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Non-Physician VS. Physician: Cross-Disciplinary Expert Testimony in Medical Negligence Litigation

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NON-PHYSICIAN VS. PHYSICIAN: CROSS-DISCIPLINARY EXPERT TESTIMONY IN MEDICAL NEGLIGENCE LITIGATION—WHO KNOWS THE STANDARD OF CARE?

Marc D. Ginsberg*

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INTRODUCTION

“As, then, the physician ought to be called to account by physicians, so ought men in general to be called to account by their peers.”¹ – Aristotle

It is beyond dispute that the “standard of care” (existence of, compliance with, and deviation from) is the evidentiary focus of the medical negligence trial.² A deviation from the standard of care, proximately causing injury, is a prerequisite to the imposition of medical negligence liability.³ The standard of care is not a singular concept, or perhaps more specifically, is not singularly defined. Various versions of the standard of care have existed in various jurisdictions at various times, including:

- The performance of medical care skillfully and safely;⁴
- “[R]easonable skill and diligence . . . such as thoroughly educated surgeons ordinarily employ.”⁵
- “[S]uch care and diligence as men in general, of common prudence and ordinary attention, usually

1. ARISTOTLE, *POLITICS* bk. III, at 123 (Benjamin Jowett trans., Oxford Clarendon Press rev. ed. 1906) (c. 350 B.C.E.); see also *Shea v. Phillips*, 98 S.E.2d 552, 555 (Ga. 1957); WILL DURANT, *THE STORY OF PHILOSOPHY* 98 (1961); Edson L. Haines, *Courts and Doctors*, 30 CAN. B. REV. 483, 489–90 (1952); F. J. M. P. Somville, P. L. O. Broos & R. Van Hee, *Some Notes on Medical Liability in Ancient Times*, 110 ACTA CHIRURGICA BELGICA 405, 406 (2010).

2. See BARRY R. FURROW ET AL., *HEALTH LAW* 76–91 (3d ed. 2015) for an excellent overall discussion of the standard of care. For a historical perspective, see Brian K. Cooke, Elizabeth Worsham & Gary M. Reisfield, *The Elusive Standard of Care*, 45 J. AM. ACAD. PSYCHIATRY & L. 358 (2017); Charles Markowitz, *Medical Standard of Care Jurisprudence as Evolutionary Process: Implication Under Managed Care*, 2 YALE J. HEALTH POL’Y, L. & ETHICS 59 (2002); Peter Moffett & Gregory Moore, *The Standard of Care: Legal History and Definitions: The Bad and Good News*, 12 W. J. EMERGENCY MED. 109 (2011).

3. See FURROW ET AL., *supra* note 2, at 87–88.

4. *Cross v. Guthery*, 2 Root 90, 91 (Conn. 1794).

5. *McCandless v. McWha*, 22 Pa. 261, 268 (1853).

apply in similar cases, and not that extraordinary care which might be applied in such a case by very careful and prudent persons.”⁶

- “[T]he method of treatment used is supported by a respectable minority of physicians, as long as the physician has adhered to the acceptable procedures of administering the treatment as espoused by the minority.”⁷
- “[T]he prescribed treatment or procedure has been approved by one group of medical experts even though an alternate school of thought recommends another approach, or it is agreed among experts that alternative treatments and practices are acceptable.”⁸
- “[T]he physician must treat the patient with ‘such reasonable diligence, skill, competence, and prudence as are practiced by minimally competent physicians in the same specialty.’”⁹
- Physicians must “possess and apply the knowledge, skill[,] and care which a reasonably well-qualified physician in the same or similar community would bring to a similar case.”¹⁰
- “A [physician] must possess and use the knowledge, skill, and care ordinarily used by a reasonably careful [physician]. The failure to do something that a reasonably careful [physician] would do, or the

6. *Leighton v. Sargent*, 27 N.H. 460, 472 (1853).

7. *Hood v. Phillips*, 537 S.W.2d 291, 294 (Tex. Civ. App. 1976), *superseded by statute*, Medical Liability and Insurance Improvement Act, TEX. REV. CIV. STAT. ANN. art. 4590i, § 6.02 (1986) (repealed 2003), *as stated in Price v. Hurt*, 711 S.W.2d 84, 89 (Tex. Ct. App. 1986).

8. *Jones v. Chidester*, 610 A.2d 964, 965 (Pa. 1992) (explaining what is known as the “two schools doctrine” in medical malpractice cases).

9. *McCarty v. Mladineo*, 636 So. 2d 377, 380 (Miss. 1994) (citing *Hall v. Hilbun*, 466 So. 2d 856 (Miss. 1985)).

10. *Jackson v. Graham*, 523 N.E.2d 525, 532–33 (Ill. App. Ct. 2001) (locality rule). *But see* Marc Ginsberg, *The Locality Rule Lives! Why? Using Modern Medicine to Eradicate an Unhealthy Law*, 61 DRAKE L. REV. 321, 323–24 (2013).

doing of something that a reasonably careful [physician] would not do, under circumstances similar to those shown by the evidence, is ‘professional negligence.’”¹¹

Whichever definition is utilized from the standard of care spectrum (locality rule on one end of the spectrum, national standard of care on the other end), it is fundamental to the law of medical negligence that expert testimony is required to prove the existence of the standard of care, deviation from (or compliance with) the standard of care, and a deviation from the standard of care proximately causing the patient’s injury.¹² The jury is simply not permitted to conclude that a physician was negligent in a fashion similar to that utilized in a garden-variety, non-professional negligence case.¹³

Of course, Federal Rule of Evidence 702 (FRE 702) governs expert testimony in the federal district courts and provides as follows:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

- (a) the expert’s scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
- (b) the testimony is based on sufficient facts or data;
- (c) the testimony is the product of reliable principles and methods; and

11. ILL. PATTERN JURY INSTRUCTIONS—CIVIL § 105.01 [hereinafter ILL. INSTRUCTIONS]. The Notes on Use section of the Pattern Jury Instruction states, “The locality rule has largely faded from current practice. If there is no issue of an applicable local standard of care, the locality language should be deleted.” *Id.* Therefore, Section 105.01 of the Illinois Pattern Jury Instructions reflects the national standard of care. See Michael Frakes, *The Impact of Medical Liability Standards on Regional Variations in Physician Behavior: Evidence from the Adoption of National-Standard Rules*, 103 AM. ECON. REV. 257, 258 (2013) (“Since the 1960s and 1970s, the majority of states have amended their substantive malpractice laws to adopt such national rules.”); see also Cooke, *supra* note 2, at 358.

12. See FURROW ET AL., *supra* note 2, at 87.

13. See, e.g., ILL. INSTRUCTIONS, *supra* note 11, § 105.01 (“You must not attempt to determine how a reasonably careful [physician] would act from any personal knowledge you may have.”).

(d) the expert has reliably applied the principles and methods to the facts of the case.¹⁴

Most, but not all, states have adopted the standards encompassed by FRE 702.¹⁵

It is significant to note that FRE 702 does not specifically qualify or disqualify any particular type of expert witness. Typically, the medical negligence plaintiff will produce a physician-expert witness to establish the standard of care applicable to the defendant-physician, deviation from the standard of care, and the resulting damages.¹⁶ This traditional approach to the use of a physician-expert witness was well explained almost fifty years ago by Professor John Waltz:

The plaintiff in all but the most self-evident medical malpractice case is required to produce in support of his claim the testimony of qualified medical experts. This is true because the technical aspects of his claim will ordinarily be far beyond the competence of the lay jurors whose duty it is to assess the defendant[-]doctor's conduct. And the plaintiff himself, lacking the training and experience that would qualify him to characterize the defendant's conduct, is incompetent to supply guidance to the jurors.¹⁷

14. FED. R. EVID. 702.

15. See Michael Morgenstern, *Daubert v. Frye—A State-by-State Comparison*, EXPERT INST., <https://www.theexpertinstitute.com/daubert-v-frye-a-state-by-state-comparison/> [<https://perma.cc/GVD3-5SKW>] (last visited Nov. 12, 2018).

16. Joseph Kelner, *The Silent Doctors—The Conspiracy of Silence*, 5 U. RICH. L. REV. 119, 122–23 (1970).

17. Jon R. Waltz, *The Rise and Gradual Fall of the Locality Rule in Medical Malpractice Litigation*, 18 DEPAUL L. REV. 408, 409 (1969).

Of course, the qualified medical expert referred to by Professor Waltz is understood to be a physician.¹⁸ As one commentator explained, “It takes one to know one.”¹⁹

The source of the applicable standard of care in a specific medical negligence claim is multifaceted. The testifying expert witness, when explaining the applicable standard of care, “would draw upon his own education and practical frame of reference as well as upon relevant medical thinking, as manifested by literature, educational resources and information available to practitioners, and experiences of *similarly situated members of the profession*.”²⁰ Accordingly, in typical medical negligence litigation, the plaintiff’s expert witness testifying regarding the existence of and the defendant-physician’s deviation from the standard of care would be a physician.

Why, then, have courts permitted non-physicians to give standard of care testimony against physicians? Cross-disciplinary standard of care testimony against physicians has been provided by an array of non-physicians: a biomechanical engineer,²¹ a pharmacist,²² a nurse,²³ pharmacologists,²⁴ and a pharmacologist/toxicologist.²⁵ Is cross-disciplinary standard of care expert testimony an aberration? Does it reveal a failure of trial courts to understand the practice of medicine and knowledge of the standard of care? These topics are the primary focus of this paper.

18. See Kelner, *supra* note 16, at 122–23 (“Thus, to prove a doctor’s careless departure from prevailing standards of care usually requires that another doctor testify against the defending doctor. It takes one to know one.”).

19. *Id.* at 123; see also John C. Drapp III, *The National Standard of Care in Medical Malpractice Actions: Does Small Area Analysis Make It Another Legal Fiction?*, 6 QUINNIPIAC HEALTH L.J. 95, 97–98 (2003) (“Generally, the expert or experts will be the same type of doctor as the defendant.”).

20. Joseph H. King, Jr., *In Search of a Standard of Care for the Medical Profession: The “Accepted Practice” Formula*, 28 VAND. L. REV. 1213, 1241–42 (1975) (emphasis added).

21. *Trees v. Ordonez*, 311 P.3d 848, 851 (Or. 2013).

22. *Romero v. Hanisch*, No. CIV. 08–5040–JLV, 2010 WL 5020657, at *11 (D.S.D. 2010).

23. *Avret v. McCormick*, 271 S.E.2d 832, 833 (Ga. 1980).

24. *Garvey v. O’Donoghue*, 530 A.2d 1141, 1146 (D.C. 1987); *Pratt v. Stein*, 444 A.2d 674, 706 (Pa. 1982), *superseded by statute*, Medical Care Availability and Reduction of Error Act, 40 PA. CONS. STAT. § 1303.512, *as stated in* *Deleon v. Wise*, 175 A.3d 383 (Pa. Super. Ct. 2017).

25. *Thompson v. Carter*, 518 So. 2d 609, 613 (Miss. 1987).

To be fair, it should be noted that the reasoning of some courts to permit or exclude non-physician, cross-disciplinary expert testimony may be informed by state rules of evidence, rules defining expert witness requirements, or rules pertaining to lawsuit filing requirements. Those rules may be unclear and require interpretation. Therefore, rules such as these are not the focus of this paper. Instead, this paper focuses on how courts understand medicine, the standard of care, and the professional, experiential distinction between physicians and non-physicians. Ultimately, this paper recommends that trial courts should not permit non-physicians to opine that defendant-physicians have deviated from the applicable standard of care while recognizing that as more medical care is provided by non-physicians, courts may decline this recommendation.

