

Artificial Intelligence in Medical Publishing: At the Crossroads of Innovation, Scientific Integrity, and Editorial Governance

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Medical publishing has undergone one of the most profound transformations in its history. From traditional manuscript handling to electronic submission systems, digital peer review, plagiarism detection software, and open-access publishing, each technological advance has reshaped scholarly communication by improving the efficiency, accessibility, and dissemination of scientific knowledge. The emergence of generative artificial intelligence (AI), AI-powered evidence-synthesis platforms, and increasingly autonomous AI assistants marks the next stage in the evolution of scholarly publishing.¹ Unlike earlier innovations that primarily improved publishing processes, these technologies increasingly assist with and, in some cases, undertake tasks that have traditionally depended on human intellectual judgement, including literature discovery, scientific writing, data analysis, peer review, editorial decision support, and knowledge synthesis. Consequently, the challenge confronting medical journals has shifted from adopting new technologies to governing their responsible use in ways that foster innovation while safeguarding scientific integrity, editorial accountability, and public trust. Artificial intelligence is reshaping medical publishing through three complementary technologies. Generative AI models, including OpenAI's ChatGPT (GPT-4o and GPT-5), Google's Gemini, Anthropic's Claude, and Meta's Llama, generate original text, code, tables, figures, and multimedia content. AI-powered search and evidence-synthesis platforms, such as Perplexity AI, Elicit, Consensus, Semantic Scholar AI, and Google AI Overviews, assist with literature retrieval, evidence synthesis, and knowledge discovery. Increasingly autonomous AI assistants, including Microsoft Copilot, ChatGPT Agent, and Gemini Workspace, have evolved from conversational tools into workflow assistants capable of performing multistep tasks such as literature review, manuscript drafting, statistical coding, journal selection, and preparation of responses to peer reviewers. Although frequently grouped together under the umbrella of AI, these technologies present fundamentally different editorial challenges.² For editors, these challenges extend beyond detecting AI-generated content to ensuring transparency, protecting confidentiality, verifying scientific validity, preserving research integrity, preventing the

publication of AI-assisted fraudulent manuscripts, and maintaining meaningful human oversight throughout the publication process.²⁻⁶ Generative AI models primarily raise concerns regarding hallucinated or fabricated content, undisclosed writing assistance, and authorship transparency.² In contrast, AI-powered search and evidence-synthesis platforms may compromise the completeness and reliability of literature retrieval, introduce citation inaccuracies, and contribute to biased interpretation or synthesis of scientific evidence. Increasingly autonomous AI assistants raise broader concerns regarding automation, accountability, confidentiality, and the diminishing role of independent human judgement throughout the research and publication process. Current international guidance, including the January 2026 update of the ICMJE Recommendations and the guidance issued by COPE and WAME, advocates the responsible, transparent, and accountable use of artificial intelligence rather than prohibiting its use outright.⁴⁻⁶ Appropriate applications include language editing, grammar correction, translation, formatting, statistical programming, literature organization, and administrative editorial support, provided that human authors critically evaluate and verify every output; conversely, AI should never be used to fabricate research data, generate fictitious references, manipulate images, conceal substantial AI involvement, or replace the intellectual contributions required for authorship.⁴⁻⁶ Regardless of the technology employed, artificial intelligence cannot satisfy the intellectual, ethical, or legal responsibilities required for authorship. Responsibility for the accuracy, originality, integrity, and transparency of published work remains entirely with human authors, who must critically evaluate and verify every AI-assisted output before submission.²

In response to these developments, medical journals should establish explicit policies governing AI use throughout the publication process. These policies should be publicly available and regularly updated to reflect the rapidly evolving capabilities of AI technologies and emerging international recommendations. Editors should require transparent disclosure of any substantial AI assistance, including the AI tool used, its version, the purpose for which it was used, and the extent of human oversight; prohibit AI tools from being listed as authors; and ensure that editorial and peer-review decisions remain the re-

