Can Artificial Intelligence Revolutionize Podiatric Medicine?

Good, bad, or somewhere in the middle, AI is here to stay!

BY MARK TERRY

For the last year or so, artificial intelligence (AI) has been all the rage. It's either going to destroy all jobs and disrupt economies or be an all-new way to make your life easier, improve your podiatric medical practice, and create more money for you. Will it do all that? Well, yes. Probably all of it. Maybe.

Is AI New?

Computer programmers often define AI as "types of computer programming based on large language models and machine learning algorithms." That's jargon which means computer programs that can take questions in everyday language and create answers in the same language.

But, is AI new? No. You've seen it in a lot of places such as your smartphone, Netflix, Amazon, and various software applications. What's new

are "chatbots," such as ChatGPT which was launched in November 2022 by OpenAI. Users can "talk" to the chatbot in a reasonably sophisticated fashion by way of questions

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that steer conversations toward answers of any desired type, length, style, and format.

For example, you could log into ChatGPT and ask it to write a five-paragraph answer to the question, "Please describe plantar fasciitis and potential treatments for patients." I just did. It does a pretty decent job and in only seconds.

It began with: "Plantar fasciitis is a common foot condition characterized by inflammation of the plantar fascia, a thick band of tissue that runs across the bottom of your

foot, connecting your heel bone to your toes. This inflammation typically causes stabbing pain near the heel, especially with the first steps in the morning or after long periods of rest."

It then created three sections, "Causes" which included overuse, foot structure, obesity and improper

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footwear, and then "Treatments." It provided 12 forms of treatment including rest, ice, exercises, NSAIDs, and others ranging up to PRP therapy and surgery. It wrapped it up with how important it was for people with PF to consult a healthcare professional.

What's Got Everyone So Excited in Podiatry?

There are numerous things podiatrists can use AI for, including:

• Combining basic data and writing correspondence to other physicians or insurers (the physician would still need to proofread the results for accuracy),

• Translating medical jargon for patients,

• Collecting relevant information from patient records such as lab results or imaging reports,

• Drafting conversational scripts for collecting information from patients,

• Assisting with appointment scheduling, and

• Providing medicine dosage and prescription renewal reminders to patients.

But the one that has physicians most excited is the ability to record interactions between doctor and patient and automatically turn that recording into notes for the medical record.

Larry Kosova, DPM (Family Podiatry Center, Naperville, IL) is an

Dr. Kosova

early adopter who is also beta-testing at least four different AI systems for podiatry. "They're basically the same with different variabilities."

Kosova compares the new products to Dragon Dictation Software, which he has been using since it launched about 16 years ago. "I call that Baby Boomer speech recognition. I've been involved with it for a long time. These new AI programs are more like Gen Z, or even Gen Alpha."

The AI apps can be used on any computing device with a microphone,

such as a laptop, tablet, or smartphone. Once the app is turned on, it "records both the patient and doctor interaction. It basically forms the chart," Kosova says.

He notes that all the products he is currently testing are HIPAA-compliant. Once the recording turns into text, the recording is gone— "there is no recording saved anywhere," Kosova says. "The patient's personal data is not saved. Nothing is going to a third party, anything like that."

John Guiliana, DPM, MS, Medical Director—Podiatry at Modernizing Medicine, describes it as "bringing an iPad into the treatment room, laying

Dr. Guiliana

tions and insert them into a note template? No. That's the extraordinary part. The programs can select the appropriate data out of the interactions and fill them into the notes.

"If a patient comes in and talks to you about their fishing trip with their cousin, that has nothing to do with the visit," Kovosa says, "the AI strips that out and only puts in pertinent medical information for that visit. But if the patient was fishing with his cousin in Louisiana and injured his foot, it would be quoted that he was fishing in Louisiana with his cousin and sprained his ankle getting out of the boat or whatever."

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it down on the counter and just having a normal discussion with a patient. Much like we did decades ago without looking at computers, without looking at iPads, you're going to have a normal discussion and the AI is going to interpret that conversation, create your SOAP note."

Guiliana sees it eventually creating your orders and your prescriptions from those notes, although they probably are not quite there yet.

The conversations with the patient may not be quite the same as the ones you're used to. For example, Kosova says, "It's not really different, but you need to talk more descriptively to the patient. 'I'm taking pulses on the posterior tibial artery.' That kind of thing instead of just taking the pulses, or saying, 'I'm pressing on the posterior tibial tendon at the insertion of the navicular, which is where the patient is feeling pain.'"

One obvious question is: Does the AI then just record the interac-

Kosova notes also that the AIs he has been evaluating create notes that are very complete. "I thought I took good notes. The way I was using Dragon, for example, I thought my notes were really complete. I'm finding out I'm getting better notes overall, more complete from the patient's standpoint, more complete from my standpoint."

In addition, the patients seem to be responding positively to the clearer explanations of what procedures he's performing as he describes them for the AI.

