


Chapter 14

Human–AI Collaboration for Balancing Technology and Compassion in Healthcare and Medicine

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ABSTRACT

The structure of AI technology enhances healthcare efficiency through process automation along with complex medical data analysis and patient–decision support tools for healthcare providers. The fundamental capability of AI systems in healthcare does not consist of replacing medical staff, but it enhances their operational potential. The central issue stems from discovering an appropriate method to combine AI strength with essential human medical capabilities in healthcare services. AI systems acquire and analyze increased quantities of data but lack the capability to

DOI: 10.4018/979-8-3373-2787-7.ch014

generate knowledgeable decisions. AI and human capability through symbiosis can become a synergistic experience for healthcare delivery. There are barriers to building trust and acceptance across healthcare providers and patients. Issues regarding data privacy and dependence on automated systems of judgment must also be addressed to bring AI into the routine of practice successfully. Achieving this synergy will refine hospital systems, as well as reinforce the basic principles of patient-centered medicine.

INTRODUCTION

Overview of Human-AI Collaboration in Modern Medicine

The healthcare industry is experiencing a fundamental shift because of artificial intelligence (AI) systems integration into medical practices in the fast-moving modern medical setting. Healthcare professionals avoid replacement as AI technology functions to augment clinical decisions and operational efficiency and deliver superior patient care results (Maadi et al., 2021). AI teams up with physicians by providing data analytics with pattern recognition and real-time results alongside a doctor-specific understanding of medical needs and fairness alongside emotional understanding of the situation. Their combined forces work together to construct a substantial partnership that will affect how healthcare services are delivered. Healthcare specialists are implementing AI systems throughout the medical pipeline, including radiology and pathology and oncology and cardiology departments. Human involvement becomes essential because AI must function as a support tool rather than a decision authority.

The healthcare sector utilizes AI for administrative purposes and operational aspects through scheduling services and electronic health record management and patient triage systems. Through healthcare applications, healthcare workers receive decreased mental and administrative strain which lets them dedicate their time to providing care directly to patients without emotional interruptions (Reverberi et al., 2022). Healthcare organizations need to establish a proper equilibrium between technological progress and human compassionate practices (Muniasamy, A. et al., 2020).

The development of artificial intelligence (AI) in healthcare started in the past decades after researchers implemented rule-based expert systems to reproduce clinical reasoning processes. The MYCIN system was among the first computerized clinical systems that aimed to diagnose bacterial infections and select antibiotic treatments in the 1970s. MYCIN, together with similar programs, demonstrated promising results, but adoption remained limited because the technology struggled with the restricted capabilities of available computers and restricted knowledge databases

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