

RE: Response to RFI Docket ID No. NSF-2025-OGC-0001

Subject: Input on the 2025 National Artificial Intelligence Research and Development Strategic Plan

Title: Charting the Path Forward: Federal Priorities for Biomedical AI Research in the National Interest, SUNY Upstate Medical University

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National Priorities for AI in Healthcare, Health Equity, and Public Benefit

Submitted by SUNY Upstate Medical University and the AHEAD Center

(<https://www.upstate.edu/news/articles/2025/2025-04-08-ai.php>)

As a leading academic medical center in New York and home to the recently launched **AI for Health Equity, Analytics, and Diagnostics (AHEAD) Center**, SUNY Upstate Medical University welcomes the opportunity to contribute to the National AI R&D Strategic Plan. Our institution strongly advocates for an expanded federal focus on **AI in healthcare, biomedicine, and equitable innovation**, a domain with profound public benefit but insufficient commercial incentive for sustained investment.

Gaps in Federal AI R&D Funding for Healthcare

We recognize federal strides in AI R&D but highlight enduring gaps that threaten U.S. leadership in healthcare AI. Despite Executive Order 14179 and programs like **Leading Edge Acceleration Projects (LEAP)** and PRIMED-AI (<https://commonfund.nih.gov/primed-ai>), investments remain limited in multimodal data integration, model validation, and cross-institutional infrastructure. PRIMED-AI, for example, is only beginning to address imaging and non-imaging data fusion, reflecting the early stage of such efforts.

Ethical AI frameworks, clinical explainability, and workforce development remain critical concerns. Legislative uncertainty threatens to stall regulatory progress, leaving healthcare without clear standards for safety, transparency, and accountability in AI deployment (<https://greenwall.org/making-a-difference-grants/explainability-and-trade-secrecy-in-ai-enabled-clinical-decision-software>). While some workforce training initiatives exist, scalable interdisciplinary programs bridging computational and biomedical domains are still lacking (<https://www.energy.gov/cet/supercharging-americas-ai-workforce>).

These gaps run counter to the RFI's call for federal investment in areas neglected by the private sector but essential to national competitiveness, health resilience, and equitable care (<https://globalhealthnow.org/2024-10/ai-public-health-gaps-disparities-and-remarkable-potential>).

Without sustained support for healthcare AI, especially in multimodal data integration, validation, and ethical governance, the U.S. risks falling behind in a sector vital to economic strength and public well-being.

In sum, despite recent federal initiatives, field evidence highlights the urgent need for more expansive, better-coordinated, and strategically focused investment in healthcare AI to secure U.S. leadership.

1. Elevating AI for Health as a National R&D Priority

AI in healthcare has demonstrated transformative potential across diagnostics, personalized treatment, clinical decision-making, and public health management. However, as emphasized in the

RFI issued by the NITRD and National Coordination Office on behalf of the OSTP, the United States must act decisively to retain its global leadership in artificial intelligence (AI) by investing in foundational AI research and strategic applications that deliver long-term scientific, economic, and societal benefit considering the importance of AI systems capable of reasoning, adaptability, and robustness in dynamic environments such as hospitals and for medically related application.

In alignment with **Executive Order 14179 (Removing Barriers to American Leadership in AI)** and the development of the **2025 National AI R&D Strategic Plan**, we urge the federal government to prioritize healthcare as a critical domain for high-impact AI R&D. Specifically, we recommend:

- **Clinically impactful AI algorithms** that improve diagnostic accuracy, reduce variability in care, and enhance decision-making across radiology, pathology, genomics, and electronic health records. These tools must be designed not only to improve patient outcomes but also to solidify U.S. leadership in precision medicine and transformative healthcare innovation.
- **Multimodal AI models** trained on diverse, representative datasets that integrate medical imaging, structured and unstructured clinical data, social determinants of health, and genomics. Ensuring demographic and geographic diversity in training data is essential to creating equitable, scientifically rigorous systems that serve all U.S. populations and mitigate disparities.
- **Comprehensive AI equity frameworks** to monitor, evaluate, and mitigate algorithmic bias, especially among underserved or underrepresented populations. These frameworks must be transparent, auditable, and ethically grounded to ensure AI systems deployed in healthcare deliver inclusive, accountable, and high-quality care nationwide.
- **Clinically integrated and community-responsive AI tools** that support real-time disease surveillance, early detection of health threats, risk stratification, and coordination of care, especially in response to public health emergencies. These tools exemplify how AI can be leveraged for **national preparedness, public infrastructure resilience, and improved health outcomes at scale**, directly aligning with OSTP's directive to use AI in service of economic competitiveness and national security.

