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IN THE \_\_\_\_\_\_\_\_ DISTRICT COURT, \_\_\_\_\_\_\_\_\_\_\_\_ DEPARTMENT

IN AND FOR [COUNTY], STATE OF UTAH

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| THE STATE OF UTAH, Plaintiff,-vs-[DEFENDANT], Defendant. | **MEMORANDUM IN OPPOSITION TO MOTION TO EXCLUDE**Case No. JUDGE  |

Plaintiff, the State of Utah, through its counsel, [DA], Salt Lake County District Attorney, and [ADA], Deputy District Attorney, hereby submits this Memorandum in Opposition to Defendant’s Motion to Exclude “Shaken Baby Syndrome” and Other Unreliable Expert Testimony Concerning Cause, Manner and Timing of Injury for consideration and respectfully requests that this Court deny the Defendant’s motion.

First, in this case, the expert opinions of [PROSECUTION EXPERTS], the expert witnesses to be called by the prosecution, do not rely upon the underlying diagnostic entity referred to by the defendant as the “shaken baby syndrome.” Rather, their opinions will be that the head and ocular injuries suffered by D.A. were inflicted injuries caused by some other person and were not the result of accident or other benign cause. Second, the authorities cited by the defense which purport to justify a ruling that the “shaken baby syndrome” is unreliable and inadmissible do not stand for that proposition. None of the authorities cited reflect a ruling that the “shaken baby syndrome” is not scientifically reliable, is not generally accepted in the relevant scientific community, or is not an admissible basis for an expert opinion under Utah Rule of Evidence 702, as amended November of 2007. Third, although the State is including most of its substantive response filed in the other two shaken baby murder cases, the defendant in this case has not raised a sufficient question about the admissibility of the underlying basis of the State’s expert witness testimony to warrant putting the “shaken baby syndrome” on trial in either a pre-trial evidentiary hearing, or at the trial of this case. Since the State’s experts are not relying upon that particular diagnostic entity as the underlying basis for the opinions they will express at the trial of this matter, the defendant’s Motion is irrelevant and should be summarily denied. Nothing in the substance of the defendant’s motion attacks the ability of [PROSECUTION EXPERTS]to express opinions based upon the medical literature, their own training, and their own significant experience diagnosing the cause of injuries to young children. Fourth, the expert opinions and the underlying bases of those opinions in the instant case are that the injuries suffered by D.A. are consistent with having been caused by non-accidental trauma, meaning that they were inflicted by some other person and were not the result of an accident or natural disease process. The criminal statute with which the defendant in this matter is charged (Child Abuse, Section 76-5-109) does not require proof of the exact mechanism by which the injuries were caused, but rather requires only proof that the injuries constituted “serious physical injury” which were intentionally or knowingly inflicted upon the child by the defendant. The State’s expert medical witnesses will provide proof that D.A.’s injuries were inflicted by some other person as well as the likely timing that those injuries were inflicted, and will rule out the defendant’s accidental explanation as a potential cause of the entire collection of injuries. Other evidence will complete the proof of the identity of the defendant as the person who caused those serious but non-fatal injuries. Thus, the defendant’s attempt to litigate the validity of the “shaken baby syndrome” is meritless and unfounded on the facts of the instant case.

**STATEMENT OF PERTINENT FACTS**

[INSERT STATEMENT OF FACTS]

**ARGUMENT**

Although the defendant refers to the applicable version of Rule 702 of the Utah Rules of Evidence, he fails to note that new Rule and the Advisory Committee notes to the new Rule distance Utah from both the *Daubert* line of cases and the prior *Rimmasch* line of cases in Utah. The new version of Rule 702, which has been in effect since November 1 of 2007, provides the following:

(a) Subject to the limitations in subsection (b), if scientific, technical, or other specialized knowledge **will assist the trier of fact** to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education may testify thereto in the form of an opinion or otherwise.

(b) Scientific, technical, or other specialized knowledge may serve as the basis for expert testimony if the scientific, technical, or other principles or methods underlying the testimony **meet a threshold showing** that they (i) are reliable, (ii) are based upon sufficient facts or data, and (iii) have been reliably applied to the facts of the case.

