STATE OF MINNESOTA

IN SUPREME COURT

A18-0968

Court of Appeals — Gildea, C.J.

Patricia J. Marquardt,

Appellant,

vs.

Filed: April 8, 2020
Office of Appellate Courts

James M. Schaffhausen, et al.,

Respondents,

Steven M. Dittes, et al.,

Defendants,

Steven W. Sonnesyn, et al.,

Defendants.

Eric J. Magnuson, Patrick Stoneking, Robins Kaplan LLP, Minneapolis, Minnesota; and

Douglas E. Schmidt, Schmidt & Salita, Minnetonka, Minnesota, for appellant.

Richard J. Thomas, Chad J. Hintz, Burke & Thomas, PLLP, Arden Hills, Minnesota, for respondents.

Jennifer E. Olson, Schwebel, Goetz & Sieben, P.A., Minneapolis, Minnesota, for amicus curiae Minnesota Association for Justice.

S Y L L A B U S

The district court did not abuse its discretion when it admitted testimony from two medical doctors on the issue of causation.

Reversed and remanded.

O P I N I O N

GILDEA, Chief Justice.

The question presented in this medical malpractice case is whether the district court abused its discretion when it admitted expert testimony from two medical doctors on the issue of causation. The district court admitted testimony about causation from Dr. John Stark, an orthopedic surgeon, and Dr. Kevin Stephan, an infectious-disease specialist. The court affirmed its decision when it denied respondents' post-trial motions. A divided panel of the court of appeals reversed and remanded for a new trial. *Marquardt v. Schaffhausen*, No. A18-0968, 2019 WL 2167475, at *5 (Minn. App. May 20, 2019). The court of appeals concluded that the district court abused its discretion because the doctors lacked the requisite occupational experience to opine about causation. *Id.* Because we conclude that the district court did not abuse its discretion in admitting the doctors' causation testimony, we reverse and remand to the court of appeals to consider the remaining issues raised on appeal.

FACTS

This malpractice action arises from the right-knee arthroplasty[1] respondents Dr. James Schaffhausen and Twin Cities Orthopedics, Inc. (together Dr. Schaffhausen) performed on appellant Patricia J. Marquardt on January 31, 2012. Marquardt contends that as a result of the surgery, she suffered permanent neurologic damage. During the surgery, when Dr. Schaffhausen opened the joint, he observed "a dark cloudy fluid" and necrotic (dead) tissue. Dr. Schaffhausen ordered a Gram stain test[2] and cultures to check for infection. The Gram stain test results were negative, suggesting "that the likelihood of infection [wa]s very low." Accordingly, Dr. Schaffhausen elected to proceed with the total knee replacement. The remainder of the surgery went as expected, and Marquardt's recovery seemed to go smoothly, at least initially. Two days after the surgery, Dr. Schaffhausen recorded his discharge notes, explaining that Marquardt "underwent total knee replacement without complication" and that she should be discharged.

But the next day (February 3), while Marquardt was still in the hospital, the results of the cultures became available. One of the four cultures showed that the knee had an infection called methicillin-resistant *Staphylococcus aureus* (MRSA). In response, Dr. Schaffhausen, after receiving advice from a medical-management doctor and an

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[1] Arthroplasty is the medical term for surgery to "reduce pain and/or restore mobility to" a dysfunctional joint. Thomas L. Stedman, *Stedman's Medical Dictionary for the Health Professions & Nursing* 144 (7th ed. 2012). In common terms, knee arthroplasty is knee-replacement surgery.

[2] A Gram stain test is used because it "gives relatively quick results" about whether any bacteria are present and if so what type. *Gram Stain*, Lab Tests Online, https://labtestsonline.org/tests/gram-stain (last visited Apr. 3, 2020) [opinion attachment].

infectious-disease doctor, ordered 6 weeks of IV vancomycin (antibiotic) therapy to treat the MRSA.

