983, 985 (D.C.Cir. 1973). As to the hourly rate for these services, a plaintiff is not required to choose the cheapest care and treatment, but may select from among a number of reasonable alternatives. *Muenstermann v. United States*, 787 F. Supp. at 523; *Ramrattan v. Burger King Corp.*, 656 F. Supp. 522, 525 (D.Md. 1987). The law is settled that even gratuitously furnished medical care and treatment are recoverable. See *Plank v. Summers*, 203 Md. 552, 562 (1954) (“... where hospital and medical care are furnished gratuitously to the injured party, he can recover the value of those services from the tortfeasor”). In sum, the Court finds that Mrs. Lawson’s request for household, child care, and attendant care is reasonable and necessary. Cf. *Ramrattan*, 656 F. Supp. at 525 (approving full time attendant care based on the reasonable probability that the plaintiff will need such care).

Mrs. Lawson's need for various forms of therapy has also been amply demonstrated. Therefore, the Court approves Mrs. Lawson's claims for physical, occupational and cognitive rehabilitation therapy. As a matter of law, the Court finds these expenses, which are also supported in the findings of fact, necessary and recoverable. *Miller*, 276 Md. at 61-62, 344 A.2d at 427-28.

To ensure that Mrs. Lawson's treatment is proceeding properly and that any physical, emotional or developmental difficulties are diagnosed early, Mrs. Lawson's experts recommend certain medical and psychiatric evaluations that are needed for the remainder of Mrs. Lawson's life expectancy. These expenses are reasonable and necessary in light of her circumstances, as are certain other related expenditures. The evidence strongly supports the needs for these continued evaluations of Mrs. Lawson. *Id.*

Relying further on the findings of fact set forth above, the Court holds that Mrs. Lawson is entitled to recover for certain medications, supplies, and diagnostic tests. These include Lexapro (an antidepressant), Topamax (an anti-convulsant medication used to treat plaintiff's headaches), Maxalt (a pain reliever for headaches), Skelaxin (a muscle relaxant), Motrin (a nonsteroidal anti-inflammatory for headaches), Aricept (a memory enhancer), and a TENS unit (electrical device for back, neck and headache pain). In addition, the Court holds that Mrs. Lawson requires blood urea nitrogen (BUN) and creatinine blood levels every six months, beginning at age fifty for life, to monitor kidney function for side-effects of long-term nonsteroidal anti-inflammatory use. The Court finds that these expenses are thoroughly supported by the findings of fact and are both reasonable and necessary. *Burke v. United States*, 605 F. Supp. 981, 988-89 (D.Md. 1985).

Finally, Mrs. Lawson has proven the need for the assistance of certain equipment, including a four-wheeled scooter, transport chair, quad cane, bath bench, ramp, grab bars, hallway railings, a scooter carrier and hitch, and other related items. The Court in its findings of fact determined that these expenses were reasonable and necessary and now finds proper support for these expenses as a matter of law. *See Muenstermann v. United States*, 787 F. Supp. at 523.

The Court now turns its attention to calculating the present discounted value of Mrs. Lawson's future care needs, as required under Maryland law. *Burke*, 605 F. Supp. at 990. As noted in the findings of fact, Mrs. Lawson's life expectancy is not affected by her brain injuries. Dr. Lurito testified that, based on U.S. Department of Health and Human Services statistics, Mrs. Lawson can expect to live another forty-two years. In order to arrive at the present value of Mrs. Lawson's future care needs, Dr. Lurito examined the Consumer Price Index for medical expenses and found that they have historically escalated at between three and five percent per year depending on the particular service or equipment involved. Further, Dr. Lurito found that using a portfolio of investments that includes government, municipal and high grade corporate bonds, certificates of deposit and treasury bills, he could invest that money at rates ranging from 7.72% per year for U.S. Government bonds to 8.66% for Aaa corporate bonds. Using these figures, Dr. Lurito arrived at an *after tax* discount rate of 4% per year. To finish his calculation, Dr. Lurito escalated each of the yearly costs for the number of years of need indicated by the report prepared by Priscilla Phillips, R.N., a certified life care planner. The figures were then discounted to their present value using the 4% discount rate. The Court finds that Dr. Lurito's method is acceptable. *See Jones & Laughlin Steel Corp. v. Pfeifer*, 462 U.S. 523, 547-48 (1983); *accord, Calva-Cerqueira v. United States*, 281 F. Supp. 2d 279, 296-98 (D.D.C. 2003); *Muenstermann v. United*

States, 787 F. Supp. at 524-25.

