

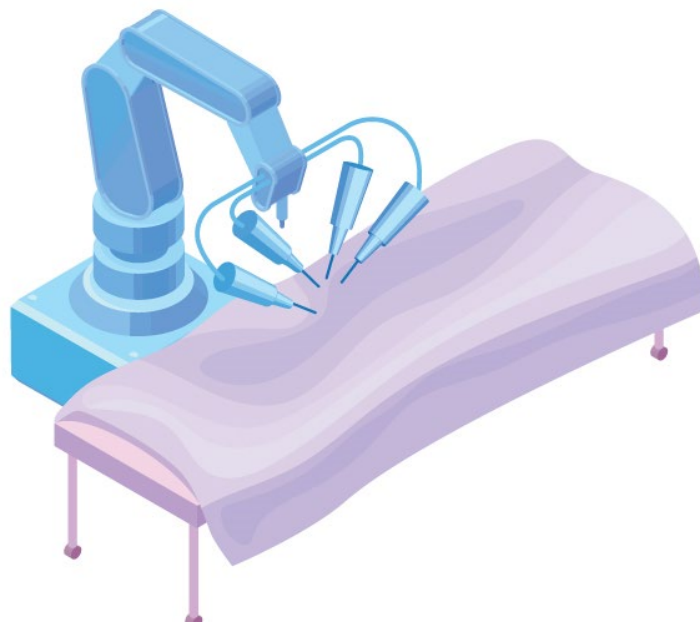
HEALTH LAW CONNECTIONS

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Corporate Practice of Medicine Statutes in the Age of Artificial Intelligence

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As artificial intelligence (AI) becomes increasingly ubiquitous, so too has AI been increasingly applied in medicine and health care. Moreover, people are rapidly becoming more comfortable with the use of AI in health care—for example, a 2017 study by international firm PricewaterhouseCoopers found that a majority of those surveyed across several different countries were willing to engage with AI and robotics for their health care needs.¹

Although AI is nowhere close to being capable of replacing physicians altogether—and few would consider it desirable to do so—there is reason to be cautiously optimistic about the benefits AI could bring to health care. AI applications could be effectively utilized to address underserved populations or the predicted shortfall of physicians in the United States. The Association of American Medical Colleges currently estimates a shortage of between 37,800 to 124,000 physicians by 2034, including both primary and specialty care.² Additionally, as discussed in this article, there is some indication that AI

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performs better than humans on tasks that include core medical judgment functions such as diagnosis of disease.

However, existing and long-standing state laws governing the corporate practice of medicine (CPOM) and physician licensure may hamper the widespread implementation of AI technology in health care. It may ultimately be incumbent upon state legislatures to evaluate the impact of these laws and weigh the available public policy choices in determining the extent to which AI applications appropriately can be used in the delivery of health care.

What Is “AI”?

The term “AI” is most commonly defined as “artificial intelligence,” meaning a computer or machine simulating or imitating one or more forms of human intelligence.³ Earlier generations of AI required humans to program computers to follow a sequence of steps to find a solution to a problem.⁴ This approach was necessarily limited by the capabilities of the human programmers.⁵

AI technology has advanced rapidly and significantly over the past several years. Newer technologies, such as machine learning, depend on leveraging large amounts of data. Machine learning permits a machine to teach itself, based on data provided, to solve problems that humans innately know how to solve but that are not easily broken down into discrete steps for a computer—such as recognizing human faces.⁶

Deep learning, a subset of machine learning, represents a new frontier in AI and involves the use of artificial neural networks. Deep learning applications evaluate new data by comparing it to known data, a process that mimics the human brain’s information processing patterns.⁷ This allows the machine to find new insights and more complex correlations in data than that permitted by older machine learning applications.⁸

Finally, “AI” may also be defined as “augmented intelligence” to emphasize that the AI supports, but does not replace, humans. For example, the American Medical Association (AMA) defines “AI” as “augmented intelligence” to focus on AI’s ability to enhance the human intelligence of physicians rather than replace these physicians.⁹

AI Applications in Medicine

AI can assist human clinicians with a wide variety of tasks. These applications range from the mundane—such as automating patient documentation in an electronic medical record—to the increasingly complex, such as diagnostics, precision medicine, and treatment.¹⁰

