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AARON LYNCH ET AL. *v.* STATE OF CONNECTICUT ET AL.
(SC 20646)

Robinson, C. J., and McDonald, D'Auria, Mullins, Ecker and Alexander, Js.

Syllabus

The plaintiffs, L and M, individually and in their representative capacities as parents of their minor son, J, and as the administrators of the estate of their daughter, S, sought to recover damages for the alleged medical malpractice of the named defendant, the state of Connecticut, in connection with certain therapeutic donor insemination (TDI) services and prenatal care provided to them at a state hospital. Prior to the plaintiffs' initial visit, hospital staff sent them a patient information packet that included general information about TDI risks, approved sperm banks, and testing that TDI patients are required to undergo, including testing for cytomegalovirus (CMV). Because of the risks to fetal health associated with a mother's initial exposure to CMV in early pregnancy, it was necessary for the hospital to determine both M's and the sperm donor's CMV status. The patient information packet also stated, in accordance with accepted professional guidelines, that, if a patient tests negative for CMV, only CMV negative donor sperm should be used. Thereafter, M, who had tested negative for CMV, underwent a successful intrauterine insemination procedure using sperm from a CMV positive donor and became pregnant with J and S. The physician who performed the procedure did not check the donor's CMV status and allegedly did not seek or obtain M's informed consent for the procedure. Throughout her pregnancy, M received care from the hospital's prenatal care staff. When M was twenty-two weeks pregnant, she underwent an ultrasound that revealed that J and S displayed conditions associated with an in utero CMV infection. M's prenatal care physician did not perform any follow-up tests to rule out a CMV infection, inform M of the ultrasound results, or include a copy of those results in M's medical records. Subsequently, it was discovered that S had died in utero from a severe CMV infection, and J was born with debilitating, lifelong medical conditions as a result of congenital CMV. Thereafter, pursuant to statute ((Rev. to 2015) § 4-160 (b)), the plaintiffs filed a notice of claim with the Claims Commissioner, seeking permission to bring an action against the state for medical malpractice arising out of the fertility treatment and prenatal care M had received at the state hospital. Although the notice of claim stated that a good faith certificate, as required by statute (§ 52-190a), was attached thereto, the plaintiffs inadvertently failed to attach it. The plaintiffs did, however, attach a physician's statement that set forth the physician's reasons for concluding that the standard of care relating to the fertility treatment claims had been breached and stated that it was offered in support of the plaintiffs' good faith certificate, as required by § 52-190a. The Claims Commissioner found that the requirements of § 4-160 (b) had been met and granted the plaintiffs permission to bring an action against the state, limited to the portion of the claim alleging medical malpractice. In the counts of their complaint setting forth claims related to M's fertility treatment, the plaintiffs alleged, inter alia, that the hospital staff had committed medical malpractice by inseminating M, a CMV negative patient, with sperm from a CMV positive donor, causing S's death and J's severe injuries. In the counts setting forth claims related to M's prenatal care, the plaintiffs alleged, inter alia, that the hospital's prenatal care staff had been negligent in failing to properly interpret and respond to the ultrasound images indicating that M, J, and S were infected with CMV. The plaintiffs attached to their complaint a certificate of good faith and two opinion letters from similar health care providers, including a copy of the physician's statement that the plaintiffs had attached to their notice of claim. The state moved to strike the fertility treatment claims brought on behalf of S and J, and the prenatal care claim brought on behalf of J, on the ground that they were wrongful life claims, which the state claimed were not legally cognizable in Con-

necticut. The trial court struck the prenatal care claim but denied the motion to strike as to the fertility treatment claims, concluding that they were ordinary medical malpractice claims. Prior to trial, the plaintiffs disclosed that their causation expert, E, would testify that, to a reasonable degree of medical probability, the use of sperm from a CMV positive donor to inseminate M caused the CMV infection that resulted in S's death and J's severe injuries. The state moved, pursuant to *State* v. *Porter* (241 Conn. 57), to preclude E's testimony on the ground that it lacked a valid scientific basis, but the trial court ultimately ruled that E's testimony satisfied the admissibility requirements of *Porter* and credited that testimony in concluding that the donor sperm more likely than not caused the CMV infection in M, J, and S. Following the plaintiffs' case-in-chief, the state moved to dismiss the plaintiffs' fertility treatment claims, contending that they sounded in informed consent rather than in medical malpractice and, therefore, did not fall within the scope of the waiver of sovereign immunity insofar as § 4-160 (b) applies only to medical malpractice claims. The trial court denied the motion to dismiss, concluding that the plaintiffs' fertility treatment claims were hybrid claims because, in the field of reproductive endocrinology, it is medical malpractice to inseminate a CMV negative patient with CMV positive donor sperm except when the patient is appropriately counseled as to the risks and gives her informed consent. The trial court ultimately found in favor of the plaintiffs on thirteen counts and awarded them economic and noneconomic damages. On the state's appeal from the trial court's judgment, *held*:

1. The state could not prevail on its claim that the judgment should be set aside on the ground that the claims on which the plaintiffs prevailed at trial were barred by sovereign immunity:

a. There was no merit to the state's contention that the plaintiffs' fertility treatment claims were outside the scope of the action authorized by the Claims Commissioner's waiver of sovereign immunity because they were informed consent claims, not medical malpractice claims based on the failure of a physician to comply with the standard of care established through expert testimony at trial:

When permission to sue the state is granted pursuant to § 4-160 (b), it applies to medical malpractice claims only, and, although medical malpractice and lack of informed consent are distinct causes of action, they are not mutually exclusive, and the same set of facts can give rise to both types of claims.

Upon reviewing the allegations in the complaint related to the plaintiffs' fertility treatment claims, this court concluded that they were clearly allegations of medical malpractice.

Moreover, it was of no consequence that both parties' experts testified that a CMV negative patient could elect to be inseminated with sperm from a CMV positive donor, as the trial court repeatedly observed that insemination of a CMV negative patient with CMV positive donor sperm is only within the standard of care if the patient consents after she is appropriately informed of the risk of congenital CMV, and it was testimony regarding the standard of care in the absence of informed consent that led the trial court to conclude that the fertility treatment claims were medical malpractice claims within the scope of the Claims Commissioner's waiver of sovereign immunity.

b. There was no merit to the state's arguments that the waiver of sovereign immunity was invalid due to the plaintiffs' failure to submit to the Claims Commissioner a physician's opinion letter specifically addressing the prenatal care claims and a certificate of good faith in accordance with § 52-190a, as required by § 4-160 (b):

It was clear from the record that the Claims Commissioner reviewed the plaintiffs' notice of claim and the physician's statement, and concluded that, together, they satisfied the good faith certificate requirement of § 52-190a.

To the extent that the state disputed the applicability of § 4-160 (b) because of alleged defects or shortcomings in the plaintiffs' good faith certificate, it was incumbent on the state to raise that issue with the Claims Commissioner while the matter was still under his review, as the state was precluded from doing so once the Claims Commissioner had

authorized the plaintiffs' action by virtue of § 4-160 (c), which provides that the state waives all defenses related to the governmental nature of the complained of activity once the Claim Commissioner authorizes suit pursuant to § 4-160 (b).

Moreover, the state did not claim that the plaintiffs failed to submit to the trial court a certificate of good faith and an opinion letter from a similar health care provider addressing both their fertility treatment claims and their prenatal care claims or that the opinion letters and good faith certificate that they had filed with the court were in any way deficient.

2. The state could not prevail on its claim that J was not entitled to recover any damages based on the fertility treatment claims brought by the plaintiffs on his behalf because he did not suffer any legally cognizable injuries, this court having concluded that common-law negligence principles were sufficiently adaptable to provide a remedy for injuries such as those sustained by J, without disturbing the fundamental rules governing tort liability and compensation:

a. The fertility treatment claims brought by the plaintiffs on J's behalf were properly construed and adjudicated as conventional medical malpractice claims and not, as the state contended, as wrongful life claims:

The term "wrongful life" refers to a claim, brought by a child, based on the theory that that child would not have been born but for the defendant's negligence, and those cases generally involve plaintiffs seeking to hold medical professionals responsible for failing to prevent a birth that would have occurred regardless of medical intervention, such as when a child with a congenital abnormality is born to a mother who would not have proceeded with the pregnancy if she had received timely notice of the condition, or when a medical professional fails to prevent an unwanted pregnancy by negligently performing a birth control or abortion procedure.

The present case differed in fundamental ways from those paradigmatic wrongful life cases because the state was directly responsible both for J's birth and for his condition, insofar as the hospital staff created the pregnancy, and it was their negligence in doing so that was the proximate cause of J's injuries.

Moreover, in most wrongful life cases, but for the defendant's negligence, there never could have been a healthy child, whereas, in the present case, the plaintiffs presented undisputed testimony that antiviral medications were available that had been used to prevent CMV or to treat the disease in utero after infection.

Furthermore, because the plaintiffs consistently represented that the fertility treatment claims were medical malpractice claims and not wrongful life claims, and the trial court understood and evaluated them as medical malpractice claims, the most prudent course was to evaluate the claims as articulated by the plaintiffs and to let them rise or fall on the plaintiffs' ability to establish a valid medical malpractice cause of action.

b. There was no merit to the state's contention that the plaintiffs had failed to establish a valid, conventional medical malpractice claim with respect to J's injuries:

The state's arguments that any damages awarded to J would be unavoidably speculative and predicated on the impermissible concept that nonexistence can be preferable to impaired existence were unavailing, as this court previously had rejected versions of those arguments when it recognized a cause of action for wrongful birth in *Och* v. *Borrelli* (187 Conn. 253).

Moreover, this court rejected the state's argument that the standard formula for calculating damages in tort, namely, making the plaintiff whole by returning him to the position he would have been in but for the defendant's negligence, precluded any recovery in this case insofar as J arguably would not have existed but for the state's conduct, as such a rigid conception of tort damages left no room for the substantial technological advancements that have occurred in the field of assisted reproductive technologies.

This court reviewed the state's challenge to the trial court's damages award in the light of the underlying purposes and principles that inform tort law, namely, compensation for innocent parties, shifting the loss to responsible parties or distributing it among appropriate entities, and deterrence of wrongful conduct.

In the present case, all of those considerations weighed in favor of holding the state liable for the full amount of J's economic and noneconomic damages proximately caused by the state's negligence, as J was an innocent victim whose serious injuries were caused by the state's failure to adhere to the applicable standard of care, the state was the party best equipped to avoid such mishaps and best positioned to absorb and spread the costs of J's lifelong care, and, if this court were to deny recover to children who, like J, were injured by the negligent provision of assisted reproductive technologies, there would be little to deter the state or other providers of artificial insemination services from such negligence and its consequences.

Accordingly, because the trial court found, on the basis of abundant evidence, that J suffered economic and noneconomic harms, losses, and injuries as a result of the state's negligence, he was no less entitled to be compensated financially for those damages than are other victims of medical malpractice, the trial court's award of damages was fully commensurate with the injuries that J suffered, and it restored J as nearly as possible to the position that he had occupied before the state's negligence, which was consistent with the underlying goals and purposes of tort law.

3. The trial court did not abuse its discretion in admitting E's expert testimony regarding causation under *Porter*:

The methodologies underlying E's causation testimony, namely, differential diagnosis and polymerase chain reaction testing, are two of the most common and accepted methods for diagnosing disease, and, as such, are among the well established principles of the scientific community to which *Porter* does not apply.

Moreover, contrary to the state's argument that E's testimony should have been excluded because it was based on a series of factual assumptions that lacked a reliable scientific and factual basis, namely, that the CMV positive sperm donor was shedding the infectious virus into his sperm when he donated it, the state's argument went to the weight of E's testimony, not to its admissibility.