I. The Practice of Medicine

To address the propriety of cross-disciplinary expert testimony, some context is necessary. Physician-defendants in medical negligence litigation have allegedly violated the standard of care in their respective medical practices.²⁶ The practice of medicine has been defined or explained as follows:

- “According to philology, logic, and common sense, it is simply the art of healing”²⁷
- “The practice of medicine in its broadest sense includes the whole relationship of the physician with his patient.”²⁸
- “The practice of medicine is a human endeavor.”²⁹
- “[M]edical practice requires the engagement of one person with another and realizes that authentic engagement is transformative for all participants.”³⁰

26. Moffett & Moore, *supra* note 2, at 109.

27. *What Constitutes the Practice of Medicine*, 299 J. AM. MED. ASS’N 463, 463 (2008).

28. Francis W. Peabody, *The Care of the Patient*, 88 J. AM. MED. ASS’N 877, 877 (1927).

29. Herbert M. Swick, *Toward a Normative Definition of Medical Professionalism*, 75 ACAD. MED. 612, 614 (2000).

30. Rita Charon, *Narrative Medicine: A Model for Empathy, Reflection, Profession, and Trust*, 286

- “[T]he practice of medicine is the applying of medical or surgical agencies for the purpose of preventing, relieving, or curing disease, or aiding natural functions, or modifying or removing the results of physical injury.”³¹

Therefore, the practice of medicine contemplates physician training, a physician-patient relationship, and patient care. As a necessary corollary, physician judgment is implicated. Non-physicians, even those who provide patient care, simply do not experience health care as physicians do. It is fair to question how a court might permit standard of care testimony against a physician by a non-physician. This paper now seeks to survey the landscape of non-physician experts and explore how courts have permitted and excluded their standard of care testimony against physicians.

II. *The Biomechanical Engineer*

In *Trees v. Ordonez*, the Supreme Court of Oregon held that a biomechanical engineer properly testified that a neurosurgeon violated the standard of care in his placement of surgical hardware during the performance of “an anterior cervical decompression and fusion on [the] plaintiff.”³² In rather extensive detail, the court described the hardware utilized by the neurosurgeon and the process of its surgical placement.³³ Post-operatively, the plaintiff suffered “pain, difficulty swallowing, and the sensation of a plate in her throat.”³⁴ Furthermore, she “had additional symptoms, including contamination of the surgical wound with oral bacteria and amylase, which indicated that the plaintiff’s esophagus may have been perforated.”³⁵ After additional surgeries, further complications, and

J. AM. MED. ASS’N 1897, 1898 (2001).

31. Harry B. Hutchins, *What Is the Practice of Medicine?*, 4 MICH. L. REV. 373, 373 (1906).

32. *Trees v. Ordonez*, 311 P.3d 848, 850, 856 (Or. 2013). See generally Michael J. Bolesta, Glenn R. Rehtine, II & Ann Marie Chrin, *Three- and Four-Level Anterior Cervical Discectomy and Fusion with Plate Fixation*, 25 SPINE 2040 (2000).

33. *Trees*, 311 P.3d at 850–51.

34. *Id.* at 851.

35. *Id.*

the inability to continue her employment, the plaintiff filed a medical negligence complaint, alleging the improper placement of the surgical hardware caused it “to erode and/or perforate plaintiff’s esophagus or hypopharynx.”³⁶

At trial, plaintiff produced a biomechanical engineering expert.³⁷ Biomechanics “exists at the crossroads of engineering and biology, focusing on how mechanical energy affects human tissue.”³⁸ The biomechanical engineering expert “lecture[d] medical residents who [were] learning to become orthopedists on various topics”³⁹ The expert had “conduct[ed] his own research and ha[d] developed an implant system for spinal surgeries.”⁴⁰ He “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.”⁴¹ Significantly, he testified as to the defendant’s improper application of the surgical hardware.⁴² The plaintiff did not produce an expert neurosurgeon to opine that the defendant violated the applicable standard of care.⁴³ “[T]he only neurosurgeon who testified during [the] plaintiff’s case[,] [a defense witness who testified out of order,] indicated that [the] defendant had not breached the standard of care.”⁴⁴ Not surprisingly, “[a]t the close of [the] plaintiff’s evidence, [the] 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.”⁴⁵ Defendant also urged lack of causation evidence.⁴⁶ The motion for directed

36. *Id.*

37. *Id.*

38. Loren Peck, *How Sound Is the Science? Applying Daubert to Biomechanical Experts’ Inquiry Causation Opinions*, 73 WASH. & LEE L. REV. 1063, 1068 (2016).

39. *Trees*, 311 P.3d at 851.

40. *Id.*

41. *Id.* (punctuation omitted).

42. *Id.* at 852.

43. *Id.*

44. *Id.*

45. *Trees*, 311 P.3d at 852.

46. *Id.*

verdict was granted due to the plaintiff's lack of standard of care expert testimony.⁴⁷ The court of appeals affirmed.⁴⁸

The Supreme Court of Oregon noted that “[n]either party point[ed] 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.”⁴⁹ The court noted a jurisdictional split on the issue⁵⁰ and then announced that “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 . . . rather than on an expert’s particular medical degree or area of specialty.”⁵¹ For purposes of Oregon law, “the central inquiry . . . is whether the expert has sufficient knowledge of the methods used by the practitioner in the circumstances to testify regarding the standard of care.”⁵²

This analytical approach adopted by the Supreme Court of Oregon is reasonable—the problem is in its application. The plaintiff’s biomechanical engineering expert had lectured medical residents and physicians, “worked with physicians, . . . developed an implant system for spinal surgeries, and . . . [conducted] 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.”⁵³ The Supreme Court of Oregon held this expert testimony sufficient to implicate the standard of care for a neurosurgeon.⁵⁴

The concern here is not a biomechanical engineer’s lack of knowledge of surgical devices. The concern is that the biomechanical engineer does not treat patients and does not experience the circumstances confronted by a neurosurgeon. The biomechanical

47. *Id.* at 853.

48. *Trees v. Ordonez*, 279 P.3d 337, 345 (Or. Ct. App. 2012), *rev’d*, 311 P.3d 848 (Or. 2013).

49. *Trees*, 311 P.3d at 854.

50. *Id.* at 854–55.

51. *Id.* at 855.

52. *Id.* at 856.

53. *Id.* at 857–58.

54. *Id.* at 859.

engineer is not required to exercise surgical judgment based upon the neurosurgeon's experience and training.⁵⁵ The biomechanical engineer, therefore, is not obligated to comply with the medical standard of care in the course of treating a patient. Accordingly, courts should not allow biomechanical engineering experts to opine on a physician's deviation from (or compliance with) the standard of care.⁵⁶

III. *The Psychologist*

Psychology has been defined as “the study of the mind and behavior”⁵⁷ Psychologists treat patients with depression, anger, anxiousness, chronic conditions, stress, and addictions and “are also trained to administer and interpret a number of tests and assessments . . . that can help diagnose a condition or tell more about the way a person thinks, feels[,] and behaves.”⁵⁸ A commentator has suggested: “One of psychology's main achievements has been the development and the extensive reliance on objective, quantifiable means of assessing human talents, abilities, strengths, and weaknesses.”⁵⁹ This commentator has also noted that “[t]he mission of our psychological practitioners of relieving the suffering of those with various forms of mental illness by means of appropriately delivered types of psychological therapy has proven successful.”⁶⁰ Psychologists are not medical doctors and typically earn Ph.D, Psy.D, or Ed.D degrees.⁶¹ Psychiatrists have received medical school

55. See William F. Chandler, *What Is Quality in Neurosurgery?*, 56 CLINICAL NEUROSURGERY 45, 46 (2009).

56. As to whether a biomechanical engineer should be permitted to opine on injury causation, see Peck, *supra* note 38, at 1115.

57. Christian Nordqvist, *What Is Psychology and What Does It Involve?*, MED. NEWS TODAY (last updated Feb. 1, 2018), <https://www.medicalnewstoday.com/articles/154874.php> [<https://perma.cc/GZP9-94CW>].

58. AM. PSYCHOLOGICAL ASS'N, *What Do Practicing Psychologists Do?*, <http://www.apa.org/helpcenter/about-psychologists.aspx> [<https://perma.cc/64HM-PE76>] (last visited Nov. 12, 2018).

59. Philip G. Zimbardo, *Does Psychology Make a Significant Difference in Our Lives?*, 59 AM. PSYCHOL. 339, 341 (2004).

60. *Id.* at 342.

61. Gavin Ryan Shafron, *Prescription Privileges and the Ethics Code: A Modern Look into the Right*

training and have “the knowledge and training to evaluate underlying medical problems or drug effects that could cause emotional or behavioral symptoms.”⁶² Recently, it has been explained that “[t]he primary distinguishing element between the practice of clinical psychiatry and applied psychology is the right to prescribe psychotropic medications”⁶³ These “medications include antipsychotics, antidepressants[,] and benzodiazepines[,] and these are commonly prescribed to older people in residential settings, particularly those with dementia, to manage [behavioral] and psychological symptoms of dementia”⁶⁴

Medical literature suggests a shortage of psychiatrists in the United States.⁶⁵ Scholars have urged that this shortage has provided the fuel for the argument in favor of prescription privileges for psychologists.⁶⁶ Some of the states have authorized psychologists to prescribe medications.⁶⁷ The opposing view, however, “argues that one danger of allowing psychologists prescription privileges is that there is no way to ensure psychologists’ understanding of potentially harmful interactions with patients’ non-psychotropic prescription medications, constituting systemic malpractice.”⁶⁸ Another argument in opposition to the prescription privilege is “that the nature of the practice of applied psychology would dramatically change,

to Prescribe Among Applied Psychologists, 15 GRADUATE STUDENT J. PSYCHOL. 95, 95 (2014).

62. Tony Rehagen, *Psychologist or Psychiatrist: Which Is Right for You?*, WEBMD, <https://www.webmd.com/mental-health/features/psychologist-or-psychiatrist-which-for-you#1> [<https://perma.cc/H2SU-M26H>] (last visited Nov. 12, 2018).

63. Shafron, *supra* note 61, at 95.

64. Stephanie L. Harrison et al., *Psychotropic Medications in Older People in Residential Care Facilities and Associations with Quality of Life: A Cross-Sectional Study*, 18 BMC GERIATRICS 60 (2018), <https://doi.org/10.1186/s12877-018-0752-0> [<https://perma.cc/VT78-WLMW>]; see also Pamela L. Lindsey, *Psychotropic Medication Use Among Older Adults: What All Nurses Need to Know*, 35 J. GERONTOLOGICAL NURSING 28, 29 (2009).

65. See, e.g., William Goldman, *Is There a Shortage of Psychiatrists?*, 52 PSYCH. SERVICES 1587, 1589 (2001); Eugene H. Rubin & Charles F. Zorumski, *Perspective: Upcoming Paradigm Shifts for Psychiatry in Clinical Care, Research and Education*, 87 ACAD. MED. 261, 261 (2012); Shafron, *supra* note 61, at 96.

66. Shafron, *supra* note 61, at 96.

67. See AM. MED. ASS’N ADVISORY RES. CTR., *COMPARISON OF PRESCRIBING STATUTES: ILLINOIS, NEW MEXICO, AND LOUISIANA* (2015), https://www.ama-assn.org/sites/default/files/media-browser/premium/arc/comparison-psych-prescribing-laws_0.pdf [<https://perma.cc/W2GQ-BL6H>].

68. Shafron, *supra* note 61, at 97.

transforming applied psychologists into lesser-educated psychiatrists and thereby damaging and potentially eliminating the field of clinical psychiatry.”⁶⁹ With this context, should courts permit psychologists to testify as to deviations from the standard of care by physicians regarding medication treatment?

The Minnesota Supreme Court addressed this issue in *Lundgren v. Eustermann*.⁷⁰ Here, the plaintiffs alleged that the defendant-physician “was negligent in treating . . . mental and emotional illness with the drug Thorazine.”⁷¹ The defendant was a family physician⁷² with many years of practice experience.⁷³ The trial court ruled that the plaintiffs’ psychology expert “was not qualified to give an opinion on the standard of medical care involved and granted [the] defendant’s motion for partial summary judgment”⁷⁴ The Minnesota Court of Appeals reversed the ruling,⁷⁵ and it became one of the issues on further review by the Minnesota Supreme Court.⁷⁶

The plaintiffs’ psychology expert’s opinions, expressed in answers to interrogatories, were as follows:

Thorazine, an antipsychotic drug, was less appropriate for [the plaintiff] than antidepressant drugs; that the continued prescription of Thorazine over a [six]-year period was inappropriate; that the treating physician has an obligation to monitor the patient for adverse side effects from use of

69. *Id.*

70. *Lundgren v. Eustermann*, 370 N.W.2d 877, 879 (Minn. 1985).

