Artificial intelligence (AI), healthcare and research

Healthcare and medical research use computers to process and analyze data to learn and make decisions, enhance research methodologies and drive new discoveries.

Types of AI

These include:

- Machine learning
- Natural language processing (NLP)
- Rule-based expert systems
- Diagnostic and treatment applications

AI applications

AI may be applied in a wide range of areas related to healthcare:

- Personalized treatment
- Clinical decision-making
- Health monitoring
- Disease diagnosis
- Surgical treatment
- Digital consultation
- Simulation and modeling
- Data management and analysis
- Drug discovery and development
- Administrative tasks
- Diagnosis and treatment
- Robotics and automation
- Pattern recognition

AI benefits

- Automation of administrative tasks
- Efficiency in clinical diagnosis
- Support for clinical decision-making
- Digital consultation and virtual assistants
- Efficient data handling
- Data analysis to support decision-making
- Enhanced research and development
- Improved diagnosis and treatment
- Cost reduction

Considerations and challenges

These include:

- Data privacy and data protection
- Accuracy and reliability of the data used
- Cost of integrating AI technologies and resource allocation.
- Integration of current research methodologies (complementary use of AI rather than replacing conventional research approaches)
- Continuous monitoring, oversight and adaption of AI methodologies.

The use of generative AI and AI-assisted technologies in research and in the preparation of manuscripts and images should be declared to institutions, funders, ethics committees and journal editors.

Generative AI is a type of artificial intelligence technology that can produce various types of content, including text, imagery, audio and synthetic data.

Further information

COPE. Authorship and AI tools https://publicationethics.org/cope-position-statements/ai-author

European Commission. European approach to artificial intelligence https://digital-strategy.ec.europa.eu/en/policies/european-approach-artificial-intelligence

***NEJM*. AI** https://ai.nejm.org/

World Health Organization. Artificial intelligence for health https://www.who.int/publications/m/item/artificial-intelligence-for-health