Argued February 22, 2023—officially released February 6, 2024

Procedural History

Action to recover damages for the alleged medical malpractice of the named defendant et al., and for other relief, brought to the Superior Court in the judicial district of Hartford, where the action was withdrawn as against the defendant Claudio Benadiva et al.; thereafter, the court, *Cobb*, *J.*, granted in part the named defendant's motion to strike; subsequently, the court, *M. Taylor*, *J.*, denied the named defendant's motion to preclude certain evidence; thereafter, the case was tried to the court, *M. Taylor*, *J.*; subsequently, the court, *M. Taylor*, *J.*, denied the named defendant's motion to dismiss and rendered judgment in part for the plaintiffs, from which the named defendant appealed. *Affirmed.*

Jeffrey R. Babbin, with whom was *Michael G. Rigg*, for the appellant (named defendant).

James J. Healy, with whom were *Karolina A. Dowd*, *Caitlyn S. Malcynsky* and, on the brief, *Michael J. Walsh*, for the appellees (plaintiffs).

Opinion

ALEXANDER, J. In this medical malpractice action arising from a therapeutic donor insemination (TDI) procedure, the named defendant, the state of Connecticut (state),[1] appeals from the judgment of the trial court rendered in favor of the plaintiffs, Aaron Lynch (Aaron) and Jean-Marie Monroe-Lynch (Jean-Marie), individually and in their representative capacities as parents of their minor son, Joshua Isaac Monroe-Lynch (Joshua), and as the administrators of the estate of Shay Ashlan Monroe-Lynch (Shay). On appeal, the state contends that (1) the claims on which the plaintiffs prevailed at trial were barred by sovereign immunity, (2) Joshua and Shay did not suffer legally cognizable injuries necessary to support the trial court's award of damages, and (3) the testimony of the plaintiffs' primary causation expert was improperly admitted because it was not supported by a valid scientific methodology. The plaintiffs ask this court to resolve a split among Superior Court decisions and to recognize a cause of action for wrongful life. We conclude that it is unnecessary to reach the wrongful life issue and, finding no error, affirm the trial court's judgment.

The trial court's comprehensive memorandum of decision sets forth the following relevant facts and procedural history. Jean-Marie and Aaron are a married couple who wanted to have children but were unable to conceive without medical assistance. In the summer of 2013, the couple sought TDI services at the Center for Advanced Reproductive Services (CARS) at the University of Connecticut Health Center (UConn). Prior to their initial visit, CARS sent them a TDI patient information packet, which included general information about TDI risks and CARS approved sperm banks. The packet also included information about testing that TDI patients are required to undergo, including testing for cytomegalovirus (CMV), a type of herpes virus that has infected considerably more than 50 percent of the general population.

A blood test can reveal whether an individual has ever been infected with CMV. The presence of immunoglobulin M (IgM) antibodies is associated with an initial CMV infection. Generally, IgM antibodies remain in the blood for approximately six to nine months after infection, decreasing over time until they are no longer detectable. As the IgM antibodies decrease, they are replaced by immunoglobulin G (IgG) antibodies, which typically increase over time and stay in the body for the remainder of the person's life. A person who tests positive for IgG antibodies will not be continuously infectious but nonetheless will periodically shed "live," infectious virus through bodily fluids, including urine and seminal fluid. For most adults, symptoms of a CMV infection are mild. An initial infection during early pregnancy, however, can result in profound health complica-

tions for the developing fetus.

In light of the risks to fetal health associated with a mother's initial exposure to CMV in early pregnancy, it is necessary for those providing TDI services to determine whether both the patient and the prospective sperm donor have ever been infected with CMV. Although semen collected at sperm banks is subjected to a process known as "washing" to remove CMV and other pathogens,[2] there is no way of ensuring that all infectious agents, including CMV, are completely removed from the sperm and will not be introduced during a TDI procedure. The patient information packet that CARS sent to Jean-Marie stated that, "[i]f you have never been exposed to CMV, your test will come back negative, and then, *you may only choose a CMV negative donor*." (Emphasis added.) This restriction accords with the guidelines of the American Society for Reproductive Medicine (ASRM), the leading professional organization in reproductive medicine, which recommends that CMV positive donor sperm be used only for patients who are also CMV positive.[3] Federal regulations require sperm banks to notify fertility clinics of a sperm donor's CMV status with each sperm shipment. See 21 C.F.R. § 1271.370 (2022).

At the commencement of her TDI treatment, in September, 2013, Jean-Marie tested negative for both IgM and IgG antibodies. On May 11, 2014, Jean-Marie underwent a successful intrauterine insemination (IUI) procedure using sperm from CMV positive donor No. 013673 and became pregnant with twins. Claudio Benadiva, the physician who performed the IUI procedure on Jean-Marie, did not check the CMV status of donor No. 013673 prior to using the sperm.[4] As a result, Benadiva was unaware that he was inseminating a CMV negative patient with sperm from a CMV positive donor.[5] Because he was unaware, he did not seek or obtain Jean-Marie's informed consent for the procedure.

Although some organizations proscribe any insemination of CMV negative patients with sperm from CMV positive donors, the trial court found that the standard of care may permit such inseminations, but only if the patient is appropriately counseled as to the risks of congenital CMV and gives her full, informed consent. Such counseling must include a discussion of the "devastating neurological and cognitive outcomes" associated with a congenital CMV infection in utero.

Throughout her pregnancy, Jean-Marie received prenatal care from both a maternal fetal medicine team and an obstetrics and gynecology team at UConn (prenatal care providers). In June, 2014, when she was approximately five weeks pregnant, Jean-Marie presented at the emergency department of the Hospital of Central Connecticut in New Britain complaining of a rash of unknown origin and respiratory issues. The next day, she went to UConn's emergency department com-

plaining of a persistent rash on her abdomen and facial swelling, symptoms that are consistent with an acute CMV infection. CARS was informed of these symptoms, and they were recorded in her medical chart.

Jean-Marie was classified as having a high-risk pregnancy, and she was scheduled for regular ultrasounds to closely monitor her progression. In October, 2014, when she was twenty-two weeks pregnant, Jean-Marie underwent an ultrasound that revealed that the twins both had small heads and hyperechoic bowels—conditions associated with an in utero CMV infection. Notwithstanding these ultrasound findings and in violation of the standard of care, Jean-Marie's maternal fetal medicine physician, Garry Turner, did not perform any serology tests, amniocentesis, or other follow-up steps to rule out a CMV infection; nor did he inform Jean-Marie about these findings. Compounding these errors, a copy of the abnormal ultrasound result was not included in Jean-Marie's medical record, which led to an additional failure to diagnose her and the twins with CMV.

In January, 2015, Jean-Marie, who was then thirty-seven weeks pregnant, went to UConn for a regularly scheduled nonstress test. During the visit, she was informed that one of the twins, Shay, had died in utero. A cesarean section was immediately performed to deliver both twins. At the time of delivery, Jean-Marie had an IgM antibody level of 51.5, which is consistent with a current or recent CMV infection. Shay's autopsy revealed that she had died from a severe CMV infection. Joshua was born with severe health complications as a result of his own congenital CMV. Specifically, Joshua is unable to eat, communicate, or attend to any of his personal needs in a normal or independent manner. For the rest of his life, he will have to be fed through a gastrostomy tube. In addition, he suffers from global developmental delay and cognitive, hearing, and motor deficits, including related diagnoses of epilepsy, autism, and cerebral palsy. Joshua will require constant services and care for the remainder of his life, including physical and occupational therapies and a home health aide.

Pursuant to General Statutes (Rev. to 2015) § 4-160 (b),[6] Jean-Marie and Aaron sought permission from the Claims Commissioner to sue the state for medical malpractice, both individually and in their representative capacities as Joshua's parents and as the administrators of Shay's estate. Their notice of claim stated that the injuries arose out of the fertility treatments and prenatal care Jean-Marie had received from UConn medical providers. A physician's statement was included with the notice of claim, describing the physician's reasons for concluding that the standard of care relating to the plaintiffs' fertility treatment claims had been breached. After reviewing the plaintiffs' claims, the Claims Commissioner found that the requirements of § 4-160 (b)

had been met and granted the plaintiffs' request for permission to sue the state for medical malpractice.

The plaintiffs subsequently commenced this action. Counts one through ten of the plaintiffs' revised complaint alleged that CARS staff committed medical malpractice by inseminating Jean-Marie, a CMV negative patient, with sperm from a CMV positive donor, causing Shay's death and Joshua's debilitating injuries (fertility treatment claims). Counts eleven through seventeen alleged that Jean-Marie's prenatal care providers were negligent in failing to properly interpret and respond to the October, 2014 ultrasound images indicating that Jean-Marie, Joshua, and Shay were infected with CMV (prenatal care claims). The prenatal care claims further alleged that, as a result of the prenatal care providers' negligence, "Aaron . . . and Jean-Marie . . . were not advised that [the twins] had developed congenital CMV, and were not counseled with respect to the treatment options available to them and the recommended treatment plan, which would have included a recommendation that the pregnancy be terminated in view of the significant risks associated with congenital CMV."

The state moved to strike the fertility treatment claims brought on behalf of Joshua and Shay (counts one and two) and the prenatal care claim brought on behalf of Joshua (count eleven) on the ground that they were "wrongful life" claims, which it claimed were not legally cognizable in Connecticut. The trial court granted the motion to strike only as to count eleven. The court explained that a wrongful life action differs from an ordinary medical malpractice action in that the complaint does not allege that the physician's negligence caused the child's abnormality but, rather, that the physician's failure to timely diagnose the abnormal condition prevented the mother from making the choice to terminate her pregnancy. In granting the motion to strike as to count eleven, the court observed that most courts that have considered the issue have declined to recognize wrongful life as a cause of action due to the difficulty of calculating damages, which requires a comparison between life in the child's impaired state and no life at all.

The trial court denied the motion to strike as to counts one and two, however, concluding that they were ordinary medical malpractice claims in that they alleged that the negligence of CARS staff, in using sperm from a CMV positive donor to inseminate Jean-Marie, "caused . . . Joshua [to sustain] severe life-lasting injuries and . . . Shay's death." In reaching its decision, the court observed that "[n]owhere in these counts do the plaintiffs assert that the [state] negligently failed to diagnose the CMV infections in sufficient time to allow the [plaintiffs] the ability to terminate the pregnancy," the touchstone of a wrongful life claim.

The case proceeded to a bench trial before the trial

court, which found in favor of the plaintiffs on thirteen of the remaining sixteen counts[7] and awarded them $36,621,026.53 in economic and noneconomic damages. That sum was later reduced to $34,619,799.22 following a collateral source reduction hearing.[8] The state thereafter appealed to the Appellate Court, and we transferred the appeal to this court pursuant to General Statutes § 51-199 (c) and Practice Book § 65-1. Additional facts and procedural history will be set forth as necessary.

I

We first address the state's contention that the judgment should be set aside because the claims on which the plaintiffs prevailed at trial were barred by sovereign immunity. The state argues that the waiver of sovereign immunity obtained from the Claims Commissioner authorized the plaintiffs to bring a medical malpractice action only, but the trial court upheld the fertility treatment claims on the basis of a theory of informed consent, which is a separate and distinct cause of action. According to the state, permission to sue for lack of informed consent could be obtained only from the Claims Commissioner pursuant to § 4-160 (a),[9] not § 4-160 (b), which applies to medical malpractice claims. The state further argues that the physician's statement that accompanied the plaintiffs' notice of claim did not specifically address the prenatal care claims, and, as a result, there was no waiver of sovereign immunity as to those claims. Finally, the state argues that the waiver of sovereign immunity failed as to both the fertility treatment claims and the prenatal care claims because the plaintiffs did not submit a certificate of good faith pursuant to General Statutes § 52-190a (a)[10] with their notice of claim.

The plaintiffs respond that the present case was a medical malpractice action "from start to finish." They contend that, although medical malpractice and lack of informed consent are distinct causes of action, they are not mutually exclusive, and it is well established that the same set of facts can give rise to both types of claims. The plaintiffs further contend that the state is precluded from challenging the court's jurisdiction on the basis of alleged defects in the certificate of good faith by operation of § 4-160 (c), which provides that, once the Claims Commissioner authorizes suit pursuant to § 4-160 (b), the state waives all defenses related to the governmental nature of the complained of activity. We agree with the plaintiffs.