After reviewing the extensive testimony regarding Mrs. Lawson's Life Care Plan, the Court concludes that all of the items in her are medically reasonable and necessary for the future treatment of her injuries as caused by defendant's negligence. *Calva-Cerqueira v. United States*, 281 F. Supp. 2d., 299-300 (D.D.C. 2003); *Muenstermann v. United States*, 787 F. Supp. at 523. While Mrs. Lawson's Life Care Plan presents a range of cost estimates, the Court concludes that she has no duty to accept a less costly form of care. *Id.* Thus, an award of damages using her higher cost estimates is proper. *Id.* Courts must base compensatory damages on substantial evidence, but the evidence need not point entirely in one direction. *Calva-Cerqueira*, 281 F. Supp. 2d at 294; *Wood v. Day*, 859 F.2d 1490, 1493 (D.C.Cir. 1988).

While a plaintiff need not prove damages to a mathematical certainty, the Court must have a reasonable basis upon which to estimate the damages. *Calva*, 281 F. Supp. 2d at 294; *Wood*, 859 F.2d at 1493. The Court is satisfied that Mrs. Lawson's very substantial medical and related care needs will be met through the implementation of this plan, and finds that any lower level of care would put Mrs. Lawson at heightened risk of significant morbidity and mortality. The Court is mindful that her Life Care Plan does not include any provisions for future in-patient hospitalizations. The Court is persuaded that vigilant care and surveillance as set forth in her Life Care Plan will make it less likely that Mrs. Lawson will require in-patient hospital services. The overall cost of caring for Mrs. Lawson could escalate if recurrent hospitalizations become necessary due to less than adequate care as proposed by plaintiff's Life Care Plan. The Court concludes that the present discounted value of Mrs. Lawson's future care costs is \$3,724,423.

- Loss of income

The Court now turns its attention to Mrs. Lawson's loss of income as a result of the brain damage she sustained. In Maryland a plaintiff may recover damages for loss of earning capacity that may reasonably be expected in the future. *Adams v. Benson*, 208 Md. 261, 270-271, 117 A.2d 881, 885 (1955). This calculation for lost income includes fringe benefits. *Great Coastal Express, Inc. v. Schrufer*, 39 Md. App. 88, 94, 383 A.2d 74,77 (1978). As with the calculation of future medical care, an item is recoverable if it more likely than not would have occurred. *Burke*, 605 F. Supp. at 988; *Pierce*, 296 Md. at 666, 464 A.2d at 1026.

Dr. Lurito assumed, based on the vocational rehabilitation report of Estelle Davis, Ph.D., that Mrs. Lawson would have worked part-time from the time Nicholas started school at age six in November, 2006, until he started high school, and that after that she would likely have secured full-time employment. Dr. Lurito assumed, based on U.S. Department of Labor statistics, that Mrs. Lawson would have had a working life of 21.2 more years, or until age 61.2. Again, relying on Dr. Davis' analysis of Mrs. Lawson's likely earning capacity, Dr. Lurito assumed that she had the capacity to earn \$14.50 an hour in 2001 dollars on a part-time basis, and that she had the capacity to earn \$60,310 per year in 2000 dollars in full-time employment. As the Court has already found that Mrs. Lawson will not be able to secure competitive or sheltered employment because of the disabilities associated with her injuries, no offset for income earned is needed.