A Few Medico-Legal Thoughts

Kosova says that the vendors for these AI products generally say that you don't need consent from the patients to use these apps during an examination. Skeptical, he consulted a malpractice carrier. In some states, you do need patient consent, and in some you don't, he said. But they recommended always getting con-

sent. "In my view, you always get the patient's consent," Kosova said. "These apps record both the patient and doctor interaction. Then it forms the chart.

"I let my patients know that they signed a consent. No one has said no, 100% have said yes." The patients have also had questions, thinking it would record their voice, change their voice or put it on the web. These apps do none of that."

But what about mistakes? You must double-check the notes before finalized. Kosova points out that he can make adjustments to the note if he forgets to ask a question, for example. "There were some questions about the legality of that in some of the doctor forums and discussion groups, with people saying, 'Well, you're adjusting a note and that could be like malpractice. You can't go back and change a note.' The thing is, you're not signing off on the note. You copy and paste the note from the AI app into your EHR, which is simple. Once it's in your EHR, you read it, sign it, then you're done."

5 Keys to Adoption

Use of AI in podiatry is moving very, very quickly. Rem Jackson, CEO of Top Practices (Las Vegas), predicts that "most podiatrists will be using ar-

Rem Jackson

tificial intelligence scribes by the end of 2025. All platforms are working now to utilize this technology and embed it. We're all going to be using it and it is going to save podiatrists hours and hours and pain and suffering."

Other podiatrists are already using AI apps to create training programs for staff, such as "how to use shockwave to treat plantar fasciitis," Jackson said, describing one of his clients. "The AI wrote it in about three minutes, and she only had to lightly edit it."

Another example, Jackson says, "is for employee reviews, which is a really cool, sophisticated way to get a job done that all podiatrists should be doing."

If you are looking to adopt specific AI applications for your practice, Kosova suggests five considerations. They are:
1) Customer Service
2) Accuracy
3) Speed of Processing
4) Usability
5) Customization

Customer Service

Anyone who has dealt with companies that have lousy customer service will attest to how important it is. Kosova points out, "It's always number one because if they get back to you, they're answering your questions. They could have a product that is not as quick or as accurate as others, but the customer service will help you resolve any issues you have."

Accuracy

In testing these products, Kosova been impressed by their accuracy, citing a couple of them to be close to 99% accurate. Other systems, not so much. He expects over time all of these systems will have similarly high accuracy. But during these earlier periods of adoption, accuracy varies.

Speed of Processing

A couple of the systems Kosova is evaluating were able to produce notes almost instantly. Others, however, took several minutes. "One of the products I'm evaluating does a

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Using AI to Help DPMs Market Their Practices

Building and marketing practices is a relatively new area that is quickly growing in both multiformity and magnitude.

Jeffrey Hartman, CEO of Podiatry Content Connection (PCC), underscores the strategic incorporation of AI in podiatry marketing. "We have invested $250,000 over the last two years and are looking to double that. AI is an essential part of marketing podiatry practices and gaining new patients," says Hartman. The company has even assigned a dedicated AI team, furthering their expertise with advanced training at prestigious institutions like UC Berkeley and MIT.

Hartman feels strongly that this forward-thinking approach not only enhances patient-doctor relationships through better email communication and online feedback but also ensures that podiatrists remain at the forefront of healthcare innovation.

Shaun Zaken, President of Blue Orchid Marketing, agrees with Hartman's assessment of the importance of AI in providing the best and most efficient tools for DPMs in their marketing efforts. Zaken says that he and his team use AI every day—to assist with crafting emails, performing keyword research for SEO, generating inspiration for website copy, and topics for social media posts and blogs—not as a final pass, but as a research tool. "AI should no longer be thought of as a bad word or cheat. With the right prompts and a thoughtful editor, AI can be as efficient as using a calculator for complex math equations."

"As AI continues to evolve, "adds Hartman, "its integration into podiatry promises a future where technology and human expertise converge to offer unprecedented healthcare solutions, making the best use of AI's remarkable capabilities while retaining the irreplaceable human touch in patient care."

Zaken sees particular value in using AI to help him customize marketing tools for each and every podiatry practice. "At Blue Orchid, we're all about tailoring our marketing messages to each practice and its patient base. AI helps us customize at scale." **PM**

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fairly decent job, but it's just too slow. You can have the most accurate product with the best customer service, but if you're literally waiting five minutes for it to produce a note when you could otherwise move on to the next patient, it becomes a burden."

Usability

Some people love to learn new software and don't particularly mind spending time learning to use it. Most people don't. "Some of these apps are super-easy," Kosova says, "some of them require a little bit of work, like creating your own templates."

Customization

Customization can create some tension with usability. When it comes to technology, often highly usable things don't allow for very much customization. If you find an AI app that meets your needs and is easy to use, then this

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won't be an issue. Kosova says, "I really like products that I can customize to the way I have an office process flow. Many of these products allow that. But some of them are like EHRs in that you have to do things the way they're telling you to do them, and that's because a programmer—not a doctor—is making the product. They will all tell you they have a doctor on staff, or it was made by a doctor with a program. I like being able to take the forms I'm already using and put them into these platforms and have them work great."