In May, 2015, the plaintiffs filed a timely notice of claim with the Claims Commissioner, requesting permission to bring a medical malpractice action against the state arising out of the events in question. Although the notice of claim concluded by stating that "[a] [g]ood [f]aith [c]ertificate, pursuant to . . . § 52-190a, is attached [hereto] and is fully incorporated herein by

reference," it appears that the certificate itself was inadvertently omitted. The notice of claim was, however, accompanied by a physician's statement that was offered "to support the plaintiffs' certificate of prior reasonable inquiry and good faith, as required by . . . § 52-190a."

Six months after the plaintiffs filed their notice of claim, the state notified the Claims Commissioner that it had "no objection to permission to sue being granted" and that it was withdrawing its notice of intent "to [c]ontest [j]urisdiction or [o]therwise [d]ispute the [a]pplicability of [§] 4-160 (b) . . . ." In January, 2016, the Claims Commissioner issued a decision granting the plaintiffs permission to sue the state for medical malpractice. The decision stated in relevant part: "The [c]laimant has filed a [c]ertificate of [g]ood [f]aith and the [state] has not filed a position or other motion challenging the jurisdiction of the Claims Commissioner. The [c]laimant is hereby granted permission to sue the state as the . . . the requirements of [§] 4-160 (b) . . . have been met. This grant of permission to sue is limited to that portion of the 'claim alleging malpractice against the state, a state hospital or . . . against a physician, surgeon . . . or [any] other licensed health care providers employed by the state.' "

In April, 2016, the plaintiffs commenced this action. Attached to the complaint was a certificate of good faith[11] and two opinion letters from similar health care providers. The first opinion letter was a copy of the physician's statement that the plaintiffs had attached to their notice of claim. The second opinion letter was written by a physician specializing in the field of obstetrics and gynecology, and addressed the plaintiffs' prenatal care claims.[12]

The case proceeded to trial in November, 2020. When the plaintiffs finished presenting their case-in-chief, the state filed a motion to dismiss the plaintiffs' fertility treatment claims, arguing that the waiver of sovereign immunity obtained from the Claims Commissioner was granted pursuant to § 4-160 (b), which waives the state's sovereign immunity for medical malpractice claims only, whereas the plaintiffs' fertility treatment claims sounded in informed consent. In support of this contention, the state argued that the plaintiffs had failed to present "evidence of medical malpractice" with respect to the fertility treatment claims and that, in fact, the plaintiffs' own expert "opined that it was acceptable for the plaintiffs to be matched with an IgG positive donor if informed consent was obtained."

Thereafter, the trial court denied the state's motion to dismiss, stating that it would address the merits of the motion in its memorandum of decision on the plaintiffs' claims. Subsequently, the court issued a corrected memorandum of decision in which it rejected the state's contention that the plaintiffs' fertility treatment claims

were not medical malpractice claims. In so doing, the court stated that the plaintiffs had presented "the question of informed consent as a hybrid claim, contending that, in the field of reproductive endocrinology, it is malpractice to introduce sperm from an IgG positive donor into an IgG negative woman, except [when] there is informed consent." The court further explained that this hybrid approach is consistent with Connecticut case law, in particular *Downs* v. *Trias*, 306 Conn. 81, 49 A.3d 180 (2012), in which this court recognized that a failure to obtain a patient's informed consent can support a medical malpractice cause of action when the standard of care required the physician to obtain such consent prior to performing a medical procedure. Id., 88–91; see also *DiLieto* v. *County Obstetrics & Gynecology Group, P.C.*, 297 Conn. 105, 129 n.30, 998 A.2d 730 (2010).

A

We begin with the state's argument that the judgment should be set aside with respect to the plaintiffs' fertility treatment claims on the basis that those claims were barred by sovereign immunity because the theory on which they were upheld by the trial court sounded exclusively in informed consent, not medical malpractice. We disagree.

"We have long held that because [a] determination regarding a trial court's subject matter jurisdiction is a question of law, our review is plenary." (Internal quotation marks omitted.) *Levin* v. *State*, 329 Conn. 701, 706, 189 A.3d 572 (2018). The principle of sovereign immunity implicates the subject matter jurisdiction of the court. See, e.g., *Giannoni* v. *Commissioner of Transportation*, 322 Conn. 344, 349, 141 A.3d 784 (2016). "[W]hen the doctrine of sovereign immunity is applicable, the state must consent to be sued in order for a claimant to pursue any monetary claim against the state." (Internal quotation marks omitted.) *Escobar-Santana* v. *State*, 347 Conn. 601, 612, 298 A.3d 1222 (2023).

In *Levin* v. *State*, supra, 329 Conn. 709, this court held that, when permission to sue the state is granted pursuant to § 4-160 (b), it applies to medical malpractice claims only. The issue before the court in *Levin* was "whether an action authorized by the [C]laims [C]ommissioner, limited to medical malpractice, may survive a motion to strike [when] the plaintiff was not a patient of the [state], as required by *Jarmie* v. *Troncale*, 306 Conn. 578, 587, 50 A.3d 802 (2012)."[13] *Levin* v. *State*, supra, 703. As in the present case, the Claims Commissioner's order granting permission to sue stipulated that the permission was "limited to that portion of the claim alleging malpractice against the [state] . . . ." (Internal quotation marks omitted.) Id., 704. In granting the state's motion to strike, the trial court reasoned that its subject matter jurisdiction was "predicated on the

claim's character as a medical malpractice action, which . . . fails in light of . . . *Jarmie*." (Internal quotation marks omitted.) Id., 705. This court agreed and affirmed the trial court's judgment. Id., 710–11.

Relying on *Levin*, the state argues that the trial court lacked subject matter jurisdiction over the plaintiffs' fertility treatment claims because those claims were presented to and decided by the court on the basis of a theory of informed consent, not medical malpractice. We disagree. "The informed consent doctrine derives from the principle that [e]very human being of adult years and sound mind has a right to determine what shall be done with his own body; and a surgeon who performs an operation without his patient's consent, commits an assault, for which he is liable in damages." (Internal quotation marks omitted.) *Duffy* v. *Flagg*, 279 Conn. 682, 691, 905 A.2d 15 (2006). "Thus, [u]nlike the traditional action of negligence, a claim for lack of informed consent focuses not on the level of skill exercised in the performance of the procedure itself but on the adequacy of the explanation given by the physician in obtaining the patient's consent." (Internal quotation marks omitted.) *Sherwood* v. *Danbury Hospital*, 278 Conn. 163, 180, 896 A.2d 777 (2006).

"[A]lthough medical negligence and lack of informed consent are clearly distinct causes of action with different elements that must be proven . . . [it is well established that] the same set of facts may give rise to both causes of action. In *DiLieto* v. *County Obstetrics & Gynecology Group, P.C.*, [supra, 297 Conn. 105], for example, we . . . rejected a contention that medical negligence and informed consent were necessarily mutually exclusive causes of action." (Citation omitted.) *Downs* v. *Trias*, supra, 306 Conn. 89–90. "Similarly, in *Viera* v. *Cohen*, 283 Conn. 412, 927 A.2d 843 (2007), in which the plaintiff pursued a medical negligence claim but not a claim of lack of informed consent, we held that testimony regarding a physician's failure to inform a patient about the risks of giving birth vaginally after previously undergoing a cesarean section 'undoubtedly would bear on informed consent if that were an issue in the case,' but that such testimony was also relevant to the claim of medical negligence the plaintiff actually pursued. Id., 453. Specifically, we held that '[i]f, as the plaintiff's experts had testified, the standard of care would have obligated the defendant to discuss the risks of vaginal delivery with [the patient], his failure to do so would provide evidence that he had not in fact recognized that those risks were present [and, therefore, that he had breached the standard of care].' " *Downs* v. *Trias*, supra, 90. "Consistent with a physician's distinct but complementary responsibilities to act in accordance with the professional standard of care and to provide material information to patients, we have held that lack of informed consent provides the sole theory of liability only in a single circumstance, namely, [when]

the plaintiff has failed to allege any deficiency of medical skill or care." (Emphasis omitted.) Id., 91.

The state contends that, unlike the claims in *DiLieto* and *Viera*, "[t]he claims relating to the fertility treatment, upheld by the trial court following trial, were informed consent claims, and not medical malpractice claims based on the failure of a physician to comply with the medical standard of care established through expert testimony at trial." The state contends that the fertility treatment claims "did not rest on a theory that the standard of care prevents sperm donation from an IgG positive donor to an IgG negative recipient—and no expert testified that a donation of that sort deviates from the medical standard of care." According to the state, "the trial court only found for the plaintiffs and awarded damages because of the absence of . . . informed consent to a procedure that no doctor said was medically improper if consented to after being fully advised of the risks involved." We find no merit in these contentions.

Counts one through ten of the plaintiffs' revised complaint, which set forth the claims related to Jean-Marie's fertility treatment, each alleged, inter alia, that "[t]he injuries and losses sustained and suffered by [Joshua] . . . were caused by the carelessness, negligence, and medical malpractice of the [state], acting through its agents, servants and/or employees," in that the state "failed to take the necessary steps to protect against a congenital CMV infection, when it knew, or should have known, that [Jean-Marie] tested negative for CMV and was at risk for developing a primary CMV infection during pregnancy, which significantly increased the risk of a congenital CMV infection in a fetus"; "failed to detect that [Jean-Marie] had selected sperm from a CMV positive donor," which was "contrary to its own written policy"; "permitted the use of sperm from a CMV positive donor in [Jean-Marie], a CMV negative recipient"; "failed to determine [Jean-Marie's] suitability for using sperm from a CMV positive donor prior to performing the May 11, 2014 [TDI]"; and "inseminated a CMV negative patient with sperm from a CMV positive donor, when it knew, or should have known, of the substantial risks associated therewith . . . ." These allegations are nothing if not allegations of medical malpractice, and they illustrate why the trial court observed repeatedly throughout its memorandum of decision that the plaintiffs' claims were pleaded and prosecuted as medical malpractice claims.[14]

Our conclusion is unaffected by the fact that both sides' experts testified that a CMV negative patient could elect to be inseminated with sperm from a CMV positive donor. The trial court found it "undisputed by all parties and experts in this case, that insemination of a CMV negative patient with CMV positive donor sperm *is . . . within the standard of care* [*only*] *if the*

patient consents, after she is appropriately informed of the risk of congenital CMV." (Emphasis added.) When discussing the fertility treatment claims specifically, the trial court reiterated "that insemination of a CMV negative patient with CMV positive donor sperm is . . . within the standard of care [only] if the patient is appropriately counseled as to the risks of congenital CMV and gives her full, informed consent." These statements would have been entirely gratuitous if, as the state contends, the trial court viewed the fertility treatment claims as sounding in informed consent rather than in medical malpractice. See, e.g., *Shortell* v. *Cavanagh*, 300 Conn. 383, 388, 15 A.3d 1042 (2011) ("[u]nlike a medical malpractice claim, a claim for lack of informed consent is determined by a lay standard of materiality, rather than an expert medical standard of care [that] guides the trier of fact in its determination"). It was precisely because there was testimony that insemination of a CMV negative patient with sperm from a CMV positive donor deviated from the standard of care in the absence of informed consent that the trial court concluded that the fertility treatment claims were medical malpractice claims and, therefore, within the scope of the Claims Commissioner's waiver of sovereign immunity.[15]

B

We next address the state's arguments that the judgment should be set aside due to the plaintiffs' failure to submit to the Claims Commissioner (1) a physician's opinion letter specifically addressing the plaintiffs' prenatal care claims, and (2) an attorney's certificate of good faith. We disagree.