(c) The **threshold showing** required by subparagraph (b) **is satisfied** **if** the principles or methods on which such knowledge is based, including the sufficiency of facts or data and the manner of their application to the facts of the case, are **generally accepted by the relevant expert community**.

Utah R. Evid. 702 (emphasis added).

Utah’s new Rule 702 is clearly intended to allow most expert evidence to be admitted and to allow the trier of fact to weigh that evidence. The Advisory Committee notes specifically point out that the Rule has been amended to its pre-2000 version, and that new Utah Rule 702 is no longer verbatim the Federal Rule, which makes *Daubert* and that line of federal cases of unclear precedential value. The new Rule 702 only requires the proponent of expert evidence to make a:

“[T]hreshold showing. That ‘threshold’ requires only a basic foundational showing of indicia of reliability for the testimony to be admissible, not that the opinion is indisputably correct. When a trial court, applying this amendment, rules that an expert’s testimony is reliable, this does not necessarily mean that contradictory expert testimony is unreliable. The amendment is broad enough to permit testimony that is the product of competing principles or methods in the same field of expertise. Contrary and inconsistent opinions may simultaneously meet the threshold; it is for the factfinder to reconcile – or choose between – the different opinions. As such, this amendment is not intended to provide an excuse for an automatic challenge to the testimony of every expert, and it is not contemplated that evidentiary hearings will be routinely required in order for the trial judge to fulfill his role as a rationally skeptical gatekeeper. In the typical case, admissibility under the rule may be determined based on affidavits, expert reports prepared pursuant to Utah R. Civ. P. 26, deposition testimony and memoranda of counsel.”

Advisory Committee Notes to Rule 702, emphasis added.

I. The Testimony the State’s Expert Witnesses Will Provide is Admissible Because the Testimony is Generally Accepted in the Relevant Community

 It is also clear that under the new Rule 702(c) of the Utah Rules of Evidence, the threshold showing of reliability can be met simply by establishing that “the principles or methods” on which the expert witness opinions are based “are generally accepted by the relevant expert community.” In cases of this nature, the State submits that the “relevant scientific community” is comprised of expert medical professionals who regularly work with pediatric patients, regardless of their subspecialty in the field of medicine. Cases in which the “shaken baby syndrome” have been upheld against challenges under *Daubert* have held that is indeed the relevant community by which to judge general acceptance.

*See*, *e.g.*, *State v. Leibhart*, 662 N.W.2d 618, 628 (Neb. 2003) (upholding a lower court determination “that testimony regarding shaken baby syndrome in general was sufficiently reliable under the *Daubert* standards because the theory had been clinically tested and peer reviewed, the findings had been substantiated as documented by considerable literature, the studies showed a low error rate, and the findings were generally accepted within the **field of pediatrics**”). The opinions of Dr. Hoffman and [PROSECUTION EXPERT]that the injuries in this case were the result of “non-accidental trauma” are generally accepted among those who make up that expert community, and the defendant has cited absolutely no authority to the contrary.

 In fact, the defendant’s claims that the “shaken baby syndrome” is “no longer generally accepted” are also not borne out by any authority cited, even if that syndrome was the underlying basis for the expert opinions in this case. The comment by a third year law student in the Utah Law Review does not provide any authority for that proposition, as Ms. Lyons article is poorly researched, does not even acknowledge 95% of the recent medical literature on the “shaken baby syndrome”, and in fact argues against a version of the syndrome which is nothing more than a “straw man” set up by those who criticize the syndrome so that it will be easy to “knock down.” The Law Review comment by Lyons is no authority for anything, especially given its narrow bias and the author’s almost complete lack of understanding of the medical field.

