Filed: October 3, 2013

IN THE SUPREME COURT OF THE STATE OF OREGON

PEGGY N. TREES,

Petitioner on Review,

v.

JULIO A. ORDONEZ, M.D.,
and GREATER PORTLAND
NEUROSURGICAL CENTER, P.C.,

Respondents on Review,

and

WERNER R. MEIER, M.D.;
W. R. MEIER, M.D., P.C.;
DAVID JAY SILVER, M.D.;
and DAVID J. SILVER, M.D., P.C.,

Defendants.

(CC 060505489; CA A139893; SC S060752)

On review from the Court of Appeals.*

Argued and submitted May 2, 2013.

Rick Pope, Kirklin Thompson & Pope LLP, Portland, argued the cause and filed the briefs for petitioner on review. With him on the briefs was George Kirklin.

Larry Brisbee, Brisbee & Stockton LLC, Hillsboro, argued the cause for respondents on review. Michael T. Stone filed the brief for respondents on review.

Travis Eiva filed a brief for *amicus curiae* Oregon Trial Lawyers Association.

Before Balmer, Chief Justice, and Kistler, Walters, Linder, Landau, and Baldwin, Justices.**

BALMER, C. J.

The decision of the Court of Appeals is reversed. The judgment of the circuit court is reversed, and the case is remanded to the circuit court for further proceedings.

*Appeal from Multnomah County Circuit Court, Frank L. Bearden, Judge. 250 Or

App 229, 279 P3d 337 (2012).

**Brewer, J., did not participate in the consideration or decision of this case.

BALMER, C. J.

In this medical malpractice case, we decide whether a plaintiff is required to present expert testimony from a medical doctor to establish the standard of care and breach of the standard of care. Plaintiff presented expert testimony from a biomechanical engineer familiar with use of the medical device installed on plaintiff's cervical spine by defendant, a neurosurgeon. For the reasons set out below, we conclude that plaintiff introduced sufficient evidence from an expert witness who is not a medical doctor to present a jury question on at least one aspect of her negligence claim.

Dr. Ordonez, a neurosurgeon, performed surgery on plaintiff that involved installing a plate made by Synthes ("Synthes plate") on plaintiff's cervical spine. Following the surgery, plaintiff's health deteriorated, and she ultimately sustained permanent injuries. Plaintiff brought this negligence action against Dr. Ordonez and Greater Portland Neurosurgical Center, P.C., alleging, among other things, that Dr. Ordonez had failed to properly place and secure the Synthes plate and its screws, resulting in damage to plaintiff's esophagus that led to other injuries.[1] At trial, plaintiff presented expert testimony from Dr. Tencer, a biomechanical engineer who is not a medical doctor, about the design, use, and installation of the Synthes plate; however, no medical doctor testified that defendant had breached the standard of care. At the close of

[1] For ease of reference, we refer to Dr. Ordonez and Greater Portland Neurosurgical Center, P.C., collectively as "defendant." Plaintiff also named other doctors and their professional corporations as defendants in her initial complaint, but she later voluntarily dismissed those defendants from the case.

plaintiff's evidence, the court granted defendant's motion for a directed verdict on the standard of care and breach because, although Dr. Tencer's testimony established the "ideal" placement of the Synthes plate, the court determined that defendant's conduct had to be compared to that of other neurosurgeons. The Court of Appeals affirmed, concluding that Dr. Tencer's testimony had "failed to bridge the gap * * * between the biomechanical construct of the plate and the methods with which they were intended to be installed and whether compliance with those same methods as a medical matter set the standard of care for [defendant.]" *Trees v. Ordonez*, 250 Or App 229, 238, 279 P3d 337 (2012). We conclude that Dr. Tencer's testimony was sufficient for plaintiff to survive a motion for a directed verdict, and we reverse.

FACTUAL BACKGROUND AND PROCEEDINGS BELOW

We begin with the facts relating to plaintiff's claim that the trial court erred in granting defendant a directed verdict on the issue of negligence.[2] We state the facts in the light most favorable to plaintiff, drawing every reasonable inference from the evidence in her favor. *See Shockey v. City of Portland*, 313 Or 414, 422-23, 837 P2d 505 (1992), *cert den*, 507 US 1017 (1993) (stating standard for viewing evidence after trial court's grant of a motion for a directed verdict for defendants).

Defendant performed an anterior cervical decompression and fusion on

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[2] We later discuss additional facts relating to defendant's cross-assignments of error regarding the trial court's denial of defendant's motion for a directed verdict on causation and the trial court's rulings admitting certain evidence.

plaintiff. To perform that surgery, defendant retracted plaintiff's esophagus away from the anterior surface of her cervical spine and placed bone grafts between the cervical vertebrae. He then installed a Synthes plate on the anterior surface of plaintiff's cervical spine to provide stability.

The Synthes plate that defendant used is a titanium plate designed to provide stability to allow for cervical fusion. Synthes plates generally come from the manufacturer in a kit, which includes different-sized plates, a tool to bend the plate to the curvature of the patient's spine, and screws to secure the plate to the spine. To install the plate, the surgeon inserts a set of two screws into each of the six holes in the plate. The surgeon first inserts a "bone screw" through each hole in the plate and into one of the vertebrae. The bone screws have a thread down the middle so that a "locking screw" can be inserted into the bone screw. After the surgeon has inserted the bone screws, he or she tightens the locking screws into the bone screws. As the surgeon tightens the locking screw, it forces the edges of the head of the bone screw apart so that they come into contact with the inner edges of the hole in the plate. The contact between the sharp edges of the bone screw and the inner edge of the hole locks the screws in place.

