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AI Bioethical Dilemmas: The Principle of Beneficence and the Role of AI

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Opinion Article

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Opinion

Is the use of artificial intelligence (AI) in radiology ethically acceptable? Should its use be restricted, or should it be rejected entirely? These are questions that cannot be easily answered at first glance. According to the principle of beneficence, medical interventions must promote the well-being of patients—a goal that artificial intelligence clearly promises to support. In contemporary medical bibliography, the positive contribution of AI to daily medical practice is indisputable; it plays a significant role in facilitating rapid diagnosis and more effective management of urgent cases. During periods of high workload—such as on-call shifts—AI can sift through hundreds of normal imaging studies to identify those containing positive findings, immediately alerting the radiologist and highlighting the need to prioritize the diagnosis of these specific cases. Reducing the time required to locate imaging studies that show positive findings is a significant advantage, and the resulting benefit to the patient is clear. It is not necessary to examine every single imaging study in sequence to identify the one positive case among many normal ones.

Patients with normal findings are not significantly affected regarding the diagnosis of their potential condition; conversely, patients with more serious issues and true disease, receive immediate attention—thereby shortening the time to a final diagnosis—and thus benefit from the use of AI systems.

An approved AI system is already in use for interpreting X-rays at hospital emergency department; it identifies X-rays with significant findings much faster than a radiologist, facilitates theprioritization of cases, and eliminates the time wasted on reviewing normal X-rays, which would otherwise cause delays. The advantage, in terms of the principle of beneficence, is indisputable.

For more specialized examinations, such as CT and MRI scans, applications utilizing specialized algorithms can rapidly detect abnormalities—such as pulmonary nodules or emphysematous lesions—and calculate the volume of pleural effusions, among other tasks. Certainly artificial intelligence cannot—at least for the time being—fully replace the human medical professional. However, the support it provides enhances their work, making them more efficient, less fatigued, and better equipped to care for patients who are truly suffering.

Given this, it is no exaggeration to suggest that failing to utilize artificial intelligence could be considered unethical, especially in light of the undeniable benefits it offers.

Non-maleficence and the Risk of Harm

Ancient Greece is considered a pioneer in the ethical practice of medicine. In contrast to the approach of certain renowned ancient physicians—such as Herophilus (who is regarded by some as Egyptian, though often associated with the Greek tradition) of the medical school of Alexandria—the ethical rhetoric of the Greek physician Hippocrates stands out. Herophilus, a highly significant physician and anatomist, is said to have performed dissections on living, healthy human beings in order to explore the limits of the medical knowledge of his time. In opposition to this, Hippocrates defined the role of medicine as "to benefit or, at least, to do no harm." A physician—and, by extension, AI acting as a medical assistant—must benefit the patient and avoid causing them harm.

However, although some may deify AI, it is ultimately nothing more than an inanimate, human-made technological construct; consequently, its capabilities are subject to inherent limitations. Misdiagnoses may arise from the inadequate training of machine learning models or from their improper use by unqualified medical personnel who place excessive trust in the diagnostic capacity of AI algorithms. False negative results can delay diagnosis, while false positive results may lead to treatment in the absence of actual disease, invasive procedures lacking clinical justification, waste of financial resources and medical man-hours, a loss of trust in the healthcare system, heightened anxiety and fear among other patients regarding the reliability of the medical system, and a host of other negative consequences.

The moral responsibility of an inanimate construct cannot be dismissed as non-existent—neither on the grounds that it lacked intent, nor because current technology is unable to prevent its potential errors. Its creator—it's "maker"—must assume responsibility; they are obligated to continuously ensure the safety of algorithmic systems, verify that the personnel operating them possess sufficient expertise, and underscore the critical importance of having human professionals subsequently verify the findings generated by an artificial intelligence system. Let us not forget that the Creator of humanity, recognizing man's inability to elevate himself, descended from the heavens and took on human form, in order to uplift His own creation. "Apart from me, you can do nothing," according to the Lord. By analogy, in the current context, AI is incapable of avoiding every single error or achieving absolute accuracy in its diagnoses. It can, however, succeed in this through the assistance and verification of its findings by its human creator.

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