Nos. 19-16636, 19-16708

IN THE
UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

EDWIN HARDEMAN,
Plaintiff-Appellee/Cross-Appellant,

v.

MONSANTO COMPANY,
Defendant-Appellant/Cross-Appellee.

On Appeal from the United States District court for the Northern District of California, Nos. 16-cv-00525 & 16-md-02741 (Chhabria, J.)

MOTION TO FILE *AMICI CURIAE* BRIEF OF CALIFORNIA MEDICAL ASSOCIATION, CALIFORNIA DENTAL ASSOCIATION, AND CALIFORNIA HOSPITAL ASSOCIATION

COLE PEDROZA LLP
Curtis A. Cole, SBN 52288
(curtiscole@colepedroza.com)
Cassidy C. Davenport, SBN 259340
(cassidydavenport@colepedroza.com)
*Scott M. Klausner, SBN 292070
(sklausner@colepedroza.com)
2295 Huntington Drive
San Marino, California 91108
Tel.: (626) 431-2787
Fax: (626) 431-2788

Attorneys for *Amici Curiae*
CALIFORNIA MEDICAL ASSOCIATION, CALIFORNIA DENTAL ASSOCIATION, and CALIFORNIA HOSPITAL ASSOCIATION

Amici Curiae California Medical Association, California Dental Association, and California Hospital Association, through counsel, file this motion under Rule 29 of the Federal Rules of Appellate, requesting leave to file the accompanying brief of *Amici Curiae*. *Amici* sought but were unable to obtain the permission of all parties as an alternative to filing this motion.

***AMICI* BRIEFING IS WARRANTED IN THIS APPEAL**

Amici do not advocate for either Plaintiff or Defendant in this case. Rather, *Amici* offer this brief to assist the Court in understanding and then analyzing the issue of specific causation, or, in the district court's words, "medical causation." (*See, e.g.*, ER1570:8-10.) As the district court lamented, questions of scientific causation can be "very confusing," in no small part because the law's treatment of such issues has been "quite confused" (ER1570:7-10.)

This brief, much like the *Reference Manual on Scientific Evidence*,[1] is intended to help the Court navigate these confusing scientific issues. Indeed, *Amici* join in the *Reference Manual*'s introductory sentiments, expressed by Justice Stephen Breyer, that "In this age of science we must build legal foundations that are sound in science as well as in law." *Reference Manual* at 9. As Justice Breyer notes, "Scientists have offered their help," and *Amici* hope the Court shares Justice Beyer's view that "the legal community should accept that offer." (*Id.* at p. 9.)

The accompanying brief represents *Amici*'s offer to help. To this end, *Amici* seek to assist the Court in understanding the medical testimony in this case by "introduce[ing] the basic concepts of diagnostic reasoning and clinical decision-

[1] *See* Fed. Judicial Ctr., *Reference Manual on Scientific Evidence* (3rd ed. 2011) (hereinafter "Reference Manual"). *Amici*'s brief cites extensively to two of the Reference Manual's guides: the *Reference Guide on Medical Testimony* and the *Reference Guides on Epidemiology*.

making" (*Id.* at 689) — in part, by "emphasizing the tools and methods that doctors use to make decisions and highlighting the challenges in adapting them when testifying as medical experts" (*Id.* at 694-695).

Amici submit that the answers to complex medical questions should be based on accepted scientific evidence and rigorous scientific reasoning. That is why *Amici* advocate for more and better research in determining the long-term effects and association between glyphosate and disease, why *Amici* support increased efforts to reduce the amount and use of glyphosate, and why *Amici* also support efforts to measure glyphosate levels in food products and provide this information to consumers.[2] In this case, *Amici* take no position on the question of medical causation that the jury had to answer: whether Plaintiff's non-Hodgkin's lymphoma ("NHL"), which his treating physicians diagnosed as diffuse large B-cell lymphoma, was caused by either

1. Defendant's glyphosate-based herbicide ("GBH") product Roundup, or
2. Plaintiff's hepatitis infection, or
3. a combination of GBH and hepatitis, or
4. something else presently unknown to science?

Instead, *Amici* will focus on the way in which that issue was analyzed by the two physicians who testified at trial, as well as the ways in which the district court instructed the jury on how to view that testimony. Plaintiff's expert on medical causation was Dr. Dennis Weisenburger, who specializes in pathology. That is the medical specialty that tests specimens, blood, urine, fluids, etc., and it is the

[2] See, *e.g.*, CMA Board of Trustees, Resolution 102-18, "Classification of Glyphosate as a Carcinogen" (Oct. 19, 2018), available at https://www.cmadocs.org/newsroom/news/view/ArticleId/22212/classification-of-glyphosate-as-a-carcinogen

specialty that accomplishes tissue biopsies. (ER1049:5-7.) Defendant's expert witness on medical causation was Dr. Alexandra Levine, who specializes in hematology and oncology. That is the medical specialty that diagnoses and treats cancers of the blood system, including lymphomas. Unlike Dr. Weisenburger, she is a clinician. In other words, she sees and treats patients. (ER1548:19-24.) Drs. Weisenburger and Levine both practice at City of Hope in Duarte, California, and they both are highly qualified expert witnesses.

Amici will explain the "differential diagnosis" reasoning process by which a clinician analyzes what disease causes her patient's complaints, and *Amici* then will explain why it is different from the "differential etiology" reasoning process (*id.* at p. 743 ("Term used by the court of witnesses to establish or refute external causation for a plaintiff's condition.") by which physician expert witnesses analyze medical causation in this and similar cases (s*ee id.* ("For physicians, etiology refers to cause")). That distinction is very significant in cases like this because judges and juries almost always decide medical causation based on physician opinion testimony and some physicians rely upon such "differential" methodology to justify their opinions.

Amici next will explain why the "differential" reasoning process, whether it is used by a physician to determine the diagnosis or to determine the etiology of a disease, is consistent with the standard legal reasoning process by which courts analyze causation. That reasoning process is commonly known as "*but for*" reasoning but is technically known as "counterfactual" reasoning. In cases like this, *Amici* will demonstrate, "but for" or counterfactual causation is the better test of factual causation, if only because it is consistent with the "differential" methodology by which some physicians establish medical causation.

Amici will further explain why this process is superior to an alternative causal analysis proposed more than a century ago,[3] commonly referred to as "substantial factor" causation. The "substantial factor" language was formally "articulated in the Restatement Second of Torts," *Viner v. Sweet*, 30 Cal.4th 1232, 1240 (2003), at section 432, but it ultimately was dropped in the Restatement Third of Torts. In its place, the Restatement Third now uses the phrase "multiple sufficient causes" (*id.* at 1240, quoting Rest. 3d Torts, Liability for Physical Harm, § 27) — in other words, each of two or more possible causes that is sufficient on its own to bring about the effect.

Unfortunately, California law continues to use "substantial factor" in its jury instructions on causation, CACI 430 ("Causation: Substantial Factor") and 431 ("Causation: Multiple Causes"), based on the rationalization that "the 'substantial factor' test *subsumes* the 'but for' test." *Viner*, 30 Cal.4th at 1239-1240 (quoting *Mitchell v. Gonzales*, 54 Cal.3d 1041, 1052 (1991) (emphasis added). As a result, there often is confusion. *Amici* thus agree with the district court's assessment California law is "is quite confused as to how to instruct juries on medical causation." (ER1570:9-10.)

Amici disagree, however, with the district court's conclusion that this case presents "independent concurrent causes" simply because "one side says this risk factor caused it, and the other side says that risk factor caused it." (ER1570:24-25.) In effect, the court created a fifth hypothesis the jury should consider, that Plaintiff's hepatitis infection *and* Defendant's GBH were *both* "sufficient on their own to cause" Plaintiff's NHL. As *Amici* explain, that conclusion was contrary to the opinion testimony of the physician expert witnesses about how they *ruled out*

---

[3] *See* Jeremiah Smith, *Legal Cause in Actions of Tort*, 25 Harv. L. Rev. 103 (1911); Jeremiah Smith, *Legal Cause in Actions of Tort [Concluded]*, 25 Harv. L. Rev. 303, 309-310 (1912).

and *ruled in* those and other suspected causes. Worse, the court conflated the concept of risk potential and the concept of causation.[4]

IDENTITY OF *AMICI*

The California Medical Association ("CMA") is a nonprofit, incorporated, professional association of more than 44,000 member–physicians practicing in the State of California, in all specialties. The California Dental Association ("CDA") represents over 27,000 California dentists, more than 70 percent of the dentists practicing in the State. CMA's and CDA's memberships include most of the physicians and dentists engaged in the private practices of medicine and dentistry in California. The California Hospital Association ("CHA") represents the interests of more than 400 hospitals and health systems in California, having approximately 94 percent of the patient hospital beds in California, including acute-care hospitals, county hospitals, nonprofit hospitals, investor-owned hospitals, and multi-hospital systems. Thus, *Amici* represent much of the health care industry in California.

AMICI HAVE AN INTEREST IN MEDICAL CAUSATION

Amici have been active before the California appellate courts in all aspects of litigation affecting California health care providers. Such cases have included

[4] *Amici* acknowledge that at nearly 9,000 words, the accompanying brief exceeds the word limit. *Amici* submit that good cause exists to extend the word limit and move this Court for permission to do the same. *See* Cir. R. 32-2(a). Large swaths of *Amici*'s brief quotes directly from trial testimony. While such quotations consume a sizeable number of words, a careful exegesis of the trial testimony is necessary to understand the complex scientific and medical issues in this case. *Amici* will file a formal motion for leave from the word limit once *Amici* are admitted to the docket in this matter.

Fein v. Permanente Medical Group, 38 Cal.3d 137 (1985), *Central Pathology Service Medical Clinic, Inc. v. Superior Court*, 3 Cal.4th 181 (1992), *Western Steamship Lines, Inc. v. San Pedro Peninsula Hospital*, 8 Cal.4th 100 (1994). More recently, *Amici* filed a brief in *Howell v. Hamilton Meats & Provisions, Inc.*, 52 Cal.4th 541 (2011). Most recently, *Amici* filed briefs in *Flores v. Presbyterian Intercommunity Hospital*, 63 Cal.4th 75 (2016), and *Winn v. Pioneer Medical Group, Inc.*, 63 Cal.4th 148 (2016).

