

**UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF TENNESSEE
NASHVILLE DIVISION**

LIZBETH AGUIRRE and JORGE ALVAREZ,)
)
Plaintiffs,)
)
v.)
)
MITSUBISHI MOTORS NORTH AMERICA,)
INC. and MITSUBISHI MOTORS)
CORPORATION,)
)
Defendants.)

**Case No. 3:11-cv-00225
Judge Aleta A. Trauger**

MEMORANDUM

Pending before the court are a set of related motions concerning two of the plaintiffs’ retained experts. Defendants Mitsubishi Motors North America, Inc. and Mitsubishi Motors Corporation (collectively “Mitsubishi”) have filed a Motion to Preclude the Testimony of Christopher Caruso (Docket No. 30), to which the plaintiffs filed a Response in opposition (Docket No. 39), and Mitsubishi filed a Reply (Docket No. 48). Mitsubishi also filed a Motion to Preclude the Testimony of Joseph Lawson Burton, M.D. (Docket No. 32), to which the plaintiffs filed a Response in opposition (Docket No. 40) supported by the Affidavit of Joseph Burton (Docket No. 42, Attachment No. 2), and the defendants filed a Reply (Docket No. 49). Mitsubishi has also filed a related Motion to Strike the Burton Affidavit or, in the Alternative, for Leave to Re-depose Dr. Burton (Docket No. 44), to which the plaintiffs filed a Response in opposition (Docket No. 52).

For the reasons stated herein, the defendants’ Motion to Preclude Caruso will be denied, the defendants’ Motion to Preclude Burton will be granted in part and denied in part, the

defendants' request to strike the Burton Affidavit will be denied, and the defendants will be permitted to re-depose Dr. Burton concerning the previously undisclosed articles referenced in his affidavit.

BACKGROUND

I. Factual Background

The basic facts of this case are undisputed. On March 20, 2010, Lizbeth Aguirre was driving a 2003 Mitsubishi Eclipse in Springfield, Tennessee. When Aguirre moved through an intersection to make a left turn, a Corvette driven by a drunk driver ran a red light and crashed into the side of Aguirre's car. Although Aguirre was wearing a seatbelt, the accident caused Aguirre to suffer brain trauma, pelvic injuries, and abdominal injuries, including pelvic fractures, a ruptured bladder, kidney and spleen lacerations, vaginal bleeding, and lumbar spine fractures. The car that Aguirre was driving during the incident ("Aguirre's Eclipse"), did not include a side-impact airbag, which Mitsubishi had offered only as *optional* equipment at the time of original purchase.¹

Aguirre asserts a design defect claim against Mitsubishi, arguing that (1) the failure to include a side-impact airbag as standard equipment rendered the 2003 Eclipse unreasonably dangerous and, therefore, defective; and (2) had the car been equipped with a side-impact airbag, Aguirre's injuries would have been mitigated. Aguirre's husband, Jorge Alvarez, asserts a derivative claim for loss of consortium.²

¹It appears that Aguirre purchased the car used. The parties agree that there were no material alterations to the occupant restraint system of Aguirre's Eclipse after it left the manufacturer's possession.

²During the crash, Alvarez was asleep in the front seat of the car and another individual, Ramon Carillo, Jr., was located in the back seat. Alvarez asserts a claim for loss of consortium

The plaintiffs have retained several experts to support their claims, including Christopher Caruso and Dr. Joseph Lawson Burton. The defendants challenge Caruso's opinions in part and Burton's opinions in full.

II. Motor Vehicle Testing Results

The defendants' main argument is that Caruso's and Burton's opinions must be excluded because they are irreconcilable with a particular motor vehicle crash test conducted on the 2003 Mitsubishi Eclipse model ("2003 Eclipse").

Under Federal Motor Vehicle Standard No. 214, 49 C.F.R. § 571.214 (2003) ("FMVSS 214"), which is a safety regulation issued by the National Highway Traffic Safety Administration ("NHTSA"), car manufacturers simulate side-impact crashes on a particular car model utilizing a test dummy seated in a car (simulating the impacted car's occupant) and a deformable movable barrier (simulating the front end/bumper of the oncoming car). The test is utilized to measure the potential force acceleration to car occupants in a right-angle crash (*i.e.*, a crash at a 90-degree angle), where the oncoming car hits at a specific velocity. The FMVSS 214 test produces measurements, calculated as multiples of the force of gravity, of the force acceleration on the test dummy at points on the upper ribs, lower ribs, lower spine, and pelvis, along with a composite number called the Thoracic Trauma Index ("TTI"). Car manufacturers are required to meet certain minimum threshold standards for these injury criteria values, which are used as a proxy for the potential injury risk to car occupants during a side-impact crash.

It appears that, in addition to utilizing the FMVSS 214 test to demonstrate compliance

stemming from his wife's injuries, but he does not assert a claim for any personal injuries sustained by him during the accident.

with federal minimum safety standards for a particular car model, car manufacturers also utilize the test to evaluate the efficacy of alternative safety systems in their cars. To perform this evaluation, the manufacturer runs the test without an enhanced safety system and collects measurements for the five injury criteria values, then runs the test with the enhanced safety system – a side airbag, for example – and collects the same measurements. By comparing the results of these tests, the car manufacturer can approximate the efficacy of the enhanced safety system in preventing potential injuries to car occupants during a side-impact crash – at least to the extent that real-world crashes mirror laboratory conditions – including the potential injury risk reduction to particular areas of the occupant’s body. For example, the test could show that alternative system “X” improves the injury criteria values by 30-35% for the upper ribs and lower ribs and 10-15% for the lower spine and pelvis, while alternative system “Y” improves the injury criteria values for 40-50% for the upper ribs, lower ribs, and lower spine, but provides no statistically significant improvement in the pelvis injury criteria value.