71. *Id.* Thorazine is an antipsychotic medication. See Jeffrey M. Witkin, *Obstacles to the Discovery of Medicines for Psychiatric Disorders in Modern Times*, 14 CNS NEUROLOGICAL DISORDERS—DRUG TARGETS 4, 5 (2015); see also Donovan T. Maust & Helen C. Kales, *Medicating Distress*, 177 J. AM. MED. ASS’N INTERNAL MED. 42, 42 (2017).

72. Family physicians “fulfill the generalist function in medicine, which the American people wanted and which suffered with the growth of subspecialization after World War II.” James C. Martin et al., *The Future of Family Medicine: A Collaborative Project of the Family Medicine Community*, 2 ANNALS FAM. MED. S3, S5 (2004).

73. *Lundgren*, 370 N.W.2d at 879.

74. *Id.*

75. *Lundgren v. Eustermann*, 356 N.W.2d 762, 766 (Minn. Ct. App. 1984), *rev’d* 370 N.W.2d 877 (Minn. 1985).

76. *Lundgren*, 370 N.W.2d at 879.

the drug; that there was no medical record that [the defendant] had monitored for side effects; that the patient over the [six]-year period had reported various symptoms which “could be” related to Thorazine treatment; that customary medical treatment would require a weighing of the relative benefits and risks of the continued use of a particular medication; and that, under the circumstances, the continued use of Thorazine was not acceptable medical practice.⁷⁷

The Minnesota Supreme Court found a lack of the necessary foundation for these opinions, essentially due to the fact that the plaintiffs’ psychology expert was not a physician.⁷⁸ Despite his knowledge of Thorazine, he lacked the “practical experience or knowledge of what physicians do.”⁷⁹ He had “never prescribed Thorazine for a patient”⁸⁰ and “[did] not know how physicians themselves customarily use Thorazine.”⁸¹

Even if the plaintiffs’ expert in *Lundgren* had prescription privileges as a psychologist, he continued to lack the experience and training of a physician. Certainly, with prescription privileges to consider, it is only an assumption that the Minnesota Supreme Court would have reached the same conclusion. That conclusion—prohibiting the psychologist expert from testifying as to the deviation from the medical standard of care—was appropriate.

Not long after *Lundgren*, the Supreme Court of Alabama considered a similar issue in *Bell v. Hart*. In *Bell*, the plaintiff’s physician prescribed her “Elavil, a tricyclic anti-depressant,”⁸² following plaintiff’s hospitalization. After alleged complications from the medication, the plaintiff filed a medical negligence claim,

77. *Id.* at 880.

78. *Id.* at 881.

79. *Id.* at 880.

80. *Id.*

81. *Id.*

82. *Bell v. Hart*, 516 So. 2d 562, 563 (Ala. 1987).

urging the negligent prescription of Elavil.⁸³ One of the plaintiff's expert witnesses was a psychologist who had completed course work and "research related to the prescription, use, dosage, and administration of various drugs under different circumstances."⁸⁴ He had "taught college[-]level courses in psychopharmacology, which is related to the use, dosage, and administration of drugs and the effects of drugs upon individuals who have taken them under varying circumstances, including, but not limited to, psychiatric drugs that might affect the central nervous system."⁸⁵ He had consulted and taught regarding drugs such as Elavil. In his deposition, he "testified that [the defendant] deviated from the accepted standard of care in the medical community for the prescription, dosage, and administration of the drug Elavil to the plaintiff . . ."⁸⁶ The trial court reviewed the deposition testimony of the psychologist and another expert and granted a motion in limine to exclude the testimony.⁸⁷ Thereafter, the trial court granted summary judgment in favor of the defendant-physician.⁸⁸

On appeal, the Supreme Court of Alabama referred to *Lundgren*, and followed the lead of the Supreme Court of Minnesota. In *Bell*, therefore, the Supreme Court of Alabama held that "we cannot permit a non[-]physician, who cannot legally prescribe a drug, to testify concerning the standard of care that should be exercised in the prescription of the drug."⁸⁹ Although the Supreme Court of Alabama referred to the need for expert medical testimony,⁹⁰ it may have left open for discussion the question of whether a psychologist with a prescription privilege would be permitted to testify as to a physician's alleged deviation from the standard of care. The point here is that, notwithstanding a psychologist's prescription privilege, a

83. *Id.* at 564.

84. *Id.* at 565.

85. *Id.*

86. *Id.*

87. *Id.*

88. *Bell*, 516 So. 2d at 565.

89. *Id.* at 570.

90. *Id.*

psychologist is not a physician, does not have the experience or training of a physician, and should not be permitted to give standard of care opinions against a physician.

IV. *The Dentist*

The American Dental Association (ADA) has defined dentists as “doctors who specialize in oral health.”⁹¹ The ADA has identified the basic responsibilities of dentists as follows:

- Diagnosing oral diseases.
- Promoting oral health and disease prevention.
- Creating treatment plans to maintain or restore the oral health of their patients.
- Interpreting x-rays and diagnostic tests.
- Ensuring the safe administration of anesthetics.
- Monitoring growth and development of the teeth and jaws.
- Performing surgical procedures on the teeth, bone, and soft tissues of the oral cavity.⁹²

There are, however, dental specialties, and oral and maxillofacial surgery is one of them.⁹³ It “is a branch of dentistry that deals with the diagnosis and treatment of oral conditions requiring surgical intervention.”⁹⁴ In the United States, maxillofacial surgery is performed by dentists with this specialty and by physicians.⁹⁵

Courts of review have examined efforts by plaintiffs to utilize dentists-maxillofacial surgeons as expert witnesses (or potential expert witnesses) against physicians.⁹⁶ The Kansas Supreme Court

91. AM. DENTAL ASS’N., DENTISTS: DOCTORS OF ORAL HEALTH (2018), <https://www.ada.org/en/about-the-ada/dentists-doctors-of-oral-health> [<https://perma.cc/4CRJ-6F3W>].

92. *Id.*

93. See generally Kishore Nayak, *Oral and Maxillofacial Surgery: It’s Future as a Specialty*, 10 J. MAXILLOFACIAL ORAL SURGERY 281 (2011); Rahul Tiwari, Chaitanya Pendyala, G. Gurukarthik & Arka Bhattacharjee, *History of Oral and Maxillofacial Surgery—A Review*, 16 IOSR J. DENTAL & MED. SCI. 99 (2017).

94. Tiwari et al., *supra* note 93, at 99.

95. Nayak, *supra* note 93, at 281.

96. *Tompkins v. Bise*, 910 P.2d 185, 193 (Kan. 1996); *Hinebaugh v. Garrett Cty. Mem’l Hosp.*, 51 A.3d 673, 681 (Md. Ct. Spec. App. 2012).

permitted a dentist-maxillofacial surgeon to testify that a physician-surgeon deviated from the standard of care applicable to an oral-maxillofacial surgeon who treated jaw fractures.⁹⁷ The Maryland Court of Special Appeals held that a dentist-maxillofacial surgeon was not permitted “to express an opinion about the standard of care that governs a family medicine doctor or a radiologist”⁹⁸

The specialty-trained dentist-expert opining on the standard of care applicable to a physician-surgeon is likely a product of a “turf war” between the professions.⁹⁹ Courts may begin to recognize dentists, particularly those with specialty training, as oral physicians.¹⁰⁰ These dentists would have training and experience coextensive with physicians and would be familiar with the applicable standard of care.

V. *The Chiropractor*

It has been urged “[a] that chiropractic’s identity is as a provider of spine care.”¹⁰¹ The focus of this care is subluxation,¹⁰² previously defined by the Association of Chiropractic Colleges as “a complex of functional and/or structural and/or pathological articular changes that compromise neural integrity and may influence organ system function and general health.”¹⁰³ A survey of North American orthopedic surgeons focusing on their attitudes toward chiropractors revealed a “majority was also of the opinion that chiropractors

97. *Tompkins*, 910 P.2d at 192. Regarding the treatment of jaw fractures, see Renato Valiati et al., *The Treatment of Condylar Fractures: To Open or Not to Open? A Critical Review of This Controversy*, 5 INT’L. J. MED. SCI. 313 (2008).

98. *Hinebaugh*, 51 A.3d at 690.

99. See Christopher J. Gearon, *Medicine’s Turf Wars*, U.S. NEWS & WORLD REP. (Jan. 31, 2005), https://www.researchgate.net/publication/8031377_Medicine's_turf_wars. [https://perma.cc/X6RW-K5VP].

100. See David A. Nash, *The Oral Physician . . . Creating a New Oral Health Professional for a New Century*, 59 J. DENTAL EDUC. 587, 595 (1995).

101. Craig F. Nelson et al., *Chiropractic as Spine Care: A Model for the Profession*, 13 CHIROPRACTIC & OSTEOPATHY 9, 9 (2005).

102. Jan Hartvigsen & Simon French, *What is Chiropractic?*, 25 CHIROPRACTIC & MANUAL THERAPIES 30, 30 (2017).

103. Edward F. Owens, *Chiropractic Subluxation Assessment: What the Research Tells Us*, 46 J. CAN. CHIROPRACTIC ASS’N. 215, 215 (2002).

provide unnecessary treatment, engage in overly aggressive marketing, breed dependency in patients on short-term symptomatic relief, and do not treat in accordance with evidence-based practices.”¹⁰⁴ It would not be surprising if physicians were not enamored with chiropractic education and training. Criticism of chiropractic education has been reported in the chiropractic literature.¹⁰⁵ It is fair to suggest that chiropractic education and training do not approximate medical education.

It would seem intuitively obvious that a chiropractor should not be permitted to give standard of care testimony against a defendant-physician in a medical negligence case. This was the conclusion of the Court of Appeals of Indiana in *Stackhouse v. Scanlon*.¹⁰⁶ Here, the patient was hospitalized for leg pain, had a suspected pulmonary embolism,¹⁰⁷ was anticoagulated, and was “diagnosed with septic shock syndrome.”¹⁰⁸ Apparently, during the course of a catheter placement to monitor blood flow, “a large vein was perforated.”¹⁰⁹ The patient died shortly thereafter.¹¹⁰

A complaint for medical negligence was filed. In an effort “to establish the requisite standard of care, or that it was breached,”¹¹¹ the plaintiff produced an affidavit of a chiropractor.¹¹² The trial court found that the chiropractor was “not qualified to testify regarding the standard of care rendered in this case by board certified physicians specializing in internal medicine and pulmonary disease”¹¹³ The court of appeals agreed, noting “that chiropractors are generally not

104. Jason W. Busse et al., *Attitudes Toward Chiropractic—A Survey of North American Orthopedic Surgeons*, 34 SPINE 2818, 2822 (2009).

105. See Lawrence H. Wyatt et al., *The Necessary Future of Chiropractic Education: A North American Perspective*, 13 CHIROPRACTIC & OSTEOPATHY 10 (2005).

106. *Stackhouse v. Scanlon*, 576 N.E.2d 635, 635 (Ind. Ct. App. 1991).

107. A pulmonary embolism “is a blood clot that blocks the blood vessels supplying the lungs.” Jill M. Merrigan et al., *Pulmonary Embolism*, 309 J. AM. MED. ASS’N 504, 504 (2013).

108. *Stackhouse*, 576 N.E.2d at 636–37; see also Robert L. Gauer, *Early Recognition and Management of Sepsis in Adults: The First Six Hours*, 88 AM. FAM. PHYSICIAN 44, 44 (2013).

109. *Stackhouse*, 576 N.E.2d at 637.