General Statutes (Rev. to 2015) § 4-160 (b) provides in relevant part that an "attorney or party filing [a malpractice] claim may submit a certificate of good faith[16] to the Claims Commissioner in accordance with section 52-190a. If such a certificate is submitted, the Claims Commissioner shall authorize suit against the state on such claim."[17] (Footnote added.) General Statutes (Rev. to 2015) § 4-160 (c) further provides in relevant part that, "[i]n each action authorized by the Claims Commissioner pursuant to subsection (a) or (b) of this section or by the General Assembly pursuant to section 4-159 or 4-159a . . . [t]he state waives its immunity from liability and from suit . . . *and waives all defenses which might arise from the . . . governmental nature of the activity complained of. The rights and liability of the state in each such action shall be coextensive with and shall equal the rights and liability of private persons in like circumstances*." (Emphasis added.)

It is clear from the statutory scheme, therefore, that, once the Claims Commissioner authorized the plaintiffs' medical malpractice action, the state was precluded from raising a sovereign immunity defense to "the activity complained of" in the notice of claim. General Stat-

utes (Rev. to 2015) § 4-160 (c). The activities complained of, and for which permission to sue was granted, were (1) the insemination of a CMV negative patient with sperm from a CMV positive donor, and (2) the failure to appropriately interpret the October, 2014 fetal ultrasound and to advise Aaron and Jean-Marie regarding the results.

The state's jurisdictional claim in this regard is unlike the claim that we addressed in part I A of this opinion, which required us to determine whether the plaintiffs' fertility treatment claims were within the scope of the action authorized by the Claims Commissioner. This court is often called on to decide whether a claim falls within the narrow confines of the waiver of sovereign immunity obtained from the Claims Commissioner or otherwise authorized by statute. See, e.g., *Escobar-Santana* v. *State*, supra, 347 Conn. 605 (deciding whether, for purposes of § 4-160 (f), "the statutory phrase 'medical malpractice claims' is broad enough to encompass a mother's allegation that she suffered emotional distress damages from physical injuries to her child that were proximately caused by the negligence of health care professionals during the birthing process"). In each such case, "[a]ny statutory waiver of immunity must be narrowly construed . . . and its scope must be confined strictly to the extent the statute provides." (Internal quotation marks omitted.) *Levin* v. *State*, supra, 329 Conn. 709.

In the present case, the Claims Commissioner authorized the plaintiffs to bring a medical malpractice action, the plaintiffs' claims fall squarely within the scope of that authorization, and the authorization is consistent with the legislature's decision to waive the state's sovereign immunity with respect to medical malpractice claims. What the state is arguing is that the judgment should be set aside because the Claims Commissioner incorrectly determined that the plaintiffs had submitted a certificate of good faith in accordance with § 52-190a. We disagree.

It is clear from the record that the Claims Commissioner reviewed the plaintiffs' notice of claim and the physician's statement, and concluded that together they satisfied the good faith certificate requirement of § 52-190a (a). To the extent the state disputed the applicability of § 4-160 (b) because of alleged defects or shortcomings in the plaintiffs' good faith certificate, it was incumbent on it to raise the issue *with the Claims Commissioner* while the matter was still under his review.

In this way, § 4-160 (c) operates in a manner similar to General Statutes § 4-164 (b), which provides in relevant part that "[t]he action of the . . . Claims Commissioner in approving or rejecting payment of any claim or part thereof shall be final and conclusive on all questions of law and fact and shall not be subject to review except by the General Assembly." This court has held

that the Claims Commissioner "performs a legislative function directly reviewable only by the General Assembly." *Circle Lanes of Fairfield, Inc.* v. *Fay*, 195 Conn. 534, 541, 489 A.2d 363 (1985); see also *Cooper* v. *Delta Chi Housing Corp. of Connecticut*, 41 Conn. App. 61, 64, 674 A.2d 858 (1996) ("The legislature has established a system for the determination of claims against the state. . . . A significant part of that system is the appointment of a [C]laims [C]ommissioner . . . who is vested with sole authority to authorize suit against the state." (Citations omitted.)) The legislature's decision to insulate the Claims Commissioner's decision under § 4-160 (b) from collateral attack by the state is consistent with the broader statutory scheme.[18]

We note, finally, that, when the plaintiffs filed this action in 2015, they were required by § 52-190a to submit to the trial court a certificate of good faith and an opinion letter from a similar health care provider addressing both their fertility treatment claims and their prenatal care claims.[19] The state does not claim that they failed to do this or that the opinion letters and good faith certificate that they filed with the court were in any way deficient.

II

We next consider the state's contention that Joshua was not entitled to recover any damages based on the fertility treatment claims brought by the plaintiffs on his behalf because he did not suffer any legally cognizable injuries.[20] Specifically, the state contends that those claims must be understood as "wrongful life" claims and that this court should follow the majority of states and decline to recognize such claims.[21] The state further contends that the plaintiffs failed to make out a valid conventional medical malpractice claim with respect to Joshua's injuries. The plaintiffs counter that Joshua's claims are medical malpractice claims and that the trial court correctly determined that they had established cognizable injuries and nonspeculative damages, such that the judgment can be affirmed without having to recognize a new cause of action for wrongful life. In the alternative, the plaintiffs invite us to follow the Supreme Courts of California, New Jersey, and Washington in recognizing a claim for wrongful life. See *Turpin* v. *Sortini*, 31 Cal. 3d 220, 643 P.2d 954, 182 Cal. Rptr. 337 (1982); *Procanik* v. *Cillo*, 97 N.J. 339, 478 A.2d 755 (1984); *Harbeson* v. *Parke-Davis, Inc.*, 98 Wn. 2d 460, 478–83, 656 P.2d 483 (1983). We conclude that Joshua's claims, which arise in the context of innovative assisted reproductive technologies, are properly understood and adjudicated within the context of conventional medical malpractice claims. Established principles underlying the common law of negligence are sufficiently adaptable to provide a remedy for injuries such as those sustained by Joshua, without disturbing the fundamental rules governing tort liability and compen-

sation.

The following well established legal principles inform our analysis. "[T]o prevail in a medical malpractice action, the plaintiff must prove (1) the requisite standard of care for treatment, (2) a deviation from that standard of care, and (3) a causal connection between the deviation and the claimed injury." (Internal quotation marks omitted.) *Jarmie* v. *Troncale*, supra, 306 Conn. 588. "[A]s in any other negligence action, the medical malpractice plaintiff must establish proximate cause and damages, as well as breach of the professional duty of care." *Escobar-Santana* v. *State*, supra, 347 Conn. 614. "Proof of damages should be established with reasonable certainty and not speculatively and problematically. . . . Damages may not be calculated based on a contingency or conjecture." (Internal quotation marks omitted.) *Carrano* v. *Yale-New Haven Hospital*, 279 Conn. 622, 650, 904 A.2d 149 (2006).

At the most basic level, courts use the terms "wrongful birth" and "wrongful life" to refer to claims that are based on the theory that a child would not have been born but for the defendant's negligence. See, e.g., *Turpin* v. *Sortini*, supra, 31 Cal. 3d 225–26, 231–32. "Wrongful birth" generally refers to claims of this sort brought by the parent or parents whereas "wrongful life" refers to claims brought by the child. See, e.g., *Harbeson* v. *Parke-Davis*, *Inc.*, supra, 98 Wn. 2d 478. This court has recognized claims for wrongful birth; see *Ochs* v. *Borrelli*, 187 Conn. 253, 256–60, 445 A.2d 883 (1982); but has not yet had occasion to consider the wrongful life issue.[22]

The issues addressed in this part of the opinion—whether claims such as Joshua's must be construed as wrongful life claims and, if not, whether they constitute cognizable medical malpractice claims—are issues of law and, indeed, issues of first impression for this court. Our review therefore is plenary. See, e.g., *Finan* v. *Finan*, 287 Conn. 491, 499–500, 949 A.2d 468 (2008).

A

We first address the state's contention that the fertility treatment claims brought by the plaintiffs on behalf of Joshua must be understood as wrongful life claims. We disagree and conclude that those claims should be construed and adjudicated as conventional medical malpractice claims.

The present case differs in fundamental ways from the paradigmatic wrongful life cases. Most cases that bear the "wrongful life" label involve a child who has a *congenital* abnormality born to a mother who would not have proceeded with the pregnancy had she received timely notice of that condition. See, e.g., *Turpin* v. *Sortini*, supra, 31 Cal. 3d 223. The alleged negligence is the failure to detect and educate the parents regarding the congenital abnormality. Indeed, it has been said

that the hallmark of a wrongful life case is that the defendant bears no direct responsibility for the child's condition, and courts have relied in part on that fact in declining to recognize such claims. See, e.g., *Johnson* v. *Superior Court*, 101 Cal. App. 4th 869, 888, 124 Cal. Rptr. 2d 650 (2002) ("[i]n a wrongful life case, the child does not assert that the negligence of the defendant caused the inherited or congenital abnormalities" (emphasis omitted; internal quotation marks omitted)); *Wilson* v. *Kuenzi*, 751 S.W.2d 741, 744–45 (Mo.) ("The heart of the problem in [wrongful life] cases is that the physician cannot be said to have caused the [abnormality]. The disorder is genetic and not the result of any injury negligently inflicted by the doctor. In addition it is incurable and was incurable from the moment of conception. . . . The child's handicap is an inexorable result of conception and birth." (Internal quotation marks omitted.)), cert. denied, 488 U.S. 893, 109 S. Ct. 229, 102 L. Ed. 2d 219 (1988). Other cases styled as wrongful life cases generally involve allegations that the defendant negligently performed some sort of birth control or abortion procedure, and thus failed to prevent an unwanted pregnancy. See, e.g., *McKernan* v. *Aasheim*, 102 Wn. 2d 411, 687 P.2d 850 (1984). In both types of cases, plaintiffs have sought to hold medical professionals responsible for failing to prevent a birth that would have occurred regardless of medical intervention.

In the present case, by contrast, the state is directly responsible both for Joshua's birth and for his condition; CARS staff *created* the pregnancy, and it was precisely their negligence in doing so that was the proximate cause of Joshua's injuries. Purportedly following their own, internally developed policies, they used a state-of-the-art procedure to implant previously frozen sperm into Jean-Marie. It was their decision to implant sperm from a CMV positive donor into a CMV negative woman, without adequately educating her as to the risks and alternatives. Indeed, under the facts found by the trial court, Joshua may well have developed as a healthy, uninfected embryo.[23] In a recent federal case involving comparable circumstances, in which the defendants' negligent choice of assisted reproductive technologies was allegedly the direct cause of the fetal disability, the United States District Court for the District of Maryland rejected the defendants' contention that the claim was a nonactionable wrongful life claim and allowed the action to proceed as a conventional medical malpractice claim. See *Dowling* v. *A.R.T. Institute of Washington, Inc.*, 372 F. Supp. 3d 274, 288–92 (D. Md. 2019).

A Connecticut case, *Vasquez* v. *Roy*, Superior Court, judicial district of New Britain, Docket No. HHB-CV-14-6024908-S (June 18, 2018) (66 Conn. L. Rptr. 602), is also instructive. In *Vasquez*, the defendant physician administered methotrexate, a toxic, off-label chemotherapy agent, in a failed attempt to perform an abor-

tion. Id., 602–603. The plaintiff mother ultimately gave birth to a child, Xavier, who was severely disabled as a result of the methotrexate. Id., 603. When the mother, individually and on behalf of Xavier, brought a medical malpractice action, the defendants argued that Xavier's claims were noncognizable wrongful life claims because, if the abortion had been properly performed, Xavier would not have existed. See id. The trial court disagreed and allowed the case to proceed as a conventional medical malpractice action, reasoning that Xavier was "seeking to hold the defendants accountable for causing his physical injuries . . . . Xavier does not allege any failure on the part of the defendants to predict or diagnose a disease or defect, and he does not allege that the injury suffered is his birth or existence. . . . To the contrary, Xavier alleges that the defendants caused his developmental damages . . . . These are not the type of allegations that would necessarily cause the trier of fact to delve into the . . . choice of existence versus [nonexistence]." (Citation omitted.) Id., 604. The same reasoning applies in the present case.