Here, Caruso and Burton have both relied on FMVSS 214 testing for the 2003 Eclipse, previous year Eclipses, and other car models. The parties vigorously dispute whether it is appropriate for Caruso and Burton to rely on any FMVSS 214 testing data other than the tests run on the 2003 Eclipse. According to Caruso, certain pre-2003 Mitsubishi Eclipse models and vehicles sold by other car manufacturers utilized a substantially identical car “platform.” As described further herein, Caruso is a highly credentialed expert who believes, based on his analysis of case-specific records and decades of professional experience, that the safety design systems of the 2003 Mitsubishi Eclipse and these “sister vehicles” are substantially similar because they utilize the same underlying platform. Thus, he believes that statistics concerning

the safety of the sister vehicles with and without a side airbag is relevant to evaluating the safety of the 2003 Eclipse with and without a side airbag. The sister vehicles appear to include at least the 2000 Eclipse, the 2001 Dodge Stratus/Chrysler Sebring, and the 2003 Dodge Stratus/Chrysler Sebring.³

As concern the issues in dispute here, the car manufacturers performed or commissioned FMVSS 214 testing of the 2003 Eclipse and these sister models with respect to the efficacy of utilizing a side-impact airbag system. Testing performed on the 2000 Eclipse, 2001 Stratus/Sebring, and 2003 Stratus/Sebring all demonstrated that, when a side airbag was utilized, the injury criteria values for all five data points (including the pelvis) improved significantly relative to a car without the side airbag. For example, when a side airbag was utilized, all five injury criteria values improved between 22.1% and 51.2% for the 2000 Eclipse and between 15.2% and 42.3% for the 2001 Dodge Stratus/Sebring. Thus, these test results indicated, among other things, that the injury criteria values for the pelvic region improved when the sister vehicle was equipped with a side airbag.

However, the FMVSS 214 test for the 2003 Eclipse, which is the model at issue in this

³As Caruso explains: “When a manufacturer designs a new vehicle structure (also known as a vehicle ‘platform’), if that manufacturer has multiple car lines, such as Chrysler with nameplates Chrysler, Dodge, and Jeep, it is common to use the same basic structural design across vehicle Models of different nameplates. In this case, Mitsubishi is actually designing this new vehicle platform for themselves AND for Chrysler. So the same fundamental vehicle structure is then utilized for the Mitsubishi Eclipse, Chrysler Sebring and Dodge Stratus. They are fundamentally the same vehicle structure, but will have different styling and features in order to reflect the desires of their particular customer base. However, the basis [sic] structures, including of the structural steel related to vehicle protection, will be similar or identical for all the models. This use of a common vehicle structure across multiple models is what we term ‘Sister Vehicles’.” (Docket No. 41, Ex. D, Caruso Aff. at p. 9; *see also* Docket No. 41, Ex. C, Caruso Dep. at 105:18-19; *id.*, Ex. D, Caruso Expert Report at p. 5.)

case, produced a result that was inconsistent with testing results for the prior year sister vehicles and with the current year sister vehicles. In the 2003 Eclipse FMVSS 214 test, equipping the car with a side airbag resulted in only a 12% to 24% improvement for the upper rib, lower rib, lower spine, and TTI criteria values – substantially less improvement than was shown for prior and contemporaneous year sister vehicles – and actually showed a 4% *worsening* of the pelvic injury criteria value.

Thus, a key issue in the case is what importance to ascribe to the FMVSS 214 test for the 2003 Eclipse, which did not comport with the other testing results and, at any rate, does not represent the only means by which car manufacturers evaluate the efficacy of their safety systems. Mitsubishi essentially maintains that (1) data regarding the sister vehicles is irrelevant to evaluating the potential safety benefits of the 2003 Eclipse optional side airbag system; and (2) without regard to any other data or testimony in this case, the FMVSS 214 testing results for the 2003 Eclipse establish that Aguirre would have suffered the same pelvic injuries with or without a side airbag.

STANDARD OF REVIEW

Federal Rule of Evidence 702 provides as follows:

A witness qualified as an expert by knowledge, skill, experience, training, or education may testify thereto in the form of an opinion or otherwise, if (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods, and (d) the expert has applied the principles and methods to the facts of the case.

In *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469 (1993), the Supreme Court identified four non-exclusive factors that may be helpful to the court

in assessing the relevance and reliability of expert testimony, including (1) whether a theory or technique has been tested; (2) whether the theory or technique has been subjected to peer review and publication; (3) the known or potential error rate and the existence and maintenance of standards controlling the theory or technique's operation; and (4) the extent to which a known technique or theory has gained general acceptance within a relevant scientific community. *Id.* at 593-94.

In its "gate-keeping" role, a trial court must evaluate the relevance and reliability of all expert testimony, whether the testimony offered is "scientific" or not. *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 147, 119 S. Ct. 1167, 143 L. Ed. 2d 238 (1999). That said, the *Daubert* factors do not constitute a "definitive checklist or test." *Id.* at 150. Indeed, the court's fundamental objective is to generally evaluate, based on whatever factors are important to the particular case, the relevancy and reliability of the testimony and not necessarily to explore factors that might not be relevant to a particular case, such as whether the expert's methods are subject to empirical testing. *Id.* at 151. That is, the court is to ensure that the proffered testimony is reliable and relevant and that the expert, whatever his or her field, "employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field." *Id.* at 152.

