At the 2023 Annual Meeting of the House of Delegates (HOD), Resolution 609-A-23, “Encouraging Collaboration Between Physicians and Industry in Augmented Intelligence (AI) Development”, was referred. The directives of the referred resolution ask the American Medical Association (AMA) to address physician-centered innovation, specifically in the field of AI and, enhance physician access to the Physician Innovation Network (PIN) community through matchmaking and an advisor network. The following Board of Trustees Report provides detailed information about the AMA’s efforts to ensure the physician voice is front and center in the design, development and use of technology and innovation, including AI, across healthcare, and outlines various ways the AMA is supporting physicians in the implementation and use of these tools. The AMA’s work includes numerous activities in the following areas:

- Engagement between physicians and the AI industry facilitated by the Physician Innovation Network (PIN);
- Advocacy for legislative oversight of health care AI and the development of principles to guide such advocacy;
- Formation of programs and collaborative partnerships with other medical and professional societies, in addition to other stakeholders in the health care AI space;
- Development of educational tools and resources;
- Publication of reports and research; and
- Adoption of multiple related AMA policies
Subject: Encouraging Collaboration Between Physicians and Industry in AI Development

Presented by: Willie Underwood, III, MD, MSc, MPH, Chair

Referred to: Reference Committee F

INTRODUCTION

At the 2023 Annual Meeting, the House of Delegates (HOD) referred Resolution 609-A-23, “Encouraging Collaboration Between Physicians and Industry in Augmented Intelligence (AI) Development”, for report back at the 2024 Annual Meeting. This resolution was introduced by the Medical Student Section and asked that our American Medical Association (AMA):

1. Augment the existing Physician Innovation Network (PIN) through the creation of advisors to specifically link physician members of AMA and its associated specialty societies with companies or individuals working on AI research and development, focusing on:
   a. Expanding recruitment among AMA physician members,
   b. Advising AMA physician members who are interested in healthcare innovation/AI without knowledge of proper channels to pursue their ideas,
   c. Increasing outreach from AMA to industry leaders and companies to both further promote the PIN and to understand the needs of specific companies,
   d. Facilitating communication between companies and physicians with similar interests,
   e. Matching physicians to projects early in their design and testing stages,
   f. Decreasing the time and workload spent by individual physicians on finding projects themselves,
   g. Above all, boosting physician-centered innovation in the field of AI research and development (Directive to Take Action); and

2. Support selection of PIN advisors through an application process where candidates are screened by PIN leadership for interpersonal skills, problem solving, networking abilities, objective decision making and familiarity with industry (New HOD Policy).

BACKGROUND

Artificial intelligence focuses on developing smart machines that can perform tasks that otherwise require human intelligence. Augmented intelligence (AI), a subsection of artificial intelligence, depends on machine learning (ML) techniques to extract large amounts of data to assist humans in solving problems.1-2 It has been used within a wide array of fields and is responsible for innovations such as web search, targeted content and product recommendations and autonomous vehicles.1 In 2016, AI projects within medicine attracted more investment than AI projects within any other sector of the global economy.3 AI applications within medicine include diagnostics, drug discovery...
and development, medical documentation and remote treatment. Several recent strides have been made in this area. For instance, Google developed and trained an AI model to classify images as diabetic retinopathy and macular edema for adult patients with diabetes, producing implications for improved detection, diagnosis and treatment of diabetic retinopathy. Additionally, companies have used ML algorithms to identify drugs that treat neurological diseases.1

The purpose of AI application to medicine is to supplement—not supplant—the work of health care practitioners and a misunderstanding of this concept is a major deterrent to the adoption of AI innovations by clinicians and health systems.4 It is essential that physicians and members of their care teams are included across all stages of the development of AI innovations in health care so such designs best reflect what they find valuable for treating their patients and reducing administrative and other burdens. The integral role physicians play in the development of health care AI enables the refinement of clinical algorithms, testing of new clinical tools and research designed to improve disease management and outcomes.5 However, research shows that current AI applications in health care may not sufficiently reflect that they’ve been designed with health care practitioners at the forefront. Despite physicians’ desire to be consulted on tech decisions, many of them lack any significant influence on these decisions.6