 Next, the defendant claims the case of *State v. Edmunds*, 746 N.W.2d 590 (Wis. App. 2008) stands for the proposition that the shaken baby syndrome is no longer “generally accepted.” A plain reading of that case reveals that is not the holding of the case, and counsel for the State has reviewed the transcripts of all the experts who testified on both sides of the Edmunds case and none of those experts provided such an opinion, either. In  *Edmunds*, the Wisconsin Court of Appeals considered whether the defense had presented sufficient new evidence with regard to shaken baby syndrome such that, under Wisconsin statute, the defendant was entitled to a new trial ten years after her initial trial and conviction. 746 N.W.2d at 595. The Wisconsin Court determined that there was “newly discovered evidence . . . that there has been a shift in mainstream medical opinion . . . . We recognize, as did the circuit court, that there are now competing medical opinions as to how [the victim’s] injuries arose . . . .” *Id.* at 598–99. Although the State disagrees with the Wisconsin Court of Appeals characterization of a “shift in mainstream medical opinion”, that holding of the case is not that the shaken baby syndrome is no longer “generally accepted” in the relevant scientific community, nor was that even the issue to be resolved in *Edmunds*. The only issue was whether there was enough “new evidence” to justify allowing the defendant a new trial. Thus, the defendant’s reliance on this case for the claim of lack of ‘general acceptance’ is frivolous.

Other courts in the country have soundly criticized the holding in *Edmunds*, finding that it “presents a potential quagmire of epic proportions: the strong likelihood of constant renewed prosecutions and relitigation of criminal charges as expert opinion changes and/or evolves over time.” *Grant v. Warden*, WL 247272, fn. 1 (Conn. Super. 2008). In fact, there has been no shift in mainstream medical opinion relating to the shaken baby syndrome, and there is no citation by the defendant in this case to any such finding in the peer-reviewed medical literature, and no citation to any case which has held that the “shaken baby syndrome” is no longer generally accepted in the relevant scientific community.

State’s counsel has exhaustively researched the issue and found that every appellate court in the United States which has considered whether the ‘shaken baby syndrome’ is generally accepted within the relevant expert community has held that it is. *See, e.g., State v. McClary*, 541 A.2d 96, 102 (Conn. 1988)(shaken baby syndrome is a generally recognized medical condition); *State v. Cort*, 766 A.2d 260, 265-66 (N.H. 2000)(defendant conceding that shaken baby syndrome is generally accepted in the medical community); *State v. Leibhart*, 662 N.W.2d 618, 624 (Neb. 2003)(affirming a lower court’s decision to admit testimony concerning shaken baby syndrome as generally accepted within the scientific medical community of pediatrics); *Johnson v. State*, 933 So.2d 568, 570 (Fla. Ct. App. 2006)(shaken baby syndrome no longer a new or novel scientific principle subject to a *Frye* analysis); *Matter of Antoine J.*, 185 A.D.2d 925 (N.Y. A.D. 1992) (shaken baby syndrome generally accepted in the medical field). Even those experts who question the existence of the syndrome have on occasion conceded in court that the great weight of medical opinion is against them. *See, e.g. State v. Butts*, 2004 WL 449245, p. 4 (Ohio Ct. App.) - Dr. John Plunkett conceded that his opinion questioning the scientific validity of shaken baby syndrome was “contrary to what has been taught in medical schools since 1972, is contrary to the views of the American Pediatric Academy and that an overwhelming majority of pediatricians disagree with his opinion”. Noteworthy also is that, despite the articles written by those who criticize the shaken baby syndrome, some of which are gratuitously included in the defendant’s memorandum without further explanation, none of those critics have offered a credible alternative explanation for the cause of permanent or fatal brain injuries inflicted on thousands of children each year in the United States, all of which have virtually the same set of injuries. The defendant in this case has cited no case holding that the ‘shaken baby syndrome’ is no longer generally accepted in the relevant scientific community, and the State’s counsel has been unable to locate a single appellate decision to that effect.

Defendant also claims the case of *State v. Hales*, 2007 UT 14, ¶ 84–92, 152 P.3d 321 (Utah 2007), stands for the proposition that the ‘shaken baby syndrome’ is no longer generally accepted. In the Hales case, the Utah Supreme Court merely finds ineffective assistance of counsel because the defense failed to put forward an expert providing alternatives to the State’s expert’s interpretation of a CT scan. The Court did *not* comment on the validity or general acceptance of shaken baby syndrome, and indeed that was not even an issue in the *Hales* case. There mere fact that the Court is open to expert testimony contradicting shaken baby syndrome indicates neither an endorsement of such testimony nor a belief that the testimony indicates that shaken baby syndrome is not generally accepted. One thing is quite clear, *Hales* does not hold that the shaken baby syndrome is no longer generally accepted in the relevant scientific community, and citing this case for that proposition is meritless.