The proponent has the burden of establishing that the pertinent admissibility requirements have been met by a preponderance of the evidence. Fed. R. Evid. 104; *see also Pride v. Bic Corp.*, 218 F.3d 566, 577-78 (6th Cir. 2000) ("In short, under *Daubert* and its progeny, a party proffering expert testimony must show by a 'preponderance of proof' that the expert whose testimony is being offered is qualified and will testify to scientific knowledge that

will assist the trier of fact in understanding and disposing of issues relevant to the case.”) (citing *Daubert*, 509 U.S. at 592 n.10).

ANALYSIS

I. Caruso⁴

A. Caruso’s Qualifications and Opinions

Caruso offers opinions related to the increased benefits from side airbag systems. Briefly, Caruso is a highly credentialed expert: he is a licensed electrical and mechanical engineer who worked in the automotive industry for nearly 30 years before establishing a private litigation consulting company in 2007. He has extensive laboratory and field experience related to the development and testing of car safety technology, including frontal- and side-impact airbags. Among other professional accomplishments, he has been issued 6 patents in automotive safety technologies and three in automotive systems, including airbag systems currently used in certain cars and trucks.

Caruso has disclosed a number of opinions in this case, which the parties have grouped into two categories: (1) “Defect Opinions”; and (2) “Causation Opinions.”⁵ Those opinions are as follows:

⁴In support of its Motion to Preclude Caruso, Mitsubishi filed a Memorandum of Law (Docket No. 31) supported by several exhibits, including Caruso’s deposition transcript, expert report, and *curriculum vitae* (Docket No. 30, Exs. D-F). In support of their Response in opposition, the plaintiffs filed various supporting materials (*see* Plaintiffs’ Joint Evidentiary Submission, Docket Nos. 41 (Exs. A-F), 42 (Exs. G-M), 43 (Exs. N-T)), including, *inter alia*, an Affidavit of Chris Caruso (Docket No. 41, Ex. D), which addresses issues raised by Mitsubishi’s Motion to Preclude his testimony. In support of their Reply, Mitsubishi attached excerpts from an expert report prepared by its retained expert, Robert C. Lange.

⁵Caruso also asserts an opinion that there were no material alterations to the occupant restraint system of Aguirre’s Eclipse after it left the manufacturer’s possession. Mitsubishi does not challenge this opinion, representing that it is an issue of fact on which there is no dispute.

- Defect Opinions: (a) the occupant restraint system for the 2003 Eclipse was unreasonably dangerous at the time of its design and manufacture due to the omission of side impact airbags as standard equipment; (b) safer alternative designs existed for the 2003 Eclipse's restraint system; (c) these safer designs would not have impaired the utility of the occupant restraint system; and (d) the safer designs were both economically and technologically feasible at the time that the occupant restraint system left the control of Mitsubishi. Each of these opinions was designated by a separate bullet-point within Caruso's expert report.
- Causation Opinions. In his expert report, Caruso identified by separate bullet points two opinions related to causation: (1) the design defect of the occupant restraint system of the 2003 Eclipse was the immediate cause of the permanent injuries suffered by Lizbeth Aguirre in the accident; and (2) the alternative designs available in the 2003 Eclipse would have significantly reduced the injuries suffered by Lizbeth Aguirre in the accident. Caruso has abandoned these opinions as originally articulated.⁶ However, at deposition, Caruso stated that, "[g]enerically, the way [side torso air bag] systems work, you would expect some reduction or mitigation of pelvic injuries." (See Caruso Dep. at 167:8-21).

In preparing the Defect and Causation Opinions expressed in his report, Caruso analyzed various materials, including, *inter alia*, the accident report related to Aguirre's crash, photographs of the incident scene and the vehicles, medical records produced in this case, case-specific deposition testimony, certain public records relating to the safety of the 2003 Mitsubishi Eclipse, certain FMVSS 214 testing results for sister vehicles, and testing and design documents produced by Mitsubishi in this case. Based on his analysis of the record and his professional experience, Caruso determined that it would be appropriate to extrapolate the efficacy of a side airbag system in the 2003 Eclipse by reference to FMVSS 214 data relating to the sister vehicles. In part based on that data, he concluded that utilizing an airbag on the 2003 Eclipse would have resulted in

⁶See Caruso Aff. at p. 14 ("As I explained in my deposition, I do not intend to offer any opinion as to whether Ms. Aguirre would have had some different injury if the 2003 [Eclipse] had had a side impact airbag. That specific issue is being addressed by Dr. Joseph Burton.")

substantial safety benefits in a side-impact collision. However, either through inadvertence or because he had never been provided with the material, Caruso did not analyze the 2003 Eclipse FMVSS 214 testing data in preparing his expert report.

At some point before his deposition, Caruso became aware of the 2003 Eclipse FMVSS 214 data and analyzed it. At deposition, counsel for Mitsubishi questioned Caruso about whether the 2003 Eclipse FMVSS 214 results impacted Caruso's conclusions. Caruso acknowledged that these tests results were "a little nebulous," (Caruso Dep. at 174:13-23),⁷ but stated that they did not affect his core conclusion that there would have been a safety benefit to having an air bag in the 2003 Eclipse.⁸ He explained that, in his experience, a reduction in impact force on the thoracic region of the occupant's body also typically reduces the force on the rest of the body during a crash, including the pelvis. However, with respect to the data point showing a 4% increase in the pelvic force acceleration reading in the 2003 Eclipse FMVSS 214 test, he stated that "I can't explain why that is; it's not typical of these systems" (*Id.* at 165:23-166:12.)

