The Medical Internship in the Era of Artificial Intelligence: Impact and Adaptation

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The topic of artificial intelligence (AI) has revolutionized many professions, including the attitudes of workers, and doctors are no exception. Since its emergence in November 2022, AI has transformed how physicians diagnose and treat diseases, as well as how students and healthcare professionals approach their training and daily practice. In this context, the medical internship, a crucial stage in the education of future doctors, stands at the crossroads between academic tradition and technological innovation, as medical interns navigate between the traditional path and adapting to new technologies. This article explores the impacts of AI on this formative phase, analyzing both the benefits and the ethical and pedagogical challenges it entails.

AI has advanced rapidly in the medical field thanks to its ability to process large amounts of data and provide more accurate diagnoses. Tools such as ChatGPT, IBM's Watson Health, and deep learning algorithms have proven useful in medical imaging analysis, clinical risk prediction, and treatment plan optimization. These capabilities can ease the workload of interns by offering valuable information and assistance in clinical decision-making. For example, in a hospital setting where interns must attend to multiple patients while making critical decisions, AI can act as an invaluable support system, ensuring that crucial diagnoses are not overlooked.

Interns face a significant workload, including long shifts, patient management, and the constant need to learn. While this demanding environment is essential for developing solid clinical skills and sound medical judgment, it is undoubtedly challenging. The introduction of AI into this dynamic has sparked both enthusiasm and concern. On one hand, AI tools can facilitate access to up-to-date information, aid in interpreting laboratory results, and provide evidence-based recommendations for patient management. On the other hand, there is a risk that excessive reliance on these tools may hinder the development of critical skills, such as independent clinical thinking and decision-making under pressure.

A crucial aspect of AI's impact on physicians is its ability to personalize learning. Interns can use AI platforms to review clinical cases, practice virtual procedures, and receive immediate feedback on their performance. These tools can also adapt to individual learning needs, identifying areas for improvement and offering specific resources to address them. However, it is essential to ensure that these technologies are integrated in a balanced way, complementing rather than replacing direct supervision and teaching by residents and specialists.

In terms of statistics, there has been a growing interest among medical trainees in adopting AI tools in their daily practice. According to a 2024 study, 56.8% (A, Figure 1) of health science students reported having basic knowledge of AI in healthcare, 19.8% (B, Figure 1) described themselves as moderately knowledgeable, and 21% (C, Figure 1) admitted to having no knowledge of AI at all. Additionally, 66.7% indicated that the primary advantage of AI is providing faster care, while 61.7% highlighted its ability to reduce consultation times. Another study revealed that over two-thirds of students agreed on the necessity of including AI in medical training (71%).

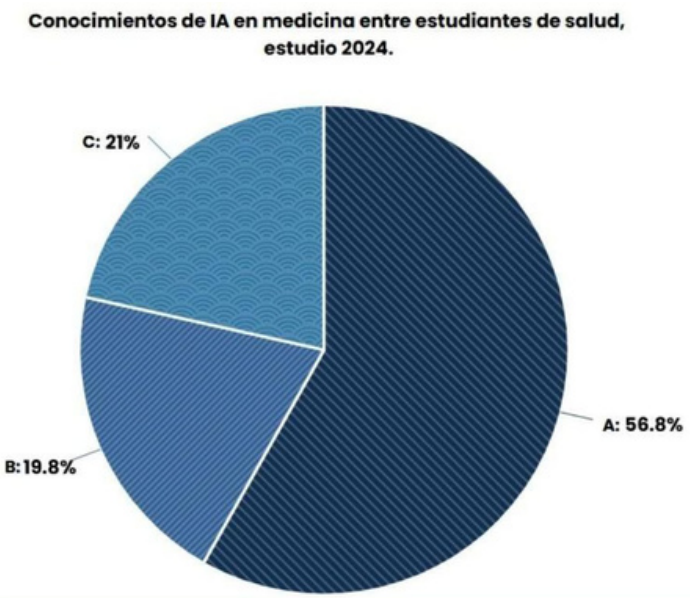

Figure 1. Conocimientos de IA en medicina entre estudiantes de salud, estudio 2024.

The use of AI has also sparked debates about its impact on the doctor-patient relationship. While these tools can streamline administrative and clinical processes, there is a risk of dehumanizing medical care. Interns, as future doctors, must learn to balance the use of advanced technologies with the need to maintain effective and empathetic communication with their patients. Training in digital and ethical competencies will be essential to prepare future physicians to face these challenges.

One of the most controversial aspects of implementing AI specifically in medical internships is the issue of technological dependence. Although AI can be a powerful tool, excessive reliance on it could lead to a decline in interns' ability to perform diagnoses and treatments based on their own knowledge and experience. This concern is particularly relevant in situations where technology may not be available or in complex cases that require a more intuitive and experience-based approach. For this reason, it is crucial for internship programs to adopt a balanced approach, fostering both technological learning and the development of traditional clinical skills.

From an ethical perspective, the integration of AI in medical education raises important questions about patient data privacy and security. Interns using AI tools must be aware of the risks associated with handling sensitive information and ensure compliance with data protection regulations.

Additionally, it is vital for these technologies to be transparent and explain how their recommendations are generated to avoid misunderstandings or inappropriate clinical decisions.

Artificial intelligence is transforming the landscape of medical internships, offering significant opportunities to enhance efficiency, accuracy, and personalization in clinical training and practice. However, it also poses ethical, pedagogical, and professional challenges that must be addressed to ensure these tools are used responsibly and effectively. Striking a balance between the use of advanced technologies and the development of human skills will be essential to train doctors capable of meeting the challenges of an ever-evolving healthcare system. As AI continues to advance, it will be crucial for academic institutions and hospitals to adapt their approaches to maximize the benefits of this technology while minimizing its risks. In this way, the medical internship can remain a comprehensive and enriching experience in preparing future healthcare professionals.