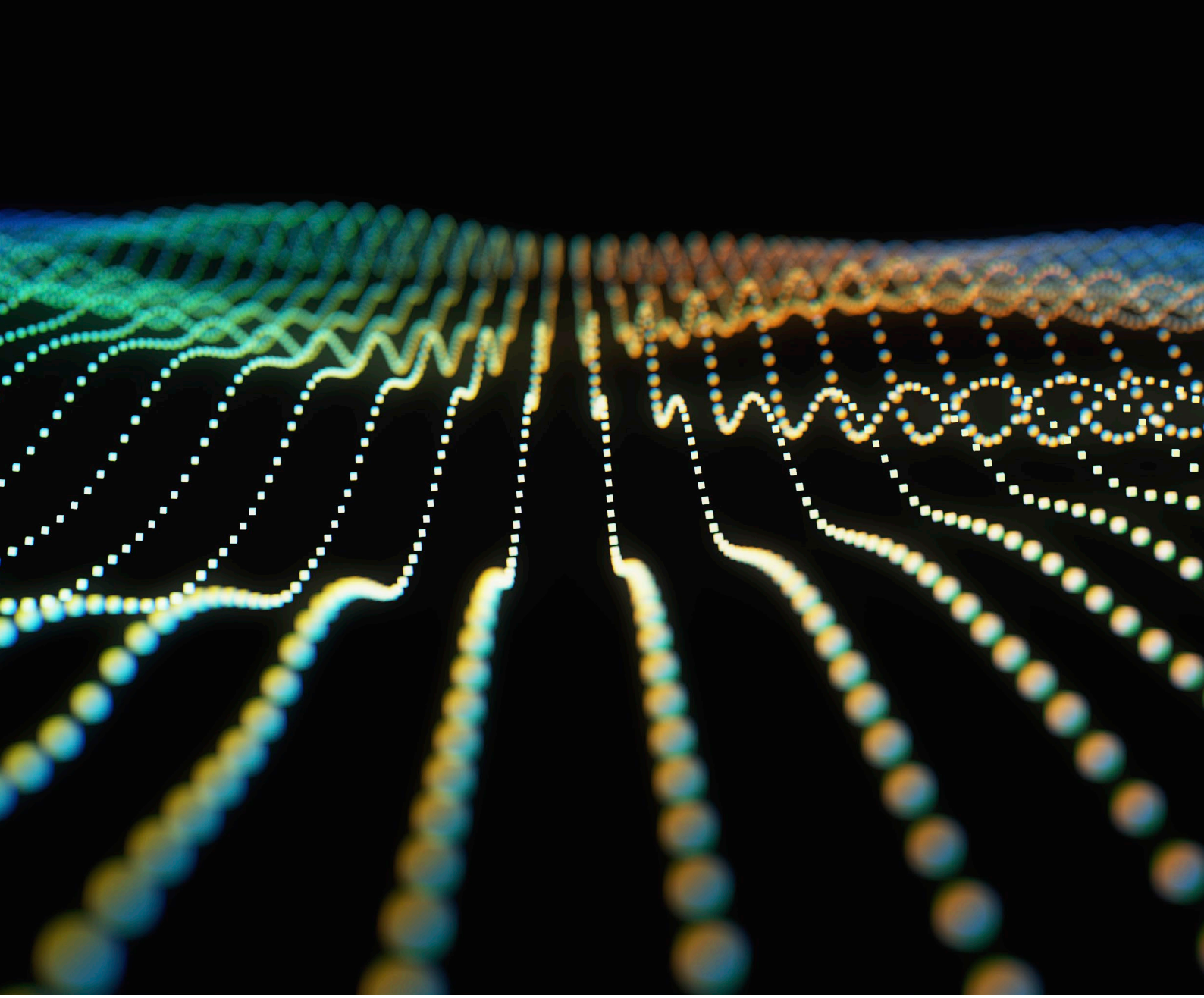