In its Motion to Preclude Caruso's testimony, Mitsubishi has argued that Caruso's opinions should be excluded because those opinions are essentially irreconcilable with the 2003 Eclipse FMVSS 214 testing results. In response, Caruso has filed an affidavit that attempts to further clarify why those testing results do not change his opinions. In the Caruso Affidavit, Caruso avers the following points, among others:

⁷It is not entirely clear from the deposition transcript whether Caruso was describing the entire set of test results as "nebulous," or whether he was specifically referring to the pelvic data measurement as "nebulous." Counsel for Mitsubishi did not ask a follow-up question to clarify this point.

⁸Indeed, Mitsubishi does not dispute that its own expert testified that the addition of a side-impact airbag reduces or mitigates the injury levels of an occupant.

- In Caruso’s professional experience with FMVSS 214 tests, crash impact results can vary from test to test: “One crash test would show all the injuries being considered PASS, while the very next crash test of the same conditions could see large increases in injury levels, sometimes even FAILING the FMVSS 214 standards.” For this reason, in his experience, car manufacturers often design vehicles that provide a margin of safety that substantially exceeds federal minimum standards.
- Upon ascertaining that the 2003 Eclipse without an airbag was under-performing relative to sister vehicles and previous Eclipse models, Mitsubishi should have undertaken a detailed analysis regarding the cause of that degradation in performance and should have considered whether to make the side airbag a standard feature to prevent that degradation.
- The FMVSS 214 data for the 2003 Eclipse actually supports his opinion. Without an airbag, the 2003 Eclipse performed worse than its 2003 Chevy and Dodge sister platforms and worse than previous Eclipse models. Only with an airbag did the 2003 Eclipse show safety results closer to that of its sister platforms and its previous Eclipse models. This is consistent with Caruso’s opinion that the 2003 Eclipse was unreasonably dangerous without a side airbag.
- Real-world side impact conditions often are not identical to laboratory conditions: for example, the vehicle weights, vehicle speeds, and impact angles can differ. These differences necessarily affect the actual impact experienced by an occupant in a side-impact crash.
- In addition to the FMVSS 214 data, Mitsubishi would have performed a host of tests on the 2003 Eclipse airbag system, including crash tests that measure pole impacts, angular impacts, side impacts, and perhaps car-to-car impacts. However, Mitsubishi did not produce that testing data in this case, making it impossible to determine, to a reasonable degree of certainty, why the FMVSS 214 data showed a 4% increase in pelvic injury numbers when a side airbag was utilized in the 2003 Eclipse. In light of these issues, “[t]he performance in the single 2003 Mitsubishi Eclipse test could have been an outlier with the airbag deployment not providing any additional benefit. Or it could have been simply the way the system performs in well-controlled laboratory crash test[s] and not representative of how the vehicle performs in real world crashes like that of Lizbeth Aguirre.”

Thus, even after considering the additional FMVSS 214 data, Caruso maintains that, “to a reasonable degree of engineering certainty, . . . the 2003 Mitsubishi Eclipse without a side torso

airbag was unreasonably dangerous and defective to occupants in real world side impact crashes.” (Caruso Aff. at p. 14.)

B. Mitsubishi’s Challenges to Caruso’s Opinions and Affidavit

Mitsubishi argues that the court should exclude Caruso’s opinions, essentially on the basis that his opinion cannot be reconciled with the 2003 Eclipse FMVSS 214 data. They argue that, in particular, Caruso’s assumption that the 2003 Eclipse utilized a substantially similar platform to that contained in the 2000 Eclipse and the sister vehicles is flawed and, therefore, renders his opinions inadmissible. Mitsubishi cites to the report of its own expert, who concludes that the 2003 Eclipse differed from these other vehicles in several material respects, thereby making it inappropriate to rely on testing results concerning those vehicles. Mitsubishi also argues that the court should disregard Caruso’s affidavit statement that the 2003 Eclipse data “could be an outlier.”⁹ Furthermore, they suggest that the court should exclude Caruso’s report on the basis that it was “prepared solely for purposes of litigation, as opposed to testimony flowing naturally from an expert’s line of scientific research or technical work.” *Johnson v. Manitowoc Boom Trucks, Inc.*, 484 F.3d 426, 434 (6th Cir. 2007).

B. Application

1. Request to Strike

⁹Specifically, in its Reply concerning the Motion to Preclude Caruso’s opinions, Mitsubishi asks the court to disregard Caruso’s statement, at page 11 of his affidavit, that the 2003 Eclipse FMVSS 214 test may have been an “outlier.” (Docket No. 48 at p. 5.) Caruso’s 15-page affidavit contains many averments that Mitsubishi does not address in its Reply. Accordingly, the court construes Mitsubishi as seeking to strike only the narrow aspect of Caruso’s affidavit that Mitsubishi has specifically identified. Regardless, for the reasons set forth herein, even if Mitsubishi had challenged the remainder of the affidavit, the court would not have stricken it.

As an initial matter, the court will not strike Caruso's attempt to explain the relevance of the 2003 Eclipse data. Caruso does not actually opine that the 2003 Eclipse data is an "outlier" with respect to the pelvic injury criteria values; instead, he states that, while that data *could* be an outlier, he has no way of determining that fact one way or the other without additional data that is not in the record. The court construes this testimony as broadly consistent with Caruso's statement at deposition that he could not explain the pelvic result, which he had described as inconsistent both with the hosts of similar tests he had evaluated in his professional experience and with the testing data for the sister vehicles. Moreover, in his report, he had already expressed that his analysis was limited by the fact that "Mitsubishi has failed to provide any relevant specifications, test reports, calibration summary reports, crash test matrix listing or other vital information for me to assess the quality, reliability and effectiveness of their optional side impact airbag system." (Caruso Report at p. 4.) Thus, the challenged portion of his affidavit simply fleshes out why he could not form an opinion that explains the pelvic data point, apparently due to the data deficiencies that he had previously identified in his expert report. Thus, the court finds that the affidavit does not violate Fed. R. Civ. P. 26(a)(2)(B).

