

# United States Court of Appeals for the Federal Circuit

2009-5096

JOHN DOE, 11, and JANE DOE, 11,  
As Representatives of the Estate of  
CHILD DOE, 11, Deceased,

Petitioners-Appellants,

v.

SECRETARY OF HEALTH AND HUMAN SERVICES,

Respondent-Appellee.

Richard Gage, Richard Gage, P.C., of Cheyenne, Wyoming, argued for petitioners-appellants.

Glenn A. MacLeod, Senior Trial Attorney, Torts Branch, Civil Division, United States Department of Justice, of Washington, DC, argued for respondent-appellee. With him on the brief were Tony West, Assistant Attorney General, Timothy P. Garren, Director, Mark W. Rogers, Deputy Director, and Catharine E. Reeves, Assistant Director.

Appealed from: United States Court of Federal Claims

Judge Mary Ellen Coster Williams

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Petition for review of the United States Court of Federal Claims in 99-VV-212, Judge Mary Ellen Coster Williams.

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DECIDED: April 13, 2010

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Before BRYSON, GAJARSA, and PROST, Circuit Judges.

PROST, Circuit Judge.

This is a Vaccine Act<sup>1</sup> case. We must decide whether the claimants, John and Jane Doe (collectively “Doe”), met their burden of proving that their daughter Monica’s death was caused by a hepatitis B vaccination. See 42 U.S.C. § 300aa-11. It is an off-Table case because Monica’s injury is not listed in the Vaccine Act Injury Table. See 42 U.S.C. § 300aa-14; 42 C.F.R. § 100.3(a). Accordingly, the burden was on Doe to prove

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<sup>1</sup> The official title is the National Childhood Vaccine Injury Act of 1986 (the “Vaccine Act”), Pub. L. No. 99-660, tit. III, § 311, 100 Stat. 3756 (codified as amended in scattered sections of 42 U.S.C.).

that Monica's death was actually caused by the vaccine. 42 U.S.C. § 300aa-11(c); see Walther v. Sec'y of Health & Human Servs., 485 F.3d 1146, 1149 (Fed. Cir. 2007).

Under the test for causation set out in Althen v. Secretary of Health and Human Services, 418 F.3d 1274 (Fed. Cir. 2005), a claimant must prove three things: (1) a medical theory causally connecting the vaccination to the injury, (2) a logical sequence of cause and effect showing the vaccination was the reason for the injury, and (3) a proximate temporal relationship between the vaccination and the injury. Id. at 1278. In this case, the special master denied compensation, concluding that Doe failed to prove prongs two and three of the Althen test by a preponderance of evidence. In a careful, well-reasoned opinion, the U.S. Court of Federal Claims upheld the special master's decision. Doe ex. rel Estate of Child Doe v. Sec'y of Health & Human Servs., 87 Fed. Cl. 1 (2009) ("Doe IV"). We now affirm.

Our review primarily focuses on the special master's factual findings, which were subsequently adopted by the Court of Federal Claims. Under the Vaccine Act, the question is whether these findings were arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law. 42 U.S.C. § 300aa-12(e)(2)(B). In addition, we must decide whether the special master committed legal error by considering evidence of a possible alternative cause, Sudden Infant Death Syndrome ("SIDS"), in deciding whether Doe established a *prima facie* case.

We reach the same conclusion as the Court of Federal Claims. The special master's factual findings regarding the significance of the decedent's length, weight of her brain and other organs, and pre-death behavior were not arbitrary or capricious, particularly in light of the credibility findings made as to the parties' respective experts.