Dr. Lurito next adjusted Mrs. Lawson's income for increases due to the rate of inflation and productivity growth. According to Dr. Lurito, wage inflation over the 1969-2004 period has averaged 4.79% per year, while productivity increases have averaged 2.01% per year over the same period. Dr. Lurito rounded down his escalation figure to 4.2%. Dr. Lurito used the same 4.0%

discount rate to calculate the present value of Mrs. Lawson's income loss, as required by *Baublitz v. Henz*, 73 Md. App. 538, 549, 535 A.2d 497, 502 (1988) ("In Maryland, the law presently is that in a personal injury action, . . . any damages awarded for loss of future earning capacity must be reduced to present value.") (citing *Burke v. United States*, 605 F. Supp. 981, 990 (D.Md. 1985).

After arriving at a present value calculation, Dr. Lurito deducted 17.3% of Mrs. Lawson's average yearly income to allow for payment of federal and state income taxes from the income she would have received. The figure Dr. Lurito arrived at for the present value of total income lost due to Mrs. Lawson's injuries, minus the deduction for federal and state taxes, is the sum of \$938,982.

- Nonpecuniary damages

Mrs. Lawson's physical pain and suffering may be considered as an element of damages. *Greenstein v. Meister*, 279 Md. 275, 291, 368 A.2d 451, 461 (1977). Similarly, Mrs. Lawson's mental and emotional suffering and anxiety as a result of the injuries and their future consequences can also be considered. *White v. Parks*, 154 Md. 195, 140 A. 70, 72-73 (1928). The loss of Mrs. Lawson's capacity to enjoy the usual and familiar tasks of life is compensable in Maryland. *McAlister v. Carl*, 233 Md. 446, 456, 197 A.2d 140, 146 (1964). Finally, the permanency of Mrs. Lawson's injuries is an acceptable basis for awarding nonpecuniary damages. *Katz v. Holsinger*, 264 Md. 307, 318-19, 286 A.2d 115, 121 (1972).

Taking these factors into consideration, the court finds that Mrs. Lawson would be entitled to receive the sum of \$1,800,000 for the nonpecuniary loss she has endured and will continue to suffer. Mrs. Lawson's brain is permanently and severely damaged. Mrs. Lawson will never live independently. She requires help to care for her children and manage her household. As this sum

is in excess of the maximum amount recoverable under the Maryland Damage Cap, the award for nonpecuniary damages is reduced to the applicable statutory maximum.⁵⁶

DAMAGES AWARDED

Based on the foregoing Findings of Fact and Conclusions of Law, the Court will, by separate Order, enter judgment for the plaintiff as follows:

Lost Net Income	\$ 938,982.00
Future Care Costs	\$3,724,423.00
Past Medical Expenses	\$ 11,252.01
Pain and Suffering	<u>\$ 590,000.00</u>
TOTAL	<u>\$5,264,657.01</u>

CONCLUSION

In the final analysis, this is a case about failing to “connect the dots.” There was a troubling picture painted by Mrs. Lawson’s documented symptoms, yet no one saw it until it was too late. It is fairly easy to observe how this could have happened, given the large number of Mrs. Lawson’s caregivers and the multiple patient records. The left hand did not know what the right hand was doing – observations by one caregiver were not communicated to, or were not considered by, others. Information provided by the patient was not acted upon in a timely manner, and questions that should have been asked were not. One cannot imagine a better example to cite in support of

⁵⁶Section 11-108(b) of the Courts and Judicial Proceedings Article, Annotated Code of Maryland, provides that the \$500,000 cap on noneconomic damages shall increase by \$15,000 on October 1 of each year beginning on October 1, 1995. Assuming that Mrs. Lawson’s cause of action arose after October 1, 2000, the applicable cap is \$590,000. A cause of action arises when the facts to support each element of the cause of action exist, and not when the cause of action is discovered. *Owens-Illinois v. Armstrong*, 326 Md. 107, 121, 604 A.2d 47, 54 (1992).

the need for centralized electronic record-keeping. For Mrs. Lawson, such reforms will be too late, and the consequences for her are devastating.

9/28/06
Date

/s/
ROGER W. TITUS
UNITED STATES DISTRICT JUDGE