Indeed, Caruso has complied with his obligations under the federal rules, which require him to correct or supplement his opinions sufficiently in advance of trial. *See* Fed. R. Civ. P. 26(e). Caruso certainly should have considered the 2003 Eclipse data in preparing his original opinions but did not realize that Mitsubishi had produced that data. Before his deposition he attempted to correct that error by analyzing the data, about which he was questioned at deposition. Notwithstanding its opportunity to flesh this issue out fully at Caruso's deposition, Mitsubishi left several questions unanswered. Caruso has now plugged that gap through his

affidavit, which, in relevant part, is not inconsistent with his limited deposition testimony on this subject. Under Fed. R. Civ. P. 26(e)(2), an expert may supplement or correct his opinions after issuing his report and being deposed. *See, e.g., Hamilton v. Breg*, Civil Action No. 2:09-CV-146, 2010 WL 2889089, at *3 (S.D. Ohio July 20, 2010) (refusing to strike expert’s memorandum purporting to correct earlier testimony, where memorandum “may in fact be the sort of supplementation or correction of ‘information given during the expert’s deposition’ required by Fed. R. Civ. P. 26(e)(2)”).

Finally, even if Caruso’s affidavit arguably exceeded the scope of his original report, his failure to address the 2003 Eclipse data earlier is harmless. *See Roberts ex rel. Johnson v. Galen of Va., Inc.*, 325 F.3d 776, 782 (6th Cir. 2003) (explaining that, under Rule 37, a court need not impose sanctions if the Rule 26 violation was harmless or substantially justified). Mitsubishi is now well aware – several months before trial – as to how Caruso will attempt reconcile the 2003 Eclipse data with his opinions. This issue will be an appropriate subject for cross-examination at trial, with respect to which Mitsubishi will face no unfair surprise.

2. Defect Opinions

With respect to the comparability of the sister models to the 2003 Eclipse airbag system, Caruso relies on case-specific design documents, his extensive industry experience, and on case-specific deposition testimony from Mitsubishi’s corporate representative regarding the vehicle’s design. Although Mitsubishi contends that Caruso has misinterpreted the record evidence in concluding that the sister vehicles are comparable, the reliability of that assumption goes to the weight the jury will assign to his Defect Opinions, not their admissibility. For example, if the jury is persuaded that Caruso has made a flawed assumption concerning the sister vehicles, it will

undermine the persuasiveness of the conclusions he has drawn from that data.

Second, Mitsubishi essentially argues that, without regard to any other evidence in the record, the 2003 Eclipse FMVSS 214 testing results preclude any finding that the car was unreasonably dangerous without a side airbag. They have identified no authority for this sweeping proposition. Indeed, even accepting the 2003 results at face value – which Caruso argues that the trier of fact should not do without information that is absent from the record – those testing results *did* reflect substantial safety benefits for four of the five injury criteria measured in the FMVSS 214 test when a side airbag was utilized.

Mitsubishi appears to contend that, absent a reduction in the pelvic injury criteria value specifically, the 2003 Eclipse cannot have been defectively designed for failing to include a side airbag. This position improperly conflates the design defect question with the issue of causation. It will ultimately be for the jury to determine whether the side airbag benefits as a whole, which at least appear to have extended to the thoracic region of an occupant's body, were so substantial (relative to the model without an airbag) as to render the 2003 Eclipse defective without a standard side airbag. However, even if the jury were to find that the 2003 Eclipse was defectively designed with respect to occupant safety, the jury would still need to find that a side airbag actually would have mitigated Aguirre's injuries – *i.e.*, that the design defect caused her injuries. Thus, the issue could ultimately be one of "fit": even if the plaintiffs establish that Aguirre's Eclipse was defectively designed because it contained no side airbag, Mitsubishi may nevertheless be able to establish that this defect had no effect on pelvic and abdominal injuries suffered by drivers (like Aguirre) in side-impact collisions. At any rate, Mitsubishi has not identified any legal authority establishing that the plaintiffs must show that a side airbag reduces

pelvic injuries – as opposed to other types of injuries to a car occupant – to prove that the 2003 Eclipse contained a safety design defect.

With respect to the substance of his Defect Opinions, Caruso has employed a sufficiently reliable scientific methodology in arriving at his conclusions. He has analyzed various relevant case-specific records and testimony, which he has interpreted and applied in the context of his wealth of personal industry experience regarding airbag systems. Those experiences include extensive knowledge regarding side-impact systems and the means by which those systems are tested and evaluated, as well as the potential limitations on laboratory testing of those systems as a proxy for real-world conditions. He offers a coherent explanation for relying on crash test data concerning the sister vehicles, which shows that side airbags provide substantial safety benefits in those vehicles. He also considers various forms of safety information *in addition to* the FMVSS 214 test results that he plausibly believes support his conclusion that the 2003 Eclipse was unreasonably dangerous, such as a “poor” safety rating from the Insurance Institute for Highway Safety on a sister vehicle and a 3-star rating (out of a possible 5 stars) in a NHTSA side-impact test of the 2003 Eclipse.

Plainly, these are highly technical matters, with respect to which Caruso is eminently qualified to testify and has offered opinions based on a reasonable methodology. Whether his methodology will persuade the jury is a separate question. Ultimately, it will be for the jury to determine whether Caruso has drawn the correct conclusions from the multitude of esoteric technical records and testimony in this case, including whether he has appropriately relied on data concerning the sister vehicles and whether the FMVSS 214 test for the 2003 Eclipse undermines his Defect Opinions. *See In re Scrap Metal Antitrust Litig.*, 527 F.3d 517, 530 (6th Cir. 2008)

(“[M]ere weaknesses in the factual basis of an expert witness’ opinion bear on the weight of the evidence rather than on its admissibility.”) In sum, Mitsubishi’s objections to Caruso’s Defect Opinions properly concern the weight the jury should give to those opinions, not their admissibility.