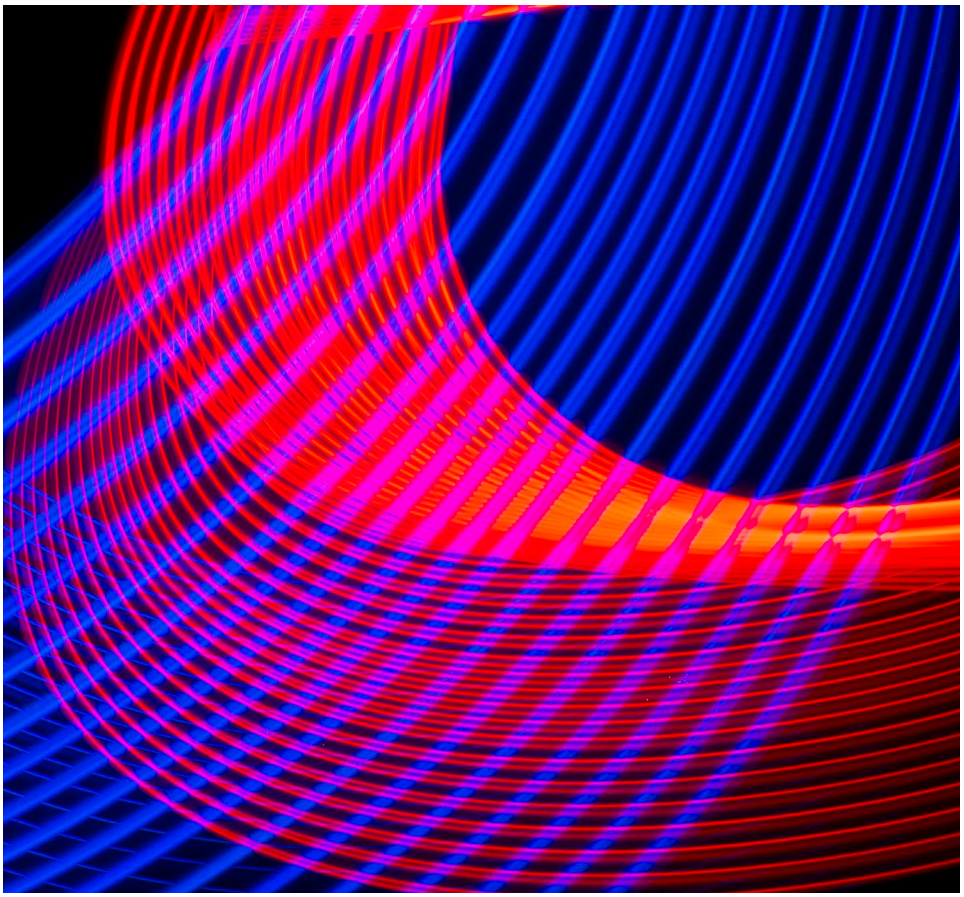