CMA, CDA, and CHA also have filed briefs in federal appellate courts, including *Deniz Vargas, etc. v. Del Puerto Hospital, et al.*, 98 F.3d 1202 (1996), and *Medical Mutual of Ohio v. Denise de Soto, Jose de Soto*, 234 F.3rd 298 (2000).

CMA, CDA, and CHA have long been concerned about the potential for unpredictable and unreasonably large awards in professional negligence actions against health care providers. They provided substantial input to the legislative process that led to enactment of the Medical Injury Compensation Reform Act ("MICRA"), and they continue to support MICRA's ongoing viability.

CMA, CDA, and CHA have advocated improvements in decision-making by judges and juries, primarily in personal injury litigation, where medical care is an important factual consideration. The MICRA statutes, for example, require damages to be assessed according to their various characteristics: economic damage versus noneconomic damage, past damage versus future damage, medical expense damage versus loss of earnings damage, and insurance-compensated damage versus other compensation for damage. MICRA requires lawyers, judges, jurors, arbitrators, and all others involved in the resolution of medical malpractice cases to think more precisely about the reasons and the methods for calculating damages. In other words, MICRA has resulted in improved decision-making and fairness, particularly in assessing damages during jury trials, which in turn has improved the administration of justice in tort litigation generally.

Improved decision-making also is the reason why *Amici* filed briefs in the most significant cases on the issue of causation, *Mitchell v. Gonzales*, 54 Cal.3d 1041 (1991), and *Viner v. Sweet*, 30 Cal.4th 1232 (2003), and on the issue of expert witness opinion testimony on causation, *Jennings v. Palomar Pomerado Health Systems, Inc.*, 114 Cal.App.4th 1108 (2003), and *Sargon Enterprises, Inc. v. University of Southern California*, 55 Cal.4th 747 (2012). *Amici* filed a brief on the specific causation issue in *Johnson & Johnson Talcum Powder Cases, Echeverria v. Johnson & Johnson*, 37 Cal.App.5th 292 (2019). Most recently, *Amici* filed a brief on the specific causation issue pending in the Court of Appeal, First Appellate District, Division One, *Dewayne Johnson v. Monsanto Co.*, case nos. A155940 & A156706.

Medical causation is often the most important issue in professional liability litigation against California health care providers. That is particularly true where patients or their families sue physicians for failure to diagnose or treat potentially life-threatening cardiovascular and cerebrovascular diseases. In those professional liability cases where the disease is cancer, such as NHL, medical causation usually is the central issue. Patients and families often argue strongly against "but for" or counterfactual reasoning, precisely because it is more scientific and rigorous than the alternative, "substantial factor" reasoning, just as Plaintiff did in this case by claiming but for causation was repudiated. (See, *e.g.*, RT1808:15-20 ("repudiated under California law"), 1826:7-11 ("but-for causation has been repudiated in favor of substantial factor").) Failing that, they argue for an exception to "but for" reasoning, for example, by claiming that the opposing expert witness opinions on medical causation qualify as independent concurrent causation. That was the exception the district court invoked here.

Amici reassure the Court that this brief was not authored, either in whole or in part, by any party to this litigation or by any counsel for a party to this litigation.

No party to this litigation or counsel for a party to this litigation made a monetary contribution intended to fund the preparation or submission of this brief.

Some funding for this brief was provided by organizations and entities that share *Amici*'s interests, including physician-owned and other medical and dental professional liability organizations and nonprofit entities engaging physicians, dentists, and other health care providers for the provision of medical services, specifically The Cooperative of American Physicians, Inc., The Dentists Insurance Company, The Doctors Company, Kaiser Foundation Health Plan, Inc., Medical Insurance Exchange of California, Norcal Mutual Insurance Company, and The Regents of the University of California.

A. *Amici* Are Concerned When Causation Is Established By Resort To Speculation, And *Amici* Therefore Advocate For Logical Reasoning

In this case, as in prior cases where *Amici* have filed briefs, *Amici* are concerned that causation be decided based on reason and not speculation. There are three reasons why *Amici* are concerned.

First, causation often is the central factual issue in medical *professional liability* cases, just as it is in *product liability* cases such as this, and it is a factual issue that fundamentally is scientific in nature. That is because (1) causation is a factual issue for which "the interpretation of all scientific evidence" is "germane" (Reference Manual, Preface, p. *xiii*), and (2) legal disputes "increasingly involve the principles and tools of science." (Reference Manual, Introduction, p. 2.)

Second, causation opinions by physician expert witnesses in professional liability cases, just as in this product liability case, often are based on the analytical process known as "*differential diagnosis*," or occasionally on the variation that was

applied in this case, "*differential etiology*." That process usually is not well understood by non-scientists.

Third, patients who pursue litigation often ask their *treating physicians* to testify as experts on specific causation in professional liability cases, as well as in most product liability cases,[5] and failing that find non-treating physicians to testify as *retained experts*. Either way, whether as treating physicians or as retained experts, physicians sometimes are persuaded to step out of their usual approach to diagnosing and treating specific patients and to step into a different role testifying in court to opinions on causation.

Amici submit that physician expert witness opinion testimony in the courtroom on the issue of causation should reflect the same high level of scientific reasoning that is expected of physicians in diagnosing and treating patients in the office, clinic, or hospital. In other words, it should be with '"the same level of intellectual rigor."' *Sargon*, 55 Cal.4th 747, 772, quoting *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 152 (1999).

There is a fundamental similarity of medical diagnostic reasoning using differential diagnosis methodology, on the one hand, and legal causation analysis, on the other. *Amici*'s point is that **it is the same basic approach: ruling out the hypothetical alternative.** In medicine, it is properly analyzed by "**eliminating a known and competing cause**[.]" (Reference Manual, *Reference Guide on Epidemiology*, p. 617. Emphasis by bold added.) In law, it is properly analyzed in terms of but-or or counterfactual causation, which is accomplished by comparing and evaluating "hypothetical situations concerning what might have happened,"

[5] Here, however, the treating physicians were not asked to testify, apparently because none of them had an opinion whether glyphosate caused Plaintiff's NHL.

such that "**the crucial causation inquiry is what would have happened**." *Viner*, 30 Cal.4th at 1242 (emphasis added.)

Amici also submit that the first and perhaps most important indication of the "intellectual rigor" of a physician expert witness's opinion on the question of specific causation is whether the opinion was *based on* the consensus of medical and scientific opinion for ruling out the hypothetical alternative. If not, was it at least *consistent* with the consensus of medical and scientific opinion? If not even that, then what other scientific approach that the physician applies in his own practice was applied by him in his role as expert witness to rule out the hypothetical alternative?

B. *Amici* Are Concerned About The Potentially Adverse Effect Of Chemicals On Humans, And Therefore *Amici* Advocate For Research In Determining The Long-Term Effects and Association Between GBH and NHL

California health care providers are concerned about the impact of chemicals in the environment on all of us. They respect the efforts of scientists who research the many complex scientific questions that entails.

As scientists themselves, health care providers understand *toxicology* and its central tenets**.** As explained in the Reference Manual, one of the central tenants of toxicology is that "'the dose makes the poison'; this implies that all chemical agents are intrinsically hazardous—whether they cause harm is only a question of dose. Even water, if consumed in large quantities, can be toxic." Reference Manual, *Reference Guide on Toxicology*, 636-637. The question of "dose" refers to exposure.

Health care providers also understand *exposure science*. "Understanding exposure is essential to understanding whether the toxic properties of chemicals have been or will be expressed. Thus, claims of toxic tort or product liability

generally require expert testimony not only in medicine and in the sciences of epidemiology and toxicology, but also testimony concerning the nature and magnitude of the exposures incurred by those alleging harm." Reference Manual, *Reference Guide on Exposure Science*, 505-506.

Health care providers further understand that the analysis of causation requires more than just toxicology and exposure science, however. It also requires analysis of the relevant *epidemiology*. For example,

> A plaintiff may have been exposed to a dose of the agent in question that is greater or lower than that to which those in the study were exposed. A plaintiff may have individual factors, such as higher age than those in the study, that make it less likely that exposure to the agent caused the plaintiff's disease. Similarly, an individual plaintiff may be able to rule out other known (background) causes of the disease, such as genetics, that increase the likelihood that the agent was responsible for that plaintiff's disease. Evidence of a pathological mechanism may be available for the plaintiff that is relevant to the cause of the plaintiff's disease. Before any causal relative risk from an epidemiologic study can be used to estimate the probability that the agent in question caused an individual plaintiff's disease, consideration of these (and related) factors is required.

Reference Manual, *Reference Guide on Epidemiology*, 615-616.

Finally, and perhaps most importantly, health care providers understand that in tort litigation, *medical testimony* almost always is required to show specific causation. For that, triers of fact must rely upon medical opinion testimony, whether of treating physicians or retained physician expert witnesses. Triers of fact are required to judge that testimony in terms of the applicable legal standard, however, which means, "[a]lthough treating physicians generally are concerned less about discovering the actual causes of the disease than treating the patient, the testifying medical expert will need to tailor his or her opinions in a way that

conforms to the legal standard of causation." Reference Manual, *Reference Guide to Medical Testimony*, 694.

All of these and other aspects of the basic question of science that is at the core of this case, the long-term effects and association between GBH and NHL, warrant further research.

C. *Amici* Are Concerned When Scientific Research Is Questioned In The Courtroom, And Therefore *Amici* Advocate For A More Scientific Approach To The Way In Which Causation Is Analyzed In Courtrooms

California physicians have had experience in litigation in which an entire technique or technology is suspected to be the cause of cancer or other serious disease. The most dramatic example was the torrent of litigation against plastic surgeons after the FDA banned silicone-gel-filled breast implants in 1992 out of fear they caused autoimmune and connective tissue diseases. There were huge damages awards against the manufacturers and the physicians involved, after which there was a $4.25 billion class action settlement. Only then, as documented by Dr. Martha Angell, Executive Director of the New England Journal of Medicine, in her book, *Science on Trial: The Clash of Medical Evidence and the Law in the Breast Implant Case* (W. W. Norton & Co. 1996), did rigorous scientific studies begin to show that there was no significant link between breast implants and disease.