After several days of this treatment, Marquardt suffered renal failure, which the treating physician concluded may be due to vancomycin toxicity. The vancomycin treatment was then canceled. Over the next several weeks, Marquardt suffered seizures and was in and out of the hospital. An MRI showed signs that are "concerning for a process such as ADEM [acute disseminated encephalomyelitis], encephalitis."[3] ADEM became the working diagnosis for the doctors. By this time, Marquardt had also developed symptoms of brain damage, which caused deficits including vision changes and confusion.[4]

Although Marquardt made cognitive improvements, her knee pain continued and so, on March 20, doctors removed the knee-replacement component, replacing it with an antibiotic-impregnated spacer. Marquardt was discharged from the hospital on March 27.

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[3] ADEM is an inflammation of the central nervous system, specifically the brain and spinal cord, that can result in brain damage. *Stedman's Medical Dictionary*, *supra* at 28–29. At trial, Marquardt's theory focused on ADEM. She argued that Dr. Schaffhausen caused her brain damage by performing the knee-replacement surgery because the surgery allowed the MRSA infection to enter her bloodstream, causing inflammation in the brain (ADEM), which resulted in brain damage.

[4] A different doctor later determined that "ADEM . . . [wa]s less likely," and that Marquardt could have reversible posterior leukoencephalopathy syndrome, which is also known as posterior reversible encephalopathy syndrome (PRES). PRES is a condition characterized by confusion, headaches, seizures, and "visual abnormalities." *Stedman's Medical Dictionary*, *supra* at 1346. At trial, Dr. Schaffhausen's theory focused on PRES. Under that theory, Dr. Schaffhausen's decision to perform the surgery did not cause Marquardt's brain injury because her MRSA infection would have been treated with vancomycin even if he had not performed the surgery. Accordingly, because Marquardt's kidneys could not properly process the vancomycin, she would have developed PRES due to the buildup of vancomycin in her system, and thus she would have suffered brain damage regardless of whether Dr. Schaffhausen performed the surgery.

Then, after three months of treatment, Marquardt had another surgery, inserting a new knee-replacement component. She suffered one unrelated complication and was discharged on June 29. The lasting impact of Marquardt's brain injury includes significant spatial deficits, loss of depth perception, and short-term memory loss.

On August 25, 2016, Marquardt filed a medical malpractice suit against Dr. Schaffhausen. The case proceeded to trial and Marquardt offered video depositions of Dr. Stark and Dr. Stephan. Before introduction of the video depositions, the district court ruled on admissibility, determining that Marquardt could introduce the video testimony as to causation. At the close of Marquardt's case-in-chief, Dr. Schaffhausen moved for a directed verdict, arguing that Marquardt had not established causation. The district court denied that motion.

The jury found for Marquardt, and pursuant to Minn. R. Civ. P. 50 and Minn. R. Civ. P. 59, Dr. Schaffhausen moved for judgment as a matter of law or a new trial. As relevant here, Dr. Schaffhausen argued that it was error for Dr. Stark and Dr. Stephan to testify as to causation. The district court denied both motions. The district court explained that Dr. Stark and Dr. Stephan did not need to be neurologists to give opinions on the causation of Marquardt's injuries. The district court explained that Dr. Schaffhausen's objection went to the weight of the opinions rather than to admissibility. Dr. Schaffhausen appealed.

A divided panel of the court of appeals reversed, remanding to the district court for a new trial. *Marquardt*, 2019 WL 2167475, at *5. The court of appeals determined that Dr. Stark and Dr. Stephan were not qualified to testify as to causation because they lacked

the requisite occupational experience in neurology, ADEM, and PRES. *Id.* at *3. Specifically, the court of appeals explained that Dr. Stark admitted to never treating a patient with ADEM nor seeing a case of ADEM following a MRSA infection, *id.*, and he affirmed that he was not an expert in PRES nor had he ever treated or diagnosed PRES, *id.* at *4. Moreover, the court of appeals explained that there is no record evidence that Dr. Stark "consulted with a neurologist about ADEM, PRES, or their causes." *Id.*