110. *Id.*

111. *Id.*

112. *Id.*

113. *Id.*

qualified to serve as experts in cases involving physicians. They do not have the same education, training[,] or experience, all of which are generally necessary to render an opinion of benefit to a jury.”¹¹⁴ Due to the absence of the required expert testimony, the court affirmed the grant of summary judgment for the defendants.¹¹⁵

In 1971, a student-authored law review article stated: “Chiropractors have been held competent to testify as expert witnesses in malpractice suits against medical doctors.”¹¹⁶ The author referred to two state supreme court cases for this proposition.¹¹⁷ These cases will be examined to determine if the author’s pronouncement suggests that chiropractors may testify to the standard of care applicable to a medical doctor, and to deviation from the standard of care.

In *Ness v. Yeomans*, the North Dakota Supreme Court reviewed a jury verdict against a physician for the alleged improper “setting and treatment of a broken arm.”¹¹⁸ At trial, a chiropractor who treated the plaintiff testified as to x-rays of the plaintiff’s arm, “some of which were taken by this witness.”¹¹⁹ He testified about his education, training, and experience with x-rays.¹²⁰ In approving this testimony, the court significantly noted:

A chiropractor may testify as to matters in which he is qualified to speak so long as he is not attempting to testify in regard to a school of treatment separate and distinct from his. He could not testify as to the methods and practices of this other school without showing his qualifications

114. *Id.* at 639.

115. *Stackhouse*, 576 N.E.2d at 639.

116. Ronald J. Zele, Note, *Chiropractors as Expert Medical Witnesses*, 20 CLEV. ST. L. REV. 53, 60 (1971).

117. *Id.*

118. *Ness v. Yeomans*, 234 N.W. 75, 75 (N.D. 1931)

119. *Id.*

120. *Id.*

therefor. He was not so testifying.¹²¹

The chiropractic witness, therefore, was permitted to testify about taking and interpreting x-rays.¹²² He did not provide standard of care testimony.¹²³ In fact, the plaintiff did not introduce any expert testimony at trial, “being content to depend upon the cross-examination of the expert witnesses furnished by the defendant[] and the examination of the [x]-ray pictures taken.”¹²⁴ As the plaintiff failed to produce any standard of care or deviation from the standard of care testimony against the defendant-surgeon, the court reversed the trial court’s order denying defendant’s motion for a new trial and remanded the case for a new trial.¹²⁵

Another point should be addressed regarding *Ness*.¹²⁶ As a treating chiropractor, it may well have been appropriate to allow this witness to testify about x-rays, particularly those which he took and interpreted in his treatment of the plaintiff. It is, however, problematic if the jury is able to compare those x-rays and interpretations to radiological studies interpreted by radiologists (physicians) and draw inferences as to the quality of care rendered by physicians. Medical literature reveals that chiropractic radiology facilities and image quality do not compare favorably with those of physician-radiologists.¹²⁷ Chiropractors are not radiologists¹²⁸ and should not be permitted to provide standard of care testimony against a physician-radiologist (or other medically trained physician).

The other reported opinion referred to in the student law review article is *Dorr, Gray & Johnston v. Headstream*, in which the Arkansas Supreme Court reviewed a medical negligence verdict

121. *Id.*

122. *Id.* at 77.

123. *Id.*

124. *Ness*, 234 N.W. at 77.

125. *Id.* at 78.

126. *Id.* at 77.

127. David C. Levin, Vijay M. Rao & William W. Orrison, *Turf Wars in Radiology: The Quality of Imaging Facilities Operated by Nonradiologist Physicians and of the Images They Produce*, 1 J. AM. C. RADIOLOGY 649, 650 (2004).

128. Zele, *supra* note 116, at 61.

against “partners engaged in the practice of medicine and surgery”¹²⁹ for allegedly “burning [the plaintiff’s] left arm with an [x]-ray while treating a small place thereon diagnosed by them as eczema.”¹³⁰ The court allowed chiropractor testimony about “to testify as to the amount of dosage it would take to burn the human body and whether the dosage was properly or whether negligently administered.”¹³¹ The court also permitted the chiropractor to testify “that certain alleged facts constituted negligence on the part of appellants.”¹³²

It is quite difficult to understand the court’s approval of standard of care testimony by a chiropractor against a medical doctor. Literature more than suggests serious educational shortcomings with chiropractic schools at the time of the *Dorr* opinion.¹³³ In comparison, following the Flexner Report of 1910, American medical schools became high quality institutions, focusing on basic sciences and clinical training.¹³⁴ It would seem that the practices of chiropractors and medical doctors were not easily confused in the late 1920’s. The Arkansas Supreme Court’s opinion appears to be wrong.¹³⁵

VI. *The Neuroscientist*

The Society for Neuroscience states that “[n]euroscientists specialize in the study of the brain and the nervous system.”¹³⁶ At

129. *Dorr, Gray & Johnston v. Headstream*, 295 S.W. 16, 16 (Ark. 1927).

130. *Id.* at 17.

131. *Id.*

132. *Id.* at 18.

133. Joseph C. Keating, Carl S. Cleveland & Michael Menke, *CHIROPRACTIC HISTORY: A PRIMER* 14 (2004); Alana Ferguson & Glenda Wiese, *How Many Chiropractic Schools? An Analysis of Institutions That Offered the D.C. Degree*, 8 *CHIROPRACTIC HIST.* 27, 28 (1988).

134. See Molly Cooke et al., *American Medical Education 100 Years After the Flexner Report*, 355 *NEW ENG. J. MED.* 1339, 1339–40 (2006); Thomas P. Duffy, *The Flexner Report—100 Years Later*, 84 *YALE J. BIOLOGY & MED.* 269, 269 (2011).

135. In a completely unrelated but interesting matter, see Laura Braden Foster, *Nobles v. Casebier and Judicial Comments on the Evidence in Arkansas*, 51 *ARK. L. REV.* 801, 801 (1998) (discussing a “trial judge’s facetious remarks about chiropractors during the reading of a chiropractor’s deposition . . .”).

136. *About Neuroscience, SOC’Y FOR NEUROSCIENCE*, <https://neuronline.sfn.org/Home/SfN/About/About-Neuroscience> [<https://perma.cc/86T2-6H5C>] (last visited Nov. 15, 2018).

least one court has defined neuroscience has been defined by a court as “a multidisciplinary study of how the brain works: its anatomy, its living processes, its physiology, its chemistry[,] and its structure.”¹³⁷ Neuroscience training typically results in a candidate earning a Ph.D.¹³⁸ Certainly, a neuroscientist who is not also a medical doctor cannot treat patients. Should courts permit neuroscientists to testify as to the standard of care applicable to a physician in medical negligence litigation?

The Texas Court of Appeals addressed this issue in *Ponder v. Texarkana Memorial Hospital*.¹³⁹ Here, a newborn suffered a neurological injury.¹⁴⁰ At trial, the court prohibited plaintiffs’ neuroscience expert, who had excellent academic, research, and teaching qualifications, from providing standard of care testimony.¹⁴¹

On appeal, the court stated that because the neuroscience expert was “not a medical doctor[] and has never treated patients, we do not find that the trial court abused its discretion by preventing him from answering questions concerning the standard of care.”¹⁴² The court did, however, note that “[n]on-physicians may qualify as medical experts by virtue of special experience”¹⁴³ and that the neuroscientist’s “experience clearly qualified him to testify about brain function and the causes of damage to the brain.”¹⁴⁴ Therefore, the trial court abused its discretion by precluding this witness from testifying as to causation.¹⁴⁵

The *Ponder* opinion clearly detailed the qualifications and experience of the neuroscience expert.¹⁴⁶ Because this expert lacked the contextual experience of a medical doctor, the court was correct

137. *Ponder v. Texarkana Mem’l Hosp.*, 840 S.W.2d 476, 477 (Tex. Ct. App. 1992), *superseded by statute*, Medical Liability Act, TEX. CIV. PRAC. & REM. CODE ANN. § 74.403(a) (West 2011).

138. See Huda Akil et al., *Neuroscience Training for the 21st Century*, 90 NEURON 917, 917 (2016).

139. *Ponder*, 840 S.W.2d at 478.

140. *Id.* at 477.

141. *Id.* at 477–78. The court also excluded causation testimony. *Id.*

142. *Id.* at 478.

143. *Id.*

144. *Ponder*, 840 S.W.2d at 478.

145. *Id.*

146. *Id.* at 477–78.

in confirming that the expert could not provide standard of care testimony. He was, however, “clearly qualified . . . to testify about brain function and the causes of damage to the brain.”¹⁴⁷ That testimony implicated causation, not the standard of care applicable to the defendant-physician.

VII. *The Physiologist*

“Physiology is the study of normal function within living creatures. It is a sub-section of biology, covering a range of topics that include organs, anatomy, cells, biological compounds, and how they all interact to make life possible.”¹⁴⁸ “Physiology teaches that all biological phenomena are connected.”¹⁴⁹ More than thirty-five years ago, the Washington Supreme Court considered cross-disciplinary expert testimony of a non-physician physiologist, including language in its opinion that predicted an expansive and flexible approach to the determination of expert-witness qualifications.¹⁵⁰

In *Harris v. Robert C. Groth M.D., Inc.*,¹⁵¹ the Washington Supreme Court considered a medical negligence claim arising from the plaintiff’s eye disease. At trial, the plaintiff “offered additional testimony . . . [by] a physiologist not licensed to practice medicine, but the trial court ruled that he was not qualified to give such testimony.”¹⁵² The Washington Supreme Court held that the limitation placed on the physiologist’s trial testimony was not “a manifest abuse of discretion”¹⁵³ but stated:

The standard of care against which a health care provider’s conduct is to be measured is that of a reasonably prudent

147. *Id.* at 478.

148. Tim Newman, *A Brief Introduction to Physiology*, MED. NEWS TODAY (Oct. 13, 2017), <http://www.medicalnewstoday.com/articles/248791.php> [https://perma.cc/D89B-PCDA].

149. Martin E. Feder, *Aims of Undergraduate Physiology Education: A View from the University of Chicago*, 29 ADVANCES PHYSIOLOGY EDUC. 3, 9 (2005).

150. *Harris v. Robert C. Groth, M.D., Inc.*, 663 P.2d 113, 114 (Wash. 1983).

151. *Id.* at 114.

152. *Id.* at 115.

153. *Id.* at 120.

practitioner possessing the degree of skill, care, and learning possessed by other members of the same profession in the state of Washington. . . . [E]xpert testimony will be necessary to show whether or not a particular practice is reasonably prudent. . . . This expert testimony *may be provided by non[-]physicians*, however, if the trial court finds them qualified.¹⁵⁴

Here, the Washington Supreme Court clearly approved the trial court's review of a non-physician's qualifications to provide standard of care testimony against a physician. In the court's view, this approach departed from the norm, stating, "[Although] most courts have imposed per se limitations on the testimony of otherwise qualified non[-]physicians, such limitations are not in accord with the modern trend in the law of evidence generally. That trend is away from reliance on formal titles or degrees."¹⁵⁵

This supposed "trend" is debatable. It disregards the problem with non-physician experts discussed thus far in this article; they do not have the physician experience of caring for patients and decision-making in that context. This issue, however, cannot be ignored. Ultimately, this paper address non-physician healthcare providers who are intimately involved in patient care¹⁵⁶ and whether those non-physicians should be entitled to opine on the medical standard of care.

VIII. *The Pharmacist*

It has been aptly noted that:

[o]ver the past four decades, the role of the pharmacist has

154. *Id.* (emphasis added).

155. *Id.* at 119 (citation omitted).