Further, under this court's decisions in de Bazan v. Secretary of Health and Human Services, 539 F.3d 1347 (Fed. Cir. 2008), and Pafford v. Secretary of Health and Human Services, 451 F.3d 1352, 1359 (Fed. Cir. 2006), the special master did not commit legal error in considering evidence of SIDS, an allegedly alternative cause. Nothing in the Vaccine Act prohibits the government from presenting evidence that the petitioner's injury was due to "factors unrelated" to the vaccine (here, SIDS). Under 42 U.S.C. § 300aa-13(a) and de Bazan, the special master could consider such evidence in deciding whether Doe established a prima facie case; the Vaccine Act only prohibits the government from rebutting an established prima facie case with an idiopathic condition like SIDS. 42 U.S.C. § 300aa-13(a)(2)(A).

#### BACKGROUND

Monica Doe was born in October 1994. On the day she was born, she received her first hepatitis B vaccination. Monica was discharged from the hospital the next day.

At approximately 2 p.m. on December 21, 1994, Monica received her second vaccination for hepatitis B. At the time, Monica was seven and a half weeks old and weighed eleven pounds. The vaccine was administered to Monica's thigh. After the doctor's appointment, the family went shopping. During the shopping trip, Monica was carried in an infant car seat by her father. Her father testified that Monica slept the entire time, without evidencing a fever, abnormal jerking, or crying. Her mother testified that Monica was awake during the shopping trip and unusually quiet, since Monica "usually" cried. To the extent their accounts conflicted, the special master credited the father's testimony that Monica was asleep, because the father was the one carrying Monica.

Around 5 p.m., the family returned home. Monica's mother and two brothers lay down for a nap in the bedroom, while Monica and her father remained in the living room. Monica's father lay down on the couch to watch the news, positioning Monica next to him, propped face up on a pillow. Monica's father testified that he fell asleep on the couch between 5:30 and 6 p.m. When he awoke approximately thirty minutes later, Monica was "blue in the face." Awakened by calls from her husband, Monica's mother observed Monica lying face up on the pillow, with a "bluish" complexion. Monica was not breathing when her parents called 911 at 6:49 p.m. The ambulance arrived about five minutes later, by which time Monica's father had begun CPR.

The emergency medical technician ("EMT") who responded to the 911 call observed Monica face up on the couch, receiving CPR from a fire department emergency responder. The EMT found Monica had no heartbeat and was not breathing, though her skin was warm and dry. He observed that Monica's extremities were "mottled and chest and abdomen were white," while her abdomen was "distended." At the emergency room, a physician diagnosed Monica as having suffered cardiopulmonary arrest, cause unknown. Monica was pronounced dead at 8 p.m., approximately six hours after she received her hepatitis B vaccination.

A forensic pathologist named Dr. Robert Anthony performed an autopsy the following day. His report notes a "moderate amount of fixed purple livor mortis over the posterior aspects of the body surfaces." Monica's stomach and bladder were empty. Her lungs, however, exhibited "moderate pulmonary congestion and edema," and her heart had "rare epicardial petechiae." Significantly, Dr. Anthony opined that Monica's brain was "grossly unremarkable," with "no evidence of edema or herniation" and "clear,

glistening and intact" meninges. The report lists a brain weight of 570 grams and SIDS as the cause of death. At the time he performed the autopsy, Dr. Anthony did not know the circumstances surrounding Monica's death.

Monica's parents (collectively, "Doe") subsequently filed a claim under the Vaccine Act on behalf of Monica's estate. The claim alleges that Monica died as a result of receiving a hepatitis B vaccination on December 21, 1994. The special master assigned to the case held an evidentiary hearing. Among the evidence presented at the hearing was expert testimony by Dr. John Shane and Dr. Alan Levin for Doe, and expert testimony by Dr. Enid Gilbert-Barness and Dr. Christine McCusker for the government.

Dr. Shane, accepted as an expert in pathology generally, though not pediatric pathology, opined that Monica died from acute encephalopathy caused by the hepatitis B vaccine. In support of this theory, Dr. Shane cited Monica's brain weight, which he testified was "abnormally" high for a child of that age and thus evidence of cerebral edema. Doe's other expert, Dr. Levin, similarly opined that Monica's death was caused by the hepatitis B vaccine. Accepted as an expert in immunology, Dr. Levin testified that the vaccine led to excessive cytokine release, followed by cerebral edema. The edema, in turn, resulted in decreased blood flow, causing Monica's death.