A related and important difference is that, in most wrongful life cases, but for the defendants' negligence, there never could have been a healthy child. See, e.g., *Procanik* v. *Cillo*, supra, 97 N.J. 353 ("[o]ur analysis begins with the [unfortunate] fact that the infant plaintiff never had a chance of being born as a normal, healthy child"). In the present case, one of the allegations contained in the fertility treatment claims of the plaintiffs' complaint is that the CARS staff, having inseminated Jean-Marie with sperm from a CMV positive donor, failed to appropriately monitor her for signs and symptoms of the disease.[24] The plaintiffs presented undisputed testimony from three different medical professionals that antiviral medications were available that had been used, at least on an experimental basis, to prevent CMV or to treat the disease in utero after infection. Although the trial court made no specific findings regarding whether this particular treatment could have been a viable treatment for Joshua and Shay had the CARS staff properly assessed the risk, it illustrates that key considerations that have led other courts to foreclose wrongful life actions are not present in this case. See, e.g., id., 347–55 (holding that claims arising from very existence of child are barred but allowing claims arising from specific impairments caused or exacerbated by defendants' alleged wrongs to proceed); *Vasquez* v. *Roy*, supra, 66 Conn. L. Rptr. 604 ("[t]he tragic fact in a wrongful life case is that there was never a possibility the child would have been born healthy").

Moreover, the plaintiffs consistently have represented that Joshua's claims are medical malpractice claims and not wrongful life claims, and the trial court understood and evaluated them as medical malpractice claims. We agree with those courts that, under similar circumstances, have determined that the most prudent

course is to evaluate the claims as articulated by the plaintiffs and to let them rise or fall on the plaintiffs' ability to make out a valid medical malpractice cause of action. See, e.g., *Zelt* v. *Xytex Corp.*, 766 Fed. Appx. 735, 740 (11th Cir. 2019) ("[The plaintiffs] did not ask the court to compare their two children's possibly impaired existence to their nonexistence, which is the essence of a wrongful birth action. Rather, the relevant counterfactual is the children's existence had their parents used sperm donated by someone [else]."); *Hester* v. *Dwivedi*, 89 Ohio St. 3d 575, 578, 733 N.E.2d 1161 (2000) ("such cases are properly decided by applying the same legal analysis employed in any medical negligence claim"). For these reasons, we will proceed to evaluate the state's challenge to the trial court's damages award according to conventional tort principles and leave for another day the issue of whether Connecticut law recognizes wrongful life claims.

B

The state next contends that the plaintiffs cannot prevail on a conventional medical malpractice claim with respect to any harm to Joshua because they did not establish injury in fact and nonspeculative damages. The state argues that (1) there is no nonspeculative way to measure Joshua's damages, (2) damages can be awarded only if the trial court were to conclude that it would have been better for Joshua not to exist than to exist in an impaired state, and (3) the standard formula for calculating damages in tort—making the plaintiff whole by returning him to the situation he would have been in but for the defendant's negligence—precludes any recovery in this case, insofar as Joshua arguably would not have existed but for the state's conduct.

The first two arguments—that any damages awarded to Joshua would be unavoidably speculative and that an award would be predicated on the impermissible concept that nonexistence can be preferable to impaired existence—are the standard arguments marshalled against recognizing a cause of action for wrongful life. As we explained, however, this is not a wrongful life action. Joshua does not contend that he would be better off dead or that his life is not worth living. His claim is that, like any other tort victim, he is entitled to compensation for injuries he sustained as a proximate result of the state's negligence.

In fact, this court already has rejected versions of the state's first two arguments when we recognized a cause of action for wrongful birth. In *Ochs* v. *Borrelli*, supra, 187 Conn. 253, a child was conceived after the defendant physician negligently performed an unsuccessful sterilization procedure. Id., 254–55. The child was afflicted with a genetic orthopedic disability, and her parents sought compensation from the physician for the costs of raising her. Id., 255. The jury, finding the physician negligent, awarded not only medical

expenses but also the general costs of raising the child to the age of majority. Id. In affirming the award of damages on appeal, this court rejected the argument that for the legal system to award the parents the cost of raising the child would, in effect, be to impermissibly say that parenthood constitutes an injury and that it would be better if the child had not existed. Id., 259. This court held that weighing the benefits and costs of a child's life is an analysis that a jury reasonably may conduct on a case-by-case basis, albeit subject to the provisions of § 920 of the Restatement (Second) of Torts.[25] Id., 260.

This court in *Ochs* also rejected the notion that calculating such damages would be "impermissibly speculative," observing that juries are regularly called on to fix monetary damages for seemingly incalculable, noneconomic, existential losses such as wrongful death and loss of consortium. Id.; see also *Burns* v. *Hanson*, 249 Conn. 809, 819, 734 A.2d 964 (1999) (reaffirming *Ochs* and emphasizing that "[this court has] declined to carve out any exception . . . to the normal duty of a tortfeasor to assume liability for all the damages that he or she has caused").

The nonspeculative nature of the damages award in the present case is illustrated by considering two analogous scenarios. If the state had negligently exposed Jean-Marie and her fetuses to disease through contaminated medical supplies, rather than through insemination with infected sperm, there would be no question that Joshua would be entitled to his full measure of damages, as calculated by the trial court. The damages do not become speculative because there is no baseline derived from Joshua's own life experiences against which to measure his loss.

These issues come into sharper contrast if we consider a scenario in which the state had used split cycle in vitro fertilization, a method that fertilizes the patient's eggs with sperm from different donors. If Joshua's embryo had been developed by sperm from a CMV negative donor while another embryo, fertilized by sperm from donor No. 013673, had been the one to carry CMV into the womb, Joshua's entitlement to the damages award would be undisputed.

The problem created by this unique factual scenario is not how to calculate damages but, rather, that Joshua was, at least potentially, the vehicle of his own injuries. The state's negligence was using the very sperm that created Joshua. The state contends there are no legally compensable damages because Joshua would not exist but for that act of negligence. This means, the state contends, that the only way to roll back the state's negligence and to return Joshua to the position he occupied prior to the injury would be to compensate him as if he had never existed. We disagree.

Our review of the state's challenge to the trial court's damages award is framed by the underlying purposes and principles that inform tort law. "[T]he fundamental policy purposes of the tort compensation system [are] compensation of innocent parties, shifting the loss to responsible parties or distributing it among appropriate entities, and deterrence of wrongful conduct . . . . The courts are concerned not only with compensation of the victim, but [also] with admonition of the wrongdoer." (Internal quotation marks omitted.) *Doe* v. *Cochran*, 332 Conn. 325, 363, 210 A.3d 469 (2019).[26] In the present case, all of these considerations weigh in favor of holding the state liable for the full amount of Joshua's economic and noneconomic damages proximately caused by the state's negligence.

First, Joshua is an innocent victim, without blame for his many afflictions and disabilities, who will suffer every day for the rest of his life from serious physical and "ruinous neurological maladies," and require constant medical care and treatment. When his parents can no longer facilitate such care in their home, he will live out his remaining days in residential group facilities. Joshua's injuries are the direct result of the state's negligence in failing to adhere to the standard of care that the trial court found applicable to the procedures it performed. The standards that were breached existed to prevent precisely this sort of predictable tragedy.

Second, it is clear that the state is both the party best equipped to avoid mishaps of this sort and the party best positioned to absorb and spread the costs of Joshua's lifelong care. See *Doe* v. *Cochran*, supra, 332 Conn. 369. With respect to avoiding the harm, the state offers a highly specialized medical service that poses particular risks best known to the state and most efficiently prevented by it. The state regularly shepherds inexperienced and medically unsophisticated patients through the complex process of assisted reproduction. It would have required little effort and even less financial cost for Benadiva or a member of his staff to confirm the CMV status of the donor and to counsel Jean-Marie to select a different donor or, at least, to obtain her informed consent to be certain that she fully understood the serious risks of going forward under the circumstances. As in *Cochran*, the trial court "reasonably could conclude that the [state] was the party who was in the best position to avoid the harm at the lowest cost and, therefore, should bear the costs of the loss." Id. Likewise, the trial court reasonably could conclude that the state "can most readily bear and spread [the costs of Joshua's injuries and care] through malpractice insurance . . . ." Id.

Third, the state asks us to deny recovery to children who, like Joshua, are injured by the negligent provision of assisted reproductive technologies. If we were to accept this argument, there would be little to deter

the state and other providers of artificial insemination services from this sort of negligence and its potentially devastating consequences.[27] This is not disputed by the state. Nor does the state dispute that the just and economically efficient outcome would be to require it, rather than Joshua, to bear the full costs of its own negligence.

Rather, it is the state's position that Joshua and all similarly situated victims must be denied a full recovery because of how tort damages traditionally have been framed. The crux of the state's argument is that tort damages are typically characterized as compensatory in nature, and the compensation provided is intended "to restore the injured party to his original position, i.e., to make him whole." (Internal quotation marks omitted.) *Langs* v. *Harder*, 165 Conn. 490, 494, 338 A.2d 458 (1973), cert. denied, 416 U.S. 994, 94 S. Ct. 2409, 40 L. Ed. 2d 774 (1974). The proposition that damages in tort should be awarded so as to restore a plaintiff to his or her position prior to the defendant's negligence, thus making the plaintiff whole, was embraced by courts as early as the turn of the nineteenth century. See, e.g., *Weld* v. *Bartlett*, 10 Mass. 470, 473 (1813). According to the state, Joshua has suffered no cognizable injury and is entitled to no damages because it would be impossible to return him to the position he would have been in but for the state's negligence: nonexistence.

This rigid conception of tort damages does not leave room for the substantial technological advancements that have occurred in the field of assisted reproductive technology. Humans couldn't create babies in medical laboratories in the twelfth century, when the English common law of tort began to coalesce, or in the early 1800s, when American courts first articulated the purpose of tort damages generally (to make a person whole). The idea that an injured party might have been genetically different, even potentially a different person, but for the injury would not have been comprehensible to the architects of tort law. Our law must be willing to recognize and accommodate the modernization of assisted reproductive technologies.

This court has explained that we use " 'figurative' " language when we say that tort law makes the victim " 'whole' " by returning him to his original position; *Langs* v. *Harder*, supra, 165 Conn. 497; and we have opined that this formulation was adopted primarily because it offered juries and courts a helpful framework for calculating damages. See id., 496. The law of torts has always been highly adaptable to changing social and technological circumstances.[28] It makes no sense to confine ourselves to one particular " 'metaphor[ic]' " formulation of tort damages; id., 497; when to do so would frustrate rather than further the underlying purposes of tort law in the face of a novel technological scenario that it was never intended to address.

Likewise, with respect to this formulation of damages, although this court generally has used the shorthand version, the full rule is expressed as follows: "[T]he law of torts attempts primarily to put an injured person in a position *as nearly as possible* equivalent to his position prior to the tort." (Emphasis added.) 4 Restatement (Second), Torts § 901, comment (a), p. 452 (1979); see also 74 Am. Jur. 2d 743, Torts § 65 (2023) ("a person injured by the commission of a tort is generally entitled to compensation for the injury that they sustained to place them *as nearly as possible* in the position that they occupied before the defendant's tort" (emphasis added)). The trial court in the present case restored Joshua to that position *as nearly as possible*, consistent with the underlying goals and purposes of tort law.

We also observe that there are other ways of expressing the purposes of compensatory damages that do not require courts to engage with unsolvable metaphysical questions when applied to measuring damages in the context of assisted reproductive technologies. See, e.g., V. Schwartz et al., Prosser, Wade and Schwartz's Torts: Cases and Materials (11th Ed. 2005) p. 520 (tort damages are awarded so as to approximate "the . . . financial equivalent of the loss or harm suffered by the plaintiff"). We recently reiterated one such alternative formula: the law allows "a plaintiff [to] recover all of the damages suffered as a result of a tortfeasor's negligence . . . ." (Emphasis omitted.) *Maldonado* v. *Flannery*, 343 Conn. 150, 189, 272 A.3d 1089 (2022). In the present case, the trial court found, on the basis of abundant evidence, that Joshua had suffered economic and noneconomic harms, losses, and injuries as a result of the state's negligence. He is no less entitled to be compensated financially for those damages than are other victims of medical malpractice.