It is especially important that efforts to include physicians in the development of health care AI are diverse and comprise marginalized and minoritized physicians so bias that underlies existing data is not further entrenched into AI solutions and health inequities are not exacerbated. Further, equitable inclusion of physicians in the research and development of AI is imperative to its success, as evidenced by literature on racial concordance in medicine. For example, a 2018 Stanford study illustrated how Black physicians were more likely to engage with Black men—a patient group with a historically lower life expectancy—and even collect consent to provide preventive services like cardiovascular screenings and immunizations.7 Additionally, research found that a 10% increase in Black primary care physicians was associated with a 30.61-day increase in life expectancy and a decrease in all-cause mortality by 12.71 deaths per 100,000 among Black individuals.8 Despite such statistics, only 5.7% of physicians in 2023 identified as Black.9 AI can either improve the system by filling these gaps or inadvertently worsen current health inequities by reproducing and normalizing what exists. While increased application of AI in healthcare is expected to reduce bias and promote health equity by improving evidence-based interventions for marginalized and minoritized communities, the voices of these physicians must be integrated early and more often within the development of these tools to truly improve health outcomes for all patients.10

DISCUSSION

The AMA is committed to ensuring that AI can meet its full potential to advance clinical care and improve clinician well-being. As the number of AI-enabled health care tools continue to grow, it is critical they are designed, developed and deployed in a manner that is ethical, equitable and responsible. The use of AI in health care must be transparent to both physicians and patients, and positioning the physician voice front and center is critical.

AMA Physician Innovation Network (PIN)

To address concerns around the lack of the physician voice in health care innovation, the AMA launched the Physician Innovation Network (PIN) in 2016. Since then, the network has grown to over 18,000 users and continues to bring together physicians and health tech companies through its various offerings.
The PIN platform is available for all physicians to join and connect with other stakeholders across the innovation ecosystem including responding to opportunities posted by digital health and technology companies seeking feedback from subject matter experts. AMA’s PIN “In Real Life” (IRL) events launched in 2022 with the purpose of bringing the online platform to life, encouraging companies to be transparent about their design challenges and hosting diverse physician voices to create an engaging, live PIN experience. Health tech conferences are not usually the events that most practicing physicians attend to advance their professional development. However, such a structure allows physicians to connect with companies live, share clinical problems and expertise and provide feedback on solutions being developed across the health care industry. The PIN IRL events will evolve this structure in an iterative fashion as we continue to evaluate physicians’ needs in the changing technological landscape. Further, PIN Community Office Hours occur bi-weekly and provide an opportunity for subject matter experts across the PIN community to connect with digital health solutions focused on optimizing patient experience and minimizing physician burnout.

The AMA is engaging PIN Physicians to gather feedback and continue iterating on how to help bring better solutions to market together. All AMA members are invited to join PIN and should be ambassadors to their organizations about the platform’s ability to link subject matter experts and solution designers. Companies developing health care solutions enabled by AI and ML are interacting on PIN. However, it is the individual physician member’s decision how they would like to interact with each company. Some companies post paid opportunities while others are so early in their development that they only have volunteer opportunities posted. Additionally, the AMA is in conversations with the World Medical Association to expand the PIN to a global audience. Applying for PIN IRL engagements is one of the best ways to be involved. As we examine the successes of PIN and the current clinical technology needs of physicians, the PIN strategy is continuously re-evaluated to ensure the program’s impact is maximized.

Advocacy

AI has been an area of focus for AMA advocacy for several years with the first set of advocacy principles developed in 2018. In addition to interfacing with medical devices, AI is increasingly used in health care administration and to reduce physician burden, and policy and guidance for both device and non-device use of health care AI is necessary. Recognizing this, the AMA developed an updated set of advocacy principles that builds on current AI policy. These new principles address the development, deployment and use of health care AI, with particular emphasis on:

• Health care AI oversight;
• When and what to disclose to advance AI transparency;
• Generative AI policies and governance;
• Physician liability for use of AI-enabled technologies;
• AI data privacy and cybersecurity; and
• Payor use of AI and automated decision-making systems.11

The AMA also continues to keep track of AI-related legislation and policy coming from both the congressional bodies, as well as the federal government.

Additionally, the AMA plans to research state-based AI policies to better understand local approaches to policy and regulation for the use of AI across health care stakeholders, including health care practices, health systems and payers.
The AMA is committed to researching the AI landscape in health care and developing resources to support physicians in getting involved in the design, development and deployment of these tools across the industry. In 2023, the AMA completed a survey to better understand physician sentiments around AI, including opportunities, current use cases and needs around education and support for the implementation and use of AI. Of the 1,081 physicians surveyed, 41% responded that they were both equally excited and concerned about AI. It was also confirmed that physicians are seeking more information in digestible formats that can help them successfully evaluate and use these tools in their clinical environments.