Dr. Angell explained the basic concern: "In product liability cases, expert testimony by scientists is usually central. The question of causation is, after all, a scientific one. But scientific questions are handled very differently in the courtroom than they are outside the courtroom. The difference turns on the relationship between evidence and opinion." *Id*. at, p. 116. "[S]cientific testimony

in the courtroom is often at most only marginally related to scientific evidence." *Id.* at p. 132.

That is why the causation issue in this case concerns *Amici*. In order for the jury to properly determine medical causation, *i.e.*, in a way that is consistent with accepted scientific evidence and rigorous scientific reasoning, the district court should have instructed the jury as to the *legal* reasoning process that was consistent with the *medical* reasoning process of the physician expert witnesses upon whom the jury were to rely. The court did not do so. The court did not require the jury to apply "but for" reasoning. The court instructed the jury that they were required to apply "substantial factor" reasoning and then instructed the jury that they had the option to apply a "sufficient on its own" reasoning.

Amici submit that the district court's "sufficient on its own" test of medical causation was neither rigorous nor scientific. It was satisfied by nothing more than the "risk" assessments of GBH and hepatitis, based on epidemiological studies showing an *association* between the suspected causes and disease. The "sufficient on its own" test of medical causation only required the jury to find that GBH had the *potential* to cause genetic mutations leading to the disease. Simply stated, using the district court's own language, epidemiology is not "sufficient on its own" to establish medical causation.

Based on nothing more than the "risk" assessments of GBH and hepatitis, the district court concluded that there was evidence showing GBH and hepatitis acted concurrently *but independently* to cause Plaintiff's NHL. As the court itself explained, "it is a situation where the Plaintiff is saying, This *risk factor* caused my cancer; and the Defendant is saying, No, this other *risk factor* caused my cancer. And, you know, both risk factors are present. At least there is substantial evidence that both *risk factors* are present in the case." (ER1571:10-15. Emphasis by italics added.) "So two fires are started at the same time and they both combine to burn

down the barn, right. Or they both combine into one fire and then the barn is burned down. Even if one fire hadn't started, the other fire would have burned down the barn." (ER1801:3-7.) That was why the court gave the "sufficient on its own" option to the jury.

In summary, *Amici* are concerned that the district court's "sufficient on its own" test will be applied in every case in which there are competing expert witness opinions on which "risk factor" was the cause. "But for" reasoning will be optional. The result, in professional liability cases, will be disastrous.

****

For the reasons set forth above, through counsel, *Amici* have drafted the accompanying brief. *Amici* believe the brief's discussion will assist this Court in resolving this appeal, Fed. R. App. P. 29(b)(2), and with this motion, they seek leave to file it.

Dated: December 20, 2019 COLE PEDROZA LLP

By: /s/ Cassidy C. Davenport
Curtis A. Cole
Cassidy C. Davenport
Scott M. Klausner
Attorneys for Amici Curiae
CALIFORNIA MEDICAL ASSOCIATION, CALIFORNIA DENTAL ASSOCIATION, and CALIFORNIA HOSPITAL ASSOCIATION

CERTIFICATE OF SERVICE

I certify that I electronically filed the foregoing with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system on December 20, 2019.

All participants in the case are registered CM/ECF users, and that they will be served by the appellate CM/ECF system.

/s/ Cassidy C. Davenport
Cassidy C. Davenport

Nos. 19-16636, 19-16708

IN THE
UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

EDWIN HARDEMAN,
Plaintiff-Appellee/Cross-Appellant,

v.

MONSANTO COMPANY,
Defendant-Appellant/Cross-Appellee.

On Appeal from the United States District Court for the Northern District of California, Nos. 16-cv-00525 & 16-md-02741 (Chhabria, J.)

AMICI CURIAE BRIEF OF CALIFORNIA MEDICAL ASSOCIATION, CALIFORNIA DENTAL ASSOCIATION, AND CALIFORNIA HOSPITAL ASSOCIATION

COLE PEDROZA LLP
Curtis A. Cole, SBN 52288
(curtiscole@colepedroza.com)
Cassidy C. Davenport, SBN 259340
(cassidydavenport@colepedroza.com)
Scott M. Klausner, SBN 292070
(sklausner@colepedroza.com)
2295 Huntington Drive
San Marino, California 91108
Tel: (626) 431-2787
Fax: (626) 431-2788

Attorneys for *Amici Curiae*
CALIFORNIA MEDICAL ASSOCIATION, CALIFORNIA DENTAL ASSOCIATION, and CALIFORNIA HOSPITAL ASSOCIATION

CORPORATE DISCLOSURE STATEMENT

Pursuant to Federal Rule of Appellate Procedure 26.1, *Amici Curiae* certify that they have no parent, subsidiaries, or affiliate entities (corporate or otherwise) that have issued stock or debt securities to the public, and no publicly held entity (corporate or otherwise) owns 10% or more of stock in any *Amici*.

TABLE OF CONTENTS

CORPORATE DISCLOSURE STATEMENT 2

INTRODUCTION 1

INTEREST OF *AMIICI CURIAE* 1

STATEMENT OF THE CASE AS IT RELATES TO THE ISSUE OF MEDICAL CAUSATION 2

I. FACTUAL BACKGROUND.....2

II. PROCEDURAL HISTORY 7

SUMMARY OF *AMICI*'S BASIC POSITION ON JURY INSTRUCTIONS ON THE ISSUE OF MEDICAL CAUSATION 11

LEGAL ANALYSIS.....13

I. *AMICI* URGE THE COURT TO ENSURE THAT ANSWERS TO COMPLEX SCIENTIFIC QUESTIONS ARE BASED ON SCIENTIFICALLY RIGOROUS ANALYSIS AND ACCEPTED SCIENTIFIC EVIDENCE.....13

II. BOTH IN MEDICINE AND LAW, COMPLEX ISSUES OF SCIENTIFIC CAUSATION SHOULD BE ANALYZED BY BUT-FOR OR COUNTERFACTUAL REASONING 14

A. Causal Reasoning In Both Medicine And Law Is An "Alternative Reasoning Process" Of "Ruling Out" All The Alternatives 14

1. Admittedly, Medicine And Law Use Different Terminology14

2. In Medicine, "Differential Diagnosis" Is The Analytical Process By Which A Physician "Rules Out" The Alternative Suspected Diseases The Patient Does Not Have And "Rules In" The Disease The Patient Actually Has 16

3. In Law, Counterfactual Or But-For Causation Is The Analytical Process By Which A Judge Or Jury "Rules In" The Negligence Or Other Tort As The Actual Cause Of Plaintiff's Harm And "Rules Out" The Other Possible Causes Of Plaintiff's Harm.....18

B. This Court Should Reject Any Argument For An Exception To Rigorous Counterfactual Reasoning, Such As Plaintiff's Argument To The District Court That The "But For" Test Has Been "Repudiated" 21

III. THIS CASE DOES NOT PRESENT A "TWO FIRES SCENARIO" THAT REQUIRES AN EXCEPTION TO BUT-FOR OR COUNTERFACTUAL CAUSAL REASONING.....24

A. The District Court Did Not Require The Jury To Apply "But For" Causal Reasoning Because It Assumed That "Competing Risk Factors" Made This A "Two Fires Scenario" Case 24

B. The District Court Erred In Assuming That The Mere Presence Of "Competing Risk Factors" Was Sufficient To Instruct The Jury Of A Two-Fires Scenario 26

IV. EVEN IF THIS WERE A TWO-FIRES-SCENARIO CASE, THE DISTRICT COURT'S ADDITIONAL INSTRUCTION ADDED TO THE "CONFUSION" IN THE LAW ABOUT WHICH IT COMPLAINED 29

CONCLUSION 31

STATEMENT OF RELATED CASES 32

CERTIFICATE OF SERVICE 34

TABLE OF AUTHORITIES

CASES

Jennings v. Palomar Pomerado Health Sys., Inc.
114 Cal.App.4th 1108 (2003) 6, 14

Kumho Tire Co., Ltd. v. Carmichael
526 U.S. 137 (1999) 14

Logacz v. Limansky
71 Cal.App.4th 1149 (1999) 7

Mitchell v. Gonzales
54 Cal.3d 1041 (1991) 21

Sargon Enterprises, Inc. v. Univ. of S. Cal.
55 Cal.4th 747 (2012) 14

Vecchione v. Carlin
111 Cal.App.3d 351 (1980) 7

Viner v. Sweet
12 Cal.4th 1232 (2003) ..... *passim*

RULES

Federal Rule of Appellate Procedure
Rule 26.1 2
Rule 29 1

CIVIL JURY INSTRUCTIONS

Cal. Civ. Jury Instruction 430 ..... *passim*
Cal. Civ. Jury Instruction 431 ..... 11, 29

RESTATEMENTS

Restatement (Second) of Torts 22, 23
Restatement (Third) of Torts: Liability for Physical and
Emotional Harm 15, 22

FEDERAL JUDICIAL CENTER'S *REFERENCE MANUAL ON SCIENTIFIC EVIDENCE*

Preface 28

John B. Wong et al., *Reference Guide to Medical Testimony* in Fed. Judicial Ctr., *Reference Manual on Scientific Evidence* 740-741 (3d ed.) 15

Michael D. Green et. al, *Reference Guide on Epidemiology* in Fed. Judicial Ctr., *Reference Manual on Scientific Evidence* 15, 17, 18

OTHER AUTHORITIES

6 Witkin, Summary of Cal. Law (11th ed. 2018) Torts.....20, 22

Dan D. Dobbs et al., *The Law of Torts* (2d ed.) 15, 16, 19, 20

David Danks, *The Psychology of Causal Perception and Reasoning* in *The Oxford Handbook of Causation* (Helen Beebee et al. eds., 2012) 19

Anthony J. Sebok, *Actual Causation in the Second and Third Restatements: Or, the Expulsion of the Substantial Factor Test* in *Causation in European Tort Law* (Marta Infantino & Eleni Zervogianni eds., 2017).....23

Judea Pearl & Dana MacKenzie, *The Book of Why: The New Science of Cause and Effect* 262-263 (2018).....18, 19

Peter Menzies, *Counterfactual Theories of Causation* in *Stanford Encyclopedia of Philosophy* (Edward N. Zalta ed. 2002), http://plato.stanford.edu/archives/sum2002/entries/causation-counterfactual.....18

INTRODUCTION

At the heart of this case lies a complex scientific question — namely, what caused Plaintiff to contract non-Hodgkin's lymphoma ("NHL"). Plaintiff contends it was his exposure to Defendant's glyphosate-based herbicide; Defendant contends it was Plaintiff's hepatitis infection. A jury was asked to decide this question, and this Court is now asked to resolve several issues relevant to the jury's determination. This appeal will necessarily raise difficult medical and scientific issues, and *Amici Curiae* California Medical Association, California Dental Association, and California Hospital Association offer this brief to assist the Court in navigating these issues, especially those concerning questions of scientific causation.