3. Causation Opinions

Mitsubishi argues that the court should exclude Caruso’s opinion that, “[g]enerically, the way [side torso air bag] systems work, you would expect some reduction or mitigation of pelvic injuries.” Mitsubishi argues that (1) in violation of Rule 26, Caruso inappropriately expressed this opinion for the first time at deposition, justifying exclusion under Rule 37; (2) the opinion is not based on a reasonable methodology, justifying exclusion under the *Daubert* standard; and (3) the opinion is irrelevant, because the 2003 Eclipse FMVSS 214 data demonstrates that a side airbag did not generally reduce pelvic injuries in the car at issue in this case. None of these arguments is persuasive.

Caruso’s expert report originally articulated specific causation opinions establishing that (1) the alleged design defect caused Aguirre’s permanent injuries, and (2) had the 2003 Eclipse contained a side airbag, it would have mitigated those injuries. In the course of reaching these opinions, Caruso explained that “[t]he injuries she suffered were exactly the type of injuries that side impact airbags are designed to reduce or mitigate in severe T-bone intersection type crashes,” and that “it was clear that significantly higher injuries would be sustained by occupants in side impact crashes of this model compared to its sister models within the same vehicle platform.” (Caruso Report at p. 5.)

At deposition, Caruso stated that, while he no longer intended to offer specific causation

opinions at trial, he still believed that, as a general matter, side-impact airbags have safety benefits for occupants with respect to the pelvis. For example, he explained that safety systems designed primarily to protect the thoracic region of an occupant also have a “second order effect” (*i.e.*, a secondary or side benefit) to the pelvic region. This secondary effect is achieved because a side airbag – even one designed primarily to protect the thorax – decelerates an occupant before side impact, thereby mitigating potential pelvic injuries. (*See, e.g.*, Caruso Dep. at 76:15-77:6 and 133:10-134:1.)

Mitsubishi characterizes Caruso’s clarification of his opinion at deposition as an “ambush,” essentially because it was not set forth in the bullet-point list of opinions contained in Caruso’s report. First, although Caruso did not articulate this opinion in a specific bullet point, he did disclose in his report that Aguirre’s pelvic injuries were among the types of injuries typically mitigated by side airbags, which is a general statement about the safety benefits of side airbags relative to pelvic injuries. Thus, his report sufficiently disclosed his opinion that side airbags generally mitigate pelvic injuries, even though he did not specifically designate that opinion in a separate bullet point. Moreover, at his deposition, Caruso simply *narrowed* the original scope of his opinion considerably: originally, he was prepared to offer an opinion that Aguirre’s injuries actually would have been mitigated; now he intends to testify only that, as a general matter, side airbags typically reduce pelvic injuries. As noted above, experts may correct or supplement their testimony under Rule 26(e)(2), provided that they do so before pre-trial disclosures are due. Thus, even if the court were to construe Caruso’s deposition testimony correcting or supplementing his prior disclosures, Caruso has timely complied with his discovery obligations.

Second, Mitsubishi does not contend – nor could it – that it has suffered any actual prejudice or will face unfair surprise at trial. Caruso explicitly narrowed his Causation Opinion at his deposition, and Mitsubishi questioned him about it. Thus, even if the court were to construe Caruso’s deposition statement as a violation of Rule 26, that disclosure is demonstrably harmless to Mitsubishi and, therefore, is excusable.

Mitsubishi also argues that Caruso’s opinion is irrelevant in light of the 2003 Eclipse FMVSS 214 test results, which it claims demonstrate that, even if Caruso is correct that side airbags generally protect pelvis injuries, that opinion is not true with respect to the 2003 Eclipse. As with the Defect Opinions, Mitsubishi seems to be treating that single set of laboratory test results as legally conclusive of multiple disputed issues in this case, without regard to any other evidence. The jury will be presented with multiple forms of evidence, including the 2003 Eclipse FMVSS 214 test results, that concern whether the alleged design defect caused Aguirre’s permanent and debilitating injuries. It will be for the jury to consider whether to credit Caruso’s opinion that side airbags generally mitigate pelvic injuries. It will also be for the jury to consider whether, notwithstanding this (alleged) general rule, the 2003 Eclipse was a specific exception to the rule.¹⁰

Accordingly, the court will deny Mitsubishi’s Motion to Exclude Caruso’s testimony.

¹⁰Furthermore, although not squarely addressed by the parties in their briefing, the court notes that the laboratory test conditions for the 2003 Eclipse FMVSS 214 test were not identical to the conditions of the accident involving Aguirre’s Eclipse. The size and speed of the Corvette, the angle of its impact with Aguirre’s Eclipse, and the speed of the vehicles – among other factors – may have resulted in pelvic impacts that were different from those experienced by a test dummy under controlled laboratory conditions. (*See Caruso Aff.* at p. 8.) These are additional considerations that, with the benefit of expert testimony, the jury may consider at trial with respect to the issue of causation.

III. Burton¹¹

A. Burton's Qualifications and Opinions

Burton offers opinions on several issues relating to injury and causation. Burton is a forensic pathologist who received his M.D. in 1971, served as a medical examiner for the Metropolitan Atlanta area between 1974 and 2000, has worked as a forensic pathologist consultant since 1975, and currently serves as a medical examiner in Georgia. He has issued and published numerous articles concerning biomechanics, injury, causation, and occupant kinematics. He has reviewed at least 5,000 motor vehicle accidents, including hundreds of lateral impact cases in which he inspected the vehicle, reviewed medical records of the occupants involved, and performed a biomechanical and injury analysis. His experience includes reviewing and evaluating side impact testing performed by car manufacturers to meet FMVSS standards. He has also analyzed literature regarding side impacts, side impact airbags, and injuries resulting from side impacts in vehicles with and without airbags.