AI applications in diagnostics are especially promising, and there is some evidence that AI may be beginning to outperform the ability of human clinicians to diagnose certain diseases. For example, a May 2021 report indicated that an algorithm had been shown to predict the onset of Alzheimer’s disease within two to six years with 90% accuracy, while clinicians were only 72% accurate.¹¹ However, there is reason to remain cautious and somewhat skeptical of claims that AI applications are able to outperform the diagnostic ability of human clinicians. For example, a paper published in January 2021 studied the performance of seven AI-based screening algorithms for diabetic retinopathy—a leading cause of blindness worldwide—against human graders. That paper concluded that most of the algorithms studied did not perform better than the humans and called for algorithms to be thoroughly tested using real-world data prior to clinical implementation.¹²

In the realm of treatment, in 2016 a robot surgeon—the Smart Tissue Autonomous Robot (STAR)—reportedly performed better than human surgeons at stitching a pig’s small intestines.¹³ Although STAR was supervised by humans, it performed the procedure on its own using its own vision, tools, and intelligence.¹⁴ STAR’s ability to operate autonomously represents a huge leap forward in the realm of robotic surgery.

Additionally, AI applications have started to be deployed in areas that already face a critical shortage of clinicians—for example, in mental health. In June 2021, *The New York Times* reported on the app Woebot, an AI chatbot that has automated the process and content of therapy.¹⁵ Woebot is seeking Food and Drug Administration approval to treat two psychiatric conditions—postpartum depression and adolescent depression—and then plans to sell the app to health systems.¹⁶ However, Woebot is not designed to replace human clinicians altogether; rather, Woebot’s founder analogizes Woebot to a person being hungry but satisfied by eating a very good sandwich (i.e., Woebot) in lieu of a trip to a Michelin-starred restaurant (i.e., a human therapist).¹⁷

Overview of Corporate Practice of Medicine Doctrine

As one of the oldest, most diverse, and irregularly enforced set of laws in health care, CPOM is a strange beast. Historically, the doctrine was created to ensure that only licensed physicians were able to make medical decisions. The underlying policy is consumer-protection oriented. It is designed to protect patients from being harmed by lay persons or entities who are unduly interfering with a physician’s medical judgement.

The Supreme Court of Illinois eloquently explained the public policy underlying the prohibition on CPOM as follows:

To practice a profession requires something more than the financial ability to hire competent persons to do the actual work. It can be done only by a duly qualified human being, and to qualify something more than mere knowledge or skill is essential. The qualifications include personal characteristics, such as honesty,

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guided by an upright conscience and a sense of loyalty to clients or patients, even to the extent of sacrificing pecuniary profit, if necessary. These requirements are spoken of generically as that good moral character which is a prerequisite to the licensing of any professional man. No corporation can qualify. It can have neither honesty nor conscience, and its loyalty must, in the very nature of its being, be yielded to its managing officers, its directors, and its stockholders. Its employees must owe their first allegiance to their corporate employer, and cannot give the patient anything better than a secondary or divided loyalty.¹⁸

Today, although the name itself—the corporate practice of medicine—implies a single, uniform doctrine, the doctrine is anything but uniform. To begin with, CPOM is a creature of state law. While the majority of states and the District of Columbia have some type of restriction on the CPOM in place, 17 states have no such restrictions whatsoever.¹⁹ Within the group of states with CPOM laws, many of these restrictions are statutory, but some states regulate CPOM activity through common law, administrative rules, attorney general opinions, or adjacent laws such as those involving fee splitting or licensure.²⁰ And, the scope of these laws vary widely. Some states have a blanket prohibition on CPOM, while other states generally prohibit the conduct but carve out certain types of organizations and arrangements.²¹ Similarly, there is a wide discrepancy in terms of penalties and enforcement. On the one hand, some states such as California and New York criminally punish violators, whereas most other states do not.²² And, merely because a state has a CPOM law does not necessarily mean that the law is enforced. For example, in Wisconsin there is a 1986 Wisconsin attorney general opinion prohibiting the practice of medicine through for-profit corporations.²³ However, “that opinion has been widely criticized and widely ignored” and there is no recent enforcement activity.²⁴ The dearth of CPOM enforcement activity over the past few decades has caused health care lawyers to routinely debate whether or not the CPOM doctrine is dead.²⁵

The Tension Between CPOM and AI Technologies

The increasing capability of AI technologies in medicine—which may soon outstrip the ability of human clinicians to the extent they have not already—is on a collision course with state law doctrines such as CPOM and its adjacent laws. CPOM laws may never sanction an AI application functioning independently of a human clinician as a matter of public policy. Indeed, AI does not now and likely will never possess human characteristics such as good moral character, honesty, conscience, or a sense of loyalty, which, as described above, the Supreme Court of Illinois considered to be prerequisites to the practice of medicine.

