Agentic AI is Pioneering the Future for Healthcare and Pharmaceuticals

The Paradigm Shift in Medical and Scientific Intelligence

In healthcare and pharmaceuticals, AI is evolving from a *passive tool that answers and predicts* to a *proactive partner that acts*, creating more intelligent and self-sufficient systems.

Traditional AI

Agentic AI

Core Function

Task Specific

Performs single-purpose tasks (e.g., summarizes a patient's electronic health record (EHR))

Goal-Driven

Works toward a defined end goal (e.g., improve patient outcomes after discharge: 1. transcribes dictated notes 2. schedules follow-up appointments 3. sends daily medication reminders)

Reasoning

Reactive

Rule-based pattern recognition (e.g., analyzes patient's EKG data to flag abnormal patterns for the doctor to review)

Proactive & Strategic

Proactively solves multi-step problems (e.g., for predicting cardiac events, analyzes subtle patterns (EKG data, blood pressure, etc.) and suggests preventative actions)

Adaptability

Limited

Uses pre-programmed data (e.g., analyzes a closed database of past drug trial publications to identify a compound's historical effects)

Dynamic

Uses both pre-programmed data and external LLMs (e.g., analyzes a closed database, but also gathers data from ongoing clinical trial updates, academic papers, etc.)

Autonomy

Human-Directed

Requires prompts from human professionals to act (e.g., patient must manually input their glucose readings before it can generate a historical chart)

Self-Initiating

Monitors and completes tasks autonomously (e.g., proactively monitors data from glucose monitor and initiates outreach/auto-adjusts the dosage if anomalies are detected)

A New Partnership in Medicine

Doctor/Scientist
Brings intuition, experience, judgment and compassion

Agentic AI
Assists by suggesting next steps and handling routine or complex tasks autonomously

Agentic AI acts as a proactive partner, not a replacement, empowering health professionals to achieve more than they could alone.

The Augmented Professional
This partnership enhances capabilities and reduces burdens to allow the health professional to focus on creative, higher-level thinking

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Source:
1. ARF Pharma Council. (2025, September 22). Agentic AI—Part 1: What is it and how could it change health care? (Episode 25) [Audio podcast episode]. In *Pharma Council FutureHealth Podcast/Webcast Series: Trends in the Patient Journey: What to Expect in the Next 3-5 Years.* ARF.