The **SUNY Upstate AHEAD Center**, launched in 2024, exemplifies the principles set forth in the 2025 National AI R&D Strategic Plan RFI. Our center is committed to a mission that integrates **predictive AI modeling, translational science, health equity, and ethical AI deployment** to strengthen U.S. competitiveness while fostering AI-driven innovation that advances clinical care and population health.

We affirm that federal leadership in AI for health should target long-term, high-reward investments in areas that promote **interdisciplinary research, public-private partnerships, and academic innovation ecosystems** that are responsive to national priorities and community health needs. The AHEAD Center stands ready to serve as a clinical and educational testbed supporting these federal initiatives.

2. The SUNY Upstate AHEAD Center: A National Model for Academic Medical AI Innovation

Launched in 2024, the **AHEAD Center** at SUNY Upstate Medical University is a mission-driven initiative designed to accelerate responsible AI innovation in healthcare. Aligned with national priorities outlined in the U.S. National AI R&D Strategic Plan, the AHEAD Center serves as a hub for **translational research, interdisciplinary education, ethical technology deployment, and inclusive community engagement**.

Mission and Strategic Objectives

Anchored in SUNY Upstate's commitment to advancing community and population health, the AHEAD Center pursues six interrelated strategic goals:

1. **Develop clinically impactful AI tools** that enhance diagnostic accuracy, personalize treatment, improve patient experience, and reduce disparities in care delivery.
2. **Drive cross-disciplinary innovation** by designing novel AI architectures that address real-world clinical and biomedical research challenges, spanning radiology, pathology, genomics, and health informatics.
3. **Educate the next-generation healthcare workforce** by integrating AI literacy and application across medical, nursing, public health, and biomedical science curricula.
4. **Advance the ethical, equitable, and transparent deployment of AI in healthcare**, ensuring that AI systems are safe, inclusive, and accessible to all communities, particularly underserved and marginalized populations.
5. **Promote public trust and engagement** by fostering dialogue on the promises and limitations of AI in medicine, including data privacy, bias mitigation, and clinical accountability.
6. **Harness AI to improve institutional performance** by optimizing research workflows, clinical decision support systems, and health system operations.

Through these efforts, the AHEAD Center actively supports the SUNY STRIVE AI strategy and aspires to be a **national model for integrative, community-centered AI in healthcare**, transforming discovery and delivery while ensuring societal benefit and health equity remain at the core.

3. Federal Support Needed: Research Infrastructure, Workforce Development, and Responsible Innovation in Biomedical AI

To ensure the United States maintains global leadership in ethical, high-impact applications of AI in healthcare, we urge OSTP and federal agencies to invest in the following national priorities:

A. Building Research Infrastructure for Biomedical AI

Federal support is essential to expand the capacity of academic medical centers like SUNY Upstate to conduct translational, secure, and equitable AI research. Key priorities include:

- **Advanced and secure computing infrastructure**, including high-performance computing resources and HIPAA-compliant hospital data centers, to enable large-scale training and deployment of clinical AI models in real-world environments.
- **Federated learning and secure data-sharing frameworks** that support collaborative, multi-institutional AI model development while maintaining data privacy, provenance, and equity in representation across populations and institutions.
- **Regional AI clinical testbeds, designed for national scalability**, embedded within academic health centers to pilot, validate, and optimize AI tools across diverse clinical workflows, enabling safe, efficient, and equitable translation from algorithm development to real-world patient care.
- **Exploratory investments in quantum computing for biomedical AI**, supporting research into quantum-enabled algorithms that could accelerate drug discovery, molecular simulation, and complex medical data modeling, positioning the U.S. at the forefront of next-generation computational medicine.

B. Expanding the AI-Enabled Health Workforce

A robust, inclusive pipeline of AI-trained health professionals is essential to fulfilling the national vision for safe, equitable, and impactful AI in medicine. SUNY Upstate is advancing this goal through interdisciplinary programs in neuroscience, immunology, biochemistry, public health, and biomedical sciences, all of which increasingly integrate AI foundations and real-world applications. Through the AHEAD Center:

- **MD, PhD, and MPH students** are actively engaged in AI-driven research across diagnostics, therapeutics, population health, and clinical decision support.
- **New AI fellowships and research internships**, with an emphasis on recruiting **Pell-eligible and first-generation college students**, are expanding access to emerging career pathways in AI and data science for health.
- **Faculty-led curriculum innovation** is embedding AI and machine learning competencies across all four SUNY Upstate colleges, Medicine, Graduate Studies, Nursing, and Health Professions.
- A newly launched **AI for Healthcare Bootcamp** provides accelerated, hands-on training in medical AI applications for students, clinicians, and researchers, offering an entry point for participants from non-computational backgrounds and promoting cross-disciplinary fluency in AI technologies.

