Google and the US Department of Defense team up to battle cancer

U.S. Department of Defense

U.S.

"Cutting-edge technology, through collaboration between public-private partners, brings significant positive disruption at scale, ensuring reliable, time-efficient, cost-effective diagnostic care for our active service members, veterans and public at large"

Dr. Nadeem Zafar, VA Puget Sound Health Care System Director for Pathology and Laboratory Medicine Service.

Challenge

The frequency of diagnostic error is at least 5% in US adults, as reported by the Veterans Affairs Center for Innovations in Quality, Effectiveness, and Safety. This translates to misdiagnosis of 12 million patients each year.* At the same time, the Defense Health Agency spends approximately $1.7 billion of its annual budget on cancer research, and that figure continues to grow.

Solution and partner

To help improve the accuracy of diagnoses and lower overall healthcare costs, the Defense Innovation Unit (DIU), a United States Department of Defense organization, teamed up with Google to build an AI-powered microscope to aid in cancer detection for service members and veterans. The tool, called the Augmented Reality Microscope (ARM), is deployed at military treatment facilities around the world.

Impact

The ARM uses artificial intelligence algorithms to analyze digitized tissue samples and highlight potential abnormalities to help pathologists find cancer fast and with better accuracy. The rollout took place at select Defense Health Agency treatment facilities and Veterans Affairs hospitals in the United States, with future plans to expand across the broader U.S. Military Health System. Additionally, in the future, ARM can be trained to recognize other diseases and ultimately help develop, educate, and research the study and diagnosis of diseases.

* BMJ Journals – BMJ Quality & Safety, Volume 23, Issue 9
Results combining estimates from the three studies yielded a rate of outpatient diagnostic errors of 5.08%, or approximately 12 million US adults every year. Based upon previous work, we estimate that about half of these errors could potentially be harmful.