Both of the government's experts rejected Doe's theory of causation. Dr. Gilbert-Barness, qualified as an expert in pediatric neuropathology, opined that the hepatitis B vaccine was not the cause of Monica's death. She rejected Dr. Shane's conclusion that Monica's brain weight was abnormally high, finding no evidence of significant brain edema or other abnormalities in the same slides reviewed by Dr. Shane. Nor did Dr. Gilbert-Barness agree with Dr. Shane's diagnosis of acute encephalopathy, because

“one would expect to see considerable brain edema” and “very likely” herniation of the brainstem as the cause of death, neither of which were found here.

The government’s other expert, Dr. McCusker, similarly disagreed with Doe’s experts. Dr. McCusker was accepted as an expert in pediatric immunology. Dr. McCusker opined that the timing of Monica’s death undermined Dr. Levin’s cytokine storm theory, because edema resulting from such inflammation would have required days, not hours, to develop. Dr. McCusker elaborated that Monica exhibited no symptoms characteristic of an escalating cytokine response or edema, such as fever, seizures, vomiting, high-pitched screaming, marked somnolence, or coma.

The special master concluded that Doe did not establish a *prima facie* case that the hepatitis B vaccination caused Monica’s death. Instead, the special master found that Monica’s death was caused by SIDS, a factor unrelated to the vaccination.

The Court of Federal Claims reversed. Doe ex rel. Estate of Doe v. Sec’y of Dep’t of Health & Human Servs., 83 Fed. Cl. 157, 158 (2008) (“Doe II”). It held that the special master improperly shifted the burden of proof to Doe by requiring that Doe affirmatively disprove SIDS caused Monica’s death as part of their *prima facie* case. Id. The court remanded the case to the special master with instructions to reweigh the evidence in light of the burden of proof set forth in Althen and Walther. Doe II, 83 Fed. Cl. at 176.

On remand, the special master again concluded that Doe was not entitled to compensation because Doe had not established a *prima facie* case of causation. Specifically, the special master found that Doe had failed to prove the second or third prong of Althen by a preponderance of evidence. The special master still considered

evidence relating to SIDS, but only in evaluating whether Doe's proposed sequence of cause and effect was plausible. Doe again petitioned for review.

The Court of Federal Claims denied Doe's petition. Doe IV, 87 Fed. Cl. at 15. In upholding the special master's decision, the court found the special master's factual findings were not arbitrary and capricious, including those with respect to Monica's brain weight. Id. at 12. The court also held that the special master did not err in considering evidence of SIDS in deciding whether Doe established a *prima facie* case. Id. at 13-14.

Doe now appeals. We have jurisdiction pursuant to 42 U.S.C. § 300aa-12(f).

## DISCUSSION

We review de novo decisions by the Court of Federal Claims arising under the Vaccine Act. Moberly ex rel. Moberly v. Sec'y of Health & Human Servs., 592 F.3d 1315, 1321 (Fed. Cir. 2010). In doing so, we apply the same standard the Court of Federal Claims applied to the special master's decision: Factual findings are reviewed under the arbitrary and capricious standard; legal rulings are reviewed for whether they are in accord with the law. Id.; see also 42 U.S.C. § 300aa-12(e)(2)(B).

### I. Special Master's Fact Finding

We begin with certain factual findings made by the special master. These findings matter because they were the basis on which the special master rejected Dr. Shane's theory of cause and effect, which posited that Monica died as the result of cerebral edema caused by acute encephalopathy. The primary evidence Dr. Shane cited in support of his theory was Monica's brain weight of 570 grams, which he deemed "abnormally" high for a child of her age and so heavy it could only be explained by severe edema and encephalopathy. This opinion was based in part on Dr. Shane

finding Monica's height to be in the fiftieth percentile for her age group and attributing the above-average weights of her other organs to edema. On appeal, Doe argues that the special master's findings of fact as to Monica's height, weight of her brain and other organs, and pre-death behavior were arbitrary and capricious. For the following reasons, we do not agree.