156. See generally Nathan A. Boucher, Marvin A. McMillen & James S. Gould, *Agents for Change: Nonphysician Medical Providers and Health Care Quality*, 19 PERMANENTE J. 90 (2015); Brian Dulisse & Jerry Cromwell, *No Harm Found When Nurse Anesthetists Work Without Supervision by Physicians*, 29 HEALTH AFFAIRS 1469 (2010).

evolved from an individual who was primarily responsible for safely and accurately distributing a medication product to a patient[] to an individual who works side-by-side with physicians, nurses, and other healthcare professionals in sophisticated, highly specialized practice settings to assure appropriate medication therapy management.¹⁵⁷

In fact, “pharmacists’ scope of practice includes the provision of direct patient care services in primary care settings.”¹⁵⁸ The pharmacists involved in direct patient care receive specialty training and are known as clinical pharmacists.¹⁵⁹ Perhaps coincidental or perhaps related to a more recent recognition of the pharmacist as a health care professional, there is an interesting array of judicial decisions relating to standard of medical care testimony by pharmacist-experts.¹⁶⁰

The most interesting decision pronouncing the strict exclusion of a pharmacist’s medical standard of care testimony is *Young v. Key Pharmaceuticals*.¹⁶¹ Here, the Washington Supreme Court considered a medical negligence claim that alleged that the defendants negligently prescribed asthma medication¹⁶² and negligently monitored blood medication levels.¹⁶³ The plaintiff intended to utilize a pharmacist as a standard of care expert against the defendant-physicians.¹⁶⁴ The state supreme court succinctly framed the issue as

157. Michael L. Adams & Robert A. Blouin, *The Role of the Pharmacist in Health Care: Expanding and Evolving*, 78 N.C. MED. J. 165, 165–66 (2017).

158. Mollie Ashe Scott, Jeffrey E. Heck & Courtenay Gilmore Wilson, *The Integral Role of the Clinical Pharmacist Practitioner in Primary Care*, 78 N.C. MED. J. 181, 181 (2017).

159. See Judith Jacobi, *Clinical Pharmacists: Practitioners Who Are Essential Members of Your Clinical Care Team*, 27 REVISTA MÉDICA CLÍNICA LAS CONDES 571, 571 (2016); *About Clinical Pharmacists*, AM. C. CLINICAL PHARMACY, <https://www.accp.com/about/clinicalpharmacists.aspx> [<https://perma.cc/U7ZL-2MQR>] (last visited Nov. 15, 2018).

160. See generally *Romero v. Hanisch*, No. 08-5040-JLV, 2010 WL 5020657 (D.S.D. Dec. 3, 2010); *Bell v. Hart*, 516 So. 2d 562 (Ala. 1987); *Smith v. Harris*, 670 S.E.2d 136 (Ga. Ct. App. 2008); *Shannon v. Fusco*, 89 A.3d 1156 (Md. 2014); *Young v. Key Pharm., Inc.*, 770 P.2d 182 (Wash. 1989).

161. *Young*, 770 P.2d at 184.

162. *Id.* at 185. The medication was theophylline, popularly used to treat asthma for many years. See Miles Weinberger & Leslie Hendeles, *Theophylline in Asthma*, 334 NEW ENG. J. MED. 1380, 1380 (1996).

163. *Young*, 770 P.2d at 185.

164. *Id.*

follows: “Is a pharmacist competent to testify to whether [the plaintiff’s] physicians breached their standard of care when that pharmacist’s sole connection to this case is that she reviewed [the plaintiff’s] medical records?”¹⁶⁵ Despite the fact that *Young* followed the same court’s opinion in *Harris* six years later, which apparently created an opportunity for cross-disciplinary standard of care testimony, the *Young* court pronounced: “This court has never accepted, however, a rule that would allow a non[-]physician to testify as an expert regarding the proper standard of care for a physician practicing a medical specialty. Such a rule would severely degrade administration of justice in medical malpractice actions.”¹⁶⁶ Additionally, the court stated that “we have found no cases in which a non[-]physician is found competent to testify on a physician’s technical medical standard of care in a medical malpractice case.”¹⁶⁷

Although the court was willing to acknowledge a pharmacist’s training and expertise regarding medications, it highlighted that a pharmacist lacked the specific training and experience of a physician, stating, “With all due respect to the pharmaceutical profession, pharmacists are not doctors and are not licensed to prescribe medication because they lack the physician’s rigorous training in diagnosis and treatment.”¹⁶⁸ Essentially, then, the *Young* opinion reflects a valid strict belief that pharmacists are not physicians and, therefore, cannot opine on the standard of care applicable to a physician.¹⁶⁹

The Court of Appeals of Georgia reached a similar conclusion in *Smith v. Harris*;¹⁷⁰ however, the court’s opinion was largely informed by a Georgia statute governing the opinions of expert witnesses in medical negligence litigation.¹⁷¹ Here, the plaintiff’s pharmacist expert testified that the defendant-physician “had violated the

165. *Id.* at 188.

166. *Id.*

167. *Id.* at 189.

168. *Id.* at 190.

169. *Young*, 770 P.2d at 190.

170. *Smith v. Harris*, 670 S.E.2d 136, 140 (Ga. Ct. App. 2008).

171. O.C.G.A. § 24-7-702(c)(2) (2013); *Smith*, 670 S.E.2d at 140.

applicable standard of care when he prescribed . . . Gentamicin,¹⁷² when he failed to recognize . . . [plaintiff's] developing Gentamicin toxicity, and when he failed to reevaluate her treatment"¹⁷³ The aforementioned statute requires an expert witness to have "*had actual professional knowledge and experience in the area of practice or specialty in which the opinion is to be given . . .*"¹⁷⁴ and to be "*a member of the same profession.*"¹⁷⁵ Georgia statutory law defined pharmacists as a profession different from that of a medical doctor.¹⁷⁶ Therefore, the plaintiff's pharmacist expert should not have been permitted to testify that a defendant-physician violated a medical standard of care.¹⁷⁷

The Supreme Court of Alabama, based in part on the state's Medical Liability Act,¹⁷⁸ affirmed a trial court's exclusion of medical standard of care testimony by a pharmacist against a physician in *Bell v. Hart*.¹⁷⁹ Here, the plaintiffs brought a medical negligence action in connection with the defendant-physician's prescription of Elavil, an antidepressant.¹⁸⁰ The plaintiffs' pharmacist expert, a well-qualified clinical pharmacist, gave deposition testimony, opining that the defendant-physician "deviated from the accepted standard of care in the medical community for the prescription, dosage, and administration of the drug Elavil"¹⁸¹ The trial court excluded this testimony based on lack of competency.¹⁸²

172. Gentamicin is an antibiotic that carries a risk of nephrotoxicity. See Jose M. Lopez-Novoa, et al., *New Insights into the Mechanism of Aminoglycoside Nephrotoxicity: An Integrative Point of View*, 79 KIDNEY INT'L 33, 33 (2011).

173. *Smith*, 670 S.E.2d at 139.

174. *Id.*

175. *Id.*

176. *Id.* at 140.

177. *Id.*

178. ALA. CODE § 6-5-480 (2018).

179. *Bell v. Hart*, 516 So. 2d 562, 570 (Ala. 1987).

180. See J. Inglis et al., *A Psychiatric and Psychological Study of Amitriptyline (Elavil) as an Antidepressant*, 88 CAN. MED. ASS'N J. 797, 802 (1963).

181. *Bell*, 516 So. 2d at 565.

182. *Id.* It should also be noted that witness competency is determined by the trial court, as a matter of law. See Scott Rowley, *The Competency of Witnesses*, 24 IOWA L. REV. 482, 495 (1939).

The supreme court agreed that the pharmacist expert was not competent to opine “on the standard of care of *physicians* in prescribing the drug Elavil.”¹⁸³ By stating that the standard of care in medicine “must be established by medical testimony,”¹⁸⁴ the court concluded that medical testimony must be given by physicians.¹⁸⁵ Furthermore, the court stated that it could not “permit a non[-]physician, who cannot legally prescribe a drug, to testify concerning the standard of care that should be exercised in the prescription of the drug.”¹⁸⁶ Thus, *Bell* presumably represents a policy of strict exclusion of cross-disciplinary standard of care testimony by pharmacists.

More recently, the Court of Appeals of Maryland held that a clinical pharmacist could not provide standard of care testimony against a physician in an informed consent case, but could opine as to the “material risks of the administration of [a drug]”¹⁸⁷ In *Shannon v. Fusco*, Maryland’s highest court considered an informed consent claim against a physician “in which it was alleged that a physician failed to obtain informed consent for the administration of radiation therapy and a drug, Amifostine”¹⁸⁸ The trial court barred this testimony,¹⁸⁹ but the state’s highest court “reversed . . . because he had substantial experience studying and advising patients regarding oncology medications, including Amifostine, and therefore, should have been permitted to testify.”¹⁹⁰

In Maryland, the doctrine of informed consent requires a physician to disclose material information that “a physician knows or ought to know would be significant to a reasonable person in the patient’s

183. *Bell*, 516 So. 2d at 566.

184. *Id.* at 569 (citing *Rodriguez v. Jackson*, 574 P.2d 481, 485 (Ariz. Ct. App. 1977)).

185. *Id.* The Supreme Court of the United States also noted that medical testimony can be provided by “properly introduced medical treatises.” *Id.* at 570.

186. *Id.*

187. *Shannon v. Fusco*, 89 A.3d 1156, 1175 (Md. 2014).

188. *Id.* at 1159; see also John R. Kouvaris et al., *Amifostine: The First Selective-Target and Broad-Spectrum Radioprotector*, 12 ONCOLOGIST 738, 738 (2007) (explaining that “Amifostine has been shown to specifically protect normal tissues from damage caused by radiation and chemotherapy”).

189. *Shannon*, 89 A.3d at 1160.

190. *Id.* (citing *Fusco v. Shannon*, 63 A.3d 145, 162 (Md. Ct. Spec. App. 2013)).

position in deciding whether or not to submit to a particular medical treatment or procedure.” This includes “the nature of the ailment, the nature of the proposed treatment, the probability of success of the contemplated therapy and its alternatives, and the risk of unfortunate consequences associated with such treatment.”¹⁹¹ Of course, these disclosure requirements establish a standard of care applicable to the physician seeking a patient’s informed consent.

The Court of Appeals of Maryland confirmed that expert testimony was required for proof in an informed consent claim¹⁹² and stated that the plaintiff’s pharmacist-expert “may have been qualified to testify about the likelihood and severity of risks caused by the administration of Amifostine.”¹⁹³ The court stated that the pharmacy expert “was never offered as an expert to testify about the types of information [the defendant-physician] had a duty to disclose”¹⁹⁴ yet he “had the requisite expertise to testify about the material risks of the administration of Amifostine.”¹⁹⁵ This supposed distinction is troubling and may be a distinction without a difference. If the pharmacist-expert is permitted to testify about material risks of drug administration, the expert is, arguably, testifying to the medical standard of care, which requires disclosure of “material information” significant to a patient. Therefore, this evidence could contribute to a jury determination of a standard of care violation and contradict the Court of Appeals of Maryland’s opinion that the pharmacist expert was not qualified to opine on the standard of care.¹⁹⁶

The most liberal position on the propriety of a pharmacist’s standard of care testimony against a defendant-physician has been taken by the United States District Court in South Dakota.¹⁹⁷ In

191. *Shannon*, 89 A.3d at 1169–70 (citing *Sard v. Hardy*, 379 A.2d 1014, 1022 (Md. 1977)).

192. *Id.* at 1172.

193. *Id.* at 1174.

194. *Id.* at 1175.

195. *Id.*

196. *Id.*

197. *See generally* *Romero v. Hanisch*, No. CIV.08–504–JLV, 2010 WL 5020657 (D.S.D. Dec. 3, 2010).

*Romero v. Hanisch*¹⁹⁸ the district court considered a defense motion in a medical negligence claim arising from the defendant-physician's treatment of plaintiff's hyperlipidemia (high cholesterol).¹⁹⁹ The plaintiff's sole disclosed expert was "a licensed pharmacist and clinical toxicologist"²⁰⁰ who was expected to testify to the standard of care applicable to a physician regarding the use of medications for the treatment of high cholesterol, breach of that standard of care, and causation.²⁰¹ The defendant-physician moved for summary judgment due to the alleged lack of competent expert testimony as to the standard of care.²⁰²

Unquestionably, the plaintiff's pharmacist expert was well qualified as a clinical pharmacist.²⁰³ He had earned an undergraduate degree in pharmacy and a doctorate in clinical pharmacy.²⁰⁴ He also had extensive subsequent training and teaching experience regarding medication safety, including the medications that the defendant-physician prescribed to the plaintiff, and had previously provided medical standard of care testimony in litigation.²⁰⁵ The district court observed that "[t]he only professional license [he] holds is in pharmacy[;] he is not licensed to make a medical diagnosis and does not hold medical staff privileges at any hospital."²⁰⁶ Additionally, the district court noted that plaintiff's pharmacist expert "[was] not permitted to prescribe medications for patients."²⁰⁷ Of course these facts suggest that, despite the pharmacist's wealth of knowledge, he does not have the experience identical to a physician who can diagnose and treat patients with high cholesterol.