Regarding Dr. Stephan, the court of appeals explained that he could testify as to the spread of infections, but that he could not testify as to ADEM or PRES. *Id.* The court of appeals observed, "[g]iven Dr. Stephan's lack of occupational experience in diagnosing ADEM and lack of experience in treating ADEM, he is not qualified to independently opine about the neurological conditions or their causes." *Id.* The court also stated that Dr. Stephan "lacks the prior occupation experience in treating a patient with PRES." *Id.*

The court of appeals concluded that neither Dr. Stark nor Dr. Stephan should have testified about causation. *Id.* Without expert testimony, the court held that Marquardt had failed to establish causation and thus remanded for a new trial. *Id.* at *5. The dissent disagreed and concluded that Dr. Stark and Dr. Stephan were qualified to testify. *Id.* at *9–10 (Jesson, J., dissenting).

We granted Marquardt's petition for review.

ANALYSIS

On appeal, Marquardt argues that the district court properly admitted the causation testimony of Drs. Stark and Stephan[5] and urges that we reverse the court of appeals' decision to the contrary. We review the district court's decision to admit expert testimony for an abuse of discretion. *Reinhardt v. Colton*, 337 N.W.2d 88, 93 (Minn. 1983). Generally, "the exclusion of expert medical testimony lies within the sound discretion of the trial court, and its ruling will not be reversed unless it is based on an erroneous view of the law or it constitutes an abuse of discretion." *Id.* When exercising its discretion, the district court has "wide latitude in determining whether there is sufficient foundation upon which an expert may state an opinion." *Benson v. N. Gopher Enters., Inc.*, 455 N.W.2d 444, 446 (Minn. 1990). And we "apply 'a very deferential standard' to the district court when reviewing a determination as to expert qualification," *Teffeteller v. Univ. of Minn.*, 645 N.W.2d 420, 427 (Minn. 2002) (quoting *Gross v. Victoria Station Farms, Inc.*, 578 N.W.2d 757, 761 (Minn. 1998)), refusing to reverse even if we "would reach a different conclusion with respect to the sufficiency of the foundation," *Williams v. Wadsworth*, 503 N.W.2d 120, 123 (Minn. 1993). These determinations "demand a case by case analysis" that is "best left to the trial judge familiar with the setting of the case." *Benson*, 455 N.W.2d at 446 (internal quotation marks omitted).

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[5] Dr. Schaffhausen spends several pages of his brief arguing that Marquardt did not establish causation. But causation is not before our court; the issue before us is whether the expert testimony of Dr. Stark and Dr. Stephan was admissible. Whether Marquardt produced sufficient evidence of causation is an issue that the court of appeals will consider on remand. *See Marquardt*, 2019 WL 2167475, at *2.

The court of appeals held that the expert testimony was inadmissible because "neither Dr. Stark nor Dr. Stephan has the requisite occupational experience in neurology, much less in ADEM or PRES." *Marquardt*, 2019 WL 2167475, at *3. The conclusions of the court of appeals about the doctors' experiences are accurate, but the absence of experience in neurology does not equate to a determination that the district court abused its discretion in admitting the testimony.

Expert opinion testimony "must have foundational reliability." Minn. R. Evid. 702. To have the requisite foundation to testify, "the witness must have both the necessary schooling and training in the subject matter involved, plus practical or occupational experience with the subject." *Lundgren v. Eustermann*, 370 N.W.2d 877, 880 (Minn. 1985); *see also Gross*, 578 N.W.2d at 761 ("The competency of an expert witness to provide a medical opinion depends upon both the degree of the witness's scientific knowledge and the extent of the witness's practical experience with the subject of the offered opinion."). It was not an abuse of discretion for the district court to hold that Drs. Stark and Stephan meet that standard.