The special master concluded that Monica's brain was not abnormally heavy or significantly "edematous," as Dr. Shane claimed. In reaching this conclusion, the special master relied on expert testimony and on several different tables of average brain weights for infants. For a two-month old, the medical literature listed weights of 489 grams, 490 grams, and 516 grams. Dr. Shane testified that the expected range for brain weight was "440 to 540" grams, given the standard deviation for the table he used. Accounting for the table's listed error of 14 grams, Dr. Shane opined that 555 grams would be the "top limit of normal." Noting that Monica's brain weight was "not much beyond" the range of normal brain weights, the special master declined to credit Dr. Shane's opinion that brain weight alone proved Monica suffered cerebral edema.

The special master also evaluated the significance of Monica's brain weight based on her height. In support of this assessment, the special master cited medical studies showing that brain weight depends on age and height. For this purpose, the special master estimated Monica's height to be 23 inches. In doing so, the special master credited the hospital's measurement of 21.75 inches taken at Monica's birth and the growth differential reflected on her pediatric growth chart. The resulting estimate was 2 inches shorter than the longest recorded length (25 inches) from Monica's autopsy, but longer than her pediatrician's measurements. The special master noted

that the pediatrician could have been affected by the challenge of measuring a squirming child. Based on her estimate, the special master found Monica exceeded the average height for infants her age. In light of Monica's above-average height, the special master found Monica's brain weight was "not out of proportion with her body length and weight."

Finally, the special master considered whether Monica's post-vaccination behavior was consistent with the expected signs and symptoms of encephalopathy. Based on the testimony of government experts Dr. Gilbert-Barness and Dr. McCusker, the special master concluded that Monica's observed sleepiness and disinterest in eating were not abnormal reactions. In support of this assessment, the special master noted that neither Monica's medical records nor any witness reported other symptoms of encephalopathy following the vaccination, such as irritability, fever, vomiting, or seizures. Though Dr. Shane opined that Monica's behavior was "abnormal," he admitted that a pediatrician, such as government expert Dr. McCusker, would be better qualified to render an opinion. Dr. McCusker testified that Monica's reactions were normal, without any of the clinically-recognized symptoms that precede severe somnolence indicative of encephalopathy.

Finally, the special master cited other evidence in discounting Dr. Shane's conclusion that Monica's brain was severely edematous. This evidence included Dr. Anthony's autopsy report, which found no edema except in the lungs. Dr. Anthony opined that Monica's brain was "grossly unremarkable," with "no evidence of edema or herniation." Similarly, government expert Dr. Gilbert-Barness testified that she saw "very little abnormality" in the autopsy slides of Monica's brain and none of the changes

Dr. Shane described or attributed to edema. Though Dr. Gilbert-Barness agreed that Monica had heavier than average organs, she disagreed as to the cause. According to Dr. Gilbert-Barness, their heaviness did not have to be explained by edema, as Dr. Shane suggested. Dr. Gilbert-Barness opined that organs could be heavy due to SIDS caused by asphyxiation, in which blood vessels dilate and organs become congested with blood.

Doe is correct that not all of the evidence in the record supports the special master's findings. That, however, is not the question. On appeal, we must determine whether the special master's findings of fact are supported by substantial evidence. See Whitecotton by Whitecotton v. Sec'y of Health & Human Servs., 81 F.3d 1099, 1105 (Fed. Cir. 1996). As chronicled in the Court of Federal Claims' thorough opinion, the special master conducted a detailed review of the testimony, medical records, and medical literature. Thus, as an initial matter, we cannot say that the special master failed to consider important aspects of the record. See 42 U.S.C. § 300aa-13(b)(1); Hodges v. Sec'y of Dep't of Health & Human Servs., 9 F.3d 958, 961 (Fed. Cir. 1993) (noting that the role of appellate review "is not to second guess the Special Master's fact-intensive conclusions; the standard of review is uniquely deferential for what is essentially a judicial process").