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sponsibility of qualified human editors.⁴⁻⁶ AI may appropriately support administrative functions such as technical screening, language assessment, reviewer selection, and workflow management, but it should complement rather than replace independent editorial judgement. Editors and reviewers must stringently protect the confidentiality of unpublished manuscripts and peer-review reports by avoiding their disclosure to external AI platforms that cannot guarantee confidentiality. Uploading proprietary or unpublished material to such systems may expose confidential intellectual property, compromise the integrity of the peer-review process, and conflict with accepted publication ethics. Editorial assessment should extend beyond plagiarism detection to include scrutiny for fabricated references, AI-generated or manipulated images, methodological inconsistencies, AI-generated content, paper-mill submissions, and other indicators of compromised research integrity.³ Because currently available AI-detection tools have important limitations in accuracy and reliability, editorial assessment should focus primarily on scientific validity, methodological consistency, verification of supporting evidence, and transparent disclosure of AI use rather than solely on attempts to identify AI-generated text.⁷ Editors should verify methodological consistency, check representative references for accuracy, request original data when necessary, and investigate suspected AI-related misconduct in accordance with established COPE guidance, ensuring that editorial responses remain proportionate, transparent, and consistent with accepted publication ethics.^{5,8} Equally important, editorial boards should invest in ongoing AI literacy training to ensure that editors and reviewers remain competent to evaluate the evolving capabilities, limitations, and ethical implications of these technologies. Innovation drives scientific progress, scientific integrity preserves public trust, and responsible publishing provides the ethical framework that connects the two.

Artificial intelligence should therefore be viewed neither as a threat to scholarly publishing nor as an unquestioned solution, but as a powerful tool whose value

depends entirely on responsible human stewardship. At this editorial crossroads, the future of medical publishing will be determined not by the sophistication of artificial intelligence itself, but by the wisdom, transparency, and accountability with which authors, reviewers, editors, and publishers govern its use. The objective of editorial governance should not be to prevent the use of AI, but to ensure its transparent, ethical, and accountable integration into scholarly publishing. In the era of increasingly autonomous AI, the ultimate safeguard of scientific integrity will remain not the sophistication of algorithms, but the unwavering commitment of authors, reviewers, editors, and publishers to human accountability.

REFERENCES

1. van Dis EAM, Bollen J, Zuidema W, van Rooij R, Bockting CLH. ChatGPT: five priorities for research. *Nature*. 2023;614(7947):224-226. doi: 10.1038/d41586-023-00288-7
2. Flanagan A, Bibbins-Domingo K, Berkwits M, Christiansen SL. Nonhuman "authors" and implications for the integrity of scientific publication and medical knowledge. *JAMA*. 2023;329(8):637-639. doi:10.1001/jama.2023.1344
3. Bernard C. AI-Generated Scientific Papers: Crisis? What Crisis? *eNeuro*. 2026;13(1):ENEURO.0470-25.2025
4. International Committee of Medical Journal Editors. Recommendations for the conduct, reporting, editing, and publication of scholarly work in medical journals [Internet]. Updated Jan 2026 [cited 2026 Jul 18]. Available from: <https://www.icmje.org/recommendations/>
5. Committee on Publication Ethics. Authorship and AI tools [Internet]. Eastleigh (UK): COPE; 2023 [updated 2024; cited 2026 Jul 18]. Available from: <https://publicationethics.org/guidance/cope-position/authorship-and-ai-tools>
6. Zielinski C, Winker MA, Aggarwal R, Ferris LE, Heinemann M, Lapeña JF Jr, Pai SA, Ing E, Citrome L, Alam M, Voight M, Habibzadeh F. Chatbots, generative AI, and scholarly manuscripts: WAME recommendations on chatbots and generative artificial intelligence in relation to scholarly publications. *Colomb Med (Cali)*. 2023;54(3):e1015868. doi: 10.25100/cm.v54i3.5868
7. Liang W, Yuksekgonul M, Mao Y, Wu E, Zou J. GPT detectors are biased against non-native English writers. *Patterns*. 2023;4(7):100779. doi: 10.1016/j.patter.2023.100779
8. Hosseini M, Horbach SPJM. Fighting reviewer fatigue or amplifying bias? Considerations and recommendations for use of ChatGPT and other large language models in scholarly peer review. *Res Integr Peer Rev*. 2023;8(1):4. doi:10.1186/s41073-023-00133-5