

POSITION STATEMENT

Artificial Intelligence in Healthcare

2023

This document outlines the AMA's position on the application of artificial intelligence (AI) and AI tools in healthcare. AI tools for the purpose of this position statement include automated decision making (ADM) and application of Large Language Models (LLMs) in healthcare.

The application of AI to healthcare is a relatively new but rapidly evolving field. While AI has the potential to benefit healthcare, the clinical and social implications of AI in the healthcare environment remain largely unknown and uncertain. In such a fluid and rapidly-expanding environment, the development and implementation of AI technologies must be undertaken with appropriate consultation, transparency, accountability and regular, ongoing review to determine its clinical and social impact and ensure it continues to benefit, and not harm, patients, healthcare professionals and the wider community.

This position statement outlines considerations and policy parameters before AI tools are integrated into health service delivery. This is not guidance on how and where to apply AI in healthcare.

1. Definitions

1.1. In this position statement following definitions apply:

- (a) Artificial Intelligence is defined as the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings.¹
- (b) Automated decision making means any technology that either assists or replaces the judgment of human decision-makers.²
- (c) Large Language Models is a term that refers to AI models that can generate convincing natural language text outputs after being trained on large amounts of data.^{3,4}

¹ Encyclopedia Britannica. [Artificial Intelligence](#).

² Government of Canada. [Directive on Automated Decision Making](#).

³ [Microsoft Learn LLM AI](#).

⁴ Examples include but are not limited to ChatGPT, Google Bard and Bert.

- (d) Machine learning means an approach to artificial intelligence in which computers are used to analyse large amounts of data and infer how to do tasks rather than being programmed to do them.⁵
- (e) Robotics in healthcare. These refer to medical robots that are applied in surgery, using computers and software to accurately manipulate surgical instruments for various surgical procedures.

2. AI principles in healthcare

Ethical principles

- 2.1. AI ethics is a set of values, principles, and techniques that employ widely accepted standards of right and wrong to guide moral conduct in the development and use of AI technologies.⁶
- 2.2. It is the AMA position that the application of AI in healthcare must only occur with appropriate ethics oversight. There should be an acknowledgement that it is a rapidly-evolving field with varying degrees of understanding among clinicians, other health care professionals, administrators, consumers and the wider community.
- 2.3. The AMA supports AI in healthcare that is patient-centred and used to benefit patients' health and well-being along with the health of the wider community. The health interests of patients and the wider community should be the primary and guiding focus of all AI applications in healthcare.
- 2.4. AI should support doctors and the wider health professions to serve the healthcare needs of patients and the wider community. AI should enhance but not replace clinical decision making and contribute to quality improvement and clinical care optimisation.
- 2.5. AI must uphold patients' right to make their own informed healthcare decisions.
- 2.6. AMA's position is that AI must never compromise medical practitioners' clinical independence and professional autonomy.
- 2.7. The AMA calls for the development and application of AI in healthcare to be accountable and transparent to patients, the medical and healthcare professions and the wider community.
- 2.8. The application of AI in treatment in diagnosis must have clear accountability lines established, outlining the ultimate responsibility for any misdiagnosis or mistreatment. It is the AMA's position that the ultimate decision on patient care should always be made by a human.

⁵ Oxford Dictionary. [Machine Learning](#).

⁶ World Health Organisation, 2021. [Ethics and governance of artificial intelligence for health](#); Leslie, 2019. [Understanding artificial intelligence ethics and safety: A guide for the responsible design and implementation of AI systems in the public sector](#). The Alan Turing Institute.

- 2.9. The development and application of AI to healthcare must be inclusive, undertaken with appropriate consultation with the medical profession, other healthcare professionals and the wider community.
- 2.10. The AMA upholds that the application of AI in healthcare must never lead to greater health inequalities for any population.
- 2.11. It is the AMA position that the use of AI in healthcare must protect the privacy of patient health information. It must continue to uphold the right of patients to know what information is held about them, their right to access their medical records and their right to have control over its use and disclosure, with limited exceptions.
- 2.12. AI must maintain the confidentiality of the patient's personal information including their medical records, disclosing their information to others only with the patient's express up-to-date consent or as required or authorised by law. This applies to both identified and de-identified patient data.
- 2.13. The AMA calls for the application of AI in healthcare to be subject to regular review and audit for quality assurance, safety and clinical enhancement purposes. These reviews and audits should be transparent and accountable.
- 2.14. The AMA supports ongoing research into the clinical, ethical, legal and social aspects and impacts of AI in healthcare.