This does not mean, however, that AI will never be granted personhood status under U.S. law. Corporations are granted personhood status and undertake activities such as entering into contracts, engaging in free speech and, as a result, are held liable for their

civil and criminal transgressions. And there is precedent for awarding personhood to an AI technology. In 2017, a robot named “Sophia” became a citizen of Saudi Arabia.²⁶

Human practitioners supervising AI applications in performing medical tasks also may be problematic from a CPOM perspective. Those states with robust CPOM laws may not permit AI applications to perform diagnostic or treatment tasks even under the supervision of a licensed practitioner.²⁷ However, even in states with looser CPOM restrictions—or if CPOM really is dead (as some argue) and more states continue to repeal their CPOM laws—some AI applications may not lend themselves to supervision by human clinicians at all. Some sophisticated machine learning applications are considered to be “black boxes” because they do not explain how the applications analyze data or arrive at conclusions.²⁸ This may be because the particular algorithm is proprietary, or the algorithm may simply be too complex for humans to understand it.²⁹ For example, an AI application named Deep Patient was provided 700,000 electronic medical records and provided excellent predictions of various diseases, including diabetes and cancers.³⁰ But, Deep Patient did not explain to the human practitioners the markers it had identified.³¹ Thus, where the AI is a black box, human practitioners may be unable to meaningfully supervise the AI if they do not know how it reached its recommendations.

It also may be unclear where and how to draw the line between the human supervising the AI and the AI practicing medicine on its own for the purposes of a CPOM analysis. This may be particularly difficult over time as newer clinicians enter the workforce. Clinicians who have been in practice for years without the benefit of the assistance of AI can rely on their own independent medical judgment developed over those years of practice and can make and articulate medical decisions. For example, the study described above on diabetic retinopathy algorithms indicates that physicians must remain cautious and continue to exercise their own judgment rather than relying on the judgment of the AI. However, newer clinicians coming into practice at the same time as the rise of AI may not be able to develop that same body of independent judgment and instead may come to rely on the AI in lieu of drawing independent conclusions. Such physicians may not be able to develop a basis to know if they agree or disagree with the AI’s conclusions, which will likely be a critical skill.

Despite the difficulty in determining where to draw these lines, as the health care industry grapples with the ever-increasing cost of care and price transparency laws are beginning to impact the way in which consumers and payers are purchasing medical services, the market may place new pressure on providers to supplement their services with more cost-effective AI. This, in turn, may provide a separate policy basis for considering the interplay between the current CPOM laws and AI. Specifically, states may decide that the public policy of lowering the cost of health care by augmenting care with effective AI applications is more important than enforcing CPOM laws currently on the books.

Finally, a whole host of issues beyond the scope of this article arise if it truly is not the clinician practicing medicine but rather the AI. For example, it is unclear who would be practicing medicine and who may be liable in the event of malpractice—options could include the AI itself, the corporation that owns the AI, or the developers that programmed the AI.

Going Forward

C POM laws originated decades ago and, needless to say, were never designed to address AI applications in medicine. However, these laws remain on the books in many states. To ensure that the use of AI in medicine does not run afoul of C POM laws in those states that have them, state legislatures will most likely need to take up the issue and the various public policy choices in determining whether and how to apply C POM laws going forward in a world of AI.

About the Authors

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¹ See PricewaterhouseCoopers, *What doctor? Why AI and robotics will define New Health*, at 25 (June 2017), <https://www.pwc.com/gx/en/industries/healthcare/publications/ai-robotics-new-health/ai-robotics-new-health.pdf>. Interestingly, however, the willingness of survey respondents to engage with AI varied widely country-by-country. For example, PricewaterhouseCoopers found that 94% of respondents in Nigeria were willing to

engage with AI and robotics for their health care needs, while only 39% of respondents in the United Kingdom reported being similarly willing to do so. *Id.*

2 See *New AAMC Report Reinforces Mounting Physician Shortage Amid COVID-19 Recovery*, Ass'n of Am. Med. Colleges (June 11, 2021), <https://www.aamc.org/news-insights/press-releases/new-aamc-report-reinforces-mounting-physician-shortage-amid-covid-19-recovery>.

3 See Gary Marchant & Lucille Tournas, *Artificial Intelligence and the Practice of Medicine*, 2019 Health L. Handbook 7 (May 2019) (hereinafter *AI and the Practice of Medicine*).

4 See John Paul Mueller & Luca Massaron, *Artificial Intelligence for Dummies* at 40 (John Wiley & Sons, Inc.) (2018) (hereinafter *AI for Dummies*).

