



Partnership for Artificial Intelligence, Telemedicine and Robotics in Healthcare

Ethical Principles Guiding the Use of AI in Healthcare

The following principles for the use of artificial intelligence in healthcare were developed by members of PATH including PATH's Ethics Work Group and others. Some of the principles have been adapted from existing literature, such as the Asilomar AI Principles, others were drafted by PATH.

1. **First Do No Harm:** A guiding principle for both humans and health technology is that, whatever the intervention or procedure, the patient's well-being is the primary consideration.
2. **Human Values:** Advanced technologies used to delivery healthcare should be designed and operated to be compatible with ideals of human dignity, rights, freedoms, and cultural diversity.
3. **Safety:** AI systems used in healthcare delivery should be safe and secure to patients and providers throughout their operational lifetime, verifiably so where applicable and feasible.
4. **Failure Transparency:** If an AI system causes harm, it should be possible to ascertain why.
5. **Design Transparency:** The design and algorithms used in health technology should be open to inspection.
6. **Responsibility:** Designers and builders of all advanced technologies used in medicine are stakeholders in the moral implications of their use, misuse, and actions, with a responsibility and opportunity to shape those implications.
7. **Value Alignment:** Autonomous AI systems should be designed so that their goals and behaviors can be assured to align with human values throughout their operation.
8. **Personal Privacy:** Safeguards should be built into the design and deployment of healthcare AI applications to protect patient privacy including their personal data. Patients have the right to access, manage and control the data they generate, given AI systems' power to analyze and utilize that data.
9. **Liberty and Privacy:** The application of AI to personal data must not unreasonably curtail people's real or perceived liberty.
10. **Shared Benefit:** AI technologies should benefit and empower as many people as possible.
11. **Human Control:** Humans should choose how and whether to delegate decisions to AI systems, to accomplish human-chosen objectives.
12. **Evolutionary:** Given constant innovation and change affecting devices and software as well as advances in medical research, advanced technology should be designed, to the greatest extent possible, in ways that allow them to change in conformance with new discoveries.