In February 2024, the AMA released a foundational AI landscape report as part of its Future of Health work titled, "The Emerging Landscape of Augmented Intelligence in Health Care". The report aims to create a common lexicon for augmented intelligence in health care, explore the risks, identify current and future use cases and provide guidance for physicians looking to leverage these tools in practice. As part of this research, the AMA completed the previously mentioned survey designed to capture physician sentiments around AI, held a set of one-on-one interviews with key stakeholders from across the industry and hosted a specialty society workshop to align on key priorities across specialties. The report lays the foundation for the development of additional educational content into specific areas of AI to further support the implementation and use of AI in practice including, but not limited to:

- Practical case studies of where AI is working in practice today.
- Issue briefs aimed at deciphering AI policy. For instance, the AMA released a guide in 2023, providing advice for physicians when considering ChatGPT.
- Research on areas where AI is impacting clinician well-being (i.e. documentation burden reduction, etc.).
- Step-by-step educational materials on creating governance structures that support the successful selection and deployment of AI solutions.

The AMA ChangeMedEd initiative works with partners across the medical education continuum to help produce a physician workforce that meets the needs of patients today and in the future. As part of these efforts, an Artificial Intelligence in Health Care learning series was recently published on the AMA EdHub. These modules are geared towards medical students and physician learners, and introduce key concepts related to artificial intelligence and ML in health care. These are developed in collaboration with medical education partners from across the nation.

Further, the AMA and Accreditation Council for Graduate Medical Education (ACGME) have a shared interest in fostering the use of AI to improve education across a physician’s career. The ACGME is aware of the AMA’s conceptual model of Precision Education and has participated in the AMA Accelerating Change in Medical Education Consortium’s National Advisory Panel around planning the next major initiative. Awardees of AMA grant funding also presented their work on leveraging AI to improve residency selection and education at the 2024 ACGME Annual Education Conference.

Additionally, the AMA is engaged with the American Board of Medical Specialties, National Board of Medical Examiners, Association of American Medical Colleges, Association for Hospital Medical Education, International Association of Medical Science Educators, as well as several specialty societies, medical schools and academic health systems around advancing AI in medical education. AMA staff will also serve on the planning committee for the Macy Foundation’s next conference which will focus on AI in medical education. These conferences are designed to
generate national recommendations which are typically published in the journal, *Academic Medicine.*

The AMA has also crafted a framework to promote the development and use of responsible, evidence-based, unbiased and equitable health care AI. This ethics-evidence-equity framework envisions the use of AI to advance the quadruple aim (enhancing patient care, improving population health and clinician work-life and reducing costs) and defines the responsibilities of developers, health care organizations (deployers) and physicians to put the framework into action. For instance, the framework outlines the responsibility of all three groups to (1) develop a protocol to identify and correct for potential bias, as well as (2) ensure protocols exist for enforcement and accountability, including a system to ensure equitable implementation. Physicians can use the framework to assess if an AI innovation meets the qualifications for ethics, evidence and equity and can therefore be trusted. This framework has also been leveraged to create a companion resource that considers educational applications of AI and addresses the use of AI to facilitate the process of training health professionals.

Further, the AMA is in the process of creating a physician development curriculum that will cover topics across physician leadership and the business of medicine. The goal of these materials is to empower and support physicians throughout their professional lives by amplifying AMA-wide resources on the health care landscape, leadership and the business of medicine and develop new resources where gaps exist. These materials will be made available for both individual physicians and member organizations.

Additionally, the AMA developed the CPT® Developer Program to assist developers in translating ideas into innovations. The program is dedicated to developers’ needs and provides them with access to high-quality AMA CPT content and resources.

As interest grows in the use of AI solutions and tools that address administrative burden and support physicians in their daily tasks, the AMA is committed to ensuring that the evolution of AI in medicine equitably benefits patients, physicians and other health care stakeholders. The AMA intends to continue developing AI principles for the use of AI in health care, advocate for state and federal policies that ensure appropriate oversight and continued innovation in AI, partner with health and technology leaders to ensure physicians have a leading voice in shaping the ethical use of AI in medicine, promote training in AI across the continuum of medical education and provide high-value insights and actionable resources for physicians.

