



## Letter to the Editor

# Beyond Promise: Why Gastroenterology and Hepatology Need AI Readiness, Not Just AI Tools?



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Dear Editor,

The mini review by Guney-Coskun and Basaranoglu provides a timely overview of how artificial intelligence (AI) may reshape personalized nutrition in gastroenterology and hepatology through the integration of microbiome profiles, omics, electronic health records, wearable devices, and large language models.<sup>1</sup> Yet the central question for the field is no longer only what AI may eventually achieve, but whether gastroenterology and hepatology are prepared to use it safely and effectively. Here, AI readiness means the capacity to deploy, supervise, validate, and sustain AI-enabled care safely within real clinical workflows. In our view, the gap between frontier AI capability and specialty-level usability is widening. As technical progress accelerates, the main bottleneck is shifting from model performance to underdeveloped workflows, training, infrastructure, governance, and specialty readiness.

The promise described in this review is real. AI could help shift digestive and liver care from traditional fixed advice to adaptive, patient-specific strategies. However, much of the current conversation still centers on what AI can classify, predict, or generate, rather than on how these tools will be embedded into specialty practice. Personalized nutrition is a longitudinal care process involving symptom capture, dietary records, medication review, laboratory interpretation, repeated counseling, and follow-up adjustment. The review correctly identifies data privacy, algorithmic fairness, lack of standardization, and limited clinical validation as major barriers. What it leaves less fully developed is the implementation layer: who supervises these systems, how their outputs are translated into actionable care plans, and how responsibility is distributed when AI provides inappropriate, incomplete, or poorly contextualized recommendations. For gastroenterology and hepatology, better tools alone will not fill this gap. What is needed is readiness that links technical capability to workflow integration, human oversight, and accountable use. To make this readiness

more explicit, we suggest five linked domains: clinician AI literacy and task specification; workflow integration with human oversight; data governance, privacy, interoperability, and accountability; clinical validation with post-deployment monitoring; and safeguards against overreliance and deskilling. In practice, this means structured data capture, escalation rules for high-risk signals, documentation of clinician review, and triggers for reassessment during longitudinal monitoring.

AI adoption is not unconditionally beneficial. Colonoscopy is one of the most mature AI applications in digestive disease screening. A recent study in *The Lancet Gastroenterology & Hepatology* found that endoscopists regularly exposed to AI-assisted colonoscopy performed worse when AI was no longer available.<sup>2</sup> An accompanying commentary sharpened this concern by framing the issue as a potential erosion of perceptual and attentional skills that remain essential when AI fails or is absent.<sup>3</sup> This should be taken seriously by gastroenterologists and hepatologists. If deskilling can emerge in visual lesion detection, it may be harder to detect in nutrition counseling, longitudinal liver disease monitoring, and complex outpatient decision support, where cognitive offloading is distributed across time. The lesson is not that AI should be resisted, but that implementation must include deliberate mechanisms for preserving independent clinical judgment and specialty skills. For endoscopic decision support, readiness should also include quality metrics, fallback routines when AI is unavailable, and training periods that preserve independent lesion recognition.

An underrecognized problem is that most clinicians in gastroenterology and hepatology still encounter AI mainly as tool-level assistance through graphical user interface-based interfaces, such as chat, search, summarization, or single-task support. This is an observation of current deployment patterns, not a quantified claim about all clinicians or institutions. Yet clinically meaningful applications such as personalized nutrition require workflow-level construction across multimodal data, longitudinal memory, conditional decisions, and traceable execution. This creates a mismatch between how AI is currently used by most clinicians and what these emerging applications demand. Recent work on autonomous clinical AI agents signals that semi-autonomous, tool-using workflows are becoming technically feasible, although real-world availability in gastroenterology and hepatology remains limited.<sup>4,5</sup> For most GI and liver clinicians, the missing layer is not nominal access to AI, but the practical ability to

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supervise, interrogate, and safely collaborate with AI-enabled clinical workflows.

This gap will not be closed by enthusiasm alone. It requires investment in education, infrastructure, and explicit budget lines. A recent scoping review found that AI curricula for medical students, residents, and physicians remain sparse and often lack explicit pedagogical frameworks.<sup>6</sup> Postgraduate and continuing AI education also remains concentrated in a few specialties rather than broadly embedded across clinical practice.<sup>7,8</sup> A recent hepatology position paper makes a similar point from the specialty side: real clinical uptake will depend not only on better models, but also on integration into hospital information systems and stronger AI literacy among clinicians.<sup>9</sup> Before deployment, each program should answer five practical questions: What task is being supported? Who reviews the output and remains accountable? What data enter the system and under what governance? How will performance, drift, and errors be monitored? How will independent clinical skills be preserved? In practice, this means medical students, trainees, and clinicians need structured education beyond passive familiarity, including exposure to computational thinking, workflow design, sandbox testing, and the practical supervision of AI-mediated care. Journals and professional societies should likewise shift part of the conversation from embracing technical capability to defining what specialty readiness requires. Building these foundations would help narrow the mismatch between what frontier AI can do and what gastroenterology and hepatology physicians can responsibly use.

This letter has limitations. It is a conceptual response to a mini review, not an empirical validation of a readiness framework; examples are selective, and readiness will vary across settings. These limitations reinforce the main point: before assuming that better tools will automatically improve digestive and liver care, the field must first define how to cultivate the capacity for responsible AI use.

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### Author contributions

Drafting of the manuscript (YyG, YG), assistance with literature retrieval (MW, JL), final revision and critical review of the manuscript (XZ, YG). All authors reviewed and approved the final version of the manuscript.

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