The award of damages is fully commensurate with the injuries that Joshua suffered. The state, having undertaken the serious responsibility of medically creating human life and then having failed to follow the standard of care governing that undertaking, should not now be shielded from responsibility for its negligence on the ground that traditional tort doctrine did not encounter a scenario of this nature.[29] As the Washington Supreme Court concluded in *Harbeson* v. *Parke-Davis, Inc.*, supra, 98 Wn. 2d 460, "we prefer to place the burden of those costs on the party whose negligence was in fact a proximate cause of the child's continuing need for such special medical care and training." Id., 479.

III

Lastly, we address the state's contention that the trial court abused its discretion in admitting the testimony of the plaintiffs' causation expert, Alexander McMeek-

ing, a board-certified infectious disease specialist, who opined that the use of sperm from a CMV positive donor caused Shay's and Joshua's CMV infections. The state argues that the testimony was inadmissible under *State* v. *Porter*, 241 Conn. 57, 698 A.2d 739 (1997), cert. denied, 523 U.S. 1058, 118 S. Ct. 1384, 140 L. Ed. 2d 645 (1998), because it was unsupported by a valid, scientific methodology and was based on unproven, speculative factual assumptions. We disagree.

Prior to trial, the plaintiffs informed the state that McMeeking would testify that, to a reasonable degree of medical probability, the use of sperm from a CMV positive donor during the May, 2014 IUI procedure caused the CMV infection that killed Shay and severely injured Joshua. The state thereafter filed a motion in limine pursuant to *Porter* to preclude McMeeking's testimony on the ground that it lacked a valid scientific basis.

The trial court's ruling on the motion in limine stated in relevant part: "The science appears to be clear that CMV is transmissible through the exchange of bodily fluids, including sperm and seminal fluid. The question of whether the donated sperm in this case may have remained infectious . . . after freezing and washing . . . appears to be possible, at least from an initial review of the literature and testimony provided. . . . Although transmission may have been unlikely, the conclusion that it was possible does not appear to involve, so-called, 'junk science.'

"The science and methodology employed by . . . McMeeking, however, requires further review before it is accepted on the question of infectious transmission under the facts and circumstances of this case. The court simply requires more [information] from [both parties'] experts offering opinions on the focused question of the transmissibility of CMV in this case from previously washed and frozen sperm before deciding the threshold question of exclusion. As this is a court trial, the threshold evaluation of the evidence to be offered can be achieved during the trial, in much the same way as a proffer and separate hearing would occur before offering it to the jury. The court notes that an actual *Porter* hearing was not specifically requested." (Citation omitted.)

At trial, McMeeking testified that, to a reasonable degree of medical certainty, the sperm used to inseminate Jean-Marie caused the CMV infection that resulted in the death of Shay and the severe injuries to Joshua. In formulating his opinion, McMeeking relied on a differential diagnosis[30] that took into account several factors. First, McMeeking concluded that the infection must have occurred early in the first trimester because injuries as severe as those suffered by Shay and Joshua only happen if the primary infection occurs during the first trimester, and, five weeks into her pregnancy, Jean-

Marie presented at a hospital complaining of a persistent rash, which "is quite well documented [to be] one of the . . . presenting symptoms of acute CMV infection." McMeeking rejected the state's theory that Jean-Marie was already infected in January, 2014, when she was treated for flu-like symptoms, four months before the May 11, 2014 IUI procedure. He stated that this scenario was not possible because Jean-Marie's IgM antibody level was 51.5 at the time of delivery in January, 2015. According to McMeeking, "[t]o have that high level of IgM a year later just wouldn't be possible."

Second, McMeeking excluded other possible causes of Jean-Marie's infection. For example, there was no evidence that Aaron, who was Jean-Marie's only sexual partner at the time, was CMV positive before her pregnancy, and McMeeking testified that, even if he were, it was not reasonably possible that he was the source of Jean-Marie's infection because, when Jean-Marie tested negative for CMV in 2013, the couple had already been together since 2008. In McMeeking's view, "it didn't make sense [that] all of a sudden she gets infected from her husband . . . during her pregnancy when she hasn't gotten infected from him [in] all [that] time . . . . It just medically didn't make sense . . . ."

Likewise, McMeeking did not think that it was reasonably possible that Jean-Marie contracted the virus from her eight year old son. Again, there was no evidence that the son was CMV positive, but, even if he were, McMeeking explained that "a child his age, the way he would shed virus would be in his urine not in [his] saliva; so she would have had to come in contact with [an eight] year old's urine. Again, not very likely. Can I say 100 percent, of course not. But [I can say to] a reasonable degree of medical certainty [that] he was not the source." Finally, McMeeking ruled out community spread as a likely mode of transmission: "You don't get CMV from the air. You don't get CMV just from touching an inanimate object. [In] over 90 percent [of adult transmissions, it involves] . . . person to person contact with . . . genital secretions."

Third, McMeeking testified that insemination with sperm from a CMV positive donor was capable of causing Jean-Marie's infection because the washing and freezing process to which donor sperm is subjected does not eliminate CMV. Specifically, he testified that viruses are "never killed by freezing. [As soon as they are] thawed out they will reactivate." He further testified that, although washing will reduce the viral load considerably, "this particular virus, the literature shows, can live inside the sperm cell so no amount of washing will ever eliminate the virus totally." McMeeking explained that polymerase chain reaction (PCR) and immunofluorescence testing has confirmed in separate studies that infectious CMV virus lives "inside sperm cells, not just in semen; not just in the white cells sur-

rounding semen; not just attached to sperm cells, but actually inside the sperm cells."[31] This is why, "no matter . . . how much you wash the sperm cells, you're never going to remove the CMV virus from the sperm cell itself." McMeeking concluded, therefore, that there was "no other reasonable explanation for [Jean-Marie's] CMV infection and the infection of her fetuses other than the [IUI procedure] on [May 11, 2014]."

During cross-examination, McMeeking acknowledged that his causation testimony was predicated on two assumptions. First, he assumed that the CMV positive donor was shedding infectious virus into his sperm when he donated it, which was consistent with testimony by the state's expert that as many as 8 percent of such donors will shed live virus. Second, he assumed that the virus remained infectious following the washing and freezing process. When asked whether he was aware of any reported case of sperm from a CMV positive donor infecting a CMV negative patient or her fetuses through an IUI procedure, he answered, "no." He opined that no one would ever take the risk to conduct a study to confirm this mode of transmission because of "the catastrophic potential outcome of a CMV infection in a pregnant woman . . . ." He further opined that the chance of the virus being transmitted in this way *and* it being recorded in scientific literature was extremely remote to begin with because fertility clinics presumably follow the standard of care and do not inseminate CMV negative women with sperm from a CMV positive donor,[32] and, even if they occasionally do so, the chances of it being reported are miniscule because, in the vast majority of in utero CMV infections, the fetuses develop normally.[33]

The state's expert witness on causation, Mark Schleiss, a pediatric infectious disease specialist, disagreed with McMeeking's differential diagnosis. He testified that, to a reasonable degree of medical probability, Jean-Marie contracted CMV through community spread, most likely in January, 2014, when she was treated for flu-like symptoms, and that she passed the virus to her twins through the placental wall early in the second trimester.[34] Although Schleiss acknowledged that a rash can be indicative of a primary CMV infection, he stated that "flu-like symptoms and respiratory systems [are] the more typical presentation." He also disagreed with McMeeking that Jean-Marie's IgM antibody level was too high in January, 2015, for her to have contracted the virus in January, 2014, explaining that studies show that IgM antibodies can remain in the blood at low levels "for more than [twelve] months postinfection."

Finally, Schleiss vigorously disagreed with McMeeking that CMV can survive the washing process or exist inside of sperm. Schleiss testified that the washing process "render[s] a final product . . . [entirely] free of

virus." He further testified that there is "no evidence" that washed sperm "can harbor the virus, carry the virus, or be infected with the virus." He opined that the studies on which McMeeking relied in reaching the opposite conclusion do not establish that an *infectious* virus survives the washing process or exists inside of sperm. In Schleiss' opinion, they do not establish infectiousness because each of the studies utilized either PCR testing or immunofluorescence testing. He explained that PCR testing tests only for DNA and that, "[j]ust because viral DNA is there, [that] doesn't mean that it's an infectious virus. In fact, usually low levels of DNA are . . . not associated with infections." For much the same reason, he did not believe that immunofluorescence testing conclusively establishes the presence of infectious CMV. Immunofluorescence testing, he explained, is "a very common technique" that uses antibodies equipped with "fluorescent probe[s]" to identify viral antigens in a laboratory specimen, which can then be observed under a fluorescent microscope. He further explained that, as with PCR testing, immunofluorescence testing cannot tell you definitively that the viral material is infectious because "there's a lot of junk, there's a lot of debris, there's little bits and chunks of [viral] DNA [in every sample] . . . that aren't infectious" and to which the fluorescent antibodies can attach.

In its memorandum of decision, the trial court observed that "[t]he foundational dispute between the parties revolves around causation" and that, for the plaintiffs to prevail on this issue, they must "prove that washed donor sperm from an IgG positive donor is capable of containing infectious CMV and, further, [that] it was transmitted in this case by inseminating [Jean-Marie] with sperm from [the CMV positive] donor . . . on May 11, 2014." After a review of the evidence and a careful consideration of the parties' respective arguments, the court found, consistent with the testimony of McMeeking, that Jean-Marie contracted the virus early in the first trimester of her pregnancy, at or about the time of the IUI procedure on May 11, 2014.

The trial court next addressed the state's claim under *Porter* that "the plaintiffs' scientific evidence of causation is unproven as a matter of scientific fact and that the methodology used is otherwise unreliable." The court explained that the primary methodological dispute between the parties concerned "whether PCR testing demonstrates that live CMV can exist in both seminal fluid and spermatozoa after the washing procedure has been conducted in preparation of a TDI sample. . . . McMeeking testified that PCR testing is the most common scientific method for testing for the presence of infectious agents in the infectious disease field, and it is used as a substitute for culture testing because of its speed and efficiency." The court noted that all experts in the case, except for Schleiss, agreed that

PCR testing has demonstrated that CMV can survive the washing process. The court further noted that Schleiss "conceded" that the scientific community has relied on PCR testing to diagnose viral infections for decades and routinely infers from a positive result that the virus is infectious. On the basis of the foregoing, the court concluded that "PCR methodology is accepted and used widely in the scientific community to test for the presence of pathogens, including CMV, and that [one can infer from] a positive finding [that] there was infectious virus in the sample tested." The court further concluded that "studies [relying on] PCR were properly included in . . . McMeeking's analysis of causation, based [on] a long established process known as differential diagnosis in which causes of medical conditions are established."

Having found PCR testing to be a scientifically valid methodology for diagnosing infectious disease, the trial court next addressed the remaining criteria for admitting expert testimony under *Porter* and concluded that all but one of them were met. Specifically, the court found that both McMeeking and Schleiss were eminently qualified in their fields, both were able to present and explain the data and methodology underlying their testimony in a manner that assisted the court, and none of the techniques or methodologies utilized by them was developed in connection with this litigation. The court further found that, "[a]lthough the evidence presented was uniformly subjected to peer review, direct evidence by testing the rate of infection in [CMV negative] women receiving sperm from CMV positive donors, washed or otherwise, was uniformly viewed as inappropriate and unimaginably unethical due to the risk of infection and the devastating effects of congenital CMV." In light of the foregoing, the court concluded that McMeeking's causation testimony satisfied the admissibility requirements of *Porter*.

Turning finally to the question of whether Jean-Marie contracted CMV from the sperm used in the May 11, 2014 IUI procedure, the trial court observed that "part of the quandary in evaluating the facts in this case is that there is no evidence showing that donor [No.] 013673's sample was infected at the time of insemination because, consistent with the industry standard, the samples are not tested, despite an admitted, theoretical risk" of using sperm from a CMV positive donor. The court noted, however, that an accepted way of establishing causation in negligence actions is by an expert's differential diagnosis. The court further noted that, "[i]n Connecticut, [p]roof of a material fact by inference from circumstantial evidence need not be so conclusive as to exclude every other hypothesis. It is sufficient if the evidence produces in the mind of the trier a reasonable belief in the probability of the existence of the material fact." (Internal quotation marks omitted.)

