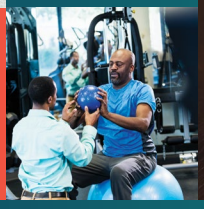
VHA 2022 STATE OF INNOVATION REPORT



REIMAGINING VETERANS HEALTHCARE





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WELCOME

The Veterans Health Administration (VHA) has long embraced innovation, from the first implantable cardiac pacemaker in 1960, to the recent advancements in 3D Printing research, prototyping, and customization to create viable alternatives to bone grafts and tissue replacements. Innovation is essential to bridge the gap between the areas where we are powerful and the areas where there is room to improve, ultimately creating a more resilient care delivery ecosystem. Innovation is discovery operationalized to deliver value.

In VHA, innovation is not only an energizer that fuels modern care delivery but is also a way to elevate and replicate the work consistently delivered by innovators throughout the Department of Veterans Affairs enterprise. VHA is a national treasure because of our staff who dedicate their lives to serving Veterans, their families, their caregivers, and their survivors. To that end, innovation enables frontline staff to take calculated and responsible risks, methodically test assumptions, learn from challenges, and reinvent care models throughout the U.S. health care system that have grown inert over time. Direct frontline engagement, with the support of program offices, helps VHA to supply the resources and the tools needed to drive impactful and sustainable care nationwide. Change moves at the speed of trust, and people are the most essential ingredient for the change we hope to make together.

Built on the foundation of empowering our staff, the VHA Office of Healthcare Innovation and Learning operates as an integrated portfolio under the VHA Office of Discovery, Education, and Affiliate Networks to drive market transformation, deliver novel care capabilities, and create new pathways for innovation at scale.

Throughout this report, you will discover how innovation across VHA is being reimagined today. We are excited to share this report and celebrate the game-changers uncovering and developing innovative health care solutions for our Nation's Veterans. Thank you for contributing to the incredible success and excellence that permeates the VHA organization.

Shereef Elnahal, M.D., MBA
Under Secretary for Health
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Assistant Under Secretary for Health
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VHA AT A GLANCE

367K

Full-Time Healthcare Professionals, with >2/3 of Medical Residents obtaining a portion of their training at VA Hospitals

VHA has evolved into the largest integrated healthcare system in the nation, delivering primary care with a lens focused on Veteran specialty care needs, including spinal cord injury, polytrauma, prosthetics and rehabilitation, traumatic brain injury and post-traumatic stress disorder (PTSD) treatment. Frontline staff members and clinicians are dedicated to quality care and continually improve the delivery of care to Veterans through research, collaborations, training, and the application of innovative solutions.

Today, VHA is cultivating dynamic collaborations with federal agencies, nonprofits, and private industries, as well as working with academic affiliates to test innovative solutions through research. These innovations range from virtual reality for the treatment of PTSD to telehealth, which vastly improves the accessibility of clinical services to Veterans.

Focusing on Veterans and understanding the physical, psychological, and economic determinants contributing to their health uniquely positions VHA to deliver not just healthcare, but also comprehensive Veteran care. Veterans choose VHA for the Veteran-centric model of care and expertise in service-connected health issues. Veterans stay with VHA for the community, resources, and support it builds around them.

9M

Enrolled Veterans

33%

of VA staff members are Veterans

1,298

Healthcare Facilities
171 VA Medical Centers and 1,113 VHA outpatient clinics

far right from top: SDI Productions/iStock, FG Trade/iStock

3 Nobel-Prize Winners

Dr. Rosalyn Yalow, the second woman ever to earn a Nobel Prize, received the 1977 Nobel Prize in Physiology or Medicine for her work in discovering the role of radioimmunoassay in insulin production, which led to major advances in diabetes research.

Dr. Andrew V. Schally, the head of the Endocrine, Polypeptide and Cancer Institute, Veterans Affairs Medical Center, in Miami, Florida, received the 1977 Nobel Prize in Physiology or Medicine. His research has more recently helped understand and treat endocrine-related diseases such as breast and prostate cancer.