Development and implementation principles

- 2.15. It is the AMA position that technology can enable healthcare that is safe, high quality and patient centred. Technology can improve and advance our healthcare system, and the health of all Australians.
- 2.16. The AMA believes that with appropriate policies and protocols in place, AI may support the delivery of healthcare in a number of ways including assisting in diagnosis, recommending treatments, at transitions of care, or facilitating communication between practitioner and patient. A human – usually a medical practitioner – must always be ultimately responsible for decisions and communication and should have meaningful involvement at all stages of the patient's journey.
- 2.17. Before any AI tool is used in clinical care, including as a decision-making tool, it must first be assessed against the requirements for registration as software as a medical device by the Therapeutic Goods Administration. This will ensure reporting of adverse outcomes occurs.⁷
- 2.18. The AMA upholds that human-delivered medical care must never be replaced by AI, but AI has the potential to assist in care delivery, reduce inefficiencies in the system and lead to more appropriate allocation of resources. AI is a means to achieving the goal of improved healthcare, but can only support the doctor and patient to reach this goal.
- 2.19. Medical practitioners have a responsibility to advocate that patient health, well-being and privacy is at the forefront of all applications of AI in healthcare.

⁷ Therapeutic Goods Administration, 2023. [Regulation of software based medical devices](#).

- 2.20. When adapting work processes to utilise the possibilities of AI tools, healthcare organisations – from hospitals to individual private practitioners – must first establish robust and effective frameworks for managing risks which ensure patient safety and guarantee the privacy of all involved.
- 2.21. The integration of AI into models of healthcare delivery will create unforeseen consequences for the safety and quality of care and privacy of patient as well as for the healthcare workforce and the medical profession. This requires changes to education, training, supervision, examination, workforce management, research and the practice of medicine.
- 2.22. It is the AMA position that AI tools used in healthcare must be co-designed, developed and tested with patients and medical practitioners. The AMA expects this to be part of a standard approach to developing and applying AI in healthcare.
- 2.23. There will be many instances where a practitioner determines that the appropriate treatment or management for a patient is different from the suggestion of an AI or automated decision making tool. Healthcare organisations must never establish protocols where the clinical independence of the practitioner is undermined by AI or the final decision is made by a person in a non-clinical role with the aid of AI. This extends to funders of health service delivery such as governments and insurers.
- 2.24. Tools which use AI in healthcare must ensure inclusiveness and equity for all, irrespective of race, age, gender, socioeconomic status, physical ability or any other determinant.
- 2.25. There are significant risks to increasing automation of decision making as this can result in adverse outcomes for groups with diverse needs in healthcare, particularly if the data used for machine learning have systemic biases embedded in AI algorithms. Therefore, application of AI must be relevant to the targeted population, i.e. the AI tools used in specific countries for specific populations will need to be trained on data specific for those populations.
- 2.26. The AMA upholds that the Government has a crucial role to play in regulating the use and application of AI in healthcare to ensure it is used appropriately. This regulatory environment must ensure that AI tools developed by private profit-oriented companies do not undermine healthcare delivery nor trust in the system. If patients and clinicians do not trust AIs, their successful integration into clinical practice will ultimately fail.
- 2.27. Medical defence organisations may have their own stipulations on the use of and engagement with AI for practitioners. Their policies must be appropriate in the context of emerging technologies. All medical practitioners should ensure that they have appropriate indemnity insurance ahead of integrating AI into their practise.

3. Regulation

- 3.1. It is the AMA position that AI requires regulation as does any other technology involved in the diagnosis and treatment of patients. Government regulation of AI in healthcare must place adequate protections around patients and consumers, as well as healthcare professionals, engendering trust in the system. Those protections must:

- (a) support improved patient outcomes,
 - (b) ensure that the final clinical decision is made by the medical practitioner,
 - (c) the treatment or diagnostic procedure undertaken is always agreed to by the patient, and
 - (d) that patient and practitioner data are protected.
- 3.2. Appropriate regulation must be built on a strong evidence base, take advice from leading experts and be adequately supported by Government to deliver a quality regulatory framework. Government level regulation must be accompanied by specific governance arrangements tailored to individual services and programs.
- 3.3. Regulation and oversight is important because the application of AI in healthcare creates significant risks, potentially resulting in patient injury from system errors, increased risk to patient privacy, or through systemic bias embedded in algorithms.⁸
- 3.4. The AMA believes that successful regulation of AI in healthcare will require a common set of agreed principles embedded in legislation that will establish a compliance baseline for all those involved. Those principles must be formulated around appropriate governance of AI that should ensure the following:
- (a) safety and quality of care provided to patients,
 - (b) patient data privacy and protection,
 - (c) appropriate application of medical ethics,
 - (d) equity of access and equity of outcomes through elimination of bias in AI and machine learning,
 - (e) transparency in how algorithms used by AI are developed and applied, and
 - (f) that the final decision on treatment should always rest with the patient and the medical professional, while at the same time recognising the instances where responsibility will have to be shared between the AI (manufacturers), the medical professionals and service providers (hospitals or medical practices).
- 3.5. New regulation is required to minimise existing and emerging risks with the application of AI in healthcare, in accordance with the above principles.
- 3.6. Prevention of biases in algorithms can be strengthened by equity in inclusion of all populations in the data that are used for machine learning and AI. Data bias in AI algorithms can be avoided through mechanisms such as using diverse and inclusive programming groups along with a wide and diverse range of high-quality and reliable data. Algorithms should be continuously audited and updated to identify unintended biases and to ensure they are based on the most current data available.
- 3.7. It is the AMA position that the privacy of patient and practitioner data must be a key objective for any healthcare organisation using AI, and in particular; large language models. The collection and sharing of patient data must only occur with appropriate