The only other “authority” offered by the defendant for the argument of lack of general acceptance is even more curious. The defendant cites to the so-called Goudge Inquiry in the Province of Ontario, Canada as authority for the claim of lack of general acceptance. In fact, the Goudge Inquiry had very little to do with the shaken baby syndrome, and everything to do with the issue of whether forensic pathologists in that Province of Canada had been adequately trained to render opinions as to the cause and manner of death, including in cases involving young children. The mandate of the Inquiry is stated as follows: “[T]o conduct a systemic review and an assessment of the policies, procedures, practices, accountability and oversight mechanisms, quality control measures and institutional arrangements of pediatric forensic pathology in Ontario from 1981 to 2001. . .” A full reading of the report of the Commissioner, who is a Judge, not a medical expert, reflects that Ontario, Canada was about 20-30 years behind the United States in its development of standards for competency of those performing autopsies and in its understanding of such diagnostic entities as the ‘shaken baby syndrome’. Although the Report acknowledges that some *pathologists* dispute the validity of the ‘shaken baby syndrome’, that is irrelevant in the instant case – D.A. did not die from his injuries and there are no pathologists involved as expert witnesses on either side of this case. The Goudge Inquiry was not, as implied by the defense, focused on the validity of the shaken baby syndrome, that was merely an issue that was raised as a side issue to the overall concern about the qualifications of pathologists in Canada. The inquiry does not reach conclusions after a full hearing of all sides that the ‘shaken baby syndrome’ is no longer generally accepted in the relevant scientific community – nor was that even the focus of that inquiry, and once again citation to that as authority for the claim of the defendant in this case is ridiculous. Even the quoted portions of the report relate only to “forensic pathologists” and that is not the relevant scientific community for purposes of the case at bar.

More importantly, Rule 702 of the Utah Rules of Evidence does not require the underlying bases of an expert’s opinions to be “indisputably correct” and the existence of some naysayers as to any theory is contemplated under the Rule. The “rational skepticism” the gatekeeping Judge is encouraged to employ by the Advisory Committee “is not so rigorous as to be satisfied only by scientific or other specialized principles or methods that are free of controversy or that meet any fixed set of criteria fashioned to test reliability.” All the defendant has established is that some in the medical field disagree with the underlying diagnosis of ‘shaken baby syndrome’ – that is nothing new and has always been the case. General acceptance has never under any authority required universal acceptance. The report of [PROSECUTION EXPERT]in this case reflects her opinion that impact is the likely cause of D.A.’s injuries and she only mentions “shaking” as a potential concomitant of that impact to explain the nature of the retinal hemorrhages in one of D.A.’s eyes. [PROSECUTION EXPERT] report is attached to this Memorandum.

Armed with nothing more than misinterpretation of the *Hales* decision, mischaracterization of the *Edmunds* decision and an incomplete citation to the Goudge Inquiry, the defendant asks this Court to take a monumental leap of faith and determine from those authorities alone that the shaken baby syndrome is no longer “generally accepted” in the relevant expert community. The State suggests that this argument is meritless and should be soundly rejected by this Court. The defendant has utterly failed to show any authority to support his argument that the underlying bases of the State’s expert opinions *in this case* are no longer generally accepted in the relevant expert community. Under subsection (c) of Rule 702, this Court should deny the Motion to Exclude on that basis, alone.

1. The Underlying Basis of the State’s Expert Medical Witnesses’ Opinions is Reliable and Meets the Threshold Showing of Reliability Set Out in Rule 702

To the extent that the shaken baby syndrome has anything to do with the State’s expert opinions and the underlying bases for those opinions, there may be some in the medical field who continue to criticize the underlying basis of the shaken baby syndrome, but no one has disproven the diagnostic significance of the collection of injuries which identify the likely cause of severe rotational acceleration and deceleration forces applied to the heads of helpless young human children. All major professional associations which have taken a position about the entity have upheld its scientific reliability.