For plaintiff's surgery, defendant used the smallest available plate, and he secured the plate using the six sets of bone screws and locking screws. Following the surgery, plaintiff experienced pain, difficulty swallowing, and the sensation of a plate in her throat. Plaintiff had additional symptoms, including contamination of the surgical wound with oral bacteria and amylase, which indicated that plaintiff's esophagus may have been perforated. Over the course of the month following the initial surgery,

plaintiff's symptoms worsened, and she underwent six additional surgeries, including a surgery to remove the screws, plate, and bone grafts, and replace them with a halo to stabilize her spine.[3] Although plaintiff's condition has improved since her final surgery, she continues to experience frequent pain, and she has limited mobility in her left arm. As a result, plaintiff can no longer perform her work as a dental hygienist.

Plaintiff brought this medical malpractice action against defendant. Her complaint, as amended, included eight specifications of negligence, as well as a general allegation of negligence. Among other things, plaintiff alleged that defendant was negligent because he had "failed to properly place and secure the Synthes plate and its upper screws to the anterior surface of the C4 [cervical disk four] vertebral body in the May 25 surgery, allowing the plate and/or its attachment screws to erode and/or perforate plaintiff's esophagus or hypopharynx." Plaintiff made a similar allegation of negligence regarding the plate's lower screws.

At trial, plaintiff presented expert testimony from Dr. Tencer, a biomechanical engineer who works as a professor in the Department of Orthopedic Surgery at the medical school at the University of Washington. Dr. Tencer has a Ph.D. in mechanical engineering and is not a medical doctor. He testified, however, that there is overlap between the two disciplines because biomechanical engineering involves

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[3] A halo is a device that goes around the head and is secured with pins that are screwed into the skull. The halo is connected to a brace that fits over the shoulders and back to prevent movement of the head and neck.

"engineering devices for the human body," and "surgeon[s] put[] in mechanical devices to hold bones together."

In his current position as a professor, Dr. Tencer lectures medical residents who are learning to become orthopedists on various topics, including "what types of things to watch out for" when using implants, and he guides some of those residents through research projects. He acts as a scientific reviewer for a variety of academic journals, including the journal *Spine*, and he has lectured to the National Association of Orthopedic Surgeons. In addition, he conducts his own research and has developed an implant system for spinal surgeries. Dr. Tencer testified that in the course of conducting research comparing the Synthes plate to other similar devices, he had watched and participated in the placement of a Synthes plate on a cadaver, but had not participated in such a surgery involving a living person. Earlier in his career, Dr. Tencer had worked on a daily basis with medical doctors, including neurosurgeons, in a trauma center, but he did not testify that he had watched or participated in installation of Synthes plates in living patients during that time. Outside the research and patient care context, Dr. Tencer testified that he also had experience with Synthes devices because he had done biomechanical testing of some of those devices as part of the FDA approval process, and he had helped Synthes come up with ways to improve their products.

Dr. Tencer testified about the design of the Synthes plate. He testified that the screw design, with the bone screws and locking screws, "is a very critical design that's now found in some form or another in all of these types of plates to make sure the screws stay in." He explained that the screws are designed to sit below the surface of the plate

because a partially seated screw has "no mechanical function." That is, the screws are designed with sharp edges that must press against the inner edges of the plate's holes to create a mechanical lock. If the screws are elevated partially above the hole, the edges of the screws will be distorted and will not lock properly.

Dr. Tencer explained some of the design features that Synthes had implemented to prevent soft tissue erosion related to use of the plate. Those features included the plate's rounded edges and polished surface, the thinness of the plate, and screws that sit below the surface of the plate. He explained that those design features "are essentially uniform throughout orthopedic implant design" and are "commonplace."

Dr. Tencer also testified about his biomechanical assessment of defendant's placement of the plate on plaintiff's cervical spine, and he identified two related concerns. His first concern was that, unlike a correctly installed plate, the plate had not been bent to follow the curvature of plaintiff's spine. As a result, the plate was not close enough to the cervical spine to allow the screws to be fully seated in the plate. His second concern was that some of the screw heads protruded above the plate.

Dr. Tencer focused on the second concern, testifying that the plate that defendant had selected was the incorrect size. The plate was too short, and, as a result, the screws used to secure the plate were "over angled," and five of the six screws did not sit flush with the plate. Dr. Tencer went on to state that "it's very well defined as a step that the screw head must sit underneath down below the plates so it doesn't present any sharp edges" because "obviously [sharp edges] can lead to damage to the tissue." Specifically, he noted that a protruding screw head could come into contact with the

esophagus. Given that risk, Dr. Tencer testified that, because there were screws protruding above the plate used on plaintiff, "it's pretty clear it's a go/no-go situation. In other words, any protrusion above the plate is essentially no-go, because it's clear that it can cause damage of some type, and it's very well described in all the literature that there should be no protrusion." Dr. Tencer further emphasized that screw heads should never protrude above the plate when he stated that he did not agree with defense counsel's statement that having screw heads protruding above the plate "to some degree, is acceptable."