198. *Id.*

199. See Judith M. E. Walsh & Michael Pignone, *Drug Treatment of Hyperlipidemia in Women*, 291 J. AM. MED. ASS'N 2243, 2243 (2004).

200. *Romero*, 2010 WL 5020657, at *2.

201. *Id.*

202. *Id.*

203. *Id.* at *3.

204. *Id.*

205. *Id.* at *5.

206. *Romero*, 2010 WL 5020657, at *5.

207. *Id.*

The district court, in referring to South Dakota law, held that the plaintiff's pharmacy expert was a medical expert²⁰⁸ and that he was "competent to testify as to a physician's standard of care in monitoring the safe and effective use of statin drugs."²⁰⁹ Therefore, *Romero* represents an aggressive approach to cross-disciplinary expert testimony, implicating the issue of whether an expert's lack of physician training and the physician-patient experience should disqualify the non-physician expert from opining on the medical standard of care.

IX. The Nurse Anesthetist

A nurse anesthetist is a highly trained nurse who administers surgical anesthesia and, apparently, does so quite well.²¹⁰ Nurse anesthetists occupy a distinct role in the nursing profession, as there are no "clear demarcations distinguishing which tasks are appropriate for physicians [anesthesiologists] versus nurses."²¹¹ Nurse anesthetists are nurses with specialty training²¹²—they do not possess medical degrees and are not physicians.²¹³ The American Association of Nurse Anesthetists reports that there are 52,000 nurse anesthetists "who safely administer approximately 45 million anesthetics to patients each year in the United States"²¹⁴

Courts have been impressed with the experience of nurse anesthetists.²¹⁵ As such, they have approved medical standard of care testimony by nurse anesthetist experts against

208. *Id.* at *7.

209. *Id.* at *8.

210. See Dulisse & Cromwell, *supra* note 156, at 1469.

211. Cassandra L. Taylor, *Attitudes Toward Physician-Nurse Collaboration in Anesthesia*, 77 AM. ASS'N. NURSE ANESTHETISTS J. 343, 343 (2009).

212. *Education of Nurse Anesthetists in the United States—At a Glance*, AM. ASS'N. NURSE ANESTHETISTS (last updated Sept. 27, 2018), <https://www.aana.com/membership/become-a-crna/education-of-nurse-anesthetists-in-the-u.s> [<https://perma.cc/8SQ5-XR3W>].

213. See *id.*

214. *Certified Registered Nurse Anesthetists Fact Sheet*, AM. ASS'N. NURSE ANESTHETISTS (last updated Sept. 17, 2018), <https://www.aana.com/membership/become-a-crna/crna-fact-sheet> [<https://perma.cc/EP3H-LNHY>]. It should also be noted that nurse anesthetists administer anesthesia outside of the hospital operating room. *Id.*

215. *Carolan v. Hill*, 553 N.W.2d 882, 889 (Iowa 1996).

defendant-physicians.²¹⁶ In *Carolán v. Hill*, the Iowa Supreme Court, referring to a state statute requiring “medical qualifications” of expert witnesses,²¹⁷ held that licensure was not a requirement for the admission of expert testimony²¹⁸ and a nurse anesthetist’s testimony as to the medical standard of care applicable to a physician was improperly excluded by the trial court.²¹⁹ Here, the plaintiff’s nurse anesthetist expert, “[i]n his twenty-seven years of practice . . . [had] delivered anesthesia to approximately 17,000 patients.”²²⁰

Moreover, in *Harris v. Miller*, a medical negligence action against an orthopedic surgeon assisted by a nurse anesthetist, the Supreme Court of North Carolina held that plaintiff’s nurse anesthetist expert should have been permitted to testify that the defendant-orthopedic surgeon was negligent in his supervision of the nurse anesthetist. The nurse anesthetist expert had “fifteen years of practice as a nurse anesthetist . . . [and] had participated in thousands of operations.”²²¹ The state supreme court stated that “having worked so frequently with surgeons, she was as knowledgeable as they about the way surgeons ordinarily supervise nurse anesthetists.”²²²

More than forty years ago, the Minnesota Supreme Court sent mixed signals regarding the propriety of medical standard of care testimony by a nurse anesthetist.²²³ In *Cornfeldt v. Tongen*, the state supreme court considered a medical negligence claim involving surgical procedures for a perforated ulcer and removal of “suspicious cells.”²²⁴ Subsequently, the patient suffered liver damage and died from hepatitis.²²⁵ A medical negligence action followed, stating claims against multiple defendants.²²⁶ As to the defendant-

216. *Id.*; *Harris v. Miller*, 438 S.E.2d 731, 742 (N.C. 1994).

217. IOWA CODE ANN. § 147.139 (West 2018).

218. *Carolán*, 553 N.W.2d at 888.

219. *Id.* at 889.

220. *Id.*

221. *Harris*, 438 S.E.2d at 742.

222. *Id.*

223. *Cornfeldt v. Tongen*, 262 N.W.2d 684, 691 (Minn. 1977).

224. *Id.* at 690.

225. *Id.* at 691.

226. *Id.*

anesthesiologist, the plaintiff alleged that he “was negligent in his selection of Fluothane as one of the anesthetics.”²²⁷ At trial, the trial court determined that “the chief nurse anesthetist . . . lacked the qualifications to render . . . expert medical opinions”²²⁸ Specifically, the opinions were “relative to the use of anesthesia” during surgery.²²⁹ The trial court excluded the testimony because the nurse anesthetist “was not licensed to practice medicine in . . . [any] state.”²³⁰

The court disagreed with the trial court’s basis for disqualifying the nurse anesthetist from testifying. The court held that:

Thus, [the nurse anesthetist] was not disqualified from testifying solely because he was not a licensed physician or because he did not graduate from medical school and had received only the training of a registered nurse anesthetist. If [he] otherwise had sufficient scientific and practical experience about the matter to which he would have testified, he would have been a competent expert witness. Therefore, the trial court erred in excluding [his] testimony on that basis.²³¹

Clearly, this pronouncement suggests that a nurse-anesthetist expert is able to testify about the use of an anesthetic at surgery, implicating the standard of care applicable to an anesthesiologist.

The court’s next statement is curious. It stated: “Plaintiff, however, intended to ask [the nurse anesthetist expert] *his* opinion as to whether the anesthetic administered to [the patient] was appropriate in the circumstances. The procedure [the nurse anesthetist] would have followed is immaterial to the issue of whether defendant’s

227. *Id.*; see also R. Bryce-Smith & H. D. O’Brien, *Fluothane: A Non-Explosive Volatile Anesthetic Agent*, 2 BRIT. MED. J. 969, 972 (1956); Thomas K. Burnap, Stephen J. Galla & Leroy D. Vandam, *Anesthetic, Circulatory And Respiratory Effects of Fluothane*, 19 ANESTHESIOLOGY 307, 307 (1958).

228. *Cornfeldt*, 262 N.W.2d at 691.

229. *Id.* at 696–97.

230. *Id.* at 697.

231. *Id.*

actions conformed to accepted medical practice.”²³² It seems that the court has confused two concepts. First, a standard of care expert witness is always able to give opinion testimony, and the opinions given are those of the expert.²³³ It is true, however, that the personal preference of an expert—how the expert would have treated the patient—is not standard of care testimony and may be excluded.²³⁴ It is simply unclear if the court’s opinion in *Cornfeldt* recognizes that a nurse anesthetist expert witness may testify that an anesthesiologist deviated from the applicable standard of care.

Despite the *Cornfeldt* uncertainty, courts may be persuaded to permit nurse anesthetists to testify as standard of care experts against anesthesiologists. If the roles of the nurse anesthetist and anesthesiologist are overlapping, and perhaps identical, a well-trained and experienced nurse anesthetist may be familiar with the medical standard of care, despite the lack of medical school training.

X. *The Pharmacologist/Toxicologist*

It has been stated that “pharmacology is the study of drug action,”²³⁵ and “the essence of pharmacology [is] trying to understand how to make drugs precisely effective and safe and also establish how they work.”²³⁶ “[C]linical pharmacology concentrates on two elementary questions: What do drugs do to the body? And what does the body do to drugs?”²³⁷

The American Chemical Society (ACS) defines toxicology as follows: “Toxicologists study the safety and biological effects of drugs, chemicals, agents, and other substances on living organisms. They develop methods to determine harmful effects, the dosages that cause those effects, and safe exposure limits.”²³⁸ The ACS also states

232. *Id.* (emphasis added).

233. *Id.* at 689–706.

234. See *Ayala v. Murad*, 855 N.E.2d 261, 272 (Ill. App. Ct. 2006).

235. Patrick Vallance & Trevor G. Smart, *The Future of Pharmacology*, 147 BRIT. J. PHARMACOLOGY S304, S305 (2006).

236. *Id.* at S307.

237. *Id.*

238. *Toxicology*, AM. CHEMICAL SOC’Y, <https://www.acs.org/content/acs/en/careers/college-to->

that “[t]oxicology brings together a wide variety of fields, including chemistry, biology, pharmacology, human and animal medicine, and environmental science, to help inform policies and regulations to protect both human health and the environment.”²³⁹

Therefore, pharmacology and toxicology are related disciplines. Unless a pharmacologist or toxicologist has earned a medical degree, he is not a physician.²⁴⁰ Courts are not of one mind on the issue of whether a pharmacologist/toxicologist expert may testify as to the standard of care applicable to a physician.²⁴¹ In *Thompson v. Carter*, the Supreme Court of Mississippi permitted a pharmacologist/toxicologist expert to testify that an urologist violated the applicable standard of care as to the administration of an antibiotic that allegedly caused Stevens-Johnson Syndrome.²⁴² The trial court had excluded the testimony.²⁴³

In *Thompson*, the plaintiff’s pharmacology/toxicology expert had earned a master’s degree in these disciplines and had significant practice and teaching experience.²⁴⁴ He was familiar with the antibiotic at issue as well as the plaintiff’s illness.²⁴⁵ The court noted that the possession of a medical degree is not necessary for an expert to testify to the medical standard of care.²⁴⁶ The key ingredient is medical knowledge.²⁴⁷ The court did not note that the expert was not an urologist, did not treat patients with urological diseases, and did not have the clinical experience and context of a trained physician.²⁴⁸

career/chemistry-careers/toxicology.html [https://perma.cc/QL2T-ARHG] (last visited Nov. 15, 2018).

239. *Id.*

240. *Id.*

241. *See supra* Part XI.

242. *Thompson v. Carter*, 518 So. 2d 609, 614 (Miss. 1987). Stevens-Johnson Syndrome is a “severe cutaneous adverse reaction . . . affecting skin and mucous membranes.” Maja Mockenhaupt, *The Current Understanding of Stevens-Johnson Syndrome and Toxic Epidermal Necrolysis*, 7 EXPERT REV. CLINICAL IMMUNOLOGY 803, 804 (2011); *see also* Thomas Harr & Lars E. French, *Toxic Epidermal Necrolysis and Stevens-Johnson Syndrome*, 5 ORPHANET J. RARE DISEASES 39, 39 (2010).

243. *Thompson*, 518 So. 2d at 610.

244. *Id.* at 613.

245. *Id.*

246. *Id.* at 614.

