

The logo for Nextgov, featuring the word "Nextgov" in white, sans-serif font on a solid green rectangular background.

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A grayscale profile of a human head facing left, overlaid with a white wireframe mesh that represents facial recognition or digital modeling. The background is light gray with faint, repeating text and decorative elements like plus signs and a cross.

THE FUTURE OF HEALTH TECH

Artificial intelligence and other emerging technologies are being used across federal health agencies, with future innovation on the horizon.

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Once the stuff of science fiction, federal agencies are making use of a variety of cutting-edge healthcare tools, technologies and practices to improve patient outcomes and spearhead innovation across the health care sector.

Innovations in health care across the federal government can be examined through several lenses, including technologies used in health care practice and patient care, regulatory changes, and investments in emerging health care technologies and associated research and development. In this special report, Nextgov will review advancements made by federal agencies through those lenses.

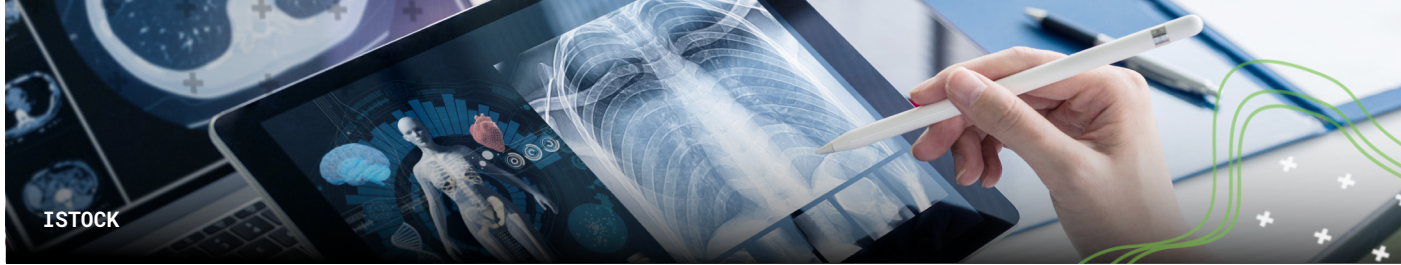
Health tech in action

During a November panel discussion on health data and artificial intelligence, Maj. Scott McKeithen, product manager for health analytics at the Defense Department's Chief Digital and Artificial Intelligence Office, and Dr. Rafael Fricks, the Veterans Affairs Department's associate director for AI in medical imaging, discussed how both agencies are using emerging technologies to

streamline medical care for active duty military personnel and veterans.

In one example, McKeithen cited the Chief Digital and Artificial Intelligence Office's work with U.S. Army Medical Command to "bring in predictive analytics, as well as natural language processing and robotic process automation" when reviewing the medical records of military recruits. For health practitioners, reviewing medical records is both integral to patient care and time consuming, yet a combination of these technologies used appropriately can offer several benefits.

"The amount of time it takes a provider or staff to actually scrub those records, to actually determine if an individual has a medical condition that makes them unfit for service based on the DOD's requirements, is extremely time consuming," McKeithen said. "So it's bringing the efficiency to the provider-level or to the clinician-level, by using robotic process automation, using natural language processing to pull off that information from the scanned images, as well as having a scraping capability or building an algorithm around factors to draw



a prediction on the likelihood that an individual has X, Y or Z.”

In another example, Fricks cited the VA’s efforts to get more out of the data it already collects. VA, which performs approximately one billion medical scans annually, is “training deep learning algorithms” to improve the patient-scanning process. AI, Fricks said, “might help us triage different patients, to find secondary findings and really get value out of the data that we’ve already collected.”

Frick added that VA adheres to former President Donald Trump’s executive order on promoting the use of trustworthy AI across government, which requires agencies’ AI applications be “sufficiently understandable.” The agency’s departmentwide AI strategy, crafted in September 2021, lists increasing “veteran and stakeholder trust in AI” as a strategic objective.

“We can promote adoption by having the solution be explainable, at least to the level of the competency of the person that’s expected to use or benefit from this technology,” Fricks said.

VA is one of the largest healthcare organizations in the country, serving more than 9 million veterans annually across more than 100 health care facilities. At more than 50 sites, the agency has deployed immersive, extended reality—or XR—technology that can virtually transport patients to nearly anywhere in the world. The Veterans Health Administration last year launched its own XR Network to treat veterans suffering from post-traumatic stress disorder, anxiety, chronic pain, depression and other maladies. The agency’s early use of the technology, which requires patients to wear a headset, has been positive, with two-thirds of veterans exhibiting an increase in calm, cooperative behavior.

“The goal of this pilot is to determine the utility of VR in falls risk assessments, neurological risk assessment, palliative care, procedural use, acute and/or chronic pain management, and anxiety,” Dr. Anne Lord Bailey, chair of the XR Network and VHA emerging tech clinical specialist, told Nextgov last June.

The government is a leading investor in health tech

The federal government isn't shying away from major investments in emerging health care technologies, either. In September, the National Institutes of Health announced a \$130 million investment to increase the use of AI in biomedical and behavioral research through its Bridge2AI program. The program aims to invest the money over four years to advance AI research, ethical tools and standards.