Following Dr. Tencer's testimony, plaintiff did not present expert testimony from a neurosurgeon establishing that defendant had breached the standard of care. The only neurosurgeon who testified during plaintiff's case was one of defendant's witnesses, who was called to testify out of order. That witness, Dr. Silver, had performed the surgery to remove the screws, plate, and bone grafts from plaintiff's cervical spine. He acknowledged that at least two of the screws used to secure plaintiff's plate were protruding above the plate. He also stated, however, that a small protrusion of the screw above the plate is not an unusual finding and that it is within the realm of acceptability for neurosurgery. Thus, the only neurosurgeon who testified during plaintiff's case indicated that defendant had not breached the standard of care.

At the close of plaintiff's evidence, defendant moved for a directed verdict, arguing that the case could not go to the jury in the absence of expert testimony that defendant had failed to conform to the standard of care. Defendant contended that Dr. Tencer's testimony did not satisfy that requirement. Alternatively, defendant argued that

plaintiff had not proven causation and that, even if plaintiff relied on the doctrine of *res ipsa loquitur*, she would have to present expert testimony that the kind of injury she had experienced normally would not occur in the absence of negligence.

The trial court denied the motion as to causation, but granted the motion as to negligence because the court agreed that Dr. Tencer's testimony did not establish that defendant's conduct failed to meet the standard of care. The court concluded that, although Dr. Tencer's testimony established the "ideal" placement of the plate and screws, it was "unfair and legally unsupported to compare Dr. Ordonez's surgery to the ideal. Dr. Ordonez's actions must be compared to other neurosurgeons." Because plaintiff had not presented the necessary expert testimony from a neurosurgeon, and because the trial court determined that plaintiff's *res ipsa loquitur* argument failed, the court granted defendant's motion for a directed verdict.[4]

The Court of Appeals affirmed the trial court's ruling regarding the standard

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[4] In making that ruling, the court stated that "[p]laintiff ha[d] failed to establish that it [was] more likely than not that Dr. Ordonez was negligent *in the placement of the plate or screws* * * *." (Emphasis added.) Although that ruling addressed only two of the eight specifications of negligence, the court entered a general judgment in favor of defendant. Plaintiff did not explicitly limit her appeal to those two specifications of negligence, but plaintiff framed her appeal in terms of the sufficiency of Dr. Tencer's testimony to show that defendant's installation of the plate was improper. As we explain below, Dr. Tencer's testimony was sufficient to allow plaintiff to survive a motion for a directed verdict on the two specifications of negligence that allege negligent installation of the Synthes plate. *See Kirby v. Sonville*, 286 Or 339, 347, 594 P2d 818 (1979) (stating that a "judgment of nonsuit must be reversed if there was sufficient evidence on any one charge of negligence," and noting that the court did not have to consider "which, if any, charges of negligence [we]re not actionable or unsupported by the evidence").

of care and breach, concluding that Dr. Tencer's testimony did not establish defendant's negligence. *Trees*, 250 Or App at 237-39. The court reasoned that Dr. Tencer's testimony had established that defendant's installation of the plate presented a biomechanical problem, but the court went on to note that Dr. Tencer's testimony had "failed to bridge the gap, however, between the biomechanical construct of the plate and the methods with which they were intended to be installed and whether compliance with those same methods as a medical matter set the standard of care for [defendant]." *Id.* at 238. The court stated,

> "Tencer's testimony established what the plate is designed to do and the biomechanical problems that are presented if the plate is not installed in the manner recommended by the manufacturer, but it does not establish, from a medical standpoint, that an ordinarily careful surgeon exercising the degree of care, skill, and diligence required when performing an anterior cervical decompression and fusion in the same or similar circumstances and community would install the plate in the manner that Tencer described."

Id. at 238-39. The court went on to conclude that expert medical testimony was required in this case to establish the standard of care and breach of that standard, and the court rejected plaintiff's *res ipsa loquitur* argument. *Id.* at 242. Because the Court of Appeals affirmed the trial court's grant of a directed verdict for defendant as to negligence, it did not address defendant's cross-assignments of error. *Id.* at 231.

STANDARD OF CARE

Because the trial court granted defendant's motion for a directed verdict as to the standard of care and breach, we must determine whether there was any evidence in the record to support that element of plaintiff's claim. *See Bolt v. Influence, Inc.*, 333 Or 572, 578, 43 P3d 425 (2002) ("[T]he jury must be permitted to consider every claim on

which the plaintiff has presented some evidence tending to establish each element of that claim. In other words, only when there is no evidence to support an element may the claim be withdrawn from the jury's consideration." (Emphasis omitted; internal quotation marks omitted; citations omitted; brackets omitted.)); *Vandermay v. Clayton*, 328 Or 646, 655, 984 P2d 272 (1999) ("A directed verdict for defendant was proper if plaintiff failed to present sufficient evidence regarding whether defendant's conduct fell below that required by the standard of care."). That is, if a reasonable jury could have found, based on the evidence, that defendant had breached the standard of care, the entry of a directed verdict for defendant was improper. *See T.R. v. Boy Scouts of America*, 344 Or 282, 296-97, 300, 181 P3d 758, *cert den*, 555 US 825 (2008) (concluding that the trial court did not err in denying defendant's motion for a directed verdict because, although a reasonable jury *could* have reached a conclusion in defendant's favor, that was not the *only* conclusion that a reasonable jury could have reached). On review, this court will not weigh the evidence, and instead will view the evidence in the light most favorable to plaintiff, the party who opposed the motion. *See Rathgeber v. James Hemenway, Inc.*, 335 Or 404, 411, 69 P3d 710 (2003) (so stating).

