AI in Derm: Applying New Tech to Your Practice

BY DANIEL SCHLESSINGER, MD

>> It is with great pleasure and enthusiasm that I begin this quarterly column dedicated to the intersection of dermatology and artificial intelligence (AI). I am a board-certified dermatologist currently pursuing a fellowship in Mohs surgery and cosmetic surgery at Northwestern University. As I embark on this new venture with *Practical Dermatology*®, I am eager to share my insights into the dynamic field of and its growing role in our profession.

My experience as a software engineer prior to dermatology training led me to AI. Since then, I have written several chapters and articles on AI and serve on the American Academy of Dermatology's Augmented Intelligence Committee. I have followed the evolution of this field with fascination as it has evolved and hope to share my excitement and tips with the readers of *Practical Dermatology*® so they can feel comfortable navigating the same field that was foreign to me just six years ago.

Dermatologists have a history of driving dynamic, innovative advancements in technology and research. While the literature on AI in dermatology is already extensive and growing exponentially–PubMed indexed 3 published articles in 2013 versus 343 in 2023–it often focuses on similar examples, including the following:

Pigmented lesion detection. In controlled environments, automated image analysis algorithms have been shown to be effective at diagnosing pigmented skin lesions from dermatoscopic images.

Direct-to-consumer applications. A number of smartphone applications exist to allow anyone to upload images of lesions or rashes for diagnosis. However, these applications often lack prospective, randomized, controlled trial data and have generally managed to avoid regulatory oversight.

Large language models. These are sophisticated AI-powered chatbots that are capable of generating human-like text and responding to questions. They may be built into telemedicine platforms to solicit patient information from patients before they speak with a provider or used to communicate with patients after a visit.

> "While many of the opportunities for AI seem promising in theory, the majority of dermatologists are quite unfamiliar with the practical applications of AI and are therefore likely default to older, more laborious methods of data analysis. There is true promise in AI, but only if it is ethically and soundly based."

While the above-mentioned are all potentially important developments, but news headlines often miss the nuances behind algorithm development and testing.

There also seems to be a disconnect between popular AI applications and what is acceptable practice. One such example is ChatGPT, for example, is a well-known, freely available AI chatbot that rose to prominence in 2022 (which, interestingly, was developed by Sam Altman, the son of a dermatologist from St. Louis). Dermatologists may want to use this tool to automate patient communications, help support staff interpret biopsy results, draft emails, or assist in writing instructions for patients. However, there is quite a bit of controversy over the use of ChatGPT for scholarly endeavors, the validity of which will only be fully evaluated over time. Patients may come to your office seeking management of "diagnoses" rendered by an AI-powered iPhone app, asking for further management. In such instances, medicolegal and ethical issues abound, as well as an overarching concern over the quality of the diagnoses.

One area that is less frequently a topic of popular discussion is the use of AI within the research realm. In clinical research, AI may potentially help identify and recruit patients and assist with adverse event monitoring. As clinical trials of new drugs are sometimes hindered by their reliance on complex visual scales for judging disease activity (eg, defining whether a wrinkle is mild, moderate, or severe),

and they may benefit from AI-powered rating scales to reduce reliance on human judgment, which sometimes can be biased. In basic science and translational research, AI has already accelerated preclinical drug discovery, and other future applications seem inevitable.

While many of the opportunities for AI seem promising in theory, the majority of dermatologists are quite unfamiliar with the practical applications of AI and are therefore likely default to older, more laborious methods of data analysis. There is true promise in AI, but only if it is ethically and soundly based.

In the upcoming columns, we will review practical implications of AI for dermatologists. How might a dermatologist use a large language model like ChatGPT to generate patient handouts or help with the verbiage on their website, and what are the ethical and medicolegal implications if bad advice is given? Will insurers use AI in the claims reimbursement process, and how might a practicing dermatologist defend an AI-based denial of a claim? How might AI chatbots be used to help with office operations such as financial reporting, recruitment, and advertising/marketing content generation?

As we navigate through the complexities and possibilities, I invite you to share your thoughts, experiences, and questions. ■

Daniel Schlessinger, MD, is a Mohs Micrographic Surgery and Cosmetic Dermatology Fellow at Northwestern University in Chicago. Dr. Schlessinger is also a member of the Practical Dermatology® Editorial Board and is a YoungMD Connect Liason.