5 See *AI and the Practice of Medicine*, *supra* note 3.

6 See *AI for Dummies*, *supra* note 4, at 52.

7 See *AI and the Practice of Medicine*, *supra* note 3.

8 *Id.*

9 See *Artificial Intelligence in Medicine*, Am. Med. Ass'n, <https://www.ama-assn.org/amaone/augmented-intelligence-ai> (last visited June 21, 2021).

10 See Bernadette M. Broccolo, Health Care Operations & Compliance, *Coping with the Mystery and Reality of Artificial Intelligence in Health Care* (2019).

11 See *Algorithm Bests Humans in Predicting Alzheimer's*, Alzforum Blog (May 27, 2021), <https://www.alzforum.org/news/research-news/algorithm-bests-humans-predicting-alzheimers>.

12 See Aaron Y. Lee et al, Multicenter, *Head-to-Head, Real-World Validation Study of Seven Automated Artificial Intelligence Diabetic Retinopathy Screening Systems*, *Diabetes Care* (Jan. 2021), <https://care.diabetesjournals.org/content/early/2021/01/01/dc20-1877>.

13 See *AI for Dummies*, *supra* 4, at 105; see also Eliza Strickland, *Autonomous Robot Surgeon Bests Humans in World First*, *IEEE Spectrum Blog* (May 4, 2016), <https://spectrum.ieee.org/the-human-os/robotics/medical-robots/autonomous-robot-surgeon-bests-human-surgeons-in-world-first>.

14 See *AI for Dummies*, *supra* note 4, at 105.

15 Karen Brown, *Something Bothering You? Tell It to Woebot.*, *N.Y. Times*, June 1, 2021, <https://www.nytimes.com/2021/06/01/health/artificial-intelligence-therapy-woebot.html>.

16 *Id.*

17 *Id.*

18 *Dr. Allison, Dentist, Inc. v. Allison*, 196 N.E. 799, 800 (Ill. 1935).

19 See *generally* Am. Health Law Ass'n, *Corporate Practice of Medicine: A 50 State Survey* (Second Edition) (hereinafter *AHLA 50 State Survey*) (2020).

20 See, e.g., *State ex rel. Collet v. Scopel*, 316 S.W.2d 515 (Mo. 1958) (enjoining an unlicensed “naturopath” from practicing medicine); *Mont. Admin. R. 24.156.625(1)(t)* (defining “Unprofessional Conduct” to include “practicing medicine as the partner, agent, or employee of, or in joint venture with, a person who does not hold a license to practice

medicine within this state” with certain exceptions); 1977 Nev. Op. Atty. Gen. No. 219 (“it is the opinion of the Attorney General that no corporation organized under the General Corporation Law of Nevada, Chapter 78 of Nevada Revised Statutes, may lawfully engage in the practice of medicine”]; Fla. Stat. § 458.331(1)(i) (split-fee arrangements constitute grounds for denial of a license or disciplinary action).

21 See generally AHLA 50 State Survey, *supra* note 19.

22 Compare Cal. Bus. & Prof. Code § 2052 and N.Y. Educ. Law § 6512 with N.J. Stat. Ann. 45:9-22.

23 AHLA 50 State Survey, *supra* note 19, at 814.

24 *Id.*

25 California is a notable exception to this trend. In 2021, SB-642 proposed expansive additions to California’s already robust corporate practice of medicine doctrine. Although SB-642 did not pass, it was placed on the Senate Appropriations Committee’s suspense file, which means it could be resurrected as early as next year. See S.B.-642, 2021-2022 Regular Session, (Cal.

2021), https://leginfo.legislature.ca.gov/faces/billStatusClient.xhtml?bill_id=20210220SB642.

26 Zara Stone, *Everything You Need To Know About Sophia, The World’s First Robot Citizen*, Forbes Blog (Nov. 7,

2017), <https://www.forbes.com/sites/zarastone/2017/11/07/everything-you-need-to-know-about-sophia-the-worlds-first-robot-citizen/?sh=77a7591c46fa>.

27 For example, in *Magit v. Bd. of Med. Exam’rs*, 366 P.2d 816 (Cal. 1961), the Supreme Court of California upheld the revocation of a physician’s license where the physician had directed and immediately supervised three individuals trained in medicine—but not licensed in the state of California—in administering anesthetics to patients.

28 See AI and the Practice of Medicine, *supra* note 3.

29 See *id.*

30 See *id.*

31 See *id.*