First, the shaken baby syndrome has gained sufficient general acceptance as to its reliability to be given a specific International Diagnostic Code, ICD-9, which is a code universally used by those making diagnoses of the cause of injuries to children. Second, there are well over 500 articles in the medical literature which discuss and accept the validity of the shaken baby syndrome as a valid diagnosis, based on a particular set of injuries to a child which are unique to that cause and which are not replicated in accidental scenarios, even fatal auto accidents. The State’s primary expert, [DEFENSE EXPERT], is the lead author of one of the most recent and thorough compilations of medical thought concerning the broader field of “abusive head trauma” in infants and children, *Abusive Head Trauma in Infants and Children: A Medical, Legal and Forensic Reference*, GW Medical Publishing (2006). The chapter on Opththalmology in that reference is written by State’s expert [PROSECUTION EXPERT], the Pediatric Ophthalmologist, who is the other State’s expert witness.

Third, virtually every relevant medical professional association has taken a position recognizing the validity of the shaken baby syndrome and other forms of inflicted or “abusive” head trauma. These position statements are not just expositions of an opinion, but are well-supported by logic and authority within the medical field. See, e.g. American Academy of Pediatrics - *Shaken Baby Syndrome: Rotational Cranial Injuries – Technical Report*, 108 PEDIATRICS No. 1, July 2001, pp. 206-210 – “The act of shaking leading to shaken baby syndrome is so violent that individuals observing it would recognize it as dangerous and likely to kill the child. . .The constellation of these injuries *does not occur with short falls, seizures, or as a consequence of vaccination*. Shaking by itself may cause serious or fatal injuries.”; *Position Paper on Fatal Abusive Head Injuries in Infants and Young Children*, National Association of Medical Examiners (NAME) Ad Hoc Committee on Shaken Baby Syndrome (2003 Revision) – “The type of shaking that is thought to result in significant brain injury involves holding the child by the thorax or an extremity and violently shaking the child back and forth *which causes the head to forcefully whiplash forward and backward with repeated accelerations and decelerations in each direction.* . .”; Public Health Agency of Canada, *Joint Statement on Shaken Baby Syndrome*, (2002) – “The more serious the child’s neurological injury, the more severe the symptoms and the shorter the period of time between shaking and the appearance of symptoms. From the time of the shaking, these children do not look or act as usual.”; American Academy of Ophthalmology Clinical Statement on Shaken Baby Syndrome (2008) – “When extensive retinal hemorrhage accompanied by perimacular folds and schisis cavities is found in association with intracranial hemorrhage or other evidence of trauma to the brain in an infant, shaking injury can be diagnosed with confidence regardless of other circumstances.”

The defendant suggests that this Court apply the strict *Daubert* test of scientific reliability to the shaken baby syndrome and uses as an analysis the flawed and poorly-written article in the Utah Law Review. The Lyons article was written by a third-year law student, was poorly researched, represents only one side of the issue in the medical field, and doesn’t even acknowledge the over 500 articles that support the validity of the shaken baby syndrome. In addition, the version of the shaken baby syndrome Lyons chooses to attack has never existed in the opinions of actual experts testifying in courtrooms, but was created by Ms. Lyons as a convenient “straw man” which she could easily knock down. For instance, experts have never testified that a critical part of the shaken baby syndrome is the absence of other external injuries – although since Dr. Caffey’s initial hypotheses, it has been acknowledged that shaking can create serious or even fatal closed-head injuries in the absence of other external signs of abuse, such as bruises or marks on the child. To say that has become part of the diagnostic entity shows Lyons’ lack of medical sophistication. Lyons’ Law Review article is neither “scholarly” nor authoritative, it is biased, one-sided, poorly researched and was obviously written to assist those who defend allegations that injuries to young children were caused by inflicted head trauma. The published studies upon which Lyons relies, but which she only partially understands, have been either disproven or widely discredited since the time of that article, as will be shown in this Response.