INTEREST OF *AMICI CURIAE* [1]

Amici submit this brief pursuant to Federal Rule of Appellate Procedure 29 and the accompanying motion for leave to file, which sets forth in detail the identity and interests of *Amici.* As explained in that motion, *Amici* collectively represent much of the healthcare industry in California.

Amici have no interest in the disposition of this case and take no position with respect to whether Defendant's product caused Plaintiff's NHL. Rather, *Amici* are interested in the way that question is analyzed, not only by this Court, but also by the district court and the physician experts who testified at trial. *Amici*'s concern here is on improved decisionmaking and rigorous application of scientific principles in matters involving complex medical questions, principles for

[1] This brief was not authored in any part by any party to this litigation or by any party's counsel. No party or party's counsel made any monetary contribution intended to fund the preparation or submission of this brief.

which *Amici* have long advocated. *Amici* have particular interest in cases involving medical causation, a central issue in this case, as such issues often play prominent roles in professional-liability litigation against California healthcare providers.

STATEMENT OF THE CASE AS IT RELATES TO THE ISSUE OF MEDICAL CAUSATION

To prove their opposing hypotheses on the factual question of medical causation, both Plaintiff and Defendant relied upon opinion testimony of their physician expert witnesses. Plaintiff's expert, Dr. Dennis Weisenburger, ruled out hepatitis as the cause of Plaintiff's NHL, and he ruled in glyphosate. He denied Plaintiff's NHL was idiopathic. Defendant's expert, Dr. Alexandra Levine, ruled out glyphosate as the cause of Plaintiff's NHL, and she ruled in hepatitis. If not that, she opined, Plaintiff's NHL was idiopathic.

Neither physician expressed the opinion that glyphosate and hepatitis were each sufficient on their own to cause Plaintiff's NHL.

I. FACTUAL BACKGROUND

In 2015, Plaintiff was diagnosed with NHL, specifically diffuse large B-cell lymphoma. (ER1592:23-25.)

NHL, unfortunately, is common. As one of the physicians explained, "There are about 75,000 people diagnosed with lymphoma in the United States each year. So about 1 in 47 people will get this. The most common type of non-Hodgkin's lymphoma is the type that Mr. Hardeman had, and that is diffuse large B-cell lymphoma." (ER1594:1-6.)

NHL usually is idiopathic, which "means that we don't know the cause." (ER1603:17.) In other words, in most NHL patients, the etiology is unknown.

Depending on the literature reviewed, NHL is idiopathic in 70 to 90 percent of cases. "The majority without question are idiopathic" (ER1603:24-25), and "[t]hat applies to diffuse large B-cell lymphoma." (ER1604:5.)

There are some known causes of NHL, however, and for some of those known cases the mechanisms are understood. Based on recent advances in research, technology, and medical knowledge, physicians can more precisely diagnose the disease as relating to T-cells or B-cells. Defendant's expert witness, Dr. Levine, described one of the ways in which B-cell lymphoma is caused:

> [I]t turns out that the B lymphocyte has . . . a receptor. I will call it now a lock, a receptor, a molecule, a little structure on its surface. . . . And it turns out that hepatitis C has a molecule on its surface which fits exactly into the receptor on the B cell. One could think of it as a lock and a key. All of medicine, all of biology works that way. It has to be a perfect fit.
>
> So what happens is the hepatitis C is the key. The B lymphocyte is the lock. If hepatitis C is in the environment, the key goes right into the lock. It attaches itself right away to the B lymphocyte, and it causes that B lymphocyte to divide over and over and over and over again, so that there is a, quote, tumor, a mass, a lump of those cells.
>
> This one is directly driven by hepatitis C. It needs the — I'm going to say — call the hepatitis C the foot on the gas pedal of these B cells, making them grow, making them divide over and over… [I]f you remove the hepatitis C, you are taking your foot off of the gas pedal. You are taking the key out of the lock, and the whole thing can go away. And it does…. [T]hat is the mechanism in which it works.

(ER1611:13-1612:13.) Dr. Levine simplified the concept of mutations in the DNA for the jury by using the term "accidents" (ER1613:10-11), and she explained, "if you get rid of hepatitis C entirely, it doesn't matter. The accident is there."

(ER1613:21-22.) Some researchers, she noted, refer to it as "hit and run" DNA damage. (ER1616:3-1617:9 (Exh.44).)

The point is that infectious organisms such as viruses are known to cause NHL. Dr. Levine, whose expertise is lymphomas caused by infectious organisms, explained it in simple terms for the jury: NHL can be caused by "germs." (ER1603:14.) That includes not only hepatitis C, but also hepatitis B. (ER1604:10-23.)

This is significant here because in 2005, Plaintiff was found by his physicians at Kaiser to be infected by hepatitis C. He also had antibodies for hepatitis B. The amount of virus in his blood at that time was high. (ER1607:2-6 ("732,000 copies for every drop of blood").) It also was chronic, because he had cirrhosis of the liver (ER1607:14-18) and increased liver enzymes (ER1608:12-15). Plaintiff likely was first exposed to hepatitis in 1966 (ER1607:19-22), almost forty years prior to the diagnosis.

In 85% of hepatitis C patients, the disease is chronic. (ER1609:24-25.) Dr. Levine explained that there are two outcomes from chronic hepatitis C: one outcome is cirrhosis and the other is cancer. (ER1610:6-19.)

> One of those cancers, the more common, is liver cancer directly caused by long-term infection by HCV. It causes accidents in the liver. It causes mutations in B lymphocytes because the hepatitis B also lives and gets into B lymphocytes; causes accidents in the B lymphocyte, and that may result in non-Hodgkin's lymphoma, specifically diffuse large B-cell lymphoma. So these are the usual outcomes of chronic hepatitis C infection.

(ER1610:11-19.)

Plaintiff's expert witness, Dr. Weisenburger, testified to his opinion that Defendant's glyphosate-based herbicide ("GBH"), Roundup, caused Plaintiff's NHL. His opinion was based on his application of the differential-diagnosis

technique (ER1155:2-20),[2] in which he ruled out the alternative causes of Plaintiff's NHL and ruled in Roundup. He was asked to explain his reasoning "process," which he did in terms of "risk factors":

> Right. So obesity . . . increases the risk, but it doesn't increase the risk very much, probably at most 30 percent. Whereas Roundup — he was in a — because of his extensive exposure, he was at high risk for developing non-Hodgkin's lymphoma. So in the end I decided — based on the whole story and all the things I have told you today and all the information I have read and all of my experience that — that the obesity or the overweight was a minor risk factor, and the substantial risk factor in the case of Mr. Hardeman was the extensive exposure to Roundup.

(ER1214:20-1215:4.) With respect to NHL being mostly idiopathic, he explained,

> Well, idiopathic is a big word that means we don't know what caused the lymphoma, okay. . . . So — and that is true in many cases of lymphoma, we don't know what the cause is. After we go through the complete list of risk factors and known causes, the patient doesn't have any of those. And so we ended up saying, Well, we don't know what caused the lymphoma.
>
> But that is not the case here in Mr. Hardeman because he has one substantial risk factor that I think — that in the end, when you go through the list, it makes more sense to say, Well, gee, if he has the lymphoma and he has a risk factor and it is a substantial risk factor, that must be the cause more likely than not.
>
> I mean, it would be — it wouldn't be logical to say, Well, we know he has the substantial risk factor, but we really don't know what caused his non-Hodgkin's lymphoma. That wouldn't really make sense, right. It wouldn't really make sense.

---

[2] It is noteworthy that Dr. Weisenburger does not perform differential diagnoses in his practice as a pathologist. That is because he is not a clinician. (RT 1220:25-1221:10.)

(ER12118:4-22.)[3]

In summary, Dr. Weisenburger "eliminated" hepatitis, both C and B, because he "d[i]dn't believe that they could have caused his non-Hodgkin's lymphoma. So then it leaves Roundup and obesity[.]" (ER1213:6-8.) He concluded "that the obesity or the overweight was a minor risk factor, and the substantial risk factor in the case of Mr. Hardeman was the extensive exposure to Roundup." (ER1215:2-4.) Dr. Weisenburger used the phrase "substantial factor" in his ultimate opinion on specific causation. (ER1219:5-14.) He never said that, but for Roundup, Plaintiff would not have had NHL, nor did he use any other words to that effect, such as the phrase used by the district court in its additional jury instruction, "sufficient on its own to cause Plaintiff's NHL."

Defendant's expert witness Dr. Levine disagreed. She testified that

> the most likely cause of Plaintiff's NHL was chronic infection by hepatitis C; 39 years of active infection by hepatitis C, allowing a real opportunity for an accident to occur. It could have occurred on day one of the infection. It could have occurred on day one of year 39 of the infection. For 39 years he was infected with a virus which has been shown to cause diffuse large B-cell lymphoma.

(ER1599:23-1600:4.) She continued, "the second most likely cause is hepatitis B." (ER1600:7.) She concluded, "it is also possible that it was idiopathic." (ER1600:21.)

---

[3] In California state court, such testimony is too conclusory to support a jury verdict on causation. (*Jennings v. Palomar Pomerado Health Sys., Inc.*, 114 Cal.App.4th 1108, 1120 (2003) ("Dr. Miller substituted a conclusion in place of an explanation, opining '[i]t just sort of makes sense.'").)

