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Is medical science the tipping point of AI?

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Artificial intelligence (AI) has moved rapidly from the margins to the centre of medical discourse. From imaging and pathology to clinical decision support and manuscript drafting, systems built on vast datasets and powerful models now promise to reshape how we diagnose disease, interpret evidence and deliver care. Yet medicine is not a purely technical enterprise, it is deeply entangled with subjectivity, moral judgment and context. This tension underlies much of the current unease on whether technologies trained on an already fragile biomedical literature can be trusted to guide clinical reasoning, or will they amplify the very weaknesses that have long troubled our evidence base?

The optimism surrounding AI often rests on an implicit assumption that the underlying data are broadly reliable. In medicine, this is contestable. The literature is marked by familiar problems: underpowered studies, selective reporting, p-hacking, ghost authorship, inadequate peer review and a persistent reproducibility crisis. Peer review itself is frequently inconsistent and rushed, reduced more to gatekeeping than to genuine critical appraisal. Negative or “uninteresting” results often remain unpublished, while positive findings and dramatic claims receive disproportionate attention. AI systems trained on this ecosystem do not simply summarize it, they internalize its structures, biases and errors.

Hallucinations—fluent but factually false statements, including fabricated references—illustrate the depth of the problem. These do not arise solely from poor-quality literature; they are intrinsic to probabilistic text generation that optimizes for coherence rather than truth. When such hallucinations involve plausible citations or guideline-like language, they collide with a culture that already struggles to detect and correct its own errors.

A more insidious concern is circularity. We are already normalizing the use of AI in scientific writing: drafting sections of manuscripts, smoothing language, suggesting titles and summarizing findings. As this practice spreads, a growing fraction of new biomedical text will be machine generated or heavily machine assisted. If future models are then trained and populated by AI-shaped text, without robust tracking of provenance, the knowledge base risks increase. The literature may become more internally consistent in tone and structure, yet not necessarily closer to the truth. In such a “knowledge whirlpool”, models could learn to amplify patterns simply because they are common, not because they are correct.

It is tempting to respond to these dangers by appealing to the “human touch”. Clinical judgment, empathy and contextual understanding are indeed vital, and many decisions in medicine—about acceptable risk, goals of care or fairness in allocation—are inherently moral rather than computational. However, it was humans, not machines, who built the current landscape of publication bias, weak methodology and opaque authorship. Human intuition is itself vulnerable to anchoring, confirmation bias, deference to authority and overconfidence. Invoking human involvement as an automatic corrective, risks romanticizing the very system whose limitations we are critiquing. The central issue is not a simple dichotomy between humans and machines, but the contrast between unexamined judgment and accountable governance.

The more constructive question is therefore not whether AI is inherently corrupting or inherently transformative, but under what conditions it might improve the reliability of biomedical knowledge rather than erode it. This will require deliberate design choices. Training pipelines must become provenance-aware, distinguishing primary data and structured trial reports from layers of human commentary and from AI-generated or AI-assisted text. In the near future, the most valuable role for AI in medical research may be adversarial rather than generative: acting as a persistent critic that scans for statistical anomalies, inconsistent numbers, duplicated images and deviations from reporting standards.

Journals and regulators will, in turn, need to evolve beyond simple disclosure policies that ask whether AI was used. They are likely to require transparent documentation of where and how AI contributed to a manuscript, systematic auditing for synthetic references or misrepresented sources, and clear consequences when such practices are uncovered. Properly governed, AI could also support “living” evidence syntheses that continuously integrate new high-quality data and alert guideline panels when earlier conclusions need revision. But such benefits are contingent on upstream data curation and on a culture that treats AI outputs as hypotheses to be checked, not as truths to be accepted.

The analogy with clinical practice is instructive. Technology has repeatedly transformed how we examine and monitor patients, yet responsibility for decisions has rightly remained with the clinician. Courts do not accept “the machine told me so” as an adequate defense. A similar stance is needed in medical research. AI may accelerate literature searches, summarize complex material, flag weaknesses and even suggest novel hypotheses, but it cannot assume the role of final arbiter of truth. That role must remain with a human community governed by ethical codes, professional norms and public accountability.

AI in medicine thus sits at a crossroads. Used uncritically, it could deepen our dependence on a flawed corpus, fuel a recursive knowledge loop and further distance research from the human realities it aims to address. Used within robust epistemic safeguards, with explicit attention to data provenance, methodological rigor and moral accountability, it could instead become a powerful ally in making our knowledge base more coherent, more scrutinized and more responsive to new evidence. The lesson is not that technology “will not be able to go far” on its own, but that it must not be allowed to lead. Medicine must remain a human-led enterprise that employs AI as a sharp, sometimes uncomfortable mirror—one that reveals the weaknesses in our methods and assumptions—rather than as a substitute for judgment, responsibility and care.

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