It appears that the Advisory Committee in drafting the new version of Rule 702 specifically intended to distance Utah from the *Daubert* line of cases and create a new test for Utah that is neither based on *Daubert* nor on *Rimmasch*. Thus, the question of reliability of the underlying medical diagnostic opinion cannot be answered by lock-step application of either the *Daubert*  or *Rimmasch* tests.

Even if those prior cases still apply, or still guide the Court’s inquiry, through extensive research the State’s counsel has been unable to find a single case under the *Frye* analysis, under the *Daubert* analysis, under the *Rimmasch* analysis, or under any other state’s equivalent test of the reliability of expert testimony which holds that the shaken baby syndrome is *not* scientifically reliable and therefore not admissible as a basis for expert opinion. Every *Daubert* challenge has resulted in an appellate finding that the shaken baby syndrome is based upon reliable science, as the cases cited herein show. A good example is *State v. Vandemark*, 2004 WL 27446157, p. 5 (Del. Super. 2004) in which the court found after taking extensive medical expert testimony, “that the reasoning or methodology underlying testimony about shaken baby impact syndrome or inflicted head trauma is sufficiently reliable under *Daubert.* The theory has been clinically tested and peer reviewed. The findings have been documented by considerable literature. The findings are generally accepted within the field of pediatrics.” The *Vandemark* court also noted that “the science behind Shaken Baby Impact Syndrome has been accepted in Delaware and just about every jurisdiction.” Id. at p. 3.

Although a trial court in the State of Kentucky found that experts could not testify about shaken baby syndrome unless there was other clear evidence of child abuse like bruises or other marks, that ruling was recently reversed by the Kentucky Court of Appeal in the case of *Commonwealth v. Martin*, 2008 WL 2388382 (Ky. App. 2008. The Court of Appeals decided the lower court had committed an abuse of discretion because:

The trial court’s decision to exclude Dr. Spivack’s (State’s expert) testimony was an abuse of discretion, because it was founded on the unsupported legal conclusion that because there was dispute amongst the experts as to the possible cause of the infant’s injuries, it was the court’s role to choose the side it found more convincing and exclude the side it

 found less convincing, based in part on giving greater weight to

 ‘scientific’ as opposed to ‘clinical’ studies.

2008 WL 2388382 at p. 6. The Court of Appeals reversed based on the erroneous application of *Daubert* and the law in Kentucky and found that the “gatekeeping” role involved only keeping out unreliable or “junk” science from the courtroom – not assessing weight of the competing views, a function that is reserved for the jury or other trier of fact.

 Even under the *Daubert* analysis, courts in a variety of jurisdictions have cautioned that the testimony of medical experts performing diagnoses based on observed symptoms should be evaluated less rigidly than that of scientists testifying as to experimental phenomena. In other words, a hard science capable of yielding a unique result through testing, such as DNA analysis, is different than the medical application of clinical experience and scientific study to reach a diagnosis as to the cause of a particular child’s injuries. *See generally State v. McMullen*, 900 A.2d 103, 112-119 (Del.Super. 2006); *Easum v. Miller*, 92 P.3d 794 (Wyo. 2004); *Westberry v. Gislaved Gummi AB*, 178 F.3d 257, 262-63 (4th Cir. 1999); *Coastal Tankships U.S.A., Inc. v. Anderson*, 87 S.W.3d 591, 604-5 (Tex. App. 2002) (noting that “[e]ven with all the advances of medical science, the practice of medicine remains an art”).

 Medical evaluation in cases like that of the victim proceeds by process of elimination in what is commonly referred to as a ‘differential diagnosis’. The 4th Circuit Court of Appeals has described this method as follows:

A reliable differential diagnosis typically, though not invariably, is performed after physical examinations, the taking of medical histories, and the review of clinical tests, including laboratory tests, and generally is accomplished by determining the possible causes for the patient's symptoms and then eliminating each of these potential causes until reaching one that cannot be ruled out or determining which of those that cannot be excluded is the most likely.