**Stakeholder engagement**

The AMA is a convener around many topics important to physicians including AI. As a follow up to the Specialty Society workshop in 2023, the AMA has created an AI Specialty Collaborative with over 15 specialty associations committed to participating. The goal of the collaborative is to ensure the physician voice is leading in a united way as AI in health care continues to expand. Additionally, this group will collectively identify priorities and collaboratively develop resources to advance AI in health care starting in the second quarter of 2024.

The AMA also continues to stay abreast of the latest developments in AI across the industry through participation in external industry collaboratives. For example, the AMA is currently a non-profit member organization of VALID AI, an execution accelerator dedicated to bridging the gap in coordinated efforts around generative AI while rapidly advancing validation and governance implementation.
Furthermore, as a member of the Health AI Partnership—a collaboration among 14 health care organizations and ecosystem partners—the AMA is encouraging the collaborative development and dissemination of AI best practices. The AMA will continue to work with this partnership and others to develop resources, including a case-based AI ethics training program that will delve into real-world, contemporary challenges that physicians and health care delivery organizations face when using AI.

The In Full Health Learning & Action Community to Advance Equitable Health Innovation initiative seeks to advance equitable opportunities in health innovation investment, solution development and purchasing. The AMA has partnered with founding collaborator organizations to support this community with content, tools, resources and opportunities to connect, engage and learn with and from each other to advance equitable health innovation.

The AMA also has long standing relationship with the innovation accelerator, MATTER. As part of this sponsorship, AMA employees and physician members have access to the MATTER space and programming. AMA physician members can also reach out to AMA staff contacts to learn more about getting involved with MATTER and other innovation accelerator programs.

Further, the AMA participated in a joint clinician panel with the Office of the National Coordinator for Health Information Technology in 2020 titled, “Artificial Intelligence in Health IT: The Good, The Bad, The Ugly” and continues to engage in additional conferences such as HLTH and ViVE, where AMA representatives engage in a variety of topics around health care technology including AI.

In addition to the efforts outlined above, the AMA has several internal cross-business unit workgroups in place to ensure alignment across the work in innovation and specifically, AI. There is a Future of Health workgroup meeting that occurs monthly to stay aligned on the latest policy, projects and collaborations in progress around innovation and digital health. Additionally, the Advocacy business unit convenes two monthly meetings specifically focused on aligning AI initiatives across the AMA.

AMA POLICY

As a leader in American medicine, the AMA has a unique opportunity to ensure that the evolution of AI in medicine benefits patients, physicians and the health care community. The AMA has several policies in place around ensuring the physician voice is reflected in the design and development of AI innovations in health care.

The AMA will seek to:

1. Leverage its ongoing engagement in digital health and other priority areas for improving patient outcomes and physicians’ professional satisfaction to help set priorities for health care AI.
2. Identify opportunities to integrate the perspective of practicing physicians into the development, design, validation, and implementation of health care AI.
3. Promote development of thoughtfully designed, high-quality, clinically validated health care AI that:
   a. is designed and evaluated in keeping with best practices in user-centered design, particularly for physicians and other members of the health care team;
   b. is transparent;
   c. conforms to leading standards for reproducibility;
d. identifies and takes steps to address bias and avoids introducing or exacerbating health care disparities including when testing or deploying new AI tools on vulnerable populations; and
e. safeguards patients’ and other individuals’ privacy interests and preserves the security and integrity of personal information.

4. Encourage education for patients, physicians, medical students, other health care professionals, and health administrators to promote greater understanding of the promise and limitations of health care AI.

5. Explore the legal implications of health care AI, such as issues of liability or intellectual property, and advocate for appropriate professional and governmental oversight for safe, effective, and equitable use of and access to health care AI (Policy H-480.940, “Augmented Intelligence in Health Care”).

The AMA also supports the use and payment of AI systems that advance the quadruple aim. AI systems should enhance the patient experience of care and outcomes, improve population health, reduce overall costs for the health care system while increasing value and support the professional satisfaction of physicians and the health care team. To that end our AMA will advocate that:

1. Oversight and regulation of health care AI systems must be based on risk of harm and benefit accounting for a host of factors, including but not limited to: intended and reasonably expected use(s); evidence of safety, efficacy and equity including addressing bias; AI system methods; level of automation; transparency; and conditions of deployment.