As for the specific factual findings, it was not arbitrary or capricious for the special master to conclude that Monica's brain was not significantly "edematous." The best support for Doe's theory of causation, encephalopathy followed by cerebral edema, was offered by Dr. Shane. The special master, however, chose not to credit Dr. Shane's testimony, because she found it unsupported by the facts of this particular

case. These facts included Dr. Anthony's autopsy report, which described Monica's brain as "grossly unremarkable" with "no evidence of edema," and the testimony of expert Dr. Gilbert-Barness's, who saw "very little abnormality" in the autopsy slides. Because of the special master's unique position to see the witnesses and hear their testimony, such credibility assessments are "virtually unreviewable on appeal." Lampe v. Sec'y of Dep't of Health & Human Servs., 219 F.3d 1357, 1362 (Fed. Cir. 2000); see also 42 U.S.C. § 300aa-13(b)(1); Bradley v. Sec'y of Dep't of Health & Human Servs., 991 F.2d 1570, 1575 (Fed. Cir. 1993). We see no basis for disturbing the special master's credibility findings as to Dr. Shane, Dr. McCusker, or Dr. Gilbert-Barness.<sup>2</sup>

We similarly conclude that the special master's decision to evaluate Monica's brain weight in light of her height was not arbitrary or capricious. This decision was supported by medical literature detailing a correlation between an infant's height and brain weight. Given the widely varying estimates of Monica's height, the special master did not err by choosing an estimate between the minimum and maximum heights recorded. We cannot say that the special master's careful weighing of this conflicting evidence was "so clearly wrong as to be arbitrary or capricious." Lampe, 219 F.3d at 1367.

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<sup>2</sup> Though both Dr. Gilbert-Barness and the special master cited a table of brain weights based on children with moderate to severe brain edema, any error was harmless. See Hines v. Sec'y of Health & Human Servs., 940 F.2d 1518, 1526 (Fed. Cir. 1991). This table was not the only fact the special master relied on, or even the most important one, in declining to credit Dr. Shane's theory. To the contrary, the special master's decision was based on a number of factors, including the autopsy results, Monica's greater-than-average height, Dr. Gilbert-Barness's review of the autopsy slides, and Dr. Shane's own testimony regarding the "top limit of normal."

Nor can we say that it was arbitrary or capricious for the special master to conclude that Monica's pre-death behavior and weight of her other organs failed to support Dr. Shane's encephalopathy diagnosis. The special master's ultimate conclusion was supported by the testimony of Dr. Gilbert-Barness and Dr. McCusker, who both opined that Monica did not display other characteristic symptoms of encephalopathy, such as vomiting, seizures, or fever. As Dr. Shane admitted, Dr. McCusker was better qualified to offer an opinion on whether Monica's sleepiness was a normal reaction to the vaccine or the type of somnolence symptomatic of encephalopathy. Dr. McCusker opined that Monica's pre-death behavior was normal. The special master credited this testimony, as well as the testimony of Monica's father, who observed no fever, vomiting, or seizures. It is not our role to reweigh the factual evidence or assess whether the special master correctly evaluated the evidence. Munn v. Sec'y of Dep't of Health & Human Servs., 970 F.2d 863, 871 (Fed. Cir. 1992).

Accordingly, we hold that the special master's factual findings were not arbitrary or capricious.

