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LETTER TO THE EDITOR

# Artificial Intelligence: on the verge of revolutionizing Pediatric Emergencies

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In recent years, Artificial Intelligence (AI) has emerged as a revolutionary tool in many fields, including medicine[1-3]. AI consists of computational mathematical systems and algorithms designed to simulate human capabilities. These systems process large volumes of data to identify patterns, make predictions, and automate complex tasks with great efficiency and precision. The great breakthrough in AI lies in the improvement of Machine Learning, a branch of AI that allows systems to program, adapt, and improve autonomously from data[1]. This has enabled the design of complex Deep Neural Network systems (Deep Learning)[4] that emulate human brain function to perform complex tasks such as image recognition, Natural Language Processing, or the generation of new content (Generative AI)[5].

In the context of Pediatric Emergency Medicine, AI has demonstrated its potential by improving and automating various areas[6,7], such as the development of more specific and objective triage systems for better patient prioritization[8], early prediction of hospitalization to reduce patient overcrowding[9-11], early prediction of patient severity to improve urgent care or transfer to an Intensive Care Unit[10,12], support for the preparation of clinical documentation that reduces the non-care workload of professionals[13], analysis of imaging tests such as X-rays[14], support in patient diagnosis[15], early detection of specific diseases such as sepsis[16], the selection of the best therapeutic plan for each patient[17], among others. The list of publications on new applications is growing rapidly, thanks to AI itself which facilitates the creation of scientific publications[18].

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On the other hand, AI poses certain ethical and practical challenges[1]. Given its complexity and automatic programming, it often presents operational opacity (black box), which generates mistrust. Additionally, there are doubts about the legal responsibilities of decisions made by AI[19]. The information used to develop AI systems is fundamentally based on biased data from specific populations, mostly adults, which should be considered when using AI in pediatric populations[20]. There is a legal requirement regarding copyright and data privacy used to develop AI, which should be monitored when using and providing data to AI[19]. Finally, the integration of AI into clinical workflows demands profound changes in processes and specialized training for professionals.

In summary, the implementation of AI faces great challenges, but its potential to transform Pediatric Emergency Medicine at clinical, management, and workload levels is undeniable. For this reason, every healthcare professional should contribute to the proper development of AI in Pediatric Emergency Medicine, as it seems we are witnessing a singular moment in history.

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