UpToDate Clinical Intelligence Model

Merging clinical expertise and machine intelligence to offer evidence-based clinical insights

Wolters Kluwer

UpToDate®



The AI era of healthcare requires innovation and trust

Healthcare has fully entered the AI era, meaning clinicians need more than basic access to standard clinical decision support (CDS) and reference information. They need fast, reliable clinical intelligence to support reasoning. This intelligence combines the best available evidence, documentation and data, and the latest AI-powered technology—especially when navigating clinically gray areas. It needs to be thoughtfully integrated into workflows, presented in an intuitive, transparent manner that supports user confidence with enterprise-grade standards for quality, privacy, and security.

For more than 30 years, UpToDate® has been the premier CDS solution, supporting providers and enterprise health systems with insight and recommendations. Backed by a rigorous editorial process, over **7,600 world-class clinical experts** from UpToDate synthesize the best available evidence for its specialties to surface answers to clinician questions—even when the evidence isn't clear.

This trusted model is now advancing for clinicians as modern AI users. With the launch of UpToDate® Expert AI—a generative AI experience built on our clinical insights—we are enhancing our editorial model to reflect the integration of clinical expertise with the scale and power of machine intelligence.

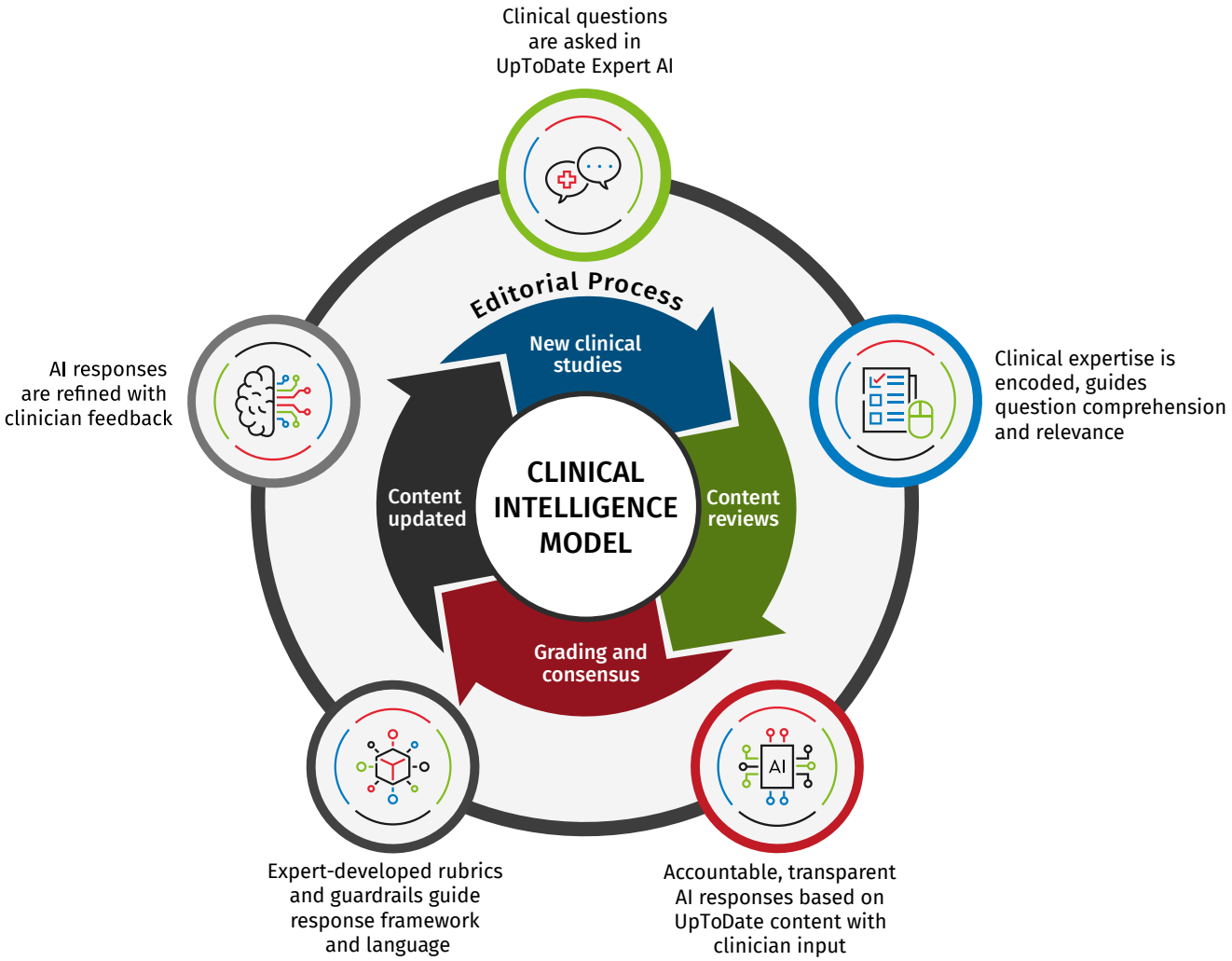
We're calling this the UpToDate Clinical Intelligence Model (CIM).

UpToDate Expert AI is a clinical decision support tool in the United States and certain other jurisdictions. It is a reference-only tool in others.



"For clinicians, UpToDate Expert AI harnesses the clinical wisdom of our thousands of expert contributors to think like a clinical colleague—answering complex, highly specific questions with nuance and clarity."

Peter Bonis, MD,
Chief Medical Officer,
Wolters Kluwer Health



The UpToDate Clinical Intelligence Model is comprised of two distinct but critical elements:

1. The trusted, peer-reviewed medical and drug content of UpToDate, authored by practicing clinical experts and regularly updated as new, relevant research and evidence emerge.

2. An AI layer producing outputs grounded in the clinician-authored content and enhanced with proprietary logic, which is continuously validated and refined by AI professionals and clinicians for consistency and conciseness.

Combined, this model guides the evaluation of generative responses, communicates risk and clinical nuance, and helps deliver graded, continuously evolving insights that empower faster clinical reasoning among care teams and standardized AI capabilities.

Our Model makes it easy to help clinicians quickly access the best available evidence and clinical insights.