## II. Evidence of Alternative Causes

We must also decide whether it was legal error under 42 U.S.C. § 300aa-13(a)(2)(A) for the special master to consider evidence of alternative causes in evaluating whether a *prima facie* case has been established in this off-Table case. Specifically, Doe contends that the special master erred when discussing prong two of the Althen test by considering evidence that SIDS, not the hepatitis B vaccine, caused Monica's death.

In this case, both parties presented evidence about an alternative cause of death, sudden infant death as the result of asphyxiation. In his expert report and at the hearing, Dr. Shane opined that the circumstances surrounding Monica's death and pathological findings at the autopsy were "inconsistent with a SIDS death." Dr. Shane went on to explain why the extent of cerebral edema he observed in Monica's brain, absence of multi-organ findings, and lack of prior upper respiratory problems were inconsistent with a SIDS death.

The government offered the testimony of Dr. Gilbert-Barness. She explained that many deaths attributed to SIDS are now thought "very likely related" to the infant's sleeping position or bedding, with "most" related to an asphyxial death. In Monica's case, Dr. Gilbert-Barness opined that the nap environment created a risk of SIDS caused by asphyxiation. She explained that the congestion of Monica's abdominal organs and over-distinction of the lungs' alveoli were consistent with asphyxiation.

The medical literature in evidence states that "classic" findings in SIDS cases include petechiae, pulmonary congestion and edema, heavy organs, and an empty urinary bladder. Further, many of the infants who die of SIDS are tall for their age and have brain weights exceeding the ninety-ninth percentile for their age group, without evidence of cerebral edema. The special master noted that Monica displayed many of these classic SIDS findings.

The special master considered this SIDS evidence, along with other testimony, medical records, and medical literature in evaluating whether Doe's medical theory reflected a "logical sequence of cause and effect," as required by prong two of the Althen test. While noting some of the government's evidence might also have been

relevant to a claim of alternative causation (i.e., SIDS) had Doe proved their *prima facie* case, the special master only considered evidence of SIDS “for the limited purpose of evaluating carefully the reliability of the medical underpinnings of petitioners’ proposed causal sequence for a vaccine injury.” *Id.*

Doe urges us to find fault with the special master considering any evidence of SIDS, a possible alternative cause, in deciding whether Doe established a *prima facie* case. Doe argues that such consideration is prohibited by 42 U.S.C. § 300aa-13(a). Section 300aa-13(a) establishes the terms for awarding compensation. It provides that “on the record as a whole,” the special master must find (1) the petitioner “has demonstrated by a preponderance of evidence the matters required in the petition by section 300aa-11(c)(1),” and (2) “there is not a preponderance of evidence that the . . . death described in the petition is due to a factor unrelated to the administration of the vaccine described in the petition.” 42 U.S.C. § 300aa-13(a)(1) (emphasis added).

The first requirement, demonstrating “the matters required by [42 U.S.C. § 300aa-11(c)(1)],” is what this court refers to as the petitioner’s *prima facie* case. See, e.g., Walther, 485 F.3d at 1149; see also de Bazan, 539 F.3d at 1351; Pafford v. Sec’y of Health & Human Servs., 451 F.3d 1352, 1357 (Fed. Cir. 2006). To make out a *prima facie* case, the petitioner must show that the person received a vaccine set forth in the Vaccine Injury Table and sustained an illness, disability, injury, or condition caused by that vaccine. 42 U.S.C. § 300aa-11(c)(1). The second inquiry under § 300aa-13(a)(1) is whether the injury or death was due to a “factor unrelated” to the vaccination. While the burden of proving a *prima facie* case is on the petitioner, the government has the

burden of showing the injury or death was caused by a “factor unrelated.” Id. § 300aa-13(a)(1)(B); see also de Bazan, 539 F.3d at 1352-54; Walther, 485 F.3d at 1150.