II. PROCEDURAL HISTORY

Phase One of the trial focused on medical causation. Toward the end of that phase, during Dr. Levine's testimony, the district court confided to the parties, "I find this causation issue very difficult. I find it *very confusing*. It seems like California law — and the law of many states — is *quite confused* about how to instruct juries on medical causation." (ER1570:7-10 (emphasis added).) That was important, because there were four possible hypotheses:

1. GBH was the only cause of the NHL, or
2. hepatitis was the only cause of NHL, or
3. GBH and hepatitis somehow combined to cause the NHL, or
4. neither GBH nor hepatitis was a cause of the NHL, *i.e.,* it was idiopathic.

The court framed the discussion in terms of "risk factors":

> [I]t is a situation where the Plaintiff is saying, This risk factor caused my cancer; and the Defendant is saying, No, this other risk factor caused my cancer. And, you know, both risk factors are present. At least there is substantial evidence that both risk factors are present in the case. You know, what is your — what is your case law for the proposition that in that scenario you don't give a multiple causation instruction, and in that scenario you do give that but-for sentence.

(ER1571:10-18.)[4]

The district court knew there was opinion testimony supporting the independent-cause theories (hypotheses 1, 2, and 4) but there was no opinion

[4] The court cited *Vecchione v. Carlin*, 111 Cal.App.3d 351 (1980), (RT 1571:3-7), a case decided almost twenty-five years before California Supreme Court clarified the law relating to causation in *Viner v. Sweet,* 12 Cal.4th 1232 (2003). Plaintiff's counsel then cited *Logacz v. Limansky*, 71 Cal.App.4th 1149 (1999) (RT 1571:22-1571:15), another California Court of Appeal case decided before *Viner.*

testimony supporting a theory of concurrent dependent causes (hypothesis 3). As the Court explained, "it seems like there is either no testimony or barely any testimony of concurrent dependent causation, right? The only — it seems like the only evidence you have is of independent causation. There has been no testimony that hep C worked with Roundup to cause cancer." (ER1572:17-21.)

After both sides rested in Phase One, the district court again grappled with how to instruct the jury given the three alternative hypotheses for which there was evidentiary support. The court began by focusing on concurrent independent causation, which was not one of the hypotheses for which the parties presented evidence. The court explained, "you have all this language from all these [California state appellate court] cases that talk about how a multiple causation instruction is going to be *very rare*, right. And you say normally you give the but-for sentence and you don't give the multiple causation instruction. It is going to be a *very rare* situation where you do that, okay." (ER1800:5-10 (emphasis added).)

During the long discussion that followed (ER1800-1874), Plaintiff opposed instructing the jury on the but-for test, arguing that such a test had been "repudiated under California law." (ER1808:15-20; *see also* 1826:7-11 ("but-for causation has been repudiated in favor of substantial factor").) The district court admonished Plaintiff that his position was "not correct" (ER1826:12), prompting Plaintiff to then ask for an instruction on dependent concurrent causation (ER1826:18-1827:9). The district court rejected that argument too, stating, "without having elicited an expert opinion about that, I don't see how you can argue that to the jury." (ER1826:25-1827:1.) Plaintiff persisted (ER1831:21-1832:13), but the court was not persuaded, ruling ultimately that Plaintiff "may not argue to the jury that the two things combined to cause the cancer because there is not an expert opinion to support that, and there is not really even any scientific evidence to support that."

The district court's solution was to allow the jury to find causation even if it concluded that each of two (or conceivably even more) causes are "sufficient" to have caused the NHL, in other words — the so-called "two fires" scenario.[5] (ER1801:3-7.) The court added to CACI 430 an instruction on multiple sufficient causes, thereby giving the jury the option to decide "that two or more NHL-causing factors operated independently on Mr. Hardeman" and then decide that glyphosate "was sufficient on its own." The combined result was "Instruction No. 9: Causation." (Dkt. 2963, at 11; RT1969-1970.) Both sides objected. (ER1870:16-1874-16.) Plaintiff warned the instruction would "create a lot of jury confusion." (ER1871:19-1872-2.)

And in fact, it did. During argument to the jury, Plaintiff's counsel emphasized the importance of the Instruction No. 9, calling it the "the most important jury instruction for this case." (ER1978:4.) Counsel then summarized by arguing that the combination of hepatitis C and glyphosate caused Plaintiff's cancer: "So what does that mean? That means that if we — if you believe that by a preponderance of the evidence that Roundup caused his NHL, you can also believe that *hep C played a role*; and you still have to find for Mr. Hardeman." (ER1979:24-1980:2 (emphasis added).)

Defendant promptly objected, and the district court sustained. (ER1980:7-9.) The court instructed the jury to disregard the argument (ER1981:10-13), but it declined Defendant's request for a curative instruction, calling such an instruction "not necessary." (ER2035:6-10.) Nevertheless, the district court's "gut reaction"

[5] The two-fires scenario, discussed in depth below, is familiar to all first-year law students: two distinct fires combine to burn down a building, but either fire on its own would have sufficed to bring the building down, even in the absence of the other.

to Defendant's proposal provided a revealing observation that characterizes the broader confusion in this case about (1) the difference between *causes* and *risk factors*, and (2) the difference between *dependent* and *independent* concurrent causes:

> I think it may be possible the way the evidence came in for the jury — I mean, again, *it depends how you define "risk factor" in this whole discussion, this whole debate about what's a causative risk factor; right*?
>
> But I think it probably would be possible for the jury to ponder *whether Mr. Hardeman's age sort of coalesced with Roundup exposure*. So, in other words, you know, the jury might say, "Well, maybe if Hardeman had been, you know, 30 years old and gotten this exposure, he wouldn't have gotten NHL; but because he's . . . old by the definition that the experts gave — and, you know, because cancer advances more quickly or cancer is more likely to develop in old people once a trigger event has occurred" — right? So I think there may be a little bit of problem with the language.

(ER2033:25-2034:18 (emphasis added).)

The question on the verdict form was framed in terms of the "substantial factor" test of causation: "Did Mr. Hardeman prove by a preponderance of the evidence that his exposure to Roundup was a substantial factor in causing his non-Hodgkin's lymphoma?" After five days of deliberation, the jury agreed with Plaintiff and returned a verdict that answered "Yes." (Dkt.3103; RT 2192.)

SUMMARY OF *AMICI*'S BASIC POSITION ON JURY INSTRUCTIONS ON THE ISSUE OF MEDICAL CAUSATION

The way for courts to instruct juries on medical causation should be in terms of *but for* or counterfactual reasoning, if only because that is consistent with the way in which physicians who testify as expert witnesses form their opinions on medical causation, by *ruling out* alternative causes of the patient's disease and then ruling in the most likely cause. Unfortunately, that is not the way juries usually are instructed on medical causation. *Amici* agree with the district court's assessment that "California law — and the law of many states — is *quite confused* about how to instruct juries on medical causation." The ultimate source of that confusion is *substantial factor* reasoning in the "one size fits all" approach to jury instructions on causation. In California, those instructions are CACI 430 and 431.

This case illustrates the problems that can arise. Based on the evidence, there were four hypotheses for the jury to consider:

1. GBH was the *only* cause of the NHL, or
2. hepatitis was the *only* cause of NHL, or
3. GBH and hepatitis somehow *combined* to cause the NHL, or
4. *neither* GBH nor hepatitis was a cause of the NHL, *i.e.,* it was idiopathic.

Plaintiff presented evidence of the first hypothesis, and Defendant presented evidence of the second and fourth. As the district court noted, there was no evidence supporting the third hypothesis.

The problem was the district court raised its own, fifth hypothesis:

5. hepatitis *and* GBH *both* independently caused the NHL.

As the district court readily acknowledged, it is rare to give the multiple-causation instruction (ER1800:5-10 ["a very rare situation"]) for the so-called two-fires

scenario, which has been referred to as "independent concurrent causes," "combined force criteria," or "mutual sufficient causes." *Viner v. Sweet*, 30 Cal.4th 1232, 1240 (2003). As applied here, the two-fires metaphor would describe a hypothetical scenario in which there were two primary cancers in the lymphatic system, one caused by GBH and the other by hepatitis, which then combined to become a single systemic cancer that resulted in the signs and symptoms of NHL. In medical terms, that would be a situation in which Plaintiff had two different B-cell lymphocytes, each of which underwent two separate mutations, one from GBH and one from hepatitis, after which the lymphocytes grew separately until eventually combining into a single case of NHL.[6]

Simply stated, the district court *speculated* that this *could* have happened to Mr. Hardeman. Worse, the district court instructed the jury that it could speculate in the same way. That is, the jury could agree with *both* physicians as to what those physicians *ruled in*: Dr. Weisenburger *ruled in* GBH as the cause of Plaintiff's NHL and Dr. Levine *ruled in* hepatitis at the cause. The jury could find that each of those two forces was "sufficient on its own to cause" the NHL. But the problem with that is that it means the jury *also* necessarily *disagreed* with both physicians as to what they *ruled out*: Dr. Weisenburger *ruled out* hepatitis and Dr. Levine *ruled out* GBH. Stated differently, it means the district court instructed the jury that it could ignore the basic *rule out* / *rule in* reasoning approach of the

[6] It is important to emphasize that is a highly unlikely scenario, if only because it assumes the two forces are operating at the same time. *Amici* submit a far more likely scenario is two, and probably more, *separate mutations* leading to two or more separate primary cancers, all of which occur at different times. The second and subsequent mutations, because they occurred long after the first lymphocyte mutated and then grew into a single, raging, systemic case of NHL, would be trivial contributors to the patient's problem. In that scenario, a more apt metaphor is a match thrown into an ongoing forest fire.

physicians. The jury did just this, applying its own reasoning and ignoring the ultimate opinions of the physicians.

Amici submit that would not be possible if the jury was instructed in terms of but-for or counterfactual reasoning. For example, if the jury was asked to analyze each of the three alternative hypotheses (nos. 1, 2, and 4) separately, consistent with the *rule out* / *rule in* approach about which the physicians testified during trial, and concluded the cause was unknown, then the jury would answer *yes* to the idiopathic hypothesis (no. 4) and *no* to both of the GBH and hepatitis hypotheses (nos. 1 and 2). Or, if the jury agreed with Plaintiff, it would answer *no* to the idiopathic hypothesis of (no. 4), *yes* to the GBH hypothesis (no. 1), and *no* to the hepatitis hypotheses (no. 2). The point is, only if the jury answered *yes* to both the GBH and hepatitis hypotheses (nos. 1 and 2) would the district court be faced with the question whether those concurrent causes were independent or dependent. Given the evidence at trial, it would be responsibility of the district court, not the jury, to decide which of those two scenarios applied.