*Westberry*, 178 F.3d at 262 (internal quotations omitted). This is precisely the methodology employed by the State’s medical experts in this case. As their testimony will reflect, they considered all potential causes of D.A.’s injuries and by process of elimination rendered their ultimate opinions only after ruling out other possible causes.

The defendant selectively relies upon articles in the medical literature which have criticized one or more of the alleged assumptions made about the shaken baby syndrome. Interestingly, virtually every one of those articles has been soundly criticized and rejected by mainstream medical opinion.

A good example is the work of Dr. Jennian Geddes and her colleagues, which is touted and relied upon by Mehlhoff, but which has been widely discredited – both in the United States and in her home country of England. When the shaken baby syndrome came under widespread attack in England by experts such as Geddes and America’s Dr. John Plunkett, the highest appellate court of England reviewed four cases and accepted the testimony of twenty-one different experts from the United States and the United Kingdom to decide whether the shaken baby syndrome, based on a “triad” of injuries, was reliable enough for expert opinion or whether the new “unified hypothesis” offered by Dr. Geddes was more reliable. The Court of Appeal of England noted that during the proceedings, Dr. Geddes retracted her “hypothesis” (that simple cessation of breathing from any cause could cause exactly the same findings as are seen in the shaken baby syndrome), indicating it was never meant to be relied upon in court as “fact”, only as a new hypothetical explanation for discussion. Dr. Geddes testified: “I would hate to think that cases were being thrown out on the basis that my theory was fact,” *The Intimidation of British Pediatricians*, Carole Jenny, **Pediatrics** 2007:797-799. See also *R v Harris,Rock, Cherry, and Faulder*, Court of Appeal of England and Wales,2005; where the highest court of England also found that Dr. Plunkett’s contributions were “not of assistance” when he suggested that a fatal brain injury in one of the children could have been caused by toppling over and falling about six inches. The ultimate conclusion of the highest court of appeal in England was that the “triad” of injuries was reliable enough to be the basis for expert opinion, but the “alternative hypothesis” proposed by Geddes was not reliable enough to be the subject of expert opinion.

In addition, the article published by Dr. John Plunkett in 2001 is similarly full of flaws and has been soundly criticized by the mainstream medical community to the extent that Dr. Plunkett claims his research paper somehow disproves the validity of the shaken baby syndrome. Plunkett reviewed over 75,000 injuries documented in a database that keeps track of playground injuries to children. Out of that huge number, he identified only 18 cases which he claims presented the same injuries represented to reflect the shaken baby syndrome but which were caused by “short falls”. However, his identification of the injuries that were the basis of the shaken baby syndrome was flawed (e.g. retinal hemorrhages were not identified by a pediatric ophthalmologist, but were “remembered” by other physicians in the cases). Most of the children in Plunkett’s paper were older than the normal age of victims of the shaken baby syndrome, and in fact the youngest child in his paper is 12 months of age and some of the children were in their teenage years. The great majority of victims of the shaken baby syndrome are under 12 months old. See, National Center on Shaken Baby Syndrome Victim Database, unpublished data available at www.dontshake.com. And, none of the children reported in any of Plunkett’s 18 cases had a collection of injuries seen in the shaken baby syndrome. That, of course, is not surprising, since accidents on playgrounds or on playground equipment aren’t expected to occur to children in the peak age of 2-4 months of age, as is seen in victims of shaking injury. Several of the “falls” Plunkett reported were actually accelerated head impacts caused while the child was swinging or hanging from playground equipment. Thus, the conclusions drawn in his paper do not flow from the data, even if he had represented the data accurately. Dr. Robert M. Reece, world-renowned expert on child abuse and the author of the *Child Abuse Quarterly* said of Dr. Plunkett’s article and its conclusions: “Several major methodological problems exist in this study: absence of infants, the age group of most importance in inflicted head injury; datasets relying on histories of the injuries accepted at face value by hospital personnel; a variety of mechanisms of falling, depending on the playground equipment being used at the time of the fall; and variable reporting practices over a 10-year period by those submitting data to the clearinghouse.” *Differential Diagnosis of Inflicted Childhood Neurotrauma*, in **Inflicted Childhood Neurotrauma: Proceedings of a Conference Sponsored by HHS, NIH, NICHD, ORD, and NCMRR** (2002).