Applying this standard and taking into account the entirety of the record, the trial court found by a preponderance of the evidence that a washed sperm sample from a CMV positive donor can cause a CMV infection in a CMV negative patient via an IUI procedure. "By that same evidentiary standard, the court further [found] that the sperm sample from donor [No.] 013673, more likely than not, caused the CMV infection in [Jean-Marie and the twins], by either infecting [Jean-Marie] first, who transmitted the disease later to Shay and Joshua, or by infecting their oocytes directly, resulting in their subsequent illnesses." In reaching its determination, the court stressed that "any suggestion of 'community spread' under the facts of the case is purely speculative and is not based [on] any direct or circumstantial evidence proffered."

The trial court further reasoned that the May 11, 2014 IUI procedure, rather than community spread, was the more probable cause of Jean-Marie's infection because (1) more than 90 percent of adult CMV transmissions involve the exchange of genital fluids, (2) an IUI procedure involves such an exchange, (3) the May 11, 2014 IUI procedure took place within the narrow temporal window required for the virus to have produced such catastrophic injuries in Shay and Joshua, and (4) even assuming there was evidence that Aaron was CMV positive prior to her pregnancy, "he produces no semen or seminal fluid as a [transgender] male, thereby eliminating one significant medium of intimate, sexual transmission." With these additional facts in mind, we turn to the state's claim.

We review the trial court's evidentiary ruling under *Porter* for abuse of discretion. See *State* v. *Raynor*, 337 Conn. 527, 540–41, 254 A.3d 874 (2020). "In *Porter*, this court followed the United States Supreme Court's decision in *Daubert* v. *Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469 (1993), and held that scientific evidence should be subjected to a flexible test, with differing factors that are applied on a case-by-case basis, to determine the reliability of the scientific evidence." *State* v. *Reid*, 254 Conn. 540, 545, 757 A.2d 482 (2000). "A *Porter* analysis involves a two part inquiry that assesses the reliability and relevance of the witness' methods. . . . First, the party offering the expert testimony must show that the expert's methods for reaching his conclusion are reliable. A nonexhaustive list of factors for the court to consider include: general acceptance in the relevant scientific community; whether the methodology underlying the scientific evidence has been tested and subjected to peer review; the known or potential rate of error; the prestige and background of the expert witness supporting the evidence; the extent to which the technique at issue relies [on] subjective judgments made by the expert rather than on objectively verifiable criteria;

whether the expert can present and explain the data and methodology underlying the testimony in a manner that assists the jury in drawing conclusions therefrom; and whether the technique or methodology was developed solely for purposes of litigation. . . . Second, the proposed scientific testimony must be demonstrably relevant to the facts of the particular case in which it is offered, and not simply be valid in the abstract. . . . Put another way, the proponent of scientific evidence must establish that the specific scientific testimony at issue is, in fact, derived from and based [on] . . . [scientifically valid] methodology." (Citations omitted; internal quotation marks omitted.) *Fleming* v. *Dionisio*, 317 Conn. 498, 506–507, 119 A.3d 531 (2015).

"[C]onsistent with the *Daubert* test . . . the focus of a validity assessment must be solely on principles and methodology, not on the conclusions that they generate. . . . So long as the methodology underlying a scientific opinion has the requisite validity, the testimony derived from that methodology meets the *Daubert* threshold for admissibility, even if the judge disagrees with the ultimate opinion arising from that methodology, and even if there are other methodologies that might lead to contrary conclusions. . . . Accordingly, although the trial court properly serves a gatekeeper function to ensure that the evidence is sufficiently reliable . . . it should . . . deem scientific evidence inadmissible only when the methodology underlying such evidence is . . . incapable of helping the fact finder determine a fact in dispute." (Citations omitted; internal quotation marks omitted.) *State* v. *Kirsch*, 263 Conn. 390, 398–99, 820 A.2d 236 (2003).

Applying these principles, we conclude, first, that the methodologies underlying McMeeking's causation testimony—differential diagnosis and PCR testing—are not "the type of 'junk science' that *Porter* is intended to guard against." *Hayes* v. *Decker*, 263 Conn. 677, 689, 822 A.2d 228 (2003). To the contrary, they are two of the most common and accepted methods for diagnosing disease, and, as such, they are among the "well established principles of the scientific community to which *Porter* simply does not apply." Id. The state does not contend otherwise.

Instead, the state contends that McMeeking's causation testimony should have been excluded because it was based on "a series of factual assumptions that lacked a reliable scientific and factual basis." The state argues that "there was no evidence presented to support . . . McMeeking's assumptions that donor [No. 013673] was . . . shedding [infectious] CMV on the day of his donation, that [he] shed [it] into [his] semen," and that the shed virus "survived the washing process . . . ."

The plaintiffs counter that what the state calls impermissible "factual assumptions" are in fact reasonable inferences drawn from the evidence. In their view, what

the state is really arguing is that the plaintiffs were required to provide direct evidence that the sperm used to inseminate Jean-Marie contained infectious CMV, even though the law is clear that causation may be established through circumstantial evidence. The plaintiffs contend that the state's true challenge is not to the admissibility of McMeeking's differential diagnosis, but to the weight accorded it by the trial court, which is not a concern of *Porter*.

We agree with the plaintiffs that the state's argument goes to the weight of McMeeking's testimony, not its admissibility.[35] See, e.g., *Fleming* v. *Dionisio*, supra, 317 Conn. 512 ("the purpose of the *Porter* hearing is to ascertain the validity, not the weight, of the methodology underlying the proffered scientific evidence" (emphasis omitted)); cf. *State* v. *Kirsch*, supra, 263 Conn. 398 ("the focus of a validity assessment [under *Porter*] must be solely on principles and methodology, not on the conclusions that they generate" (internal quotation marks omitted)).

In arguing to the contrary, the state cites six cases that it contends support the view that McMeeking's causation testimony was inadmissible under *Porter* because it was "based on unproven, speculative factual assumptions." None of the cited cases bears any factual resemblance to the present case. One case is not even a *Porter*/*Daubert* case. See *Bagley* v. *Adel Wiggins Group*, 327 Conn. 89, 91–92, 171 A.3d 432 (2017). In four of the remaining cases, the courts merely concluded that the trial court had not abused its broad discretion in excluding scientific evidence as unreliable. See *Sorensen* v. *Shaklee Corp.*, 31 F.3d 638, 650 (8th Cir. 1994); *Klein* v. *Norwalk Hospital*, 299 Conn. 241, 263–65, 9 A.3d 364 (2010); *Kairon* v. *Burnham*, 120 Conn. App. 291, 296–97, 991 A.2d 675, cert. denied, 297 Conn. 906, 995 A.2d 634 (2010); *E.I. du Pont de Nemours & Co.* v. *Robinson*, 923 S.W.2d 549, 558–60 (Tex. 1995). In our view, the outcomes in these factually dissimilar cases are better explained by the deferential standard of review applied by the courts than by any similarity between them and the present case. In the one case in which the court found an abuse of discretion in the admission of expert testimony; see *Tamraz* v. *Lincoln Electric Co.*, 620 F.3d 665, 667 (6th Cir. 2010), cert. denied, 563 U.S. 988, 131 S. Ct. 2454, 179 L. Ed. 2d 1210 (2011); the expert could "barely" explain his theory of causation, which he readily "conceded" had no real basis in science or fact. Id., 670. Suffice it to say *Tamraz* does not persuade us that the trial court in the present case abused its discretion in admitting McMeeking's expert opinion.

The judgment is affirmed.

In this opinion the other justices concurred.

[1] Claudio Benadiva, Center for Advanced Reproductive Services, P.C., and In Vitro Sciences, Inc., were also named as defendants, but the action was

withdrawn as to them prior to trial. In addition, California Cryobank, LLC, California Cryobank Stem Cell Services, LLC, Cryobank Holdings, LLC, and California Cryo Reproductive Tissue Services were apportionment defendants in this action but are not parties to this appeal.

[2] Washing is a process by which live sperm are separated from the donor's semen by centrifuge and additives, eliminating much of the white blood cells, dead cells, and other organic materials that are more likely to harbor pathogens, including CMV.

[3] The trial court found that ASRM has issued specific guidelines relative to the use of CMV positive donor sperm in CMV negative patients "because of the significant risk it poses to mother and child. . . . Complying with ASRM guidelines is required for clinic membership in [the Society for Assisted Reproductive Technology (SART)]—to which CARS belongs, along with 86 [percent] of all reproductive medicine clinics in the country. . . . In order to obtain and keep SART accreditation, clinics are required to comply with all guidelines and recommendations of the ASRM. . . . Beginning in 2008 and continuing to its latest publication on the topic prior to the events at issue (2013), the ASRM has recommended that CMV positive donor sperm be used only for patients who are also CMV positive." (Citations omitted.)

[4] CARS required CMV negative patients to sign a form consenting to the use of CMV positive donor sperm. The consent form asked the patient to affirm that she understood "that this [s]perm [d]onor has tested positive for CMV IgG and that this indicates a previous exposure to [CMV]." The patient was further required to affirm that she had read the accompanying information pertaining to CMV and understood "the possible risks to [herself] and to [her] child of . . . using a 'CMV [p]ositive' [s]perm [d]onor." The consent form provided: "As the use of sperm from a CMV positive donor, if you are CMV negative, remains very controversial, we at CARS require you to discuss this with your physician and sign a waiver if you choose to use [an] IgG positive donor."

[5] Although sperm banks are required to test their donors' blood for CMV, "[t]here is no existing medical, governmental, or industry requirement . . . that a sperm donor sample used in a TDI procedure be tested for the presence of CMV. Therefore, there is no direct evidence in the present case that the sample resulting in . . . Jean-Marie's pregnancy was either free from or actually carrying live, infectious CMV." (Footnote omitted.)

[6] General Statutes (Rev. to 2015) § 4-160 (b) provides in relevant part that an "attorney or party filing [a malpractice] claim may submit a certificate of good faith to the Claims Commissioner in accordance with section 52-190a. If such a certificate is submitted, the Claims Commissioner shall authorize suit against the state on such claim."

Hereinafter, all references to § 4-160 are to the 2015 revision of the statute.

[7] The trial court found in favor of the state on counts six and eight, which were brought by Aaron and Jean-Marie in their individual capacities, respectively, and alleged loss of filial consortium as to Shay. The court also found in favor of the state on count sixteen, which was brought by Aaron and alleged negligent infliction of emotional distress. The plaintiffs have not challenged the trial court's judgment as to these counts.

[8] Under the award, Joshua was awarded $21,954,176 in economic damages, $146,495.98 in past medical expenses, and $7,000,000 in noneconomic damages; Jean-Marie was awarded $18,106.24 in past medical expenses, $500,000 in noneconomic damages, and $2,000,000 for loss of filial consortium as to Joshua; Aaron was awarded $2,000,000 for loss of filial consortium as to Joshua; and the estate of Shay was awarded $1,000,000 for loss of life and $1021 in funeral expenses. On appeal, the state raises no additional claim, separate from those already identified in this opinion, that damages awarded to the estate of Shay are otherwise impermissible because Shay died in utero.

[9] General Statutes (Rev. to 2015) § 4-160 (a) provides: "When the Claims Commissioner deems it just and equitable, the Claims Commissioner may authorize suit against the state on any claim which, in the opinion of the Claims Commissioner, presents an issue of law or fact under which the state, were it a private person, could be liable."