2. Payment and coverage for all health care AI systems must be conditioned on complying with all appropriate federal and state laws and regulations, including, but not limited to those governing patient safety, efficacy, equity, truthful claims, privacy and security as well as state medical practice and licensure laws.

3. Payment and coverage for health care AI systems intended for clinical care must be conditioned on (a) clinical validation; (b) alignment with clinical decision-making that is familiar to physicians; and (c) high-quality clinical evidence.

4. Payment and coverage for health care AI systems must (a) be informed by real world workflow and human-centered design principles; (b) enable physicians to prepare for and transition to new care delivery models; (c) support effective communication and engagement between patients, physicians, and the health care team; (d) seamlessly integrate clinical, administrative, and population health management functions into workflow; and (e) seek end-user feedback to support iterative product improvement.

5. Payment and coverage policies must advance affordability and access to AI systems that are designed for small physician practices and patients and not limited to large practices and institutions. Government-conferred exclusivities and intellectual property laws are meant to foster innovation, but constitute interventions into the free market, and therefore, should be appropriately balanced with the need for competition, access and affordability.

6. Physicians should not be penalized if they do not use AI systems while regulatory oversight, standards, clinical validation, clinical usefulness and standards of care are in flux. Furthermore, our AMA opposes:
   a. Policies by payers, hospitals, health systems or governmental entities that mandate use of health care AI systems as a condition of licensure, participation, payment, or coverage.
   b. The imposition of costs associated with acquisition, implementation, and maintenance of healthcare AI systems on physicians without sufficient payment.

7. Liability and incentives should be aligned so that the individual(s) or entity(ies) best positioned to know the AI system risks and best positioned to avert or mitigate harm do so
through design, development, validation and implementation. Our AMA will further advocate:

a. Where a mandated use of AI systems prevents mitigation of risk and harm, the individual or entity issuing the mandate must be assigned all applicable liability.

b. Developers of autonomous AI systems with clinical applications (screening, diagnosis, treatment) are in the best position to manage issues of liability arising directly from system failure or misdiagnosis and must accept this liability with measures such as maintaining appropriate medical liability insurance and in their agreements with users.

c. Health care AI systems that are subject to non-disclosure agreements concerning flaws, malfunctions, or patient harm (referred to as gag clauses) must not be covered or paid and the party initiating or enforcing the gag clause assumes liability for any harm.

8. The AMA, national medical specialty societies, and state medical associations—

a. Identify areas of medical practice where AI systems would advance the quadruple aim;

b. Leverage existing expertise to ensure clinical validation and clinical assessment of clinical applications of AI systems by medical experts;

c. Outline new professional roles and capacities required to aid and guide health care AI systems; and

d. Develop practice guidelines for clinical applications of AI systems.

9. There should be federal and state interagency collaboration with participation of the physician community and other stakeholders in order to advance the broader infrastructural capabilities and requirements necessary for AI solutions in health care to be sufficiently inclusive to benefit all patients, physicians, and other health care stakeholders. (New HOD Policy)

10. AI is designed to enhance human intelligence and the patient-physician relationship rather than replace it (Policy H-480.939, “Augmented Intelligence in Health Care”).

CONCLUSION

The AMA has various existing initiatives, research, policy, advocacy efforts, educational material and other resources that are aligned with the desire to boost physician-centered innovation in the field of AI research and development. As such, much of the work that Resolution 609-A-23 asks the AMA to conduct is already ongoing.

The PIN serves as one source of connecting physicians with innovative companies, specifically those working in the AI space. With that said, as noted, the PIN is undergoing a strategic review and updates to maximize its impact to physicians in decreasing the burden of clinical technology. As we continue to evaluate PIN, we will consider the significance of factors such as AI and other evolving technologies to the practice of medicine and incorporate them into our approach to PIN. At this time, the timing and approach are not aligned to create any specific workgroup linked to PIN.

The costs associated with identifying, establishing and convening a formal advisory board to facilitate relationships between physicians and the AI industry are significant. Additionally, the existing engagement and collaboration the AMA has across initiatives from physicians, specialty and state society and association stakeholders and industry allows AMA to obtain more diverse perspectives and experiences than a formal advisory board. The AMA continues to ensure the AMA is inclusive and equitable in its approach to research, advocacy and education.
RECOMMENDATIONS

The Board of Trustees recommends that Resolution 609-A-23 not be adopted and that this report be filed.

Fiscal Note: Minimal
REFERENCES