The standard of care for physicians in Oregon has been codified in ORS 677.095(1):

> "A physician * * * licensed to practice medicine * * * by the Oregon Medical Board has the duty to use that degree of care, skill and diligence that is used by ordinarily careful physicians * * * in the same or similar circumstances in the community of the physician * * * or a similar

community."[5]

That statute essentially codified the common-law standard. *See, e.g., King v. Ditto*, 142 Or 207, 213, 19 P2d 1100 (1933) (noting that a physician must "exercise that degree of skill and care usually possessed and exercised by those engaged in the same line of practice in similar localities"). In this case, the issue is whether the testimony of an expert who is not a medical doctor can establish "that degree of care, skill and diligence that is used by ordinarily careful physicians * * * in the same or similar circumstances" and a breach of that standard.

Plaintiff argues that Dr. Tencer's testimony was sufficient to establish the standard of care and defendant's breach of that standard. As plaintiff frames that testimony, Dr. Tencer testified that defendant's installation of the plate was inadequate because it was not proper under uniform standards for installing the Synthes plate, it failed to meet Synthes' minimum recommendations for installing the plate, and it constituted a "no-go" situation because the screws were elevated above the plate. Plaintiff contends that the Court of Appeals imposed a "medical testimony" requirement that is not supported in this court's case law, specifically *State v. Rogers*, 330 Or 282, 4 P3d 1261 (2000), or the case law of other jurisdictions.

Defendant responds that Dr. Tencer's testimony did not -- and could not --

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[5] The legislature amended ORS 677.095(1) in 2013, but those amendments are not relevant to this case. *See* Or Laws 2013, ch 129, §§ 4, 8. We therefore cite the 2011 version of the statute.

establish the standard of care and breach of that standard because Dr. Tencer is not a medical doctor. That is, according to defendant, nothing Dr. Tencer could have said would have been sufficient to establish the standard of care because he is not a neurosurgeon who is familiar with the standard of care for performing an anterior cervical decompression and fusion. Moreover, defendant argues, *Rogers* does not control because it was not a medical malpractice case.

In most medical malpractice cases, expert testimony is required to establish the standard of care. *See Getchell v. Mansfield*, 260 Or 174, 179, 489 P2d 953 (1971) ("In most charges of negligence against professional persons, expert testimony is required to establish what the reasonable practice is in the community."). The rationale behind that rule is that a layperson typically would not know what an "ordinarily careful" surgeon would do under the circumstances. *See id.* (noting that the reason for the expert testimony requirement is that "what is reasonable conduct for a professional is ordinarily not within the knowledge of the usual jury"). That reasoning is consistent with the general rationale for allowing expert testimony, described in OEC 702, which provides that "a witness qualified as an expert by knowledge, skill, experience, training or education" may testify "[i]f scientific, technical or other specialized knowledge will *assist the trier of fact to understand the evidence or to determine a fact in issue*." (Emphasis added.)

Neither party points to an Oregon case where a nonmedical expert's testimony has been held to be sufficient -- or insufficient -- to establish a medical doctor's standard of care and the failure to meet that standard. Other jurisdictions have split on

the issue: some jurisdictions have required expert testimony from a medical doctor to establish the standard of care, and others have held that experts who are not medical doctors may, in certain cases, provide testimony sufficient to establish the standard of care for a medical doctor. *Compare Bell v. Hart*, 516 So 2d 562, 570 (Ala 1987) (finding pharmacist and psychologist could not testify to standard of care in negligent prescription case against physician because "the standard of care must be established by medical testimony," meaning "testimony by physicians or properly introduced medical treatises"), *with Thompson v. Carter*, 518 So 2d 609, 614-15 (Miss 1987) (toxicologist and pharmacologist should have been allowed to testify regarding the standard of care for physician prescribing a drug because an expert on the standard of care must possess medical knowledge, but need not possess a medical degree). Even in jurisdictions that require a medical doctor to establish the standard of care, the rationale for that rule is grounded in the knowledge and experience of the expert. *See, e.g., Bell*, 516 So 2d at 570 (reasoning that an expert who is not a physician is not competent to testify to the standard of care for a physician because such an expert lacks any "practical experience or knowledge of what physicians do" (internal quotation marks omitted)).

This court's medical malpractice cases that do discuss expert testimony on the standard of care mostly address whether a particular expert is qualified to testify, and those cases focus on whether the expert has the necessary knowledge to support his or her testimony, rather than whether the expert has a particular degree or specialty. *See, e.g.*, *Sheppard v. Firth*, 215 Or 268, 270, 272, 334 P2d 190 (1959) (finding that trial court erred in allowing orthopedic surgeon, who had no training in treatment using chiropractic

adjustments, to testify that chiropractor's treatment was improper). For example, unlike decisions from some other jurisdictions, our cases have allowed experts from schools of medicine different from the defendant's to testify to the standard of care, if they have the necessary knowledge. *Compare Wemett v. Mount*, 134 Or 305, 313, 292 P 93 (1930) (noting that "the testimony of physicians of other schools or experts in other lines" should be admitted "when such testimony bears on a point as to which the principles of the schools do or should concur"), *with Dolan v. Galluzzo*, 77 Ill 2d 279, 285, 396 NE2d 13, 16 (1979)) ("[T]o testify as an expert on the standard of care in a given school of medicine, the witness must be licensed therein."). In allowing experts from other schools of medicine, our cases have recognized that a plaintiff is not required to present testimony from an expert who is better qualified than any other expert, as long as the expert can assist the jury in understanding the standard of care. *Cf. Sandow v. Weyerhaeuser Co.*, 252 Or 377, 384, 449 P2d 426 (1969) ("The law does not require that in order to qualify as an expert the witness be better qualified than anyone else. It only requires that he have sufficient expertise to make it probable that he will aid the jury in its search for the truth.").

