Suzanne H Plimpton
Reports Clearance Officer
National Science Foundation
2415 Eisenhower Avenue
Alexandria, VA 22314

Re: Request for Information on the Development of an Artificial Intelligence (AI) Action Plan, Document ID: NSF_FRDOC_0001-3479, Billing Code: 7555-01-P

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Dear Ms. Plimpton,

Thank you for the opportunity to shape the U.S. Artificial Intelligence (AI) Action Plan. The American Medical Informatics Association (AMIA) is dedicated to ensuring that healthcare is prioritized within this vital policy framework. We strongly advocate for the integration of our AI principles for healthcare, ensuring that AI's transformative potential is fully realized to improve patient care, protect privacy, and foster innovation across the healthcare landscape. Additionally, we are pleased to share our factsheet, *Ensuring Responsible AI Integration in Healthcare*, which outlines the key principles for safeguarding the responsible application of AI in this critical sector.

AMIA is the professional home for more than 5,500 informatics professionals, representing frontline clinicians, researchers, and public health experts who bring meaning to data, manage information, and generate new knowledge across the health and healthcare enterprise. As the voice of the nation's biomedical and health informatics professionals, AMIA plays a leading role in advancing health and wellness by moving basic research findings from bench to bedside, and evaluating interventions, innovations and public policy across settings and patient populations.

Ensuring Responsible AI Integration in Healthcare
The AMIA **factsheet** outlines four critical principles for integrating AI into healthcare effectively and ethically:

1. **Transparency:** Clear labeling and communication about AI tools' purposes, data use, and impact on care decisions, ensuring informed patient and provider engagement.
2. **Validation and Monitoring:** Establishing comprehensive validation processes and continuous monitoring to guarantee AI tools' safety, effectiveness, and fairness.

3. **Reducing Burden on Providers:** AI should streamline administrative tasks, minimizing the documentation load on healthcare professionals.
4. **Expert Collaboration:** Involving clinical informaticians and policymakers in shaping AI healthcare policies to ensure relevance and effectiveness.

By embracing these principles, we can ensure that AI is implemented in healthcare in a way that prioritizes patient safety, enhances care delivery, and minimizes administrative burdens. It is essential that we work together, guided by expert insights, to shape policies that foster innovation while safeguarding public trust.

AMIA Artificial Intelligence Principles for Healthcare

Artificial Intelligence (AI) refers to an array of computer technologies such as machine learning, deep learning, natural language processing, generative artificial intelligence and other mathematical and statistical techniques that seek to emulate human intelligence, e.g., "thinking", in order to address highly complex problems, often involving vast quantities of data and information.

In healthcare, AI systems are generally intended to lead to new knowledge, make recommendations or trigger actions via the development of complex algorithms, or processes, that analyze data, often in real or near-real-time, and can sometimes adapt to changes over time. Such systems have the potential to advance medical knowledge and make healthcare safer, more effective, less costly, and even more equitable. There are, however, well documented risks associated with all aspects of the design, deployment, and maintenance of AI systems, particularly with respect to the potential for bias in many forms, including algorithmic bias.

As growing numbers of AI systems are deployed in healthcare, the need for ethical principles and governance has become increasingly urgent so that biomedical informaticians can assure that AI in healthcare is developed with appropriate high-quality data; is introduced judiciously, in the appropriate environments; is used for impactful and meaningful purposes; with appropriate training and maintenance and in accordance with core principles that ensure respect, safety and equity for patients, providers, institutions, and society.

AMIA Believes:

Due diligence is required to address the risk of bias and safety in the use of AI in healthcare, which includes:

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- A set of core principles that govern all aspects of design, development, testing, deployment and maintenance of biomedical AI systems, products and services as support tools intended for use in healthcare, as well as in more consumer-oriented health and wellness applications.
- Organizations that deploy or develop AI systems for healthcare be governed by a set of principles intended to assure that issues related to the context and purpose of use, maintenance over time, and other implementation issues are addressed.
- Development and deployment of AI systems in healthcare should proactively seek to mitigate the potential unintended socio-cultural impact of such systems with particular emphasis on education, research, and the impact on vulnerable populations, including groups that have been economically/socially marginalized.
- The biomedical informatics community collaborates to create guidelines for implementation of the principles outlined herein that offer appropriate mechanisms, and where appropriate public and private funding, to assess the degree to which AI systems achieve their purpose, with particular emphasis on principles that prioritize safety, trustworthiness, and equity.

Based on these Principles, AMIA Supports:

AI Systems Principles

1. Autonomy – AI must protect the autonomy of all people and treat them with courtesy and respect including facilitating informed consent.
2. Beneficence – AI must be helpful to people modeled after compassionate, kind, and considerate human behavior.
3. Non-maleficence – AI shall "do no harm" by avoiding, preventing, and minimizing harm or damage to any stakeholder.
4. Justice – AI includes equity for people in representation and access to AI, its data, and its benefits. AI must support social justice.
5. Explainability – Scope, proper application, and limitations of AI must be understandable and provided in context appropriate language.
6. Interpretability – Plausible reasoning for decisions or advice in accessible language must be provided.
7. Fairness – AI must be free of bias and must be non-discriminatory.
8. Dependability – AI must be robust, safe, secure, and resilient. Failure must not leave any system in an unsafe or insecure state.

9. Auditability – AI must provide and preserve a performance "audit trail" including internal changes, model state, input variables, and output for any system decision or recommendation.
10. Knowledge Management – AI systems must be maintained including retraining of algorithms. AI models need listed creation, re-validation, and expiration dates

Principles for Organizations Deploying or Developing AI

1. Benevolence – Organizations must be committed to use AI systems for positive purposes.
2. Transparency – AI must be recognizable as such or must announce its nature. AI systems do not incorporate or conceal any special interests and deal even-handedly and fairly with all good faith actors.
3. Data Sources – Data used for AI must be of the highest quality, applied appropriately and purposefully (relevance), address merits and limitations when used, and adhere to FAIR principles.
4. Accountability – AI harm and unintended consequences must be reported, assessed, monitored, measured, and mitigated as needed. Response to complaints and redress must be guaranteed.

Principles to Address Special Considerations

1. Vulnerable Populations – AI applied to vulnerable populations requires increased scrutiny and appropriate community involvement to avoid worsening inequity in healthcare.
2. AI Research – continued research, and research funding into AI in healthcare is prioritized and required.
3. User Education - Developers of AI have a responsibility to develop, implement, optimize, and sustain educational resources and programs that educate healthcare providers and consumers on machine learning and AI systems used in healthcare settings.

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Thank you for your time and consideration of these comments. If you have questions or require additional information, please contact Tayler Williams, AMIA's Senior Manager of Public Policy, twilliams@amia.org.

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Sincerely,

Eileen Koski

Eileen Koski
Chair of the Public Policy Committee

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