The defendant’s memorandum also relies on a 1984 article by Aoki. The article has been universally discredited, except in the country where it was written. Aoki decided that Japanese parents in his home country could not possibly be abusing their children, so he published an article whereby he decided to believe the statements of Japanese abusive parents and offer an alternative theory that their children suffered severe brain swelling and subdural hemorrhages by accidentally hitting their heads on tatami mats. That does *not* represent science of any type, and reliance on the article is mistaken.

Many of the “experts” upon whom the defendant relies have used as the basis for their criticism the fact that the shaken baby syndrome can’t be replicated in a laboratory. Clearly, researchers are not allowed to take living children into a laboratory, shake them at various speeds, levels of violence, and degree of head excursion in order to see what would happen. The absence of such laboratory or “empirically-based” proof is not surprising and will not change. In addition, the experiments using animals or dolls have been interesting and have added some information to the overall knowledge about head injuries to human infants and toddlers, but have lacked the ability to replicate exactly what happens when forces are applied in various ways to actual human infants and toddlers. The thousands of victims each year who suffer severe closed-head injuries and who are presented to emergency rooms and children’s hospitals does, however, present a substantial body of clinical experience with the cause of those injuries. When that has been compared with obvious and well-documented accidental head injuries, several differences have emerged and that is one of the main underlying scientific bases of the shaken baby syndrome.

Obviously the part of the defendant’s memorandum (pp. 19-20) which argues that [PROSECUTION EXPERT]should not be allowed to express opinions as to the cause of death of D.A. should be ignored by this court – that was clearly taken from the other memos in homicide cases and does not apply in a case such as this where the victim did not die from his inflicted head injuries. Nothing the defendant has cited establishes that the underlying bases of the expert opinions in this case are not reliable under subsection (b) of Utah Rule of Evidence 702 and the Court should rule that the State’s expert opinions are based upon sufficient foundation to be admitted at trial without further argument or hearing on the issue.

**CONCLUSION**

 The defendant’s Motion to Exclude expert testimony by the State’s expert medical witnesses is without merit and should be denied by this Court. While the shaken baby syndrome, “abusive head trauma”, “inflicted head injury” or the “shaken–impact syndrome” will always have some in the medical profession who criticize its scientific underpinnings, most of those who fit in that category have a particular agenda – they are making a large amount of money testifying as expert witnesses for accused defendants all over the United States and in other countries. However, there has been no authority cited by the defendant that shows either that the shaken baby syndrome or other similar diagnostic bases for expert opinion is no longer generally accepted in the relevant expert field or that it has been found so unreliable as to defeat the showing made by the State that the basis of the experts’ opinions meet the threshold showing required by the new Rule 702 of the Utah Rules of Evidence.

 Similarly, the defendant has advanced no credible authority justifying an evidentiary hearing applying either the *Daubert* or the *Rimmasch* test, since both of those cases have no clear applicability in Utah after the enactment of the new version of Rule 702. Merely establishing that there are some individuals who criticize the basis of an expert witness’s opinions is insufficient to require an evidentiary hearing concerning the threshold showing under the new Rule 702. And, the Advisory Committee notes make clear the intent of the drafters of the new Rule was to avoid extensive litigation over the admissibility of expert witness testimony, while still allowing the Court to perform its role as “gatekeeper” to keep out “junk” or questionable scientific opinions.

 The State respectfully requests the Court to rule based on the memoranda and supporting information provided by each party that the defendant’s motion to exclude should be denied.

RESPECTFULLY SUBMITTED this \_\_\_\_\_ day of February , 2009

Deputy District Attorney

**CERTIFICATE OF DELIVERY**

 I hereby certify that a true and correct copy of the foregoing Memorandum in Opposition to Defendant’s Motion to Excludewasdelivered to [DEFENSE COUNSEL], Attorneys for the defendant, [DEFENDANT], at [ADDRESS] on this \_\_\_\_ day of February, 2009.

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