Grounding the Model in a tried and tested foundation of clinical expertise

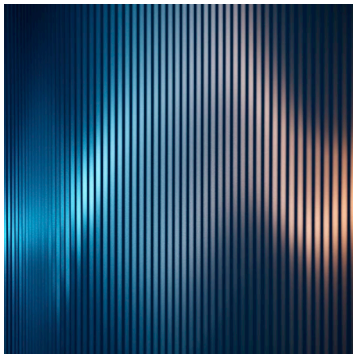
The established UpToDate editorial process remains at the core of our Model—unchanged—drawing on the expertise of world-class physicians who synthesize new evidence, peer review, and regularly update the clinical content. This process helps clinicians trust the quality of UpToDate information, knowing they're written by highly qualified and relevant authors.

Using evidence-based medicine (EBM) methodology, UpToDate editors and clinicians regularly monitor medical journals and synthesize the best available evidence. These are highlighted with over **500,000 literature links**, which are reviewed extensively by our editorial team and in-house staff of **50+ physician editors** who are specialists in their fields with clinical or academic experience.

The outcome is specific responses to clinician questions using the international GRADE system, which can be particularly valuable when the available evidence requires interpretation by experts with deep experience in a particular area.

The AI layer operates on top of this foundation, applying structured clinical logic, evaluation rubrics, and governance guardrails to generate responses that reflect the standards and values of the medical community. The AI capabilities are also standardized to reinforce clinician learning, support users' advanced reasoning, and equip care teams to quickly consider the best available evidence.

By drawing solely on UpToDate content, this approach allows us to scale access to peer-reviewed content sources without compromising accountability or transparency.



The UpToDate Clinical Intelligence Model draws solely from peer-reviewed content from our world-class clinicians, with an AI layer that applies clinical logic and governance guardrails.

UpToDate Editorial Process

- New clinical studies that can impact care are published
- Authors collaborate with specialty editors
- Updated or new topic is peer reviewed
- Grading editor reviews the grade recommendation
- Final content consensus is reached
- Content is made available worldwide in UpToDate
- Continuous publishing keeps topic content current

What grounds the Clinical Intelligence Model?

7,600 clinical experts

10,000 topics

25 specialties

500,000 literature links

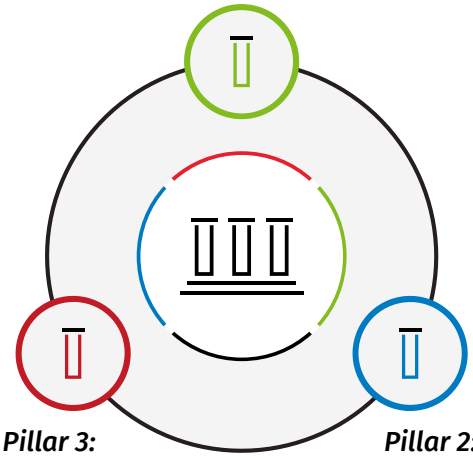


Integrating clinical expertise and machine intelligence: ***Three key pillars***

AI is enabling UpToDate to expand its impact and provide even faster clinical insights for clinicians. The addition of UpToDate Expert AI extends clinical evidence to generative responses to support consistent, efficient information retrieval across teams and enterprises. Building upon our established editorial process, our AI-driven model uses multiple large language models (LLMs), more than 30 proprietary AI agents, and a governance-driven "expert-in-the-loop" approach that emphasizes accountability and guardrails built on peer-reviewed content and real-world clinical experience.

To build an AI product the healthcare system can trust, the guiding pillars of the Clinical Intelligence Model help our solutions remain transparent, reliable, and grounded in clinical expertise.

Pillar 1:
Designed to support accountability through transparency



Pillar 3:
Intelligent learning and working

Pillar 2:
Continuous collaboration between expert and machine



"My biggest concern is ensuring that AI tools are reliable and compliant. Particularly that they do not compromise patient safety, privacy, or regulatory compliance."

IT Executive, Health System, 5-19 years of experience, Wolters Kluwer Health survey



Pillar 1: Designed to support accountability through transparency

As the healthcare system increasingly relies on fast, AI-powered content, providers face greater responsibility to evaluate it—driving our commitment to design solutions that are as transparent and accountable as the clinicians who use them. In healthcare, it's crucial to shine a light into the AI "black box" to see the guidance and source material that grounds the AI response.

The UpToDate Clinical Intelligence Model creates paths to understand why and how information is surfaced by grounding AI summaries in clinician-authored, peer-reviewed knowledge, responsibly incorporating clinically meaningful evidence, and embedding expert oversight and clinical guardrails into the process from design to deployment.

