

# AGENTIC ARTIFICIAL INTELLIGENCE TO SUPPORT AUTONOMOUS MEDICAL OPERATIONS

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**INTRODUCTION:** Agentic artificial intelligence (AI) systems can independently plan, make decisions and even “learn” as they manage automated tasks and facilitate the movement of data using integrated data systems platforms. Following a Federated model, an AI Agent can control the flow of information to maximize the overall performance using AI tools via distribution of computing capacity over multiple platforms.

**TOPIC:** AI-based tools are being developed at an astounding rate and despite the already vast market, AI is expected to grow at approximately 37% per year from 2023 until 2030. Key to fully realizing the potential of all these new tools is incorporation of AI Agents designed to function with minimal human assistance. The possibilities for Agentic AI in healthcare have been described as revolutionary by enabling round-the-clock monitoring of patient status (*e.g.*, vital signs, laboratory results, electronic records), real-time adjustments to treatment plans and perhaps the capacity to provide a predictive and/or diagnostic function for sub-clinical presentation of disease. Through analysis of multiple data streams from a panoply of sources including wearable sensors, Agentic AI systems have the potential to improve patient monitoring and treatment all while freeing the clinician from many rote, and often mundane tasks. Similarly, by leveraging multiple reference databases, informed, evidence-based decisions can be reached by Agentic AI at speeds and capacity that are far beyond the capability of humans. Critical to the success of these systems and currently a significant barrier for entry in mainstream medical practice is the lack of verification and validation necessary to gain trust from both the patient and the caregiver perspectives.

**APPLICATION:** The potential for AI-based systems to task off-load caregivers and provide real-time analysis and treatment recommendations is compelling. Recent examples of such systems at NASA portends giant leaps forward as these systems become more trusted and validated. Paramount in deployment of Agentic AI systems will include assurance of data privacy and security and as discussed in this panel the role of synthetic data must be carefully considered.

**RESOURCES:** [Introduction to Agentic AI and Agentic Workflow](#) | [OpenAPIHub Community](#)