LEGAL ANALYSIS

I. *AMICI* URGE THE COURT TO ENSURE THAT ANSWERS TO COMPLEX SCIENTIFIC QUESTIONS ARE BASED ON SCIENTIFICALLY RIGOROUS ANALYSIS AND ACCEPTED SCIENTIFIC EVIDENCE

In this case, as in prior cases where *Amici* have filed briefs, *Amici* are concerned that complex scientific questions — here, the question of medical causation — be decided based on reason and not speculation. *Amici* submit that the causation analysis that takes place in the courtroom should reflect the same high level of scientific reasoning that is expected of physicians in diagnosing and treating patients in the office, clinic, or hospital. This is particularly so when the

legal analysis is driven by the testimony of physician expert witnesses. In other words, the legal analysis of fundamentally scientific questions should not be based on unsupported assumptions or "speculative or conjectural factors"; rather, such analysis should be done with "the same level of intellectual rigor" that characterizes the practice of medicine. *Sargon Enterprises, Inc. v. Univ. of S. Cal.,* 55 Cal.4th 747, 770, 772 (2012) (*quoting Jennings*, 14 Cal.App.4th at 1117, and *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 152 (1999).

II. BOTH IN MEDICINE AND LAW, COMPLEX ISSUES OF SCIENTIFIC CAUSATION SHOULD BE ANALYZED BY BUT-FOR OR COUNTERFACTUAL REASONING

A. Causal Reasoning In Both Medicine And Law Is An "Alternative Reasoning Process" Of "Ruling Out" All The Alternatives

1. Admittedly, Medicine And Law Use Different Terminology

While the medical and legal professions use the same words in discussing causation, they give the words different meanings. The solution to that problem is to recognize that, whether discussed in the clinic or in the courtroom, the concepts involve the same basic issues.

> [M]edical terms shared in common by the legal and medical professions have differing meanings, for example, differential diagnosis, differential etiology, and general and specific causation. The basic concepts of diagnostic reasoning and clinical decisionmaking and the types of evidence used to make judgments as treating physicians or experts involve the same overarching theoretical issues: (1) *alternative reasoning processes*; (2) weighing risks, benefits, and evidence; and (3) communicating those risks.

John B. Wong, et al., *Reference Guide to Medical Testimony*, in Fed. Judicial Ctr., *Reference Manual on Scientific Evidence* 740-741 (3d ed.) (emphasis added)[7].

The point, as will be explained in the following two subsections, is that both medical and legal analyses of causation are based on a deductive process of ruling out the hypothetical alternatives. In medicine, this process is commonly referred to as "ruling in" the disease causing a patient's symptoms and signs. In law, it is commonly known as the "but-for" test of factual causation.[8] Either way, the process is the same: it "requires evaluation of hypothetical situations concerning what might have happened, but did not," and "[t]his is so because the very idea of causation necessarily involves comparing historical events to a hypothetical alternative." *Viner*, 30 Cal.4th at 1042.

In both medicine and law, the question of causation must be analyzed from both general and specific vantage points. The first question that must be answered is

> whether the putative source of the harm is in fact capable of causing such harm. . . . Courts say that when the defendant's conduct is incapable of causing the harm claimed by the plaintiff, the plaintiff has failed to prove general or generic causation. Although such

---

[7] This brief contains cites extensively to the Federal Judicial Center's *Reference Manual on Scientific Evidence* (hereinafter "*Reference Manual*"). Citations to the *Reference Guide to Medical Testimony* refer to the guide by Wong, et al. cited in the accompanying text. Citations to the *Reference Guide on Epidemiology* refer to the guide by Michael D. Green, et. al. All citations are to the Third Edition of the *Reference Manual*.

8 The deduction-driven analysis of "factual causation" is distinguished from the policy-driven analysis commonly known in the past as "legal causation" or "proximate cause." That concept now is being referred to as "scope of liability." *See*, *e.g.*, Dan D. Dobbs et al., *The Law of Torts*, Ch. 18 & § 198 (2d ed.) (Westlaw database, updated June 2019); Restatement (Third) of Torts: Liability for Physical and Emotional Harm, Ch. 6 ("Scope of Liability (Proximate Cause)").

> general causation is necessary to plaintiff's case, it is not sufficient; the plaintiff must then go further and present evidence that causation is not merely scientifically possible, but that it existed in her particular case.

Dobbs et al., *supra*, § 184.

2. In Medicine, "Differential Diagnosis" Is The Analytical Process By Which A Physician "Rules Out" The Alternative Suspected Diseases The Patient Does Not Have And "Rules In" The Disease The Patient Actually Has

Differential diagnosis is a reasoning process in which each alternative suspected disease can be viewed as a hypothesis to be determined as true or false. It is deductive reasoning. It is the procedure used by a physician or other healthcare provider when multiple diseases could explain the patient's abnormal signs and symptoms. That is, it is an analytical process to "rule in" the one disease that is causing those signs and symptoms, so that disease can be properly treated and the patient cured. In a medical emergency, where a physician or other healthcare provider is unable in the short time available to rule in a specific disease, at the very least he or she will use such procedure to rule out any imminently life-threating conditions.

In order to accomplish the differential-diagnosis analysis, the physician or healthcare provider must

- gather information about the patient, then
- list all the possible diseases that are known to cause signs and symptoms of the type the patient exhibits, and prioritize the list in order to

- first rule out the possibilities that are most urgently dangerous, and once that is done,
- eliminate or "rule out" the merely possible diseases on the list, and
- confirm or "rule in" the disease on the list that is the probable cause of the patient's signs and symptoms.

A similar process governs what is known as the differential-etiology analysis, except there the goal is to rule in and rule out the ultimate cause of a diagnosed disease, rather than a patient's general signs or symptoms.[9]

In either methodology (differential diagnosis or differential etiology) the deductive process is the same. Again, to use the words of the California Supreme Court, "the crucial causation inquiry is *what would have happened*" in each of the hypothetical alternatives. *Viner*, 30 Cal.4th at 1242 (emphasis in original). In this case, that question can be stated as follows: even if Plaintiff had never been exposed to Roundup, would Plaintiff have developed NHL without it? The whole idea of differentiable methodology requires knowing what the competing causes are. "Although differential etiologies are a sound methodology in principle, this approach is *only valid if general causation exists and a substantial proportion of competing causes are known*." *Reference Guide on Epidemiology*, at 618 (footnote omitted, emphasis added).

In the law, for the reasons explained in the next subsection of this brief, the same analytical approach applies in medicine. To again quote the California Supreme Court, "[d]etermining causation *always* requires evaluation of hypothetical situations concerning what might have happened, but did not." *Viner*, 30 Cal.4th at 1242 (emphasis added). "This is so because the very idea of

[9] In practice, particularly in the law, the term "differential diagnosis" is commonly used to describe both forms of analysis, albeit imprecisely so.

causation *necessarily* involves comparing historical events to a hypothetical alternative." *Id.* (emphasis added).

Obviously, if there are *mostly* unknown causes, it is even more important that the expert explain why Plaintiff's cancer was not caused by an unknown factor. *Amici* submit, in that situation, differential diagnosis methodology does not provide the means of doing so.

3. In Law, Counterfactual Or But-For Causation Is The Analytical Process By Which A Judge Or Jury "Rules In" The Negligence Or Other Tort As The Actual Cause Of Plaintiff's Harm And "Rules Out" The Other Possible Causes Of Plaintiff's Harm

The foregoing subsection discussed the scientific analysis by means of a counterfactual, hypothetical inquiry known as the differential-diagnosis method. The same basic counterfactual analysis exists in the law; there, the analysis is known as the but-for test.

There is nothing controversial about counterfactual or but-for causation. Most simply stated, it is that event A caused event B because if A had not happened then B would not have happened. *But for A, there would have been no B.* In legal analysis, the traditional test for attributing causal responsibility is the counterfactual but-for ("*conditio sine qua non*") test, which asks whether, but for the defendant's wrongful act, the injury complained of would have occurred.[10] In the law, "[t]he but for test of causation can be applied only by comparing what would have happened if the defendant had *not* been negligent. Would the plaintiff have been injured in the same way in that case? If so, then the defendant's conduct

[10] Peter Menzies, *Counterfactual Theories of Causation* in *Stanford Encyclopedia of Philosophy* (Edward N. Zalta ed. 2002), http://plato.stanford.edu/archives/sum2002/entries/causation-counterfactual

is not a factual cause of the harm." Dobbs *et al.*, *supra*, § 187 (emphasis in original).

But-for causation is a concept familiar to laymen as well, if only because "our causal knowledge often plays a role in assessing counterfactuals, and counterfactual 'but for' reasoning is frequently part of causal reasoning." David Danks, *The Psychology of Causal Perception and Reasoning* in *The Oxford Handbook of Causation* 459 (Helen Beebee et al. eds., 2012). It is abstract reasoning by logical deduction, which was the final step in childhood cognitive development investigated by Jean Piaget.[11] David Hume, when defining causation, referred to it: "[W]e may define a cause to be an object, followed by another, and where all the objects, similar to the first, are followed by objects similar to the second. Or in other words, where, if the first object had not been, the second never had existed." (David Hume, *An Enquiry Concerning Human Understanding* 146 (Tom L. Beauchamp ed., 1999) (emphasis omitted).

Counterfactual or but-for causation is important today, for example to those scientists who are working to improve artificial intelligence. (See, *e.g.,* Pearl & MacKenzie, *supra* n. 10, Ch. 8 ("Counterfactuals: Mining Worlds That Could Have Been"), and particularly at 296 ("I hope that by now it is obvious that counterfactuals are an essential part of how humans learn about the world and how our actions affect it.").)

