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The Human Role in Artificial Intelligence

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In March of this year, a group of prominent technology researchers and influencers issued an open letter calling for a pause in the development of advanced artificial intelligence systems due to their "profound risks to society and humanity." This warning was largely based on concerns over efforts to create more powerful AI chatbots, such as ChatGPT, which have been known to make errors and spread misinformation.

While it is true that chatbots and other AI tools can conduct human-like conversations, create essays, and perform more-complex tasks such as writing computer code, the use of AI in dentistry has a different focus and presents different risks.

AI tools in oral health care support clinical diagnosis, care delivery, patient communication, and practice administration. However, in the wake of the warning from industry leaders it is reasonable to ask whether we should have concerns about implementing artificial intelligence into clinical dental practice. I believe the conversation should center on the potential of AI, rather than making a case about machines coming to take us over. More to the point, the conversation should be about the crucial role humans play in the successful adoption of AI.

One of the main risks associated with the use of AI in dentistry is the possibility of a blind reliance on AI recommendations, which can lead to a loss of the clinician's critical thinking and diagnostic skills, resulting in misdiagnosis or inappropriate treatment decisions. Examples include when the dentist leaps to treating AI's suggested diagnostic decision without contrasting radiographs, or considering the patient's health history, medications, and disease risk status to propose a treatment plan. Focused human oversight is essential to ensure that AI tools are used effectively and safely.

Ensuring the validity, reliability, and transparency of AI tools, metrics, and algorithms also requires human guidance and collaboration to develop standards and guidelines tailored to the dental profession. Organizations such as the U.S. Food and Drug Administration's Center for Devices and Radiological Health and the American Dental Association's Standards Committees are working to develop these standards and guidelines required for diagnostic tools that utilize AI. However, the speed at which these organizations can reach a consensus with stakeholders in an accelerating landscape of AI innovation in health care is a concern.

In the world of dental benefit plans, claims processors use analytics and machine learning to guide coverage decisions, improve efficiency, reduce costs, and generate provider grades. However, there is no specific regulatory approval process for AI tools used by third-party payers to adjudicate claims or in utilization reviews. The ability of clinical and payer AI platforms to share information requires standards to allow for the potential of real-time adjudication of dental claims and appeals of coverage denials. Unlike the clinical experience, where the best evidence, practice guidelines, health record data, and utilization teach the AI tool, payer AI platform algorithms are programmed by plan coverage metrics and aggregated claims data. These differences may create variances in output between a suggested clinical diagnosis and a recommendation on claim coverage.

Algorithms are not to be used by decision-makers as a hard and fast rule; they are intended to offer suggestive guidance for human decision-making. Yet, a legal case challenging coverage denial by a Medicare payer in Wisconsin discovered that AI generated the decision without human input. It was unclear how to appeal the AI denial decision that the payor believed was clear-cut. Transparency of payer algorithms and metrics is essential to identify biased algorithms that result in unequal access to health care or incorrect coverage decisions. Human input is necessary to ensure the validity and reliability of insurance industry algorithms and oversee the appeals process.

The success of AI requires human involvement to ensure that it is used safely and effectively. Transparency, collaboration, and standardization are necessary to ensure the validity and reliability of these tools. The machines won't come to get us if humans use AI for suggestive guidance in decision-making, rather than as hard and fast rules. ●

AI chatGPT guided revision of this editorial content.