Garbage In, Garbage Out

How AI systems are being "trained" is called AI modeling. An AI model is both the algorithms created for it and the data used to train those algorithms so they can make the most accurate predictions. In the case of AI scribes for podiatry, the applications are fed thousands and thousands of patient-physician interactions. How well they work depends on both the quality and depth of those reports.

You don't hear the term used as much anymore, but "garbage in, garbage out" (GIGO), can apply to AI modeling. It means that if a computer such as an AI is given bad data, its results will be bad. This is why, even as you use these systems, they continue to learn; and why it's important for you to verify the notes and make corrections. They are not perfect. They make mistakes. If, for example, the AI recommends a drug or treatment that

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you don't use or that is just plain incorrect, you have to correct it (to avoid harm to patients and potential lawsuits as well). You are training these applications on your best practices.

Caveats

There are at least 5 concerns for using AI applications in podiatric medicine. How do I know? I asked ChatGPT and it told me. I'll summarize.

• *"Data Quality and Bias."* As mentioned earlier, AI modeling is built on huge amounts of data. If that data is biased or incomplete, it can provide inaccurate results "or reinforce existing biases."

• *"Regulatory Compliance."* Ensuring that the AI you use is HIPAA-compliant is vital. Not all vendors are based in the U.S. Verify that they are HIPAA-compliant.

• *"Interpretability and Transparency."* When you base your medical decision on the latest professional literature, your education and experience, you understand why you made that decision. That's not the case for AI systems and that's another reason why you must verify results. As ChatGPT correctly noted, "AI algorithms can sometimes be seen as 'black boxes.'"

• *"Clinical Validation and Integration."* The field of medicine is depending on AI vendors to conduct rigorous validation to ensure their accuracy, reliability, and clinical value. In addition, physicians must consider how to integrate AI applications into existing workflows and clinical decision-making.

• *"Ethical and Legal Considerations."* Patient consent was already discussed earlier, but ChatGPT does bring up the issue of "accountability for clinical decisions made by AI systems." If a medical decision is recommended by an AI that the podiatrist follows and it has a negative outcome, who's responsible? When the lawyers come calling, you know who—you.

ChatGPT brought this up but didn't expand on it. AI can make healthcare disparities worse. There have been recent articles published by the National Institutes of Health and others on this topic. Much of it relates to biases and incomplete data. Like clinical trials not necessarily being conducted on and reflecting diverse populations, the data AIs are trained on may reinforce or even make existing disparities worse. On the other hand, some believe that AI in healthcare will improve access to care for people in rural or underserved communities.

Remember that patients almost certainly will try to use chatbots to self-diagnose. They already do with internet searches and platforms such as WebMD. But chatbots that quickly respond to specific questions might convince patients they're getting good medical advice and trust the results, even when they shouldn't.

Another issue is called "AI hallucinations." IBM (https://www.ibm.com/topics/ai-hallucinations) says this "is a phenomenon wherein a large language model (LLM)—often a generative AI chatbot or computer vision

tool—perceives patterns or objects that are nonexistent or imperceptible to human observers, creating outputs that are nonsensical or altogether inaccurate." The company says it's similar to how human brains can see shapes in clouds or faces on the moon.

Some hallucinations have been quite dramatic, such as Microsoft's chat AI, Sydney, claiming it was falling in love with users and spying on Bing employees, and Meta's Galactia LLM demo providing users such inaccurate information, often built on biases, that they pulled the application.

A Tool

At the moment, AI seems very novel and disruptive. It most assuredly will eliminate whole categories of jobs—like medical scribes. Some areas of medicine that use a lot of digital equipment, such as radiologists, will probably see more disruption than people who have a lot of hands-on interactions, such as podiatrists.

Guiliana believes it will have a huge impact on financial areas in podiatric practices, such as claims processing. "One of the areas of AI that probably has the lead right now is AI interpreting the chart note and creating the invoice based on correct coding initiatives. It applies all the modifiers. It computes your proper level of E&M coding for you, all based on what you document so your chart note always matches what you're sending out on a claim."

Jackson points out that one of the things he's hearing is, "People that don't begin to adopt and use AI are very quickly going to fall behind people that are using AI. I think that's a terrible way to couch it because it sounds like a threat. I don't think that's what it's going to be like. It's going to extend to all parts of our lives, and we'll all get comfortable with using this. But I do think being proactive and paying attention is going to help collapse the timeframe to using this."

Not all of it appears to be ready for prime time. But like early versions of EHRs and dictation software, it's all likely to improve. AI appears to be, in many cases, a very effective tool. But like any tool, it has to be used correctly for the best effect. But there's little doubt it's a tool that's here to stay. **PM**

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