---

[11] Counterfactual or but-for causation is an ancient idea, dating back at least to the Greek historian Thucydides, if not earlier. *See* Judea Pearl & Dana MacKenzie, *The Book of Why: The New Science of Cause and Effect* 262-263 (2018), quoting Thucydides, *History of the Peloponnesian War* ("The last sentence of the quote is especially interesting because it expresses the notion of necessary or but-for causation.").

That is why it still is the test to be applied in most cases, and it still is the test of causation in California.[12] That was reaffirmed by the California Supreme Court in *Viner,* 30 Cal.4th 1232. As the Court explained, the purpose of the but-for requirement is to safeguard against speculative and conjectural claims. *Id.* at 1241.

The but-for test reflects a familiar and ubiquitous form of reasoning that is regularly used by courts to ascertain the basis (that is, the fundamental cause) of an expert witness opinion on causation. "In the great mass of cases, courts apply a but-for test to determine whether the defendant's conduct was a factual cause of the plaintiff's harm, although there are some important exceptions." Dobbs et al., *supra*, § 186 (footnote omitted).

Here, unfortunately, when the district court combined CACI 430 with the court's own, additional instruction on multiple sufficient causes, the result was contrary to the evidence, in which both Dr. Weisenburger and Dr. Levine "ruled out" the hypothetical alternatives. As *Amici* explain in the final section of this brief, the court's combined instruction was incomplete, contradictory, confusing, and left the jury to make the legal determination that was the district court's responsibility to make.

---

[12] "The first element of legal cause is cause in fact: *i.e.*, it is necessary to show that the defendant's negligence contributed in some way to the plaintiff's injury, so that 'but for' the defendant's negligence the injury would not have been sustained. If the accident would have happened anyway, whether the defendant was negligent or not, then his or her negligence was not a cause in fact, and of course cannot be the legal or responsible cause. The 'but for' rule has traditionally been applied to determine cause in fact." 6 Witkin, Summary of Cal. Law (11th ed. 2018) Torts, § 1334.

B. This Court Should Reject Any Argument For An Exception To Rigorous Counterfactual Reasoning, Such As Plaintiff's Argument To The District Court That The "But For" Test Has Been "Repudiated"

Plaintiff urged the district court to apply the "substantial factor" test and not apply the but-for test, arguing the latter "has been repudiated under California law for these kinds of cases." (ER1808:15-20.) Plaintiff's counsel was wrong.

The but-for test has not been "repudiated" in California. This false assertion appears to be based on a misreading of the California Supreme Court's decision in *Mitchell v. Gonzales*, 54 Cal.3d 1041 (1991), which criticized the wording of the then-standard jury instruction on causation. But as the Court has since made clear, *Mitchell* did not affect the but-for test of causation. As explained in *Viner, "Mitchell* did not abandon or repudiate the requirement that the plaintiff must prove that, *but for* the alleged negligence, the harm would not have happened." 30 Cal.4th, at 1239. "*Mitchell* also stated that 'nothing in this opinion should be read to discourage the Committee on Standard Jury Instructions from drafting a new and proper 'but for' instruction.'" *Id.* Moreover, as the *Viner* Court further explained, "the 'substantial factor' test *subsumes* the 'but for' test" of causation. *Id.* (quoting *Mitchell*, 54 Cal.3d at 1052) (emphasis added.) Indeed, to this day, California juries routinely are instructed on the but-for test of causation in CACI 430, where they are told, "[c]onduct is not a substantial factor in causing harm if the same harm would have occurred without that conduct."

That said, the "substantial factor" test for which Plaintiff advocated *has* been criticized — repeatedly. As explained in Witkin,

> The primary function of the substantial factor test was to permit the factfinder to decide that factual cause existed when there were multiple sufficient causes, i.e., each of two separate causal chains sufficient to bring about the plaintiff's harm, thereby rendering neither

> a but-for cause [read: the two-fires scenario]. However, the substantial-factor test has revealed a tendency to be understood as permitting something less than a but-for cause, or as demanding something more than a but-for cause, to constitute a factual cause. (Rest. 3d, Torts: Liability for Physical and Emotional Harm § 36, Comment a.) Thus, '[t]he substantial-factor test has not . … withstood the test of time, as it has proved confusing and been misused.' Confusion has resulted from the different ways that the substantial-factor test has been employed in the fields of negligence and comparative negligence and in enhanced-injury cases when proof of the amount of harm caused by a second actor is uncertain. (Rest .3d, Torts: Liability for Physical and Emotional Harm § 26, Comment j.)

(6 Witkin, Summary of Cal. Law (11th ed.), Torts § 1334.)

Because "substantial factor" was criticized as a source of controversy and confusion in the proof of causation, that phrase was eliminated in the Restatement (Third) of Torts. Instead, the exception to the but-for test in the Restatement (Second) of Torts (at §§ 431-432) that was formerly known as "substantial factor" is now stated in the Restatement (Third) of Torts as "multiple sufficient causes."[13] The pertinent sections read as follows:

> **§ 26 *Factual Cause***. Tortious conduct must be the factual cause of harm for liability to be imposed. Conduct is a factual cause of harm when the harm would not have occurred absent the conduct. Tortious conduct may also be a factual cause of harm under § 27.
>
> **§ 27 *Multiple Sufficient Causes*.** If multiple acts occur, each of which under § 26 alone would have been a factual cause of the physical harm at the same time in the absence of other act(s), each act is regarded as a factual cause of the harm.

[13] Causation now appears in the volume entitled "Liability for Physical Harm" of the multiple volume Restatement Third of Torts.

> **§ 36 *Trivial Contributions to Multiple Sufficient Causes.*** When an actor's negligent conduct constitutes only a trivial contribution to a causal set that is a factual cause of harm under § 27, the harm is not within the scope of the actor's liability.

In *Viner v. Sweet,* discussed above, the California Supreme Court noted "various labels" (other than "substantial factor") that could be used to describe the exception to the but-for test: "concurrent independent causes," "combined force criteria," and "multiple sufficient causes." 30 Cal.4th at 1240. The Court explained the exception as "multiple forces *operating at the same time* and *independently*, each of which would have been *sufficient by itself* to bring about the harm." *Id.* (emphasis added).

In summary, the broad "substantial factor" test that originally appeared in the first Restatement of Torts and then reappeared in the Restatement Second of Torts, has been eliminated.[14] For purposes of analyzing the issue of medical causation in this case, the Court should reject the argument, based on the "substantial factor" test, that it is not necessary to rule out the other possible causes as required by the but-for test.

---

[14] "Expelled" is another word that has been used. *See, e.g.*, Anthony J. Sebok, *Actual Causation in the Second and Third Restatements: Or, the Expulsion of the Substantial Factor Test* in *Causation in European Tort Law* 60-84 (Marta Infantino & Eleni Zervogianni eds., 2017)

III. THIS CASE DOES NOT PRESENT A "TWO FIRES SCENARIO" THAT REQUIRES AN EXCEPTION TO BUT-FOR OR COUNTERFACTUAL CAUSAL REASONING

A. The District Court Did Not Require The Jury To Apply "But For" Causal Reasoning Because It Assumed That "Competing Risk Factors" Made This A "Two Fires Scenario" Case

Until the district court raised the two-fires scenario, this case presented a relatively straightforward question of medical causation: Was it GBH or hepatitis or something unknown that caused Plaintiff's NHL? Since neither of the two physician expert witnesses who testified at trial expressed the opinion that there were concurrent causes of the NHL, it was a question of what the single cause was. But-for causal reasoning should not have been optional.

Still, the district court viewed this as a two-fires scenario because the case involved "competing risk factors" in which "one side says Risk Factor A caused the medical condition, the cancer, and the other side says Risk Factor B caused the cancer" (ER1800:12-14). What troubled the court was that "both risk factors are present. At least there is substantial evidence that both risk factors are present in the case." (ER1571:12-15.) To the district court, the evidence of "competing risk factors" brought the case within the ambit of the two-fires scenario; it explained:

> So two fires are started at the same time and they both combine to burn down the barn, right. Or they both combine into one fire and then the barn is burned down. Even if one fire hadn't started, the other fire would have burned down the barn.
>
> So I suppose that might be a way to interpret the rules' application narrowly. In a way that comports with the general statements that the Courts seem to intone that, you know, this is going to be a rare instruction.

> On the other hand, it strikes me as potentially misleading to the jury to not have a multiple causation instruction in this case and to have the but-for sentence.

(ER1801:3-16.) The district court, elaborating on its concerns, then noted that it was struggling with the notion "that the jury must . . . buy the Plaintiff's experts' theory or the Defense experts' theory. Why can't they buy both?" (ER1805:7-10.)

> What if the jury [thought] . . . I have listened to the testimony, and I believe that Roundup causes NHL, general causation. I buy the Plaintiff's argument on general causation. And . . . I think there is a good argument that Roundup caused Mr. Hardeman's cancer, but there is a really strong argument that hep C caused — was going to cause his cancer anyway. Let's just say he would have gotten it anyway from hep C. He had active hep C for 39 years after all.
>
> So I believe that hep C is the strongest — was the strongest risk factor, and so I'm going to say that his cancer was caused by hep C.
>
> But they still — I guess the way — I guess you can see that I'm struggling with this too. I guess the way to put the question to you is, is there a risk that if you include the but-for sentence that the jury will say — will think, oh, what this but-for sentence means is that if I think he would have gotten it from hep C anyway, then even if I think he got it from Roundup, I should find for Monsanto. That's my concern.

(ER1806:4-23.) Later in the discussion, the court again asked rhetorically,

> But let's say that the jury also believed that Roundup was a substantial factor in causing his NHL. In other words, let's say they buy the idea — buy Levine's testimony and they buy Weisenburger's testimony. I mean, why couldn't the jury believe both of those things?

(ER1821:13-17.)

Thus, to summarize, the district court's reason for not requiring the jury to apply but-for reasoning to this case was the court's conclusion that this was an independent concurrent causation case. That conclusion was wrong.