Burton offers a number of opinions supporting the plaintiffs' claims, of which Mitsubishi challenges only one: "Had [Aguirre's Eclipse] been equipped with the side [torso] airbag that was offered by Mitsubishi as optional equipment, assuming it deployed in a timely manner, her severe and debilitating injuries would have been either completely eliminated or significantly

¹¹In support of its Motion to Exclude Burton's opinions, Mitsubishi filed a Memorandum of Law (Docket No. 32) and multiple exhibits, including Burton's report, *curriculum vitae*, and deposition transcript (*see* Docket No. 31, Exs. D-E). In response, the plaintiffs filed a Response in opposition (Docket No. 40), multiple exhibits (*see generally* Pltfs. Joint Evidentiary Submissions at Docket Nos. 41-43), which included the Burton Affidavit (Docket No. 41, Ex. D). Mitsubishi filed a Reply thereto (Docket No. 49), along with a Motion to Strike the Burton Affidavit or to Re-Depose Burton (Docket No. 44), to which the plaintiffs filed a Response in opposition (Docket No. 52).

mitigated.” (Burton Report at p. 19.) At his deposition, Burton clarified that he would not testify that the side airbag would actually have prevented *all* of Aguirre’s pelvic and abdominal injuries – instead, he conceded that, while it would have mitigated many of her myriad injuries, it would not have prevented the fracture to her left acetabulum (a portion of her pelvis). Therefore, consistent with Burton’s deposition testimony and without further analysis, the court will preclude Burton from testifying that a side airbag would have prevented *all* of Aguirre’s serious injuries.¹²

In preparing his opinions, Burton analyzed vehicle photographs and accident scene photographs, the accident report, medical records and medical illustrations related to Aguirre, all of the deposition testimony in the case (or at least summaries thereof), and certain discovery documents produced by Mitsubishi. Based on his experience, understanding of the prevailing literature, and reference to specific crash tests (including, *inter alia*, certain FMVSS 214 tests), Burton opines that most tests show that side airbags decrease the risk of the injury to an occupant’s pelvis. He has explained that, once a car is struck laterally by an oncoming car, a side airbag typically decelerates the occupant as the occupant’s body moves toward the interior of the car door – *i.e.*, it cushions the occupant and pushes him/her away from the car door – thereby lessening the force of compression on the pelvis. Thus, he believes that, while, “[a]s a primary benefit, obviously you’re protecting the torso [,] . . . because of the deceleration effect on the rest

¹²The court makes this express finding because it remains somewhat unclear from the Burton affidavit whether Burton is attempting to revert to his original broader opinion. (See Burton Aff. at p. 3 (stating that “[m]y opinion is that if a side torso airbag had been present in the Eclipse, it would have reduced *or eliminated* Ms. Aguirre’s injuries,” but also that “I have opined to a reasonable degree of scientific, medical, and forensic probability that a side airbag would have significantly *mitigated* her injuries.”) (emphases added).)

of the body, it tends to provide pelvic and other injury mitigation as well, or at least a reduction.”
(Burton Dep. at 164:8-19.)

Burton also concludes that, with respect to Aguirre’s Eclipse, a properly deployed side airbag would have covered at least a portion of Aguirre’s pelvis, thereby reducing her injuries because of deceleration and/or cushioning of the resulting compression on her pelvis during the crash. Mitsubishi disputes this conclusion, arguing that the inflated side airbag, if installed and properly functioning, would not actually have extended to any portion of Aguirre’s pelvis.

B. Mitsubishi’s Challenges and Burton’s Affidavit in Response

In its Motion to Preclude Burton’s testimony, Mitsubishi argues that Burton has failed to articulate any methodology for his opinion and, as a corollary, that Burton’s opinions cannot be reconciled with the 2003 Eclipse FMVSS 214 test results.

In Response, Burton has filed an affidavit in which he (1) contends that the FMVSS 214 test results may be anomalous and do not change his opinions, in any case, and (2) introduces five previously undisclosed articles that he believes support the reliability of his opinions. As to the first point, Mitsubishi argues that Burton’s affidavit directly contradicts his deposition testimony and, therefore, should be stricken. As to the second point, Mitsubishi argues that the new articles should be stricken or, in the alternative, that Mitsubishi should have the opportunity to re-depose Burton to question him about these articles.

C. Analysis

1. Motion to Strike

A court may strike a post-deposition affidavit to the extent it directly contradicts prior deposition testimony by that individual. *Aerel, S.R.L. v. PCC Airfoils, L.L.C.*, 448 F.3d 899, 906-

907 (6th Cir. 2006). However, this rule does not prevent an individual “who was not directly questioned about an issue from supplementing incomplete deposition testimony with a sworn affidavit.” *Id.* at 907. In assessing whether the affidavit should be stricken, the court should consider “[w]hether the affiant was cross-examined during his earlier testimony, whether the affiant had access to the pertinent evidence at the time of his earlier testimony, and whether the earlier testimony reflects confusion [that] the affidavit attempts to explain.” *Id.* at 909.