In its announcement, NIH said AI is not widely used in biomedical research and healthcare, because datasets are often incomplete or insufficient, which prevents data from being correctly analyzed and interpreted. Subsequently, AI technology may

“inadvertently incorporate bias or inequities, unless careful attention is paid to the social and ethical contexts in which the data is collected,” NIH stated, noting researchers need “ethical, well-described data sets, standards and practices” to execute properly.

The NIH funding aims to address those problems, creating guides and standards for developing “ethically sourced, state-of-the-art, AI-ready data sets” that NIH hopes will solve health issues, such as how factors like genetics, behavior and environment impact a person's health.

“Generating high-quality, ethically sourced data sets is crucial for enabling the use of next-generation AI technologies that transform how we do research,” Dr. Lawrence A. Tabak, acting director of NIH, said. “The solutions to long-standing challenges in human health are at our fingertips, and now is the time to connect researchers and AI technologies to tackle our most difficult research questions and ultimately help improve human health.”



The government's regulatory role

The federal government also plays an outsized role in regulating emerging technologies that impact the health care field. In July, the Food and Drug Administration received more than 1,000 comments—largely from diabetes patients and their families—in response to draft cybersecurity guidance for staff to use when processing submissions from medical-device manufacturers seeking approval to market their products.

The FDA will use the comments as it begins the process of finalizing upcoming cybersecurity guidance, and is under pressure from Congress to improve the cybersecurity of medical devices. However, the comments reflected concern, especially among those in the diabetes community, that the agency might go too far and ultimately develop guidance that restricts the ability of patients to access their own medical devices.

“I live with insulin-requiring diabetes, an incurable chronic disease requiring continuous monitoring of blood glucose values and administration of insulin,” read one comment . “It is imperative that access to my own devices remain possible. The ability to receive glucose values from my continuous glucose monitor and the ability to command my insulin pump to deliver insulin are already permitted and expected of me. In fact, if I don’t do [this], I will die. So please do not let medical device manufacturers use cybersecurity as a pretense to prevent me from accessing my own devices.”

Scholars and industry experts believe how the FDA handles the cybersecurity guidance could serve as a baseline for other sector-specific approaches to regulating and enforcing reasonable measures to securing an increasingly connected world of devices, sensors and people from bad actors. **N**

SIDEBAR

VA'S ELECTRONIC HEALTH RECORDS ROLLOUT DELAYED UNTIL MID-2023

The multibillion-dollar project continues to be plagued with delays.

BY FRANK KONKEL AND EDWARD GRAHAM

The Veterans Affairs Department announced in October that the rollout of perhaps its most important tech project—the Oracle Cerner Millennium electronic health record system—is on hold again until at least June 2023.

VA has encountered numerous issues rolling out the major software project, which estimates suggest could cost upwards of \$50 billion over the next three decades. Yet this delay is perhaps the most significant to date, with Rep. Mike Bost, R-Ill., ranking member of the House Veterans Affairs Committee, suggesting lawmakers should “seriously consider pulling the plug” on the EHR system.

“The new electronic health record should not be rolled out anywhere else until Oracle Cerner fixes its serious problems,” Bost told Nextgov in October.

The EHR system, which is supposed to deploy across VA’s national network of 171 medical centers, has routinely been hit by system outages, cost overruns, technical issues and patient safety concerns since it first went live

in 2020 at Mann-Grandstaff VA Medical Center in Spokane, Washington. A highly critical report released by the VA Inspector General's office in July found that the EHR system's deployment at Mann-Grandstaff improperly routed over 11,000 clinical orders for veterans to an "unknown queue" without the knowledge of clinicians.

October's announcement to delay the rollout followed a previous delay announced in July over patient safety concerns and technical issues regarding the new software. Delays have already significantly altered the VA's plans to roll the system out, with rollouts complete at five medical sites of a scheduled 25 over the fiscal year.

"Right now, the Oracle Cerner electronic health record system is not delivering for veterans or VA healthcare providers—and we are holding Oracle Cerner and ourselves accountable to get this right," Deputy Secretary of Veterans Affairs Donald Remy said in a statement. "We

are delaying all future deployments of the new EHR while we fully assess performance and address every concern. Veterans and clinicians deserve a seamless, modernized health record system, and we will not rest until they get it."

The botched rollout has the attention of lawmakers in both chambers, as well as President Joe Biden. In June, Biden signed the VA Electronic Health Record Transparency Act giving Congress additional oversight authorities over the project.

"When it comes to delivering the quality health care our nation's veterans have earned, we have to hit the mark the first time around," Sen Jon Tester, chairman of the Senate Veterans' Affairs committee, said in an October statement to Nextgov. "That's why I'll continue holding VA and Oracle Cerner's feet to the fire in fixing systemwide issues so existing facilities and any future rollouts guarantee VA health care staff have the tools to provide veterans safe, timely care." **N**

The background features a complex pattern of overlapping light gray squares and rectangles. In the top right, there is a large green cross-like shape with a white outline. In the bottom right, there is a grid of small gray plus signs. In the bottom left, there is a scatter plot with several gray asterisks and three green curves that rise and then fall sharply. In the top left, there are two horizontal bars, one dark gray and one white.

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