247. *Id.*

248. *See generally id.*

A compelling dissent urged that the court confused the standard of care applicable to a physician with causation and that the plaintiff simply did not produce any standard of care evidence.²⁴⁹ It is elementary that a properly prescribed and administered medication which causes complications will not support a verdict against a physician for medical negligence.²⁵⁰

In *Garvey v. O'Donoghue*, the District of Columbia Court of Appeals held that the plaintiffs' expert pharmacologist should have been permitted to testify "about the proper or excessive dosage of Tobramycin²⁵¹ and whether or not Tobramycin was properly prescribed to [the plaintiff]."²⁵² The expert was a retired dean of a pharmacy college where he taught and "engaged in clinical research on aminoglycosides, the group of drugs to which Tobramycin belongs."²⁵³ Without citation to authority, the court of appeals pronounced:

It seems clear, then, that to the extent physicians do rely on a body of pharmacological information, the expertise of a pharmacologist is virtually indistinguishable from that of the physician. [Because] physicians rely upon information that originates with or is provided by the practitioners in another field, here pharmacologists, this reliance opens the door for these non[-]physicians to testify as to that body of information. In effect, where a physician "borrows" a standard of care from the research and work of other professionals, members of that profession may testify about it.²⁵⁴

249. *Thompson*, 518 So. 2d at 617.

250. *Id.* at 616.

251. Tobramycin is an antibiotic. See Matthew E. Levison et al., *In Vitro Evaluation of Tobramycin, a New Aminoglycoside Antibiotic*, 1 ANTIMICROBIAL AGENTS & CHEMOTHERAPY 381, 381 (1972).

252. *Garvey v. O'Donoghue*, 530 A.2d 1141, 1146 (D.C. 1987).

253. *Id.* at 1144.

254. *Id.* at 1147.

As in *Thompson v. Carter*, the court of appeals was, apparently, unconcerned that the pharmacology expert lacked patient-care experience. It did not provide an effective explanation for the ability of a pharmacologist to know how a reasonably well-qualified physician should act under the circumstances.²⁵⁵

Similarly, in *Pratt v. Stein*, the Superior Court of Pennsylvania held that the plaintiff's expert pharmacologist, a professor of pharmacology, was qualified to opine on the medical standard of care applicable to the administration of neomycin, an antibiotic.²⁵⁶ Here, the court stated:

The primary focus of his testimony was that neomycin was known to be a highly toxic antibiotic, that there were other, safer drugs that could have been used . . . , and that the dosage and manner in which neomycin was administered was below the standard of reasonable medical care. Since pharmacology is the study of various medications, their origin, nature, properties, and effects upon living organisms, . . . it would appear that [he] was eminently qualified to render an opinion on this subject.²⁵⁷

Again, the court ignored the fact that the pharmacology expert was not a physician and lacked the experience of prescribing antibiotics while treating a patient.²⁵⁸

Courts in other jurisdictions have reached the opposite conclusion. In *Rodriguez v. Jackson*, the Arizona Court of Appeals held that a Ph.D. pharmacologist could not opine on the medical standard of care and “[was] not competent to give an opinion as to whether the doctors were negligent” “in their diagnosis, treatment[,] and

255. *Garvey*, 530 A.2d at 1147.

256. *Pratt v. Stein*, 444 A.2d 674, 706 (Pa. 1982), *superseded by statute*, Medical Care Availability and Reduction of Error (MCARE) Act, 40 PA. CONS. STAT. § 1303.512 (2018). For more scientific information regarding neomycin, see generally Selman A. Waksman et al., *Neomycin-Production and Antibiotic Properties*, 28 J. CLINICAL INVESTIGATION 934 (1949).

257. *Pratt*, 444 A.2d at 706.

258. *Id.*

administration of drugs.”²⁵⁹ In *Friedel v. Osunkoya*, a Delaware court, informed in part by state statutes, held that a plaintiff’s pharmacology expert who “neither practices medicine nor is entitled to prescribe [medication]”²⁶⁰ was disqualified from offering standard of care opinions against a defendant-physician. In so doing, the court appreciated that physicians and pharmacologists may have overlapping knowledge regarding “dosage issues and usage issues”²⁶¹ yet noted that although they are both medical professionals, “they are not in the same profession and do not receive the same training.”²⁶²

A New Jersey appellate court, in *Cardinale v. Losman*, held that a pharmacologist could not give standard of care opinions against a defendant-physician.²⁶³ Here, the court found that the pharmacologist lacked the necessary qualification to opine on the medical standard of care and that the pharmacologist’s lack of a medical license was not the basis of its decision.²⁶⁴ The same pharmacologist was the subject of a similar decision of a New York state appellate court in *Jordan v. Glens Falls Hospital*.²⁶⁵ The court noted that despite “an impressive curriculum vitae, he is not a medical doctor and hence his opinion as to the course of treatment [the] defendant should have undertaken was beyond his ‘professional and educational experience and cannot be considered “competent medical opinion” on [the] issue of [the] defendant’s negligence.”²⁶⁶

Finally, in *Bissett v. Renna*, the New Hampshire Supreme Court agreed with a trial court that a pharmacologist was not “qualified to testify as an expert witness to the standard of care expected of an ophthalmologist in the defendant’s position.”²⁶⁷ The state supreme court’s opinion was informed by a state statute governing the burden

259. *Rodriguez v. Jackson*, 574 P.2d 481, 484–85 (Ariz. Ct. App. 1977).

260. *Friedel v. Osunkoya*, 994 A.2d 746, 762 (Del. Super. Ct. 2010).

261. *Id.*

262. *Id.*

263. *Cardinale v. Losman*, No. A-3996-05T1, 2008 WL 65494, at *12 (N.J. Super. Ct. App. Div., Jan. 8, 2008).

264. *Id.*

265. *Jordan v. Glens Falls Hosp.*, 261 A.D.2d 666, 667 (N.Y. App. Div. 1999).

266. *Id.*

267. *Bissett v. Renna*, 710 A.2d 404, 407 (N.H. 1998).

of proof in medical negligence litigation²⁶⁸ and by the pharmacologist's concession "that he did not consider himself qualified to testify to the standard of care of an ophthalmologist in the defendant's position."²⁶⁹ The court also emphasized that the pharmacologist "did not have a medical degree and had received no training in the medical fields of ophthalmology or hematology."²⁷⁰ Additionally, he had no relevant research experience, no experience treating patients with the disease at issue, and "had never encountered the disease prior to being retained as a consultant in this case."²⁷¹

The courts prohibiting medical standard of care testimony by pharmacology experts are on the correct side of the issue. Despite having in-depth knowledge of medications, pharmacologists lack the clinical training and experience gained by physicians.²⁷²

XI. The Physician Assistant

Having developed in the 1960s, the physician assistant profession was "a new health care provider model to work only with physician supervision and not as independent providers."²⁷³ The typical physician assistant curriculum is a full-time program, just over two years in duration.²⁷⁴ There is a national certifying exam and a continuing medical education requirement.²⁷⁵ As of 2011, it was estimated that there were more than 70,000 physician assistants in the United States.²⁷⁶ A state may legislate the qualifications of a

268. *Id.* at 406.

269. *Id.* at 407.

270. *Id.*

271. *Id.*

272. Carolina J.P.W. Keijsers et al., *A Comparison of Medical and Pharmacy Students' Knowledge and Skills of Pharmacology and Pharmacotherapy*, 78:4 BRIT. J. CLINICAL PHARMACOLOGY 781, 781 (2014).

273. P. Eugene Jones, *Physician Assistant Education in the United States*, 82 ACAD. MED. 882, 882 (2007).

274. *Id.*

275. *Id.* at 884.

276. Roderick S. Hooker & Christine M. Everett, *The Contributions of Physician Assistants in Primary Care Systems*, 20(1) HEALTH & SOC. CARE COMMUNITY 20, 20 (2012).

physician assistant, including the requirement of physician supervision.²⁷⁷

In *Bradford v. Alexander*, the plaintiff alleged that “she suffered chemically induced hepatitis as a result of [the defendant’s] negligent prescription of an antibiotic to which she was allergic.”²⁷⁸ The defendant moved for summary judgment, supported by his own affidavit stating that he complied with the applicable standard of care.²⁷⁹ The plaintiff attempted to resist the defendant’s motion with an affidavit of a physician assistant who claimed that she was familiar with the standard of care applicable to a physician, allegedly the same standard of care applicable to a “physician associate.”²⁸⁰ The trial court granted summary judgment was granted for the defendant-physician.²⁸¹

On appeal, the court referred to a Texas statute governing expert witness testimony in a medical negligence case and held that a physician assistant did “not practice medicine as contemplated by the statute”²⁸² The court also “found no authority in Texas to support the proposition that a physician assistant is qualified to testify about the standard of care a physician owes his or her patient.”²⁸³ Further, the court stated that “[i]t would indeed lead to incongruity if we permitted a subordinate to testify as an expert concerning the standard of care to which we hold his or her supervisor, who has greater knowledge and training than the subordinate.”²⁸⁴

The court’s reference to the physician assistant as a “subordinate” is unfortunate and unnecessary. The physician assistant’s education, training, and experience is not equivalent to that of a physician.²⁸⁵ It

277. See *Bradford v. Alexander*, 886 S.W.2d 394, 397 (Tex. App. 1994).

278. *Id.* at 395.

279. *Id.* at 398.

280. *Id.* at 397.

281. *Id.* at 398.

282. *Id.* at 397.

283. *Bradford*, 886 S.W.2d at 397.

284. *Id.*

285. *The Difference Between Physician and Physician Assistant Jobs*, AUREUS MED. GROUP, <https://www.aureusmedical.com/blog/2016/06/06/the-difference-between-physician-and-physician-assistant-jobs/> [<https://perma.cc/GG4K-MJM6>] (last visited Nov. 15, 2018).

is, therefore, reasonable that a physician assistant cannot opine on the standard of care applicable to a physician.

XII. The Advanced Practice Registered Nurse/Nurse Practitioner

The National Council of State Boards of Nursing (NCSBN) defines the advanced practice registered nurse (APRN) as follows:

Advanced practice registered nurses (APRN[s]) are a vital part of the health system of the United States. They are registered nurses educated at Masters or post Masters level and in a specific role and patient population. APRNs are prepared by education and certification to assess, diagnose, and manage patient problems, order tests, and prescribe medications.²⁸⁶

Certified nurse practitioners (CNPs) are a subset of APRNs and are defined by the NCSBN as follows:

CNPs are educated and practice at an advanced level to provide care, independently, in a range of setting[s] and in one of six described patient populations. CNPs are responsible and accountable for health promotion, disease prevention, health education and counseling as well as the diagnosis and management of acute and chronic diseases. They provide initial, ongoing[,] and comprehensive care to patients in family practice, pediatrics, internal medicine, geriatrics, and women's health. CNPs are prepared to practice as primary care CNPs or acute care CNPs, which have separate national competencies and unique certifications.²⁸⁷

286. *APRNs in the U.S.*, NCSBN, <https://ncsbn.org/aprn.htm> [<https://perma.cc/62WC-CPPP>] (last visited Nov. 15, 2018).

287. *Id.*

APRNs are licensed by the states and “[e]ach state independently determines the APRN legal scope of practice”²⁸⁸ It has been urged that a primary care physician shortage is responsible for the popularity of nurse practitioners.²⁸⁹

Courts have not been inclined to allow nurse practitioner expert witnesses to opine on the medical standard of care.²⁹⁰ In *Broehm v. Mayo Clinic Rochester*, the Minnesota Supreme Court held that plaintiff’s nurse practitioner expert could not opine on the standard of care applicable to a physician providing “postoperative care following tracheal resection surgery,”²⁹¹ because “[a]s the lower courts concluded, [she] has neither the training nor the practical experience necessary”²⁹² to do so. She was, however, qualified to opine on the nursing standard of care.²⁹³

The Court of Appeals of Georgia, in *Tucker v. Talley*, held that a “nurse practitioner cannot speak to an alleged missed case of cryptococcal meningitis²⁹⁴ on the part of a physician.”²⁹⁵ The court utilized an “overlapping expertise test”²⁹⁶ to assess the ability of the nurse practitioner to opine on the medical standard of care:

“The general rule is that a member of a school of practice other than that to which the defendant belongs is not

288. APRN CONSENSUS WORK GRP. & THE NAT’L COUNCIL OF STATE BDS. OF NURSING APRN ADVISORY COMM., CONSENSUS MODEL FOR APRN REGULATION: LICENSURE, ACCREDITATION, CERTIFICATION & EDUCATION 5 (2008).