We recommend targeted **federal investments in interdisciplinary, scalable AI training programs**, including support for bootcamps, fellowships, and integrated curricula, across medical, public health, and allied health education tracks. Such initiatives will help ensure a diverse, technically fluent healthcare workforce that can ethically design, implement, and evaluate AI systems to improve patient outcomes and advance health equity nationwide.

4. Societal Outreach, Ethics, and Public Engagement

AI in medicine must be accountable to the communities it serves. The AHEAD Center advances **community engagement and ethical literacy** through:

- **Partnerships with Upstate's Center for Bioethics and Humanities** to support AI literacy and public trust.
- **Programs with the Department of Public Health & Preventive Medicine** to reach rural, urban, refugee, and Indigenous populations.
- **Public media channels** like *The Informed Patient Podcast*, *HealthLink on Air*, and **Upstate Oasis** to educate older adults and the broader community on AI in medicine.
- **High school outreach** through the *U Matter* program to inspire next-generation AI health professionals.
- **Collaboration with Onondaga County** to inform community health needs assessments with AI awareness and digital health equity.

These efforts should be mirrored nationally through **NIH–NSF–CDC partnerships** to support ethical AI adoption in public health.

5. Sustainability and Federal Partnership Models

SUNY Upstate's AHEAD Center offers a blueprint for sustainable AI innovation:

- **Institutional support** from SUNY, including staff, computing infrastructure, dedicated AI laboratories, and graduate student contributions.
- **Integration of AI faculty into clinical departments**, ensuring research-practice collaboration.
- **Planned expansion of tuition-based AI credentials** via micro-degrees and dual degree programs.
- **Support from the Upstate Foundation** to attract philanthropic investment.

Federal alignment through **co-funded centers, public-private consortia, and regional health AI hubs** would multiply impact.

6. Scaling Healthcare AI Through Strategic Public–Private Partnerships

To accelerate the translation of AI innovations into impactful healthcare solutions, the Federal government should expand public/private collaboration through established and novel partnership models. **SBIR/STTR-style programs** can be adapted to support early-stage AI ventures focused on biomedical applications that may lack sufficient commercial incentives. **Regional innovation consortia**, anchored at academic medical centers like SUNY Upstate, can bring together universities, startups, health systems, and local governments to pilot and scale AI solutions aligned with community health needs. In addition, **co-funded implementation pilots**, where federal agencies share costs with industry or health systems, can test real-world deployment of AI tools in diverse care settings, generating evidence for safety, efficacy, and equity. These models not only demonstrate feasibility and scalability, but also foster interdisciplinary collaboration, de-risk innovation, and ensure alignment with public health priorities. SUNY Upstate currently leads regional efforts to bridge public and private sectors in advancing healthcare AI solutions. As an active leader in the LifeSciencesNY (<https://lifesciencesny.org/>) trade association SUNY Upstate seeks collaboration with industry across the state and leverages our local business development partner, CenterStateCEO (<https://centerstateceo.com/>). SUNY Upstate started the first SUNY based venture capital investment called Upstate Biotech Ventures (UBV; managed by Excell partners (<https://excellny.com/>)) to support early-stage companies to launch. Companies such as Predicta Med (<https://predicta-med.com/about/>) have sought out Upstate to advance care delivery engaging our Software AI review committee to partner with our physicians and deploy tools within our electronic medical records structure. Upstate's strong Information Technology (IT) department is ranked 35th in the country by Computer World based on its culture of innovation and collaboration, making it a key resource for potential industry partners in the software and AI space.

Summary of Key Recommendations

- **Elevate AI for Health Equity as a National R&D Priority:** Make healthcare, particularly equity-focused, clinically integrated AI, a central pillar of the National AI Strategic Plan.
- **Fund Multimodal, Interoperable AI Research Infrastructure:** Support secure, scalable computing and cross-institutional testbeds to accelerate validation and deployment of biomedical AI.
- **Invest in Interdisciplinary Workforce Development:** Expand AI training across medicine, public health, and allied health fields, with targeted support for underrepresented groups and non-computational learners.
- **Support Regional Academic AI Innovation Hubs:** Back academic medical centers like SUNY Upstate as anchors for translational research, public–private consortia, and community-responsive AI solutions.
- **Expand Public–Private Partnership Models for Deployment:** Leverage SBIR/STTR-style programs, co-funded pilots, and innovation consortia to demonstrate feasibility, safety, and equity of AI tools in diverse care settings.

Conclusion

The SUNY Upstate AHEAD Center embodies the future of responsible, equitable, and effective AI in healthcare. Federal support for initiatives like AHEAD, focused on **local impact, ethical innovation, workforce development, and translational research**, will ensure that the United States leads not only in AI capability, but in **AI that serves the public good**.