This enables our clinical solution to be:

- Transparent in its assumptions, sources, and reasoning.
- Structured to align with clinical workflow and standards.
- Governed by clinician-defined guardrails.
- Continuously refined through clinician-oversighted feedback.

The result is information that strengthens and reinforces reliable AI-powered clinical insights which can be explained and defended with clear sources that are attributed to clinical experts.



Pillar 2: Continuous collaboration between expert and machine

AI in healthcare isn't human or machine—it's a collaboration of both, with our model designed so that experts remain at the helm to guide development alongside technology. With the UpToDate Clinical Intelligence Model, clinicians set the standards, and the technology consistently applies them. This human-driven, machine-enhanced partnership is the difference between AI that "talks medicine" and clinical AI care teams can trust.

UpToDate's patent-pending Expert AI solution starts by breaking a natural-language question into core elements, identifies what proprietary content is needed, evaluates relevance, and then produces a synthesized response. **More than 250 pieces of proprietary clinical logic and instructions** shape the system before any response is generated.

The next step is evaluation, which is based on expert-developed rubrics with guardrails and response sets. Our framework includes tens of thousands of evaluation criteria from UpToDate editorial authors. These rubrics encode clinical expertise into measurable checks for AI-generated responses, supporting reliable, accountable responses and content sources.

Throughout the process, our clinical teams work to define risk language, contraindications, and edge cases, developing the AI to explicitly consider these issues with the level of critical thinking expected in clinical practice. Feedback from clinical users is consistently infused back into the system, enabling it to identify and integrate emerging trends into recommendations that evolve in line with real-world healthcare practice.



3 million global clinician users



50-60 million consultations per month

"My biggest hope: That AI quietly bakes reliability into everyday workflows—flagging a sepsis risk an hour earlier, auto-scheduling follow-ups so nothing falls through cracks."

Quality Administrator, Hospital,
5-19 years of experience, Wolters Kluwer Health survey

Pillar 3: Intelligent learning and working

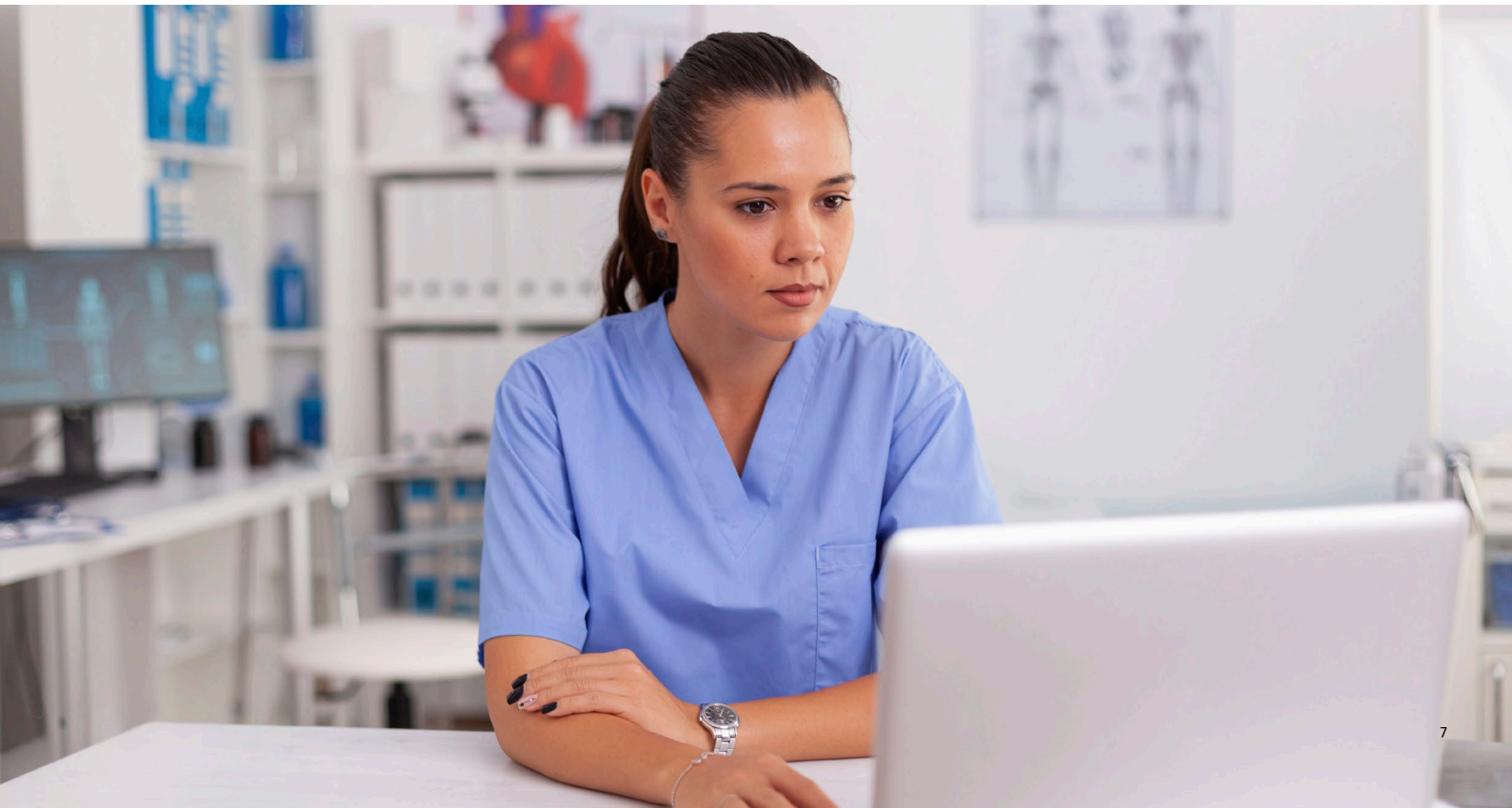
Clinical technology must support the nuanced nature of clinician questions while seamlessly embedded in an intuitive workflow.