289. See Tine Hansen-Turton, Jamie Ware & Frank McClellan, *Nurse Practitioners in Primary Care*, 82 TEMP. L. REV. 1235, 1239 (2010).

290. *Tucker v. Talley*, 600 S.E.2d 778, 782 (Ga. Ct. App. 2004); *Broehm v. Mayo Clinic Rochester*, 690 N.W.2d 721, 725 (Minn. 2005); *Boice ex rel. Boice v. Marble*, 982 P.2d 565, 571 (Utah 1999).

291. *Broehm*, 690 N.W.2d at 727.

292. *Id.*

293. *Id.*

294. *Tucker*, 600 S.E.2d at 782; see also Tihana Bicanic & Thomas S. Harrison, *Cryptococcal Meningitis*, 72 BRIT. MED. BULL. 99, 99 (2004) (explaining that “[c]ryptococcal meningitis is a common opportunistic infection . . .” occurring in immunocompromised “and in apparently immunocompetent individuals”); Vasilios Pyrgos et al., *Epidemiology of Cryptococcal Meningitis in the US: 1997-2009*, 8 PLOS ONE 1, 1 (2013) (survivors of the disease can suffer “long term sequelae . . . such as focal neurologic deficits, blindness, deafness, cranial nerve palsies and memory deficits, and may require prolonged therapy or experience disease relapses”).

295. *Tucker*, 600 S.E.2d at 782.

296. *Id.*

competent to testify as an expert in a malpractice case.”
 “The question presented here is whether there is sufficient proof of overlapping expertise to establish that [the] nurse . . . was competent to give the affidavit against . . . a medical doctor.” . . . The ordering of medical tests is not shown to be an overlapping function between a nurse practitioner and a medical doctor inasmuch as a nurse does not have independent authority to order diagnostic tests.²⁹⁷

The Utah Supreme Court, in *Boice Ex Rel. v. Marble*, considered a medical negligence claim against a physiatrist by a patient who “fractured his neck and herniated a cervical disc in a recreational accident.”²⁹⁸ The patient was surgically treated and transferred to a rehabilitation facility, where he fell from a wheelchair and suffered additional injuries.²⁹⁹ The patient was re-hospitalized and then returned to the rehabilitation facility.³⁰⁰ Subsequently, the patient underwent additional surgery, but various deficits remained.³⁰¹

The patient sued the defendant-physiatrist, “claiming that [he] caused or contributed to the loss of use of his left wrist, hand, and fingers.”³⁰² The plaintiff designated expert witnesses, including a physiatrist who later withdrew, leaving the plaintiff with an APRN to testify as to the standard of care applicable to the defendant-physiatrist.³⁰³ The APRN submitted an affidavit on behalf of the plaintiff in an effort to resist the defendant-physiatrist’s motion for summary judgment.³⁰⁴ The trial court struck the affidavit.³⁰⁵ The

297. *Id.*

298. *Boice ex rel. Boice v. Marble*, 982 P.2d 565, 566 (Utah 1999). Psychiatrists are specialists in physical and rehabilitation medicine. See Stuart M. Weinstein, *Defining Psychiatry: A Tolerance for Uncertainty*, 3 PHYSICAL MED. & REHABILITATION 1, 1 (2011); PUA Dawson, *A New Discipline in Medicine, Psychiatry: Physical Medicine and Rehabilitation*, 58 WEST INDIAN MED. J. 497, 497 (2009).

299. *Boice*, 982 P.2d at 566.

300. *Id.*

301. *Id.* at 567

302. *Id.*

303. *Id.*

304. *Id.*

305. *Boice*, 982 P.2d at 567.

Utah Supreme Court agreed with the trial court's disposition of the affidavit, stating:

[A]n expert affidavit must provide sufficient foundation to show that the expert is qualified to testify as to the standard of care. Lowe is an advanced-practice registered nurse specializing in rehabilitative care for victims of spinal cord injury. Although [she] is well-qualified in rehabilitative care, her affidavit lacks the necessary facts to establish that the standard of care for a registered nurse specializing in rehabilitative care is the same for a physician providing post-operative care.³⁰⁶

The court neither indicated which “necessary facts” were lacking in the affidavit nor pronounced that an advanced-practice nurse could opine on the medical standard of care.³⁰⁷

Advanced-practice registered nurses and nurse practitioners are well-trained and, subject to state licensing laws, are able to practice with some independence.³⁰⁸ They are not, however, physicians.³⁰⁹ Courts are wise to adopt a conservative approach to advanced-practice registered nurses or nurse practitioner experts and to prohibit their standard of care testimony against physicians.

XIII. The Nurse

Simply stated, courts have had no difficulty determining that nurses cannot provide medical standard of care testimony against physicians.³¹⁰ These decisions may be informed by professional licensing statutes that detail the actual authority of physicians and

306. *Id.* at 571.

307. *Id.*

308. *Advanced Practice Nursing Fact Sheet*, NURSE J. SOC. COMMUNITY FOR NURSES WORLDWIDE, <https://nursejournal.org/advanced-practice/advanced-practice-nursing-fact-sheet> [https://perma.cc/ZN25-6XH6] (last visited Nov. 15, 2018).

309. *Id.*

310. *See, e.g., id.*

nurses, statutes requiring expert testimony in medical negligence cases, rules of evidence, or judicial precedent.³¹¹ Nurses have been precluded from offering standard of care testimony against a general surgeon,³¹² emergency medicine physicians,³¹³ oncologists,³¹⁴ an internist,³¹⁵ a thoracic surgeon, radiologist,³¹⁶ a psychiatrist,³¹⁷ family medicine physicians,³¹⁸ and an urologist.³¹⁹ The Supreme Court of Georgia and Court of Appeals of Georgia, in 1980 and 1993, respectively, held that a nurse could testify to the medical standard of care regarding the sterility of a needle used to draw blood³²⁰ and to the medical standard of care applicable to giving an injection.³²¹ The state supreme court opined “that the drawing of blood is not treatment exclusively within the professional skills of medical doctors,”³²² and the court of appeals reached a similar conclusion regarding the administration of an injection.³²³ It should be noted that these Georgia decisions appear to have been abrogated by statute.³²⁴

It has been suggested that “[n]urses are the major non-physician workforce in primary care teams in the U.S. . . .”³²⁵ Scholarship concerning physician-nurse conflicts notes:

That the occupations clash because nurses and physicians structure work in radically different ways and though they work side by side, they tend to misunderstand the methods

311. *See* Saliba v. Uniontown Hosp., 54 Pa. D. & C.4th 202, 207 (2001).

312. *Id.*

313. Stryczek v. Methodist Hosps., 694 N.E.2d 1186, 1189 (Ind. Ct. App. 1998).

314. Rodriguez v. Jackson, 574 P.2d 481, 485 (Ariz. Ct. App. 1977).

315. Taplin v. Lupin, 700 So. 2d 1160, 1160 (La. Ct. App. 1997).

316. Rudy v. Meshorer, 706 P.2d 1234, 1237 (Ariz. Ct. App. 1985).

317. Gray v. Jefferson Geriatric & Rehab. Ctr., 602 N.E.2d 396, 399 (Ohio Ct. App. 1991).

318. Reilly v. Spinazze, 34 So. 3d 1069, 1074–75 (La. Ct. App. 2010).

319. Avret v. McCormick, 271 S.E.2d 832, 833 (Ga. 1980).

320. Nowak v. High, 433 S.E.2d 602, 604 (Ga. Ct. App. 1993).

321. *Avret*, 271 S.E.2d at 833.

322. *Id.*

323. *Id.*

324. O.C.G.A. § 24-7-702 (2013); *see* Hankla v. Postell, 749 S.E.2d 726, 728–29 (Ga. 2013).

325. Tobias Freund et al., *Skill Mix, Roles and Remuneration in the Primary Care Workforce: Who are the Healthcare Professionals in the Primary Care Teams Across the World?*, 52 INT’L J. NURSE STUD. 727, 728 (2015).

and inner logic of one another's work. For example, nurses work on a strictly scheduled hourly basis, sense that a scarcity of resources exists, and are assigned work by room or bed. In contrast, physicians work on a course of illness or case basis and sense an abundance of resources. While the physician's sense of mastery is strong, often the nurse's sense of mastery is weak³²⁶

Beyond these differences between physicians and nurses is the difference in education.³²⁷ "The physician is trained to make decisions concerning what treatment is best and the nurse is not."³²⁸

Whether courts appreciate these differences is unknown. Whether these differences could inform court decisions in a subliminal manner is also unknown. Nevertheless, courts understand or believe that nurses and physicians occupy distinct professions and that nurses are not qualified to testify to the applicable medical standard of care.

CONCLUSION

The purpose of this paper was to survey court decisions regarding a significant but not routinely commented on evidentiary issue: cross-disciplinary expert testimony by non-physicians against physicians regarding the applicable medical standard of care. The most direct and elementary approach to this issue is to note that physicians are different than non-physicians in their education, training, and experience, and therefore, it should be impermissible for a court to permit a non-physician to opine on a physician's standard of care. However, some courts have held that it is not the professional degree earned but the knowledge gained by the expert that determines the

326. Michael E. Frederich & Roger Strong, *Physician-Nurse Conflict: Can Nurses Refuse to Carry Out Doctor's Orders?*, 5 J. PALLIATIVE MED. 155, 157 (2002).

327. See Janette A. Bertness, *Rhode Island Nurse Practitioners: Are They Legally Practicing Medicine Without a License?*, 14 ROGER WILLIAMS L. REV. 215, 223-28 (2009) (discussing the difference in education for physicians and nurses).

328. Frederich & Strong, *supra* note 331, at 157.

qualifications of the non-physician expert to opine on the medical standard of care.³²⁹ This “common knowledge” approach may appear attractive but is not without its shortcomings.

This paper urges that knowledge of the standard of care is, alone, insufficient to qualify a non-physician expert to opine on the medical standard of care. How that knowledge was acquired is crucial. The non-physician does not benefit from the context gained by the physician.³³⁰ Typically, the non-physician expert has not acquired knowledge in the process of treating patients.³³¹ This lack of context should be the disqualifying factor.

This having been said, the solution of the issue is difficult and not at all clear. There may be a legitimate argument that non-physicians should be qualified to opine on the medical standard of care applicable to a physician. This is the case because as non-physician healthcare professionals—for example, nurse practitioners and nurse anesthetists—provide increased primary and other healthcare, perhaps as a result of a shortage of physicians in these practice areas, these non-physicians perform functions that overlap with or substitute for those performed by physicians.³³²

For a court to determine that a non-physician expert actually knows the medical standard of care, the court must understand the medicine involved in the litigation, a topic about which courts are not particularly proficient.³³³ This understanding derives only from an in-depth study of the facts, the non-physician’s actual credentials, and experience. This decision should not be made lightly. In most cases, likely the large majority of cases, courts should not permit non-physician expert witnesses to opine on the medical standard of care.

329. *Trees v. Ordonez*, 311 P.3d 848, 855 (Or. 2013).

330. *Ponder v. Texarkana Mem’l Hosp.*, 840 S.W.2d 476, 477–78 (Tex. Ct. App. 1992).

331. *Id.*

332. Freund et al., *supra* note 330, at 727.

333. See Marc D. Ginsberg, *The Execution of an Arbitration Provision as a Condition Precedent to Medical Treatment: Legally Enforceable? Medically Ethical?*, 42 MITCHELL HAMLINE L. REV. 273, 305 (2016) (citing Judge Posner’s commentary in *Jackson v. Pollion*, 733 F.3d 786, 790 (7th Cir. 2013)).