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American Institute for Medical and Biological Engineering (AIMBE) statement for the record for Thursday, February 8, 2024, Senate Committee on Finance Hearing entitled "Artificial Intelligence and Health Care: Promise and Pitfalls"

AIMBE is a nonprofit, honorific organization representing the most accomplished leaders in the fields of medical and biological engineering across academia, industry, government, and scientific societies. AIMBE's mission is to provide advocacy in medical and biological engineering for the benefit of society.

AIMBE Fellows are at the forefront of health care innovation including developing artificial intelligence tools and algorithms for use in the clinic. Medical AI (also known as Health AI) has the potential to positively transform health care in the United States, but only to the extent its applications are deployed and utilized in clinical settings. Thus, investing in additional AI research, including open-access datasets, and incentivizing the use of Medical AI at the point of patient care is critical for tangible benefits to care and cost savings to be realized.

AI has several applications in medicine that can improve health care outcomes for patients through earlier detection, screening, and diagnosis. Research in the US has shown that by improving early diagnosis and personalizing treatment, AI can enhance the quality of medical care in terms of health outcomes and patient experience. For instance, lung cancer is associated with a 65% five-year survival rate when it is localized compared to 9% when the disease has metastasized. By detecting disease earlier, AI models like Sybil that predict lung cancer risk can both save lives and significantly reduce overall cost associated with later-stage cancer treatments and care.[1] Moreover, in surgery settings, there is growing evidence that preoperative cognitive state is a risk factor for postoperative adverse outcomes. Unfortunately, cognition is not assessed systematically pre- and postoperatively due to prohibitive costs and time constraints. AI tools have recently made it possible to quickly assess cognitive function in older adult surgical patients while significantly reducing nurse and administrative costs and overhead.[2] Use of tools such as this would greatly improve patient outcomes for the up to 65% of older patients that experience delirium and cognitive decline associated with surgical procedures each year.[3]

[1] https://pubmed.ncbi.nlm.nih.gov/36634294/
[2] https://pubmed.ncbi.nlm.nih.gov/37149670/
[3] https://jamanetwork.com/journals/jama/fullarticle/2782851

As the cost of medical treatment and health care in the United States continues to rise, cost-effective and value-based solutions are needed. According to CMS data, U.S. health care spending reached $4.3 trillion or $12,914 per person in 2021.[4] As a share of the nation's Gross Domestic Product, health spending accounted for 18.3 percent. A recent study demonstrates that AI tools can provide tremendous cost savings in patient diagnosis and treatment. It is estimated that wider adoption of AI could lead to savings of 5 to 10% in U.S. health care spending—roughly $200 billion to $360 billion annually.[5]

Despite Medical AI providing cost-effective tools and being a rapidly growing area of biomedical research, its applications are severely underutilized in hospital and clinical health care settings. Even when Medical AI tools are available to clinicians and providers, they are disincentivized from using these tools without a reimbursement framework. While the US currently leads in the innovation of AI applications for medicine, it significantly lags behind the developing world in the adoption of its own tools. This gap will continue to widen without robust investment in AI research, large, open datasets, and prioritization of reimbursement pathways for AI. As a key funder of biomedical research in the world, our government has a duty to address critical bottlenecks between medical AI innovation and its use to directly improve patient health care.

Thank you in advance for considering the factors we have outlined in this statement. We appreciate the challenges and complexities you face as new AI tools are developed in the health sector. We stand ready to serve as a resource and assist your efforts as innovation continues and new policies and tools are needed.

[4] https://www.cms.gov/data-research/statistics-trends-and-reports/national-health-expenditure-data/historical#:~:text=U.S.%20health%20care%20spending%20grew,For%20additional%20information%2C%20see%20below.
[5] https://www.nber.org/papers/w30857.