Dr. Stark is an orthopedic surgeon, and he has practical experience performing general orthopedics, including knee-replacement surgery. He was also an assistant professor of orthopedic surgery at the University of Minnesota for eight years, where he taught residents and medical students how to do knee-replacement surgery and about septic arthritis (infection inside the joint). Dr. Stark also has practical experience with surgery-related infections and extensive training "in the recognition and response to infections" that arise during surgery.

Dr. Stephan is a specialist in infectious-disease medicine, a subspecialty of internal medicine. He practiced infectious-disease medicine while on active duty in the military for 13 years and then became an instructor at a military medical school. He then moved to Duluth to work as a staff physician. In February 2012, Dr. Stephan became the treating infectious-disease doctor for Marquardt. Dr. Stephan has experience with MRSA, explaining that he has "experience in treating patients that have an artificial or prosthetic knee joint like Ms. Marquardt that are infected with MRSA." And he has experience treating patients with vancomycin toxicity. He explained that he has had dozens of cases dealing with vancomycin toxicity. He testified that, in his experience, most of those patients "recover without any lasting problems[,]" but that some have balance and hearing issues.

In short, both experts Marquardt proffered have sufficient training and experience for the district court to conclude, within its broad discretion, that they were qualified to opine on causation. As the dissent in the court of appeals noted, the causation issue in this case was not simply whether Marquardt had ADEM or PRES. Broadly defined, the causation issue was whether the knee-replacement surgery caused the spread of MRSA and whether the spread of MRSA ultimately led to Marquardt's injuries. It was not an abuse of discretion for the district court to conclude that these doctors could opine on that broad causation question, even if they may not be qualified to testify as to the narrower question of ADEM versus PRES.

In urging us to reach the opposite conclusion, Dr. Schaffhausen cites several cases, including *Cornfeldt v. Tongen*, 262 N.W.2d 684 (Minn. 1977). But our precedent does not compel us to conclude that the district court abused its discretion here.

In *Cornfeldt*, we analyzed whether it was an abuse of discretion for the district court to exclude the medical testimony from an internal-medicine specialist, Dr. Belsito. *Id.* at 693–94. The district court had excluded Dr. Belsito from opining as to the applicable standard of care required by (1) a surgeon in proceeding with an operation, and (2) an anesthesiologist in administering a specific type of general anesthetic. *Id.* at 693. We evaluated each decision independently.

Regarding the surgeon, we explained that, although "Dr. Belsito [an internist] had never practiced general surgery nor did he purport to possess expertise in the field of surgery[,]" the district court erred in requiring "that Dr. Belsito have such a background." *Id.* We noted that "Dr. Belsito had gained sufficient experience from his consultations regarding the suitability of patients for surgery." *Id.* Based on that experience, we said that his opinion should not have been excluded simply because he was not a surgeon. *Id.* at 694.

Regarding the standard of care for an anesthesiologist, we reached a different conclusion. We concluded that the district court did not abuse its discretion by excluding Dr. Belsito's testimony on this point. *Id.* We explained that, although Dr. Belsito had hired anesthesiologists and "knew of the effect of anesthetics on the liver," no evidence established that "he had sufficient knowledge to differentiate general anesthetics or that he

had ever consulted with an anesthesiologist regarding the use of a general anesthetic." *Id.* Under those circumstances, we concluded that the district court did not err. *Id.*

The experience of Dr. Stark and Dr. Stephan more closely resembles that of Dr. Belsito with respect to the surgeon than the anesthesiologist. Specifically, Dr. Stark is an orthopedic surgeon and has many years of practical experience performing general surgery, including knee-replacement surgery, the type of surgery at issue here. And Dr. Stephan has extensive experience dealing with MRSA infections and MRSA-infected prostheses. In *Cornfeldt*, we stated that " 'any person whose profession or vocation deals with the subject at hand is entitled to be heard as an expert[.]' " *Id.* at 693 (quoting *Christy v. Saliterman*, 179 N.W.2d 288, 303 (Minn. 1970)). Dr. Stark and Dr. Stephan have that requisite professional experience. Accordingly, *Cornfeldt* does not suggest that the district court abused its discretion here.

