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Letter to the Editor
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Informatics in Emergency Medicine During the Era of Artificial Intelligence

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Dear Editor,

The concept of informatics has recently gained prominence in the domains of health and medicine. The implementation of this concept and its associated computer science technologies, particularly in emergency medicine, is progressively expanding in our clinics and scientific research. This condition is likely to grow increasingly prevalent. This essay aims to examine these topics and engage the interest of physicians and researchers in this domain.

The basis of these conceptions is knowledge directly. The main objective of the term is not knowledge of a particular subject, but rather knowing of knowledge its own. The human thirst for knowledge and information began with its existence. Humanity has pursued the storage and transmission of information since its inception. The burgeoning human heritage, technical progress, and particularly the evolution of computer science have generated substantial prospects for this endeavor. A new era of information and information science, known as the information age, has commenced. This adventure advances at an astonishing rate. This discovery introduced the term informatics into our life. The genesis of this notion, whose precise roots remain uncertain, is thought to be a fusion of the terms "information" and "automatic." The term informatics, introduced in the 1950s, encompasses the processes of gathering, classifying, processing, recording, and subsequently retrieving and disseminating information for utilization as required. This term can be defined as a multidisciplinary science intricately linked to engineering disciplines, information science, and technology, particularly computer science and software development. The COVID-19 pandemic has led to the pervasive integration of informatics across several medical domains, making such a statement perhaps accurate (1-3). Owing to the substantial progress in Informatics during the aforementioned stages, each stage is evolving into a distinct concept.

It is unsurprising that informatics has integrated with the health and medicine sector at an appropriate speed for this advancement. Health informatics (HI) is a medical discipline that encompasses the aggregation of biomedical data and information, aids in the facilitation of problem-solving and decision-making processes, and employs modern information technology. Its function in the healthcare sector is characterized by the application of computer and information science principles for the advancement of preventive, therapeutic, and rehabilitative health services. HI, which seeks to improve health outcomes and service quality by technological advancements, is employed by several stakeholders, including physicians, healthcare professionals, insurance firms, governmental institutions and politicians (4-6).

Emergency medicine, as a medical specialty focused on delivering the most efficient and prompt healthcare with limited resources, is a distinctive field regarding HI. The interaction between this area and information technology can accurately be characterized as emergency medical informatics (EMI), warranting its designation as an independent course subject (7). The escalating integration of information technologies in EMI

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and emergency departments (ED) has sparked debate regarding the role of machine learning (ML) and artificial intelligence (8). These technologies facilitate swift analysis of extensive data sets and enhance patient-centered decision-making processes, a topic of increasing relevance in recent years. In the discipline of emergency medicine, numerous technologies are utilized across pre-hospital, hospital, and first aid environments, including cloud computing for big data storage, data mining, blockchain, the Internet of Things, wearable technologies for patient data tracking, telemedicine, smartphone applications, virtual reality for educational purposes, and comprehensive digital patient records that integrate these elements. The significance of EMI and the associated information technologies becomes evident when evaluating their roles in diminishing resource consumption and expenses, forecasting preliminary diagnoses and enhancing diagnostic precision, attaining individualized and sensitive health objectives, improving access to healthcare services, reducing medical errors and complications, and facilitating more efficient deployment of healthcare professionals and facilities, alongside the resultant quality of service outcomes (9,10). Considering the excessive use of ED and the challenges of managing critical, geriatric, sensitive patient groups with ED; the use of these technologies in ED becomes even more valuable.

In conclusion, despite raising troubling circumstances and apprehensions regarding data security, our society is rapidly digitalizing, with technological advancements increasingly permeating human existence at all times. Simultaneously, from the standpoint of HI and emergency medicine, emergency medical intelligence seems to be a domain susceptible to rapid and unanticipated advancements, presenting challenges in keeping pace, although it remains an exhilarating and innovative field of endeavor. EMI and information technologies not only improve patient care quality and service efficiency but also seem capable of producing innovative solutions for ED congestion and other ED issues. This implies the capacity to affect health policies. This underscores the demand for a heightened focus on medical informatics education within medical and emergency medicine residency training programs, alongside the imperative to foster researchers' interest in this domain.

Footnotes

Authorship Contributions

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