As relevant here, subsection (2) of § 300aa-13(a) limits the definition of “factors unrelated” by excluding any “idiopathic, unexplained, unknown, hypothetical or undocumented cause, factor, injury, illness or condition.” In other words, alternative causes that are “idiopathic, unexplained, unknown, hypothetical or undocumented” cannot overcome a petitioner’s *prima facie* case. 42 U.S.C. § 300aa-13(a)(1), (2). Nor can the special master require the petitioner to eliminate alternative causes as part of establishing its *prima facie* case.

These restrictions on the second inquiry under § 300aa-13(a), however, are not implicated in this case. They are not at issue because Doe never established a *prima facie* case, so the burden (and attendant restrictions on what “factors unrelated” the government could argue) never shifted. Doe IV, 87 Fed. Cl. at 12; see Pafford, 451 F.3d at 1357-59; cf. Shyface v. Sec’y of Health & Human Servs., 165 F.3d 1344 (Fed Cir. 1999).

Accordingly, the questions here are different. They are whether the government may present evidence of alternative causes, and what limits, if any, constrain the special master’s consideration of such evidence in evaluating the petitioner’s *prima facie* case. By its plain terms, § 300aa-13 does not prohibit the government from presenting evidence of alternative causes. Instead, “like any defendant, [the government] is permitted to offer evidence to demonstrate the inadequacy of the petitioner’s evidence on a requisite element of the petitioner’s case-in-chief.” de Bazan, 539 F.3d at 1353.

As for what the special master may do, neither § 300aa-13 nor our cases limit what evidence the special master may consider in deciding whether a prima facie case has been established. See de Bazan, 539 F.3d at 1353; see also Walther, 485 F.3d at 1151. Indeed, § 300aa-13(a) requires the special master's findings to be based "on the record as a whole." Thus, in de Bazan the government could present, and the special master could consider, evidence that petitioner's symptoms occurred too early to have been caused by the vaccine when evaluating petitioner's prima facie case, even though that evidence undermined petitioner's theory of causation. Id.

In this case, the special master did not commit legal error by considering evidence that Monica's death could have been caused by SIDS. Part of the evidence Doe offered was Dr. Shane's expert testimony, which attempted to eliminate SIDS as a potential cause of death. Specifically, Dr. Shane opined that Monica's death and the pathological findings at her autopsy were "inconsistent with a SIDS death." As this court explained in Walther, when petitioners attempt to eliminate other possible causes to buttress their theory of causation, the special master should evaluate such evidence in determining whether a prima facie case has been established. 485 F.3d at 1151; see also Pafford, 451 F.3d at 1359. Because Dr. Shane supported his theory of causation by discounting SIDS as a possible cause, Doe's prima facie case depended in part on whether the special master credited Dr. Shane's opinion on SIDS. Evidence of SIDS thus "bore directly on whether the medical evidence supported [a conclusion] that the vaccine could be the cause in fact"; the special master's consideration of this evidence was both warranted and proper. de Bazan, 539 F.3d at 1354.

Allowing the special master to consider evidence of SIDS did not improperly shift the burden to Doe to rule out alternative causes. Evidence of SIDS was just one factor among many that the special master relied on in concluding that “the facts of the case” did not support Doe’s theory of causation, and thus failed to establish a *prima facie* case. See § 300aa-13(a)(1). A petitioner’s failure to meet his burden of proof as to the cause of an injury or condition is different from a requirement that he affirmatively disprove an alternative cause. See de Bazan, 539 F.3d at 1353-54. The special master denied compensation because she determined that Doe failed to establish a *prima facie* case of causation based on a review of Doe’s proposed theory in light of all the evidence, not because Doe failed to eliminate SIDS as an alternative cause of Monica’s death.

#### CONCLUSION

For the foregoing reasons, we hold that the special master’s fact finding was not arbitrary or capricious. Further, the special master’s evaluation of the SIDS evidence was not contrary to law, as set out in § 300aa-12(a)(2)(E) or de Bazan. The judgment of the Court of Federal Claims is affirmed.

#### AFFIRMED

#### COSTS

Each party shall bear its own costs.