Dr. Schaffhausen also cites *Swanson v. Chatterton*, 160 N.W.2d 662 (Minn. 1968), to support an affirmance. In *Swanson*, we concluded that the district court did not abuse its discretion by excluding an internal-medicine specialist from testifying about the applicable standard of care of an orthopedic surgeon. *Id.* at 666–67. Because the district court *excluded* the expert's testimony, and because "sufficiency of the foundation" to testify as an expert "is primarily a question for the determination of the trial court," *id.* at 667, *Swanson* provides no guidance for determining whether a district court erred *in admitting* expert testimony.

But even if *Swanson* did have some bearing on our decision here, it does not support Dr. Schaffhausen's argument. In affirming the district court's decision, we reviewed the

credentials of the proffered expert and noted the following factors: (1) he had never engaged in private practice; (2) he had never dealt with the "reduction" of the type of fracture involved in the case; (3) he admitted in his deposition that he did not know any authorities discussing, nor could he cite any learned articles or orthopedic books about, the treatment of those fractures; and (4) he relied on knowledge that was mainly based upon what he learned in medical school more than 15 years previously. *Id.* at 666–67. We concluded that, "on this record," we could not hold that the trial court abused its discretion. *Id.* at 667.

Some of the factors raised in *Swanson* overlap with factors in this case. For example, Dr. Stark admitted that he has never treated, nor could he diagnose, ADEM or PRES. He also admitted that he has not treated a knee infection with MRSA and that he does not know whether there is any published literature suggesting that MRSA can trigger ADEM. Lastly, he stated that he has never seen a situation similar to Marquardt's case.

But Dr. Stark has experience that is different than the doctor in *Swanson*. To begin, Dr. Stark has experience treating MRSA infections and other types of MRSA-infected artificial body parts. Also, unlike the excluded internal-medicine doctor in *Swanson*, Dr. Stark is an orthopedic surgeon—the same type of doctor as Dr. Schaffhausen. Moreover, Dr. Stark is not relying only on his medical school education; he is also relying on at least 17 years of performing, and teaching students how to perform, surgeries, including knee-replacement surgery. He also has over 10 years of performing, and responding to infections associated with, spinal surgeries. In conclusion, Dr. Stark has more relevant experience than did the doctor in *Swanson*.

Similarly, although Dr. Stephan also admitted that he had never observed dark, cloudy spinal fluid in a knee joint during surgery, he has much experience with MRSA infections. In particular, he has experience treating patients with MRSA-infected prosthetic knee joints like Marquardt had in this case. As in *Swanson*, we cannot conclude that the record as a whole demonstrates that the district court abused its discretion.[6]

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[6] None of the other cases Dr. Schaffhausen relies on suggest that the district court abused its discretion here. *See Teffeteller*, 645 N.W.2d at 427–28 (clarifying that we apply " 'a very deferential standard' to the district court" on whether a medical expert has foundational reliability (quoting *Gross*, 578 N.W.2d at 761)); *Williams*, 503 N.W.2d at 124–25 (holding that the district court did not abuse its discretion by excluding a medical expert who effectively claimed that he lacked knowledge to testify about the applicable standard of care); *Lundgren*, 370 N.W.2d at 880–81 (holding that the district court did not err by excluding a psychologist from testifying about the standard of care required by a family physician in prescribing a drug when the psychologist had never been a family physician nor prescribed the drug); *Kinning v. Nelson*, 281 N.W.2d 849, 854–55 (Minn. 1979) (holding that the district court did not abuse its discretion by determining that the proposed expert was not qualified to testify about the applicable standard of care because he was a first-year college student at the time of the malpractice); *see also Adolphson v. United States*, 545 F. Supp. 2d 925, 930–31 (D. Minn. 2008) (excluding causation testimony from two proffered medical experts in part because one expert did not actually opine about causation and the other testified that no known cause for the complication existed within the medical community).