Here, Mitsubishi’s counsel questioned Burton at deposition concerning the relationship between the 2003 Eclipse FMVSS 214 test results and the circumstances of Aguirre’s crash. Burton explained that the deformable barrier utilized in the FMVSS 214 test would have impacted the test car at a higher point than the point at which the Corvette, which has a low bumper, actually impacted Aguirre’s Eclipse. Thus, he explained that it was “somewhat understandable” that the FMVSS 214 test results would show lower impacts to the pelvic region than Aguirre actually experienced, because the deformable barrier utilized in the test was “actually missing the acetabulum and part of the pelvis.” (*See* Burton Dep. at 55:6-56:7.)

At deposition, Burton also provided to Mitsubishi his analyses of certain crash tests, including the FMVSS 214 test results for the Eclipse and its sister vehicles. Mitsubishi’s counsel did not specifically question Burton about these analyses. In averments broadly consistent with the analyses furnished to Mitsubishi at his deposition, Burton’s affidavit walks through a comparative analysis of the FMVSS 214 data for the 2003 Eclipse and the sister platforms and relates that analysis to his opinions. Burton also explains that, for some of the same reasons identified by Caruso, the 2003 Eclipse results showing a slight increase in pelvic force acceleration “could have been an anomaly” in light of “the wealth of other scientific data that

shows the opposite.” (Burton Aff. at p. 11.) Burton’s affidavit statements do not directly contradict his deposition testimony, in which he simply compared the laboratory conditions in the 2003 Eclipse FMVSS 214 test only to the conditions of Aguirre’s accident, but not to the results of FMVSS 214 testing for sister vehicles and other data showing that side airbags typically protect the occupant’s pelvis, at least to some degree. Accordingly, the court construes the Burton Affidavit as addressing matters that Mitsubishi did not fully question him about at deposition. Therefore, the challenged affidavit statements will not be stricken.

As to the new articles, Mitsubishi’s argument is well-taken. Burton did not disclose the referenced articles in his expert report or at deposition, thereby denying Mitsubishi the opportunity to cross-examine him regarding the relationship between those articles and his opinions. Nevertheless, in an abundance of caution, Mitsubishi has addressed the substance and relevance of these articles in its Reply concerning the Motion to Preclude Burton’s testimony, which the court has considered. Mitsubishi also concedes that any prejudice would be cured by permitting it to re-depose Burton.

For the reasons stated below, the court finds that Burton’s opinions are admissible, even without reference to these additional articles. Therefore, the court will not strike the portions of the affidavit addressing those articles. However, to prevent any potential prejudice to Mitsubishi at trial, Mitsubishi will be permitted to re-depose Burton concerning the articles.

2. Substantive Challenge

As with its objections to Caruso’s opinions, Mitsubishi’s challenges to Burton’s specific causation opinion properly concern the weight of Burton’s opinion, not its admissibility. Mitsubishi essentially complains that Burton “selectively relies on the crash tests that support

Plaintiffs' position in this case and ignores the others." (Docket No. 49, Defs.' Reply, at p. 2.) Of course, the plaintiffs presumably will assert the same complaint about Mitsubishi's experts at trial. Ultimately, whether Caruso is relying on the "right" scientific facts is a matter for the jury to weigh at trial. *See In re Scrap Metal Litig.*, 527 F.3d at 530.

Moreover, as with its objection to Caruso's general opinion regarding the efficacy of side airbags, Mitsubishi appears to maintain that the 2003 Eclipse FMVSS 214 test results cannot be reconciled with any opinion that Aguirre's pelvic and abdominal injuries would have been mitigated had her car been equipped with a side airbag. Again, the court is unpersuaded that, without regard to any other evidence in the record, this single set of test results conclusively resolves this complex issue.

With respect to Burton's methodology, Burton has employed a sufficiently reliable methodology based on his analysis of various potentially relevant records and testimony. Burton has identified (in his report and at deposition, as well as in his affidavit) numerous articles and other forms of evidence that he contends show that side airbags mitigate pelvic injuries in side-impact crashes. Burton also cites to case-specific FMVSS 214 testing data for the 2003 Eclipse and the sister vehicles, as well as other crash-test data, which he believes collectively show that including a side airbag demonstrably reduces the potential injury to the occupant, including potential injury to the pelvis. Furthermore, Burton disagrees with Mitsubishi as to whether the optional side airbag, when inflated, would have covered some or all of Aguirre's pelvis, thereby mitigating her injuries. Mitsubishi believes that the studies and articles on which Burton relies are distinguishable, that he has drawn the wrong conclusions from the crash test data for the 2003 Eclipse and other vehicles, and that Burton is wrong that the airbag would have extended to at

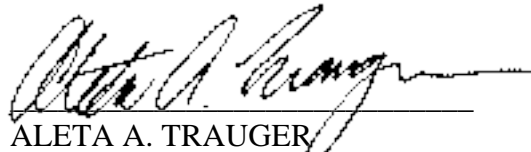
least part of Aguirre's pelvis. Whatever the merits of Mitsubishi's positions, they go the weight of Burton's opinion, not its admissibility. Mitsubishi will have the opportunity to cross-examine Burton, and the jury will weigh the extent to which Mitsubishi's criticisms undermine the weight of Burton's specific causation opinion.

CONCLUSION

For the reasons stated herein:

- Mitsubishi's Motion to Preclude Caruso will be denied;
- Mitsubishi's Motion to Preclude Burton will be granted in part and denied in part. Burton will be precluded from offering an opinion that including a side airbag would have prevented all of Aguirre's serious injuries, consistent with his deposition testimony. Subject to that qualification, Burton will be permitted to offer the remainder of his opinions.
- The court will not strike the Caruso Affidavit or the Burton Affidavit;
- Mitsubishi will be permitted to re-depose Burton concerning the articles identified in his affidavit.

An appropriate order will enter.


Aleta A. Trauger
United States District Judge