B. The District Court Erred In Assuming That The Mere Presence Of "Competing Risk Factors" Was Sufficient To Instruct The Jury Of A Two-Fires Scenario

There is a famed aphorism in medicine: When you hear hoofbeats, think horses, not zebras. This pithy application of Occam's razor reminds physicians that when diagnosing diseases, the simplest explanation is often the correct one. Here, the district court heard hoofbeats, but instead of looking for the horse, the court instructed the jury to search for *both* horses *and* zebras. In other words, although the expert testimony indicated that Plaintiff's NHL was caused by *either* hepatitis *or* glyphosate, the court strained to instruct the jury that *both* "risk factors" may have caused Plaintiff's disease. This deviation from sound medical reasoning arose from the district court's misplaced reliance on the epidemiological evidence and the probabilistic assumptions embodied therein.

In relying on "competing risk factors" to conclude this case presented a two-fires scenario, the district court revealed that it saw the question of causation as nothing more than a probabilistic assessment of the risks. But that is precisely why the two-fires analogy ought not to apply here. While the district court evaluated the disease scenario here purely in terms of epidemiologic "risk," a true two-fires scenario should be evaluated terms of *all* the evidence.

In a literal two-fires scenario, direct observation of the facts relating to causation normally is possible. For example, according to news reports, the recent Paradise fire was traced back to its place of origin, electrical lines that came down due to strong winds. The source of another recent fire was found by inspectors to

have been at a roadside, suggesting sparks from a truck. For another example, lightning-caused fires are observable.

In the disease scenario, on the other hand, direct observation of the facts relating to specific causation is seldom possible. For example, where the disease is cancer, the disease process begins with genetic mutation in a single cell and continues with that cell replicating. Normally, there is no way to trace that disease process back to the original mutation. One solution to this problem is to look to epidemiological studies to establish associations between the disease scenario and various known risk factors. Once the epidemiology has allowed the physician to identify the alternatives (*i.e.*, the "risk factors"), the physician then relies upon counterfactual reasoning to rule out and rule in those alternatives. In this scenario, it is the process of counterfactual reasoning, and not the epidemiology itself, that establishes the conclusion of specific causation.

Thus, there are important distinctions between the two-fires scenario and a disease scenario evaluated in terms of epidemiologic risk While in the two-fires scenario one can evaluate evidence of causation, epidemiology provides only evidence of an *association* between an outcome and a given risk factor. As the *Reference Manual*'s *Reference Guide To Epidemiology* explains it, "A difference between the disease scenario and the fire scenario is that, in the former, one will have no more than *a probabilistic assessment* of whether each of the exposures would have caused the disease in the individual." *Id.* at 598, n.136 (emphasis added.)

This distinction matters greatly here. The two-fires scenario is one of independent concurrent *causes*, yet the probabilistic risk assessment embodied in epidemiology establishes no more than an *association*, one that may or may not be causal. Thus, while epidemiology is a useful tool in identifying the *possible* causes of a disease, it is, without more, ill-suited to establish the *specific* cause:

> Epidemiology is concerned with the incidence of disease in populations, and epidemiologic studies do not address the question of the cause of an individual's disease. *This question, often referred to as specific causation, is beyond the domain of the science of epidemiology*. Epidemiology has its limits at the point where an inference is made that the relationship between an agent and a disease is causal (general causation) and where the magnitude of excess risk attributed to the agent has been determined; that is, epidemiologists investigate whether an agent can cause a disease, not whether an agent did cause a specific plaintiff's disease. Nevertheless, the specific causation issue is a necessary legal element in a toxic substance case. The plaintiff must establish not only that the defendant's agent is capable of causing disease, but also that it did cause the plaintiff's disease.

Reference Guide to Epidemiology, at 609-610 (footnotes omitted, emphasis added).

Rather, the question of specific causation requires a deeper analysis than epidemiology alone can answer:

> Fundamentally, the task [of determining causation] is an inferential process of weighing evidence and using judgment to conclude whether or not an effect is the result of some stimulus. *Judgment is required* even when using sophisticated statistical methods [such as those that underly all epidemiologic studies]. *Such methods can provide powerful evidence of associations between variables, but they cannot prove that a causal relationship exists*.

Preface, *Reference Manual*, pp. xiii-xiv (emphasis added).

All of this illustrates the basic error in the district court's conclusion: An epidemiologic risk analysis considers associations, not causes. Therefore, mere evidence of a risk factor's presence is not evidence of causation. This in turn means that evidence of "competing risk factors" is not itself evidence of independent concurrent causes and ought not to require a jury instruction on the two-fires scenario. Indeed, were it otherwise, it is difficult to see how the two-fires

instruction would not be required in virtually every case in which there are conflicting expert-witness opinions.[15]

IV. EVEN IF THIS WERE A TWO-FIRES-SCENARIO CASE, THE DISTRICT COURT'S ADDITIONAL INSTRUCTION ADDED TO THE "CONFUSION" IN THE LAW ABOUT WHICH IT COMPLAINED

The problem identified by the district court, that "California law — and the law of many states — is *quite confused* about how to instruct juries on medical causation," was a criticism of CACI 430 and 431. Assuming that the better way for courts to instruct juries on medical causation is in terms of *but for* or counterfactual reasoning, the district court's additional instruction made matters significantly worse.

The district court's combination of CACI 430 and the additional instruction was *incomplete*. Nowhere in those instructions was the phrase but-for to be found. Even assuming this was a case of *independent* concurrent causes (*i.e.,* the so-called "two fires scenario"), the point is that both causes (*i.e.,* both fires, the one by lightning and the other by a locomotive's spark) could be, in a manner of speaking, a but-for cause if considered alone. In both situations, single cause and independent concurrent causes, the jury should have been instructed to analyze causation in terms of counterfactual causation.

---

[15] To its credit, the district court struggled with this tension: "On the one hand you have all this language from all these cases that talk about how a multiple causation instruction is going to be very rare, right. And you say normally you give the but-for sentence and you don't give the multiple causation instruction…. And my concern is that if — if you are giving it in every case where there are competing risk factors … all of a sudden you are bringing in … significant percentage of cases where medical causation is at issue." (RT 1800:7-25.)

Even assuming the combination of CACI 430 and the additional instruction somehow was understood by the jury that they should use but-for or counterfactual causation in their analysis,[16] that was squarely *contradicted* by other features of the combination of instructions: (1) by the vague noun "factor," (2) by the verb phrase "to have contributed," (3) by the strong sentence "It does not have to be the only cause of the harm." Each of those three features instructed the jury to analyze the Defendant's contribution (a "factor" rather than a "cause") in terms of multiple causation ("does not have to be the only cause of the harm" rather than but-for), specifically in terms of dependent concurrent causation ("contributed" rather than "caused").

The overall effect of the collection of instructions was that *the jury was required to make a legal determination that was the responsibility of the district Court*: whether this was a case of single or multiple causation and, if multiple, whether it was a case of independent or dependent concurrent causation. The district court realized there was no evidence to support dependent concurrent cause, but the court did not tell the jury, as Defendant had requested. That left the jury to make its own determination of whether this was a dependent or independent concurrent causation case.

The source of these problems is that CACI is a "one size fits all" solution which, as the district court realized, is confusing and, therefore, insufficient. The court's solution, an additional instruction intended to better capture California law as it relates to independent concurrent causation, only made the situation worse.

---

[16] For example, the jury might have understood the clause in CACI 430, "if the same harm would have occurred without the conduct," and the phrase in the additional instruction, "sufficient on its own," to mean "but for" or counterfactual causation. It does not. To be a but for cause, it must be both *necessary* and sufficient.

CONCLUSION

The reasoning process that was applied by the physician expert witnesses to *rule out* all of the hypothetical medical causes and *rule in* the one correct medical cause is the same reasoning process by which the jury should have decided medical causation. Unfortunately, that was not the case. The district court instructed the jury in a confusing if not confusing fashion.

Dated: December 20, 2019 COLE PEDROZA LLP

By: s/Cassidy C. Davenport
Curtis A. Cole
Cassidy C. Davenport
Scott M. Klausner
Attorneys for Amici Curiae
CALIFORNIA MEDICAL ASSOCIATION, CALIFORNIA DENTAL ASSOCIATION, and CALIFORNIA HOSPITAL ASSOCIATION

STATEMENT OF RELATED CASES

There are no related cases pending in this Court.

Dated: December 20, 2019 COLE PEDROZA LLP

By: s/Cassidy C. Davenport
Curtis A. Cole
Cassidy C. Davenport
Scott M. Klausner
Attorneys for Amici Curiae
CALIFORNIA MEDICAL ASSOCIATION, CALIFORNIA DENTAL ASSOCIATION, and CALIFORNIA HOSPITAL ASSOCIATION

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

Form 8. Certificate of Compliance for Briefs

Instructions for this form: http://www.ca9.uscourts.gov/forms/form08instructions.pdf

9th Cir. Case Number(s) 19-16636, 19-16708

I am the attorney or self-represented party.

This brief contains 9,844 **words**, excluding the items exempted by Fed. R. App. P. 32(f). The brief's type size and typeface comply with Fed. R. App. P. 32(a)(5) and (6).

I certify that this brief *(select only one)*:

- ○ complies with the word limit of Cir. R. 32-1.
- ○ is a **cross-appeal** brief and complies with the word limit of Cir. R. 28.1-1.
- ○ is an **amicus** brief and complies with the word limit of Fed. R. App. P. 29(a)(5), Cir. R. 29-2(c)(2), or Cir. R. 29-2(c)(3).
- ○ is for a **death penalty** case and complies with the word limit of Cir. R. 32-4.
- ○ complies with the longer length limit permitted by Cir. R. 32-2(b) because *(select only one):*
  - ○ it is a joint brief submitted by separately represented parties;
  - ○ a party or parties are filing a single brief in response to multiple briefs; or
  - ○ a party or parties are filing a single brief in response to a longer joint brief.
- ○ complies with the length limit designated by court order dated _____.
- ◉ is accompanied by a motion to file a longer brief pursuant to Cir. R. 32-2(a).

Signature s/Cassidy C. Davenport **Date** December 20, 2020

*(use "*s/[typed name]*" to sign electronically-filed documents)*

Feedback or questions about this form? Email us at forms@ca9.uscourts.gov

CERTIFICATE OF SERVICE

I certify that I electronically filed the foregoing with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system on December 20, 2019.

All participants in the case are registered CM/ECF users, and that they will be served by the appellate CM/ECF system.

s/Cassidy C. Davenport
Cassidy C. Davenport