In *Creasey v. Hogan*, 292 Or 154, 157-58, 166-67, 637 P2d 114 (1981), for example, this court held that two orthopedic surgeons could testify regarding the standard of care for a podiatrist in performing a bunionectomy. The court based its decision on evidence that orthopedic surgeons as well as podiatrists perform bunionectomies, use similar methods of treatment, rely on some of the same texts, and attend the same medical conferences. *Id.* at 167. The court also noted that at least one of the methods

that the podiatrist had used in that case was commonly used by both disciplines. *Id.* Thus, in determining the qualifications of experts in medical malpractice cases, our cases have looked to substance, rather than form, and have focused on the knowledge of the expert, *see id.*, rather than on an expert's particular medical degree or area of specialty.

Similarly, our cases have emphasized the knowledge of the expert, rather than the expert's particular medical degree or specialty, when examining the qualifications of medical experts outside the context of medical malpractice. For example, in a workers' compensation case, this court determined that the Workers' Compensation Board had erred in not considering testimony from medical doctors regarding diagnosis of the psychological component of the claimant's injury. *Barrett v. Coast Range Plywood*, 294 Or 641, 644-45, 649, 661 P2d 926 (1983). The court noted that, in that context, expert testimony was required to prove the causal connection between the accident and the injury and between the injury and the disability. *Id.* at 645-46. The issue, similar to the issue presented here, was what kind of expert testimony was required, because the plaintiff had to prove the causal connection between the injury and the psychological components of the injury. *Id.* at 646. We concluded that diagnosis of the psychological component of the injury was within the medical doctors' competency, even though they were not psychotherapists. *Id.* at 649. That is, we rejected a rule tying the expert testimony requirement to a particular degree or discipline and instead held that the fact that the doctors were not psychotherapists went to the weight of their testimony. *Id.* We followed the same logic in *Rogers*, stating that "[a] medical degree is not a necessary predicate to finding an expert witness qualified to testify about medical

knowledge, assuming that witness otherwise is qualified to do so." 330 Or at 316. In *Rogers*, we concluded that a neuropsychologist was qualified to testify about the possible causes of the defendant's frontal lobe dysfunction during the penalty phase of an aggravated murder case. *Id.* at 284-85, 308, 317.

We agree with defendant that cases like *Barrett* and *Rogers*, which are not medical malpractice cases, are not sufficient, in and of themselves, to resolve the issue presented in this case. Courts in other jurisdictions have declined to extend rulings on expert testimony from other contexts to medical malpractice cases because of the unique nature of the knowledge required to establish the standard of care. *See, e.g.*, *Bell*, 516 So 2d at 567 (declining, in medical malpractice case, to extend reasoning from case where state toxicologist was allowed to testify about cause of death because that case did not involve medical malpractice). Moreover, *Barrett* and *Rogers* address the admissibility of expert testimony, not the sufficiency of that testimony to overcome a motion for a directed verdict. Nonetheless, cases like *Barrett* and *Rogers* illustrate this court's preference for examining the knowledge of each expert witness regarding the subject of his or her testimony, rather than adopting a rigid rule tied to a particular degree or specialty. In addition, our malpractice cases allowing expert testimony from practitioners from schools of medicine different from that of a particular defendant further illustrate that we traditionally have rejected an expert testimony rule based solely on education or professional license. That is, the central inquiry in our cases on the qualification and admissibility of expert testimony is whether the expert has sufficient knowledge of the methods used by the practitioner in the circumstances to testify regarding the standard of

care.

Based on our cases, testimony from a qualified expert, who has knowledge about the standard of care that is helpful to the trier of fact, is admissible, and we see no principled reason why such testimony is necessarily insufficient to establish the standard of care in a medical malpractice case merely because that testimony comes from an expert who is not a medical doctor. Consistent with this court's cases involving expert qualification and the admissibility of expert testimony, which consider the knowledge of each individual expert, we reject a rule requiring expert testimony from a medical doctor to survive a motion for a directed verdict on the issue of negligence in a medical malpractice case. Defendant has not demonstrated why this court should abandon its approach of examining the knowledge of the expert, and the expert's testimony about that knowledge, and instead create a requirement that only a medical doctor can establish the standard of care.

In fact, requiring a medical doctor to establish the standard of care would do little to advance defendant's argument that the reason that Dr. Tencer cannot establish the standard of care is that, as a nonphysician, he does not have knowledge of the skill and care required of a neurosurgeon, and he has never performed surgery on a living patient. Requiring an expert to be a medical doctor would not ensure that the expert had knowledge of the skill and care required of a neurosurgeon in "plac[ing] and secur[ing] [a] Synthes plate" and its screws or had performed surgery on a living patient. *Cf. Sheppard*, 215 Or at 272 (concluding that it was error to allow a medical practitioner to testify regarding the value of using a particular instrument where the practitioner had "no

knowledge of the instrument or its uses"). Conversely, an expert who is not a medical doctor, but who has placed and secured a Synthes plate or a similar plate, and who has extensive knowledge of the installation of such devices, may have knowledge of the skill and care required of a neurosurgeon in installing those devices. *Cf. Monk v. Doctors Hospital*, 403 F2d 580, 583 (DC Cir 1968) (noting that, in medical malpractice case arising out of alleged negligent operation of a "Bovie machine," expert testimony was required only to explain to the jury the operation of that machine).