⁸ OECD, 2020. [Trustworthy AI in Health Background paper for the G20 AI Dialogue](#). Digital Economy Taskforce.

patient consent, as patients are the owners of their health data. Robust data governance arrangements must be in place.⁹

- 3.8. Any future regulation of AI in healthcare will have to ensure that AI is utilised only where this will genuinely contribute to improving health outcomes of patients. This will need to be supported by evidence about best practice usage of AI.
- 3.9. Regulation must ensure that clinical decisions are made with specified human intervention points during the decision-making process. The final decision must always be made by a human, and this decision must be a meaningful decision, not merely a tick-box exercise.¹⁰
- 3.10. It is the AMA position that regulation must clearly establish responsibility and accountability for any errors in diagnosis and treatment. In the absence of regulation, compensation for patients who have been misdiagnosed or mistreated will be impossible to achieve. The regulation should make clear that the ultimate decision on patient care should always be made by a human, usually a medical practitioner.
- 3.11. Regulation must ensure that choice for use of AI technologies in healthcare rests with the clinician and must not be imposed on them by the preferences of the hospital systems or other external decision makers, such as private health insurers or health administrators for example.
- 3.12. Regulation must not impose additional burdens of compliance on the medical profession. The purpose is to ensure participants feel safe in the application of AI, promoting innovation and progress in this important field.
- 3.13. Regulatory agencies have an important role in ensuring rigorous testing of AI programs and applications, transparent communication of testing outcomes and subsequent monitoring of AI performance to eliminate any negative outcomes that may emerge.
- 3.14. The AMA calls for a National Governance structure advising on development of policy around AI in healthcare to be established. This governance structure must include medical practitioners, patients, AI developers, health informaticians, lawyers, healthcare administrators, medical defence organisations and any other relevant stakeholders.

4. Equity and safety

- 4.1. It is the AMA position that AI technologies must be applied in a way that does not exacerbate disparities in healthcare, including but not limited to those related to race, gender or socioeconomic status. It is therefore paramount that AI technologies in healthcare are developed and implemented with appropriate ethics oversight.
- 4.2. The implications around the use of AI in healthcare will have to be adequately addressed and resolved before any ubiquitous application. Key issues that must be addressed with the use of smart machines in the formulation of healthcare decisions include:

⁹ Australian Medical Association, 2023. [AMA Position Statement on Data Governance and Patient Privacy](#).

¹⁰ See for example the Canadian model: Government of Canada. [Directive on Automated Decision Making](#).

- (a) Safety and reliability – Before any rollout and application of AI, rigorous testing and clinical trials must be conducted to ensure that they are safe to use, that patients’ health is not put at risk by the use of AI technologies. In addition, regular monitoring, review and audit for quality assurance, safety and clinical improvement purposes must be conducted in a transparent and accountable manner.
 - (b) Accountability – The ultimate responsibility for any misdiagnosis or mistreatment must be clear, noting the AMA’s position is that the ultimate decision on patient care should always be made by a human.
 - (c) Transparency and explainability – On a broader scale, it is important that doctors, other healthcare professionals, administrators, patients and the wider community are informed and understand how algorithms are used in clinical diagnosis and decision-making including the ethical and clinical criteria used to set decision-making parameters (including any inherent biases). At the clinical level, patients, must be informed when a diagnosis or a recommended course of treatment was determined by an AI program.
 - (d) Privacy – privacy of patient and practitioner data that are used for machine learning must be paramount. This is also to eliminate any possibility of future discrimination on the basis of one’s health status.
 - (e) Equity, fairness and inclusiveness – everyone should have equal access to technologies that are designed to ensure adequate healthcare; at the same time, data equity must be ensured, that all relevant population groups are represented in data used for machine learning in AI technologies.
- 4.3. Equity of access to diagnostic services that are AI powered must be accompanied by equity of access to adequate treatment for conditions diagnosed. Doctors have a duty to provide treatment after the diagnosis has been established and that duty must not be undermined by inequitable access to healthcare by patients and communities.
- 4.4. Unproven AI technology must not be used during emergency situations such as pandemics or disaster responses. The urgency of need must not be used as justification for application of unproven technologies.
- 4.5. Application of AI tools in healthcare must never result in unbalanced health-care policy. Governments must not disproportionately invest in AI tools with the goal of reducing public expenditure in healthcare by reducing human engagement.

See also:

[*AMA Digital Health Vision Statement Preamble*](#)

[*AMA Position Statement on System Interoperability in Healthcare*](#)

[*AMA Position Statement on Data Governance and Patient Privacy*](#)

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