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Contribution - Addressing bias in big data and AI for healthcare: a call for open science

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Abstract

Artificial intelligence (AI) has an astonishing potential in assisting clinical decision-making and revolutionizing the field of healthcare. A major open challenge that AI will need to address before its integration in the clinical routine is that of algorithmic bias. Most AI algorithms need big datasets to learn from, but several groups of the human population have a long history of being absent or misrepresented in existing biomedical datasets. If the training data is misrepresentative of the population variability, AI is prone to reinforcing bias, which can lead to fatal outcomes, misdiagnoses, and lack of generalization. Here, we describe the challenges in rendering AI algorithms fairer, and we propose concrete steps for addressing bias using tools from the field of open science.