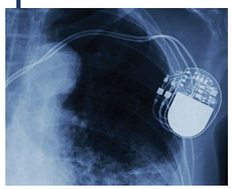
Dr. Ferid Murad shared the 1998 Nobel Prize in Physiology or Medicine with Robert F. Furchgott and Louis J. Ignarro for their discovery regarding the natural production of nitric oxide helping widen blood vessels to regulate blood pressure, prevent the formation of blood clots, and much more.

INNOVATION AT VHA

1960

Cardiac Pacemaker

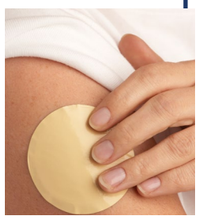
Dr. William Chardack of the Buffalo VA Medical Center teams with engineers Wilson Greatbatch and Dr. Andrew Gage to invent the first clinically successful implantable cardiac pacemaker.



1967

First successful liver transplant

Dr. Thomas Starzyl of the Denver VA Medical Center performs the world's first successful liver transplant, a ground-breaking success that has paved the way for several medical innovations today.



1970

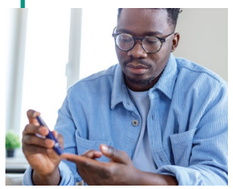
Electronic health record

Alongside the Public Health Service, VA begins planning for what would become the Nation's first electronic health record system, drastically disrupting the health landscape for years to come.

1984

Nicotine patch

Two decades after the 1964 Surgeon General's Report on Smoking and Health, VA researchers develop the nicotine patch and other therapies to combat cigarette addiction.



1990

Diabetes drug

Endocrinologist John Eng of the James J. Peters VA Medical Center discovers a peptide in venom from the Gila Monster that would eventually serve as the basis for a widely used diabetes drug.

2007

Ankle-foot prosthetic

VA unveils the first powered ankle-foot prosthetic which yields a faster walking pace and ultimately introduces a new era of innovation in prostheses.

From left to right: magicmine/iStock, ChooChin/iStock, stefanamer/iStock, Daniel Heighton/iStock, PeopleImages/iStock, JohnnyGreig/iStock, AnuchaCheechang/iStock

2016

ReachVET

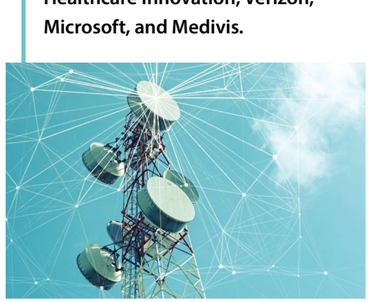
Enables VA staff to identify Veterans with risk factors for mental health crisis, wins the FedHealthIT Innovation Award.

2020

5G

VA Palo Alto Health Care System becomes one of the first U.S. healthcare systems to adopt 5G and test use cases.

Known as Project CONVERGENCE, this effort is a collaboration between the National Center for Collaborative Healthcare Innovation, Verizon, Microsoft, and Medivis.



2021

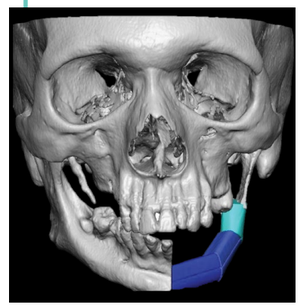
GioStent

U.S. Food and Drug Administration grants VA's first ever compassionate use authorization for a 3D Printed hearing device, the GioStent. The groundbreaking, in-house developed medical device is inserted into the ear canal to improve Veterans' hearing as an alternative to surgery.

2022

Mission Daybreak

Preventing Veteran suicide is a top priority for VA. Mission Daybreak is part of VA's 10-year strategy to end Veteran suicide through a comprehensive, public health approach.



OMF ASP System