Moreover, many of defendant's concerns about allowing a nonphysician to establish the standard of care can be addressed through cross-examination of the nonphysician experts and through a defendant doctor's own testimony or that of his or her experts. That is, a defendant can challenge the weight that the trier of fact should afford to testimony from an expert who is not a medical doctor, and then the jury -- not this court -- ultimately must determine what weight to afford that testimony. *See W.R. Chamberlin & Co. v. Northwestern Agencies*, 289 Or 201, 207, 611 P2d 652 (1980) ("[T]he weight of the opinion of an expert witness is a matter particularly within the province of the jury.").

We therefore reject defendant's argument that expert testimony from a medical doctor is necessarily required to establish the standard of care in a medical malpractice case to overcome a motion for a directed verdict. Testimony from an expert who is not a medical doctor may be sufficient to establish the standard of care, but on a motion for a directed verdict, the trial court must make that determination in each case, based on the particular expert's testimony and the particular specifications of negligence

alleged by the plaintiff.

Returning to the facts of this case, we begin by noting that, on review, no party argues that Dr. Tencer's testimony was admitted improperly, and we therefore presume that that testimony was relevant and helpful to the trier of fact in understanding at least some aspect of plaintiff's malpractice claim.[6] *See Malila v. Meacham*, 187 Or 330, 335, 211 P2d 747 (1949), *abrogated on other grounds by Rogers v. Meridian Park Hospital*, 307 Or 612, 772 P2d 929 (1989) ("If it is admissible it must be because it is pertinent to the issue of malpractice; otherwise, it should be excluded."). Plaintiff alleged that defendant was negligent because, among other things, he "failed to properly place and secure the Synthes plate and its upper [and lower] screws to the anterior surface of the C4 [and C6] vertebral body in the May 25 surgery, allowing the plate and/or its attachment screws to erode and/or perforate plaintiff's esophagus or hypopharynx." As defendant notes, Dr. Tencer is not a neurosurgeon, does not have a medical degree, and has never "place[d] and secure[d]" the Synthes plate in a living patient. In addition, the scope of Dr. Tencer's admitted testimony was limited to explanation and opinion from a biomechanical perspective, because that is Dr. Tencer's area of expertise. Nonetheless,

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[6] Defendant argues that Dr. Tencer was not "qualified" to testify about the propriety of defendant's installation of the Synthes plate, but, as the Court of Appeals noted, Dr. Tencer's qualification as an expert witness is not at issue on review. *See Trees*, 250 Or App at 237 (noting that "Tencer's competency to testify as an expert is not presented on appeal"). Although defendant made objections to Dr. Tencer's qualifications and to some of Dr. Tencer's testimony at trial, defendant did not renew those objections as cross-assignments of error.

expertise in biomechanical engineering can include expertise in placing and securing devices in the body because, as Dr. Tencer explained it, that field involves "engineering devices for the human body." Moreover, as noted, Dr. Tencer lectures medical residents about medical implants, has lectured to and worked with physicians, has developed an implant system for spinal surgeries, and has done laboratory research comparing the Synthes plate to other similar plates, which included both watching and participating in the placement of a Synthes plate on a cadaver.

We turn to an examination of Dr. Tencer's testimony in this case to determine whether it provided evidence of the standard of care -- that is, we must determine whether that testimony provided evidence from which a reasonable jury could determine what an ordinarily careful surgeon would have done under the circumstances faced by defendant. We must examine the testimony given in this case because, for the same reasons that we reject a rule requiring expert testimony from a medical doctor, we also reject a rule that an expert who is a biomechanical engineer or other specialist without a medical degree always can establish the standard of care in a medical malpractice case.

As noted, Dr. Tencer testified about both the general design and installation of the Synthes plate and defendant's placement of the plate in this case. In explaining the design of the plate, Dr. Tencer testified that there are two reasons why, from a design perspective, the screws must sit below the surface of the plate. First, he testified that if the screws are not fully seated in the plate's holes, the screws will not have any mechanical function. Second, he noted that Synthes had used several design features to

eliminate snagging and erosion damage to soft tissues, including that "the holes [in the plate] are designed so that the screws fit down into the holes. And then if you were to put, you know, a straight edge, for example, across it, the screw head would be below. It wouldn't be protruding above." He testified that the design features Synthes used to eliminate snagging and erosion of soft tissues "are essentially uniform throughout orthopedic implant design" and are "commonplace."

In discussing installation of the plate, Dr. Tencer expressly disagreed with defense counsel's statement that leaving screw heads protruding above the plate is "acceptable." In contrast, Dr. Tencer stated that "*any protrusion* above the plate is essentially *no-go*, because *it's clear that it can cause damage of some type*, and it's very well described in all the literature that there should be no protrusion." (Emphasis added.) Based on Dr. Tencer's testimony, a reasonable jury could infer that an "ordinarily careful" surgeon would not leave screws protruding above the plate because that would present a "no-go" situation, particularly when those screws specifically are designed to sit below the surface of the plate due to the risk of damage to the soft tissue. In other words, a reasonable jury could infer that an ordinarily careful surgeon "plac[ing] and secur[ing] the Synthes plate and its * * * screws" would ensure that no screws were protruding above the plate.