Dr. Stark and Dr. Stephan are different from the doctors in those cases. Unlike the doctor in *Williams*, neither Dr. Stark nor Dr. Stephan claim lack of knowledge; instead, they state that, based upon their professional experience, Dr. Schaffhausen's negligence caused Marquardt's brain damage. Dissimilar from the psychologist in *Lundgren*, Dr. Stark practices in the same specialty as Dr. Schaffhausen, and, although Dr. Stephan practices in a different specialty than Dr. Schaffhausen, he has experience treating MRSA and MRSA-infected prosthetic components. And distinguishable from the proffered expert in *Kinning*, Dr. Stark and Dr. Stephan were practicing medicine at the time of Marquardt's surgery. In fact, at the time of the surgery, Dr. Stark had been practicing medicine for almost 40 years, while Dr. Stephan had been practicing medicine for more than 20 years. Finally, unlike the proffered expert in *Adolphson*, neither Dr. Stark nor Dr. Stephan opine that the medical profession has not recognized causes for ADEM and PRES.

In sum, the cases cited by Dr. Schaffhausen do not show that the district court abused its discretion in this case. If this case was only about the diagnosis of ADEM versus the diagnosis of PRES, the argument for excluding testimony from the doctors might be stronger. But Marquardt's claim is not limited to the diagnosis of ADEM or PRES. Instead, the basic causation question is whether, as Dr. Schaffhausen argued in his opening statement at trial, the knee-replacement surgery "is a cause of the damage that we all recognize occurred in this case."[7]

The district court has an important gate-keeper role when determining whether to admit expert testimony. *See* Minn. R. Evid. 702 comm. cmt.—1977. The district court properly performed that role here, carefully weighing the qualifications of the experts before deciding to admit their testimony. The district court acknowledged that the question of admissibility was "close." And the fact that other district courts might have made a different decision on that question does not make the district court's decision an abuse of discretion. *See Williams*, 503 N.W.2d at 123. On this record, we cannot conclude that the district court abused its discretion when it determined that Dr. Stark and Dr. Stephan were competent to testify as to causation.

[7] Essentially, the defense's theory was that Dr. Schaffhausen was not responsible because he did not cause the underlying infection. Marquardt's basic theory was that the knee-replacement surgery caused the MRSA to spread into her bloodstream and that it was the spread of the infection that caused her brain damage.

CONCLUSION

For the foregoing reasons, we reverse the decision of the court of appeals and remand to that court for consideration of the other issues respondents raised on appeal.

Reversed and remanded.

Sample Required?

Pus, body fluid, sputum, or swab of cells taken from the site of an infection; a sample of bacteria or fungi grown and isolated in culture

Test Preparation Needed?

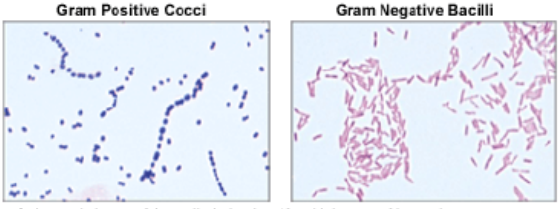
None

What is being tested?

A Gram stain is a laboratory procedure used to detect the presence of bacteria and sometimes fungi in a sample taken from the site of a suspected infection. It gives relatively quick results as to whether bacteria or fungi are present and, if so, the general type(s).

The Gram stain involves applying a sample from the infected area onto a glass slide and allowing it to dry. The slide is then treated with a special stain and examined under a microscope by a trained laboratorian. Any bacteria that may be present are categorized by color and shape during the microscopic evaluation:

- Color — typically bacteria may be either "Gram positive" (purple) or "Gram negative" (pink)
- Shape — the most common shapes include round (cocci) or rod-shaped (bacilli)



Color and shape of the cells help classify which type of bacteria are present.
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