With UpToDate, AI-powered responses are accompanied by clear rundowns of underlying assumptions and possible considerations to help mitigate clinician missteps. Meanwhile, clinical nudges embedded in the workflow can help clinicians move forward with increased confidence, and without spending excess time manually browsing through related topics to gather insights that the AI can surface in a fraction of the time.

By using validated clinical AI tools underpinned with editorial rigor, clinicians can review evidence in greater alignment with recognized clinical standards, even as evidence changes over time.

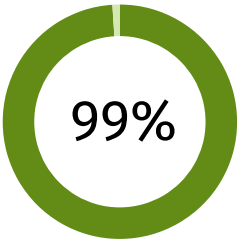
Models also need to evolve in step with modern medicine and the latest technology—including platforms deeply embedded in the workflow. UpToDate integrates with major EMR vendors and is expanding through partnerships with ambient scribe players, so clinicians can harness an ecosystem of leading-edge technologies to stay informed and remain focused on their patients during an encounter.

When clinicians become more effective AI users, it can help increase their efficiency, strengthen adoption, and support faster clinical reasoning.

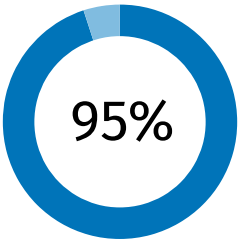




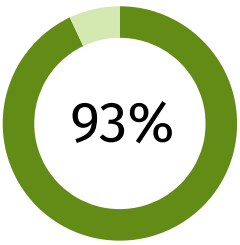
Clinicians trust UpToDate



Would recommend to a colleague



Trust it as a clinical information resource



It improves the quality of care

**UpToDate Individual Subscriber Survey, September 2024, N=11,118*

Clinical expertise + machine intelligence = AI that makes a difference

The UpToDate Clinical Intelligence Model is the foundation of the healthcare AI modern enterprises need—by clinicians, for clinicians, with an unwavering focus on the needs of today's providers.

While large language models rely on logic-driven predictions and probabilities, in medicine, people and bodies do not always behave in predictable ways. This demands a human element that UpToDate has built its legacy on delivering. **Backed by the expertise of thousands of world-class clinicians**, our model combines validated, transparent, and timely clinical insights **with advanced AI** anchored in evidence and developed with expert oversight. This unique partnership between human insight and cutting-edge technology provides grounding that every response is not just fast, but trustworthy—elevating the practice of medicine by clinicians into an informed, accountable collaboration driven by experts and supported by machines.

Welcome to the new era of clinical intelligence.



"The key question is not whether AI can generate an answer, but whether it can provide trusted, evidence-based intelligence at the exact moment a clinician needs it."

Christian Cella, VP and General Manager, International Segment, Wolters Kluwer Health

©2026 UpToDate, Inc. and its affiliates and/or licensors. All rights reserved. 08.26 | 001396INT