In discussing how the plate in this case was placed and secured, Dr. Tencer testified that at least five of the six screws used in plaintiff's surgery showed physical evidence that they had been protruding above the plate. Moreover, Dr. Tencer noted that an X-ray taken on the day of plaintiff's surgery showed screw heads protruding above the

surface of the plate. Dr. Silver, the neurosurgeon who removed the plate, also testified that at least two of the screws were protruding above the plate. Based on that testimony, a reasonable jury could conclude that defendant breached the standard of care for placing and securing the Synthes plate and its screws by allowing some of the screw heads to protrude above the plate. *See Malila*, 187 Or at 336 (stating that an expert need not frame the standard of care and breach "in the words of a particular formula" as long as the expert "testifies in substance to what amounts to a failure * * * to conform to the standard").

We note that the nature of Dr. Tencer's testimony is important: Dr. Tencer essentially testified that it is never reasonable, under any circumstances, to leave a screw head protruding above the Synthes plate. In contrast, when discussing a different aspect of placing and securing the plate, he described what would be "optimal," but conceded that some variation would be permissible. He repeatedly emphasized, however, that the screws could not be angled to protrude above the plate. Therefore, a jury reasonably could infer that Dr. Tencer was not testifying to the "ideal" or "optimal" placement of the Synthes plate and screws when he said that the screws could not protrude above the plate, and instead was testifying that no circumstances could justify protrusion of screw heads above the plate. Based on that testimony, the evidence that the screw heads in this case were protruding above the plate could allow a jury to find that defendant breached the standard of care, at least as to two of the specifications of negligence. As noted, however, Dr. Tencer's testimony does not address every specification of negligence, such as plaintiff's allegation that defendant negligently failed to repair the perforation in her

esophagus. Nonetheless, because Dr. Tencer's testimony is sufficient for plaintiff to survive a motion for a directed verdict on the standard of care and breach of the standard of care for at least two of her specifications of negligence, we reverse the directed verdict.[7]

CAUSATION

Because the trial court erred in granting defendant's motion for a directed verdict on the standard of care and breach, we turn to defendant's first cross-assignment of error to determine whether the trial court erred in denying defendant's motion for a directed verdict on causation.

At trial, there was testimony from multiple experts on the issue of causation. Dr. Tencer testified that at least five of the six screws used in plaintiff's surgery showed physical evidence that the screws were protruding above the plate, and he explained that a protruding screw head would present the opportunity for contact with the esophagus. He testified that "any protuberance, anything that's above the plate, is clearly going to be penetrating into that [soft] tissue."

Dr. Silver, a neurosurgeon, testified that, before the initial surgery was performed, plaintiff's esophagus would have run just in front of cervical disks C3, C4, C5, C6, and C7, and he stated that at least one of the screws at the C4 level and one of the

[7] Because we conclude that the trial court erred in granting defendant's motion for a directed verdict, we do not address plaintiff's alternative argument that the doctrine of *res ipsa loquitur* applied to her claim and negated the need for expert testimony on the standard of care.

screws at the C6 level was standing out, away from the plate.[8] Dr. Silver testified that when he performed the operation to remove the plate, screws, and bone grafts from plaintiff's cervical spine, he did not inspect the esophagus. He testified, however, that he believed that a perforated esophagus was the most likely source of plaintiff's illness following her initial surgery:

> "Q Because you already knew, by the time you saw [plaintiff], that she probably had, or undoubtedly did have, an esophageal perforation?
>
> "A Right.
>
> "Q There was never any question, in your mind, that her esophagus had been torn in some manner as a result of the surgery that she had done on the 25th of May, [the initial surgery done by defendant,] was there?
>
> "A No. I thought that was the most likely explanation for her problem."

When asked about plaintiff's condition after he removed the plate, screws, and bone grafts, Dr. Silver testified that "she was better, and, you know, her condition had improved. She had regained some strength. She still had weakness, but she had regained some strength in her left arm. She was starting to have trouble with her right arm."

Dr. Dierks, a doctor specializing in oral-maxillofacial surgery and otolaryngology -- head and neck surgery -- also testified about plaintiff's alleged esophageal perforation. Dr. Dierks had treated plaintiff about a week after her initial

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[8] Dr. Silver did note that the esophagus would not necessarily have run in front of the plate after surgery due to swelling of the tissue, but he did not rule out the possibility that the esophagus could have come into contact with the plate following the initial surgery.

surgery, and he also stated that he believed that plaintiff had an esophageal perforation:

> "Q And you had no question that [plaintiff] had a perforation of the esophagus, and your concern was it was being adequately drained?
>
> "A That's correct."

Similarly to Dr. Silver, Dr. Dierks testified that he did not attempt to find and repair the perforation because "the tissue [of the esophagus] is not a very tough tissue" and, in the circumstances presented, "sutures tend not to be mechanically retained." As it turned out, repair was unnecessary because, as Dr. Dierks testified, after the surgery removing the plate, screws, and bone grafts, there was evidence that the esophageal perforation was beginning to close. Dr. Dierks's assessment was that the perforation closed within a few weeks of that surgery.

At the close of plaintiff's evidence, defendant moved for a directed verdict on the issue of causation, arguing that "there's been no proof of causation in the sense of, yes, there was a screw that was elevated, probably something between a half and a millimeter above the surface of the plate. But there's no indication about where the perforation occurred, that this may have caused it." As noted, the trial court rejected that argument, stating that its ruling was "based on testimony and other evidence that during the surgical procedure the placement of one of the fixation screws either did not seat perfectly flush or was not sufficiently secured so that the screw worked its way out shortly after the closure of the incision." The court determined that the evidence taken in the light most favorable to plaintiff established that "the perforation of the esophagus caused a massive infection" that required additional surgeries.