[10] General Statutes § 52-190a provides in relevant part: "(a) No civil action . . . shall be filed to recover damages resulting from personal injury or wrongful death occurring on or after October 1, 1987, whether in tort or in contract, in which it is alleged that such injury or death resulted from the negligence of a health care provider, unless the attorney or party filing the action . . . has made a reasonable inquiry as permitted by the circumstances to determine that there are grounds for a good faith belief that there

has been negligence in the care or treatment of the claimant. The complaint . . . shall contain a certificate of the attorney or party filing the action . . . that such reasonable inquiry gave rise to a good faith belief that grounds exist for an action against each named defendant . . . . To show the existence of such good faith, the claimant or the claimant's attorney . . . shall obtain a written and signed opinion of a similar health care provider, as defined in section 52-184c, which similar health care provider shall be selected pursuant to the provisions of said section, that there appears to be evidence of medical negligence and includes a detailed basis for the formation of such opinion. . . ."

Although § 52-190a has been amended by the legislature since the events underlying this case; see Public Acts 2019, No. 19-64, § 16; that amendment has no bearing on the merits of this appeal. In the interest of simplicity, we refer to the current revision of the statute.

[11] The certificate of good faith provided in relevant part: "I hereby certify that I have made reasonable inquiry, as permitted by the circumstances, to determine whether there are grounds for a good faith belief that there has been negligence in the care and/or treatment of the plaintiffs. This inquiry has given rise of a good faith belief on my part that grounds exist for an action against each named defendant. I hereby further certify that the attached written opinions are from similar health care providers in compliance with . . . § 52-190a."

[12] The state does not claim on appeal that there were any defects in the certificate of good faith and the physician opinion letters filed in the trial court in accordance with § 52-190a at the commencement of this action.

[13] In *Jarmie*, this court held that "a cause of action alleging medical malpractice must be brought by a *patient* against a health care provider because the language of [§ 52-190a] specifically provides that the alleged negligence must have occurred in the care or treatment of the claimant." (Emphasis in original; internal quotation marks omitted.) *Jarmie* v. *Troncale*, supra, 306 Conn. 587.

[14] For example, the trial court stated that "the cause of action in the present matter has been brought sounding in medical malpractice" and that "[t]his matter is pleaded as a medical malpractice claim . . . ."

[15] In arguing to the contrary, the state asserts that, because "[t]he trial court was clear in its decision that, if the medical providers had obtained an informed consent, the introduction of the sperm from the donor would not have violated any medical standard," it necessarily decided the fertility treatment claims on the basis of a theory of informed consent. We disagree. Under the plaintiffs' theory of the case, the state committed medical malpractice by failing to obtain Jean-Marie's informed consent prior to inseminating her with sperm from a CMV positive donor. To the extent that the trial court focused on the issue of informed consent—in particular, what information Jean-Marie should have received and when she should have received it—it was only because it was integral to a decision on the merits of the medical malpractice claims.

[16] A certificate of good faith is a written statement by the attorney or person filing a medical malpractice action that he or she has "made a reasonable inquiry as permitted by the circumstances to determine that there are grounds for a good faith belief that there has been negligence in the care or treatment of the claimant" and that "such reasonable inquiry gave rise to a good faith belief that grounds exist for an action against each named defendant . . . ." General Statutes § 52-190a (a).

[17] In 2019, the legislature amended § 4-160 to allow plaintiffs to bypass the Claims Commissioner altogether and to bring a medical malpractice action directly to the Superior Court in accordance with § 52-190a. See Public Acts 2019, No. 19-182, § 4.

[18] It is also consistent with the legislative purpose behind the good faith certificate itself, which is merely "to expedite the disposition of obviously frivolous medical malpractice actions." *Carpenter* v. *Daar*, 346 Conn. 80, 125, 287 A.3d 1027 (2023); see also *Wilkins* v. *Connecticut Childbirth & Women's Center*, 314 Conn. 709, 736 n.9, 104 A.3d 671 (2014) (purpose of certificate of good faith is to "prevent frivolous [medical] malpractice actions . . . not . . . to serve as a sword to defeat otherwise facially meritorious claims" (citation omitted)). This court recently stated that "elevating the opinion letter to a jurisdictional prerequisite of any kind . . . [would allow] a potential prelitigation defect to defeat a medical malpractice action that a [fact finder] has deemed meritorious after several years of litigation"; *Carpenter* v. *Daar*, supra, 123–24; an outcome that is not only unjust but wholly at odds with the letter's modest goal of screening out patently frivo-

lous lawsuits. By the same token, § 4-160 (c) evidences the legislature's intent not to allow the state to attack the adequacy of a good faith certificate submitted in accordance with § 4-160 (b), years after the Claims Commissioner deemed it adequate and authorized suit pursuant to the authority vested in him under that statute.

[19] As we previously indicated; see footnote 17 of this opinion; after the commencement of this action, the legislature amended § 4-160 to allow plaintiffs to bypass the Claims Commissioner and to bring a medical malpractice action directly to the Superior Court in accordance with § 52-190a. See Public Acts 2019, No. 19-182, § 4.

[20] We address the state's claims regarding damages awarded for Shay's death in footnote 29 of this opinion.

[21] The discussion of the state's claims in this part of the opinion is addressed to the fertility treatment claims contained in counts one through ten of the revised complaint. Counts eleven through seventeen, which relate to the prenatal care claims, raise the more conventional wrongful birth/wrongful life allegations that the negligent review of the October, 2014 ultrasound test results by the prenatal care providers deprived Jean-Marie of the opportunity to terminate the pregnancy. Because the trial court struck count eleven and none of the remaining prenatal care claims is brought on behalf of Joshua or Shay's estste, those claims are not at issue.

[22] Our trial courts are divided on the issue of whether an action for wrongful life will lie in Connecticut. Compare *Quinn* v. *Blau*, Superior Court, judicial district of Danbury, Docket No. CV-96-325691-S (December 12, 1997) (21 Conn. L. Rptr. 126) (recognizing claim), and *Woodruff* v. *Hoffman*, Superior Court, judicial district of Fairfield, Docket No. 196095 (December 9, 1983) (same), with *Bujak* v. *State*, Superior Court, judicial district of Hartford, Docket No. CV-08-6003355-S (January 15, 2010) (49 Conn. L. Rptr. 221) (concluding that claim is not cognizable), *Rich* v. *Foye*, 51 Conn. Supp. 11, 44, 976 A.2d 819 (2007) (same), and *Donnelly* v. *Candlewood Obstetric-Gynecological Associates, P.C.*, Superior Court, judicial district of Danbury, Docket No. 302096 (June 8, 1992) (6 Conn. L. Rptr. 532) (same).

[23] The trial court found that it was possible either that implanted sperm infected Jean-Marie, who then passed the CMV infection to Joshua and Shay, or that one or both fetuses were infected directly by sperm bearing the virus and that they then infected Jean-Marie.

[24] In count one of their revised complaint, which claimed negligent fertility treatment on behalf of Joshua, the plaintiffs alleged that the state was negligent in that, "after inseminating a CMV negative patient with sperm from a CMV positive donor, it failed to appropriately monitor the patient during her pregnancy for any signs or symptoms of CMV . . . ." The plaintiffs made similar allegations in count two, which claimed negligent fertility treatment as to Shay.

[25] Section 920 of the Restatement (Second) of Torts provides: "When the defendant's tortious conduct has caused harm to the plaintiff or to his property and in so doing has conferred a special benefit to the interest of the plaintiff that was harmed, the value of the benefit conferred is considered in mitigation of damages, to the extent that this is equitable." 4 Restatement (Second), Torts § 920, p. 509 (1979).

[26] In *Cochran*, this court held that a physician who mistakenly informed a patient that the patient had tested negative for herpes owed a duty of care to the patient's girlfriend, who subsequently and predictably contracted herpes notwithstanding the physician's representation. *Doe* v. *Cochran*, supra, 332 Conn. 327–28.

[27] The state acknowledges that it may be held liable to Jean-Marie for the costs of her prenatal care, and, at oral argument before this court, it appeared to acknowledge that, had the claims been cast as wrongful birth rather than wrongful life claims, Jean-Marie and Aaron might have properly recovered the costs of Joshua's care until the age of maturity.

[28] We note that some tort law scholars have suggested that, because "making whole is not the be-all and end-all of tort law, then there is nothing necessarily odd (or [untort like]) in courts sometimes recognizing claims to 'exemplary' redress for certain forms of wrongdoing." J. Goldberg, "Two Conceptions of Tort Damages: Fair v. Full Compensation," 55 DePaul L. Rev. 435, 466 (2006); see also id, 435–38 (rejecting modern trend to make tort victims whole as *only* conceivable tort compensation method).

[29] The trial court awarded Shay's estate $1 million in noneconomic damages "for her loss of the gift of life" pursuant to the wrongful death statute, General Statutes § 52-555. The state also challenges this award. Although it does not analyze Shay's estate's award apart from Joshua's award, the argument appears to be that a claim for wrongful prenatal death cannot lie

when the fetus would not have been conceived but for the allegedly wrongful conduct. Because the parties do not contend that different considerations govern the award of damages to Shay's estate under the wrongful death statute, our analysis of the claims regarding Joshua also disposes of the issues on appeal relating to Shay. We note that the state has not challenged the conclusion of the trial court, consistent with a line of Superior Court decisions running from *Gorke* v. *Le Clerc*, 23 Conn. Supp. 256, 262, 181 A.2d 448 (1962), through *Vecchio* v. *Rye Brook Obstetrics-Gynecology, P.C.*, Superior Court, judicial district of Stamford-Norwalk, Docket No. CV-01-0185312 (June 19, 2002) (32 Conn. L. Rptr. 310, 311), that the estate of a viable fetus that dies in utero may bring a wrongful death claim. We express no opinion on that issue.

[30] Differential diagnosis is "a method of diagnosis that involves a determination of which of a variety of possible conditions is the probable cause of an individual's symptoms, often by a process of elimination." *DiLieto* v. *County Obstetrics & Gynecology Group, P.C.*, supra, 297 Conn. 114 n.13.

[31] The studies McMeeking relied on are described in two peer reviewed articles entered into evidence at trial. See V. Naumenko et al., "Detection and Qualification of Human Herpes Viruses Types 4–6 in Sperm Samples of Patients with Fertility Disorders and Chronic Inflammatory Urogenital Tract Diseases," Andrology (September 2014), available at https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.2047-2927.2014.00232.x (last visited January 30, 2024); V. Naumenko et al., "Detection of Human Cytomegalovirus in Motile Spermatozoa and Spermatogenic Cells in Testis Organotypic Culture," Herpesviridae (June 28, 2011), available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3143078/pdf/2042-4280-2-7.pdf (last visited January 30, 2024).

[32] McMeeking explained, "professional organizations in this field of fertility recommend not to give CMV positive semen to CMV negative women. That's the first thing; so my assumption is most people follow those recommendations and don't do it."

[33] According to the state's causation expert, Mark Schleiss, "80 percent of babies with congenital CMV are asymptomatic; that is to say, they look normal at birth, they have a normal physical exam, they grow normally, they develop normally in every way that a pediatrician or a family practitioner might assess them in the clinic, they seem normal and have a good prognosis."

[34] Schleiss explained that, "for a fetus to become infected with CMV, you need a placenta, you need an exchange of circulation, blood, between the fetal compartment and the maternal compartment. Those entities are not well formed in the first few weeks of pregnancy. So, most CMV infections—all CMV infections to the fetus occur across that bloodstream gradient via the placenta. So, the likelihood would be that the infection of the fetuses came later. . . . I think it's probable that they were infected sometime between [twelve] and [twenty] weeks."

[35] The state does not claim that there was insufficient evidence to support the trial court's finding that the sperm sample from donor No. 013673, more likely than not, caused the CMV infection that killed Shay and severely injured Joshua. It is axiomatic that, once the court concluded that McMeeking's causation testimony satisfied the admissibility requirements of *Porter*, it was free to credit all, some, or none of that testimony in reaching a decision on the plaintiffs' claims. See, e.g., *Companions & Homemakers, Inc.* v. *A&B Homecare Solutions, LLC*, 348 Conn. 132, 148, 302 A.3d 283 (2023) ("[i]n a case tried before a court, the trial judge is the sole arbiter of the credibility of the witnesses and the weight to be given specific testimony" (internal quotation marks omitted)).