On review, defendant renews the argument that this case involves a complex medical question that requires expert testimony to establish that there is a reasonable medical probability that defendant's negligence caused plaintiff's injuries. Defendant asserts that there is no evidence of actual esophageal perforation and that there is no expert medical testimony that defendant's negligence caused plaintiff's alleged injuries. Thus, according to defendant, the jury would have to engage in impermissible speculation regarding whether defendant's negligence caused the alleged esophageal perforation.[9]

In negligence cases generally, "[t]he proof of the material issue [of causation] must have the quality of reasonable probability, and a mere possibility that the alleged negligence of the defendant was the proximate cause of [the] plaintiff's injuries is not sufficient." *Sims v. Dixon*, 224 Or 45, 48, 355 P2d 478 (1960). That is, "the causal connection between [the] defendant's acts or omissions and the plaintiff's injuries must not be left to surmise or conjecture." *Id.* As applied to this appeal, resulting from the denial of a motion for a directed verdict, we review to determine whether there was any evidence from which a reasonable jury could find that it was more probable than not that

[9] In a footnote in defendant's reply brief on the cross-assignments of error before the Court of Appeals, defendant appears to argue that, for the same reasons that Dr. Tencer could not establish the standard of care, Dr. Tencer could not establish causation. Just as Dr. Tencer's lack of a medical degree does not prevent him from establishing the standard of care, his lack of a medical degree does not prevent him from establishing causation. We reject defendant's argument regarding Dr. Tencer's testimony on causation without further discussion.

defendant's alleged negligence -- as noted above, leaving screws protruding above the plate -- caused plaintiff's injury.

In *Sims*, this court considered the type of expert testimony required to prove causation. Although it was not a medical malpractice case, *Sims* involved testimony from a doctor regarding whether the plaintiff's near collision with the defendant's truck caused her later angina attack. *Id.* at 49. The doctor testified that it was "probable" that an individual who was frightened badly "could" experience extreme emotional stress, which "could" lead to an anginal syndrome. *Id.* The court reasoned that the doctor's testimony was an insufficient "statement of possibility," rather than a statement of "reasonable certainty." *Id.*; *see also Joshi v. Providence Health System*, 342 Or 152, 155-56, 164, 149 P3d 1164 (2006) (affirming a directed verdict for the defendants in wrongful death action based on alleged medical malpractice where expert testified that he could not state "to a reasonable degree of medical probability" that administration of certain medication would have changed the outcome and saved the decedent's life).

Both *Sims* and *Joshi* are distinguishable. In *Sims*, the doctor's testimony was tentative and equivocal. Similarly, in *Joshi*, the expert explicitly testified that he could not state that there was a reasonable probability that defendant caused the outcome. In contrast, here, experts testified about the position and location of the screws in relation to plaintiff's esophagus, as well as the likelihood that those screws could perforate the esophagus. Moreover, at least one expert testified that "the most likely explanation" for plaintiff's symptoms was a perforated esophagus, and her condition improved and her esophagus healed after the screws were removed.

Specifically, plaintiff presented testimony from Dr. Tencer that screws protruding above the plate "clearly" would penetrate into the soft tissue of the esophagus. In addition, Dr. Silver testified that there were screws protruding above the plate in the area where plaintiff's esophagus was located before the surgery. He also stated that "the most likely explanation for [plaintiff's] problem" was that her esophagus had been torn as a result of the surgery that defendant performed, and he noted that plaintiff's condition improved after he removed the plate, screws, and bone grafts. Dr. Dierks similarly testified that the perforation began to close after Dr. Silver removed the plate, screws, and bone grafts.

We agree with defendant that none of those experts explicitly stated that it is more probable than not that defendant's alleged negligence in leaving screws protruding above the plate caused plaintiff's injuries. Nonetheless, the testimony from various experts provided evidence from which a reasonable jury could infer that it is more probable than not that defendant's alleged negligence caused plaintiff's injuries: sharp screws were protruding in the area where plaintiff's esophagus was before the surgery, the esophagus is a soft tissue, multiple experts agreed that the esophagus had been perforated, the perforation started to close after the screws were removed, and plaintiff's condition improved after the screws were removed. *See* W. Page Keeton *et al.*, *Prosser and Keeton on the Law of Torts* § 41, 269-70 (5th ed 1984) ("The plaintiff need not negative entirely the possibility that the defendant's conduct was not a cause, and it is enough to introduce evidence from which reasonable persons may conclude that it is more probable that the event was caused by the defendant than that it was not. * * *

Circumstantial evidence, expert testimony, or common knowledge may provide a basis from which the causal sequence may be inferred." (Footnotes omitted.)). The trial court did not err in denying defendant's motion for a directed verdict on causation.

Defendant renewed two other cross-assignments of error on review, challenging the trial court's rulings allowing plaintiff to introduce two Synthes product brochures and a Synthes instructional video, all of which warned that screws protruding above the plate could damage the esophagus. Defendant requests that we address those rulings to provide guidance for the trial court on remand. Although the evidentiary issues raised by defendant may arise in later proceedings, those issues are likely to arise in a different posture on remand. For that reason, we do not address defendant's additional cross-assignments of error regarding the admissibility of the brochures and the video, nor do we address plaintiff's arguments about the purposes for which that evidence was or can be admitted.

The decision of the Court of Appeals is reversed. The judgment of the circuit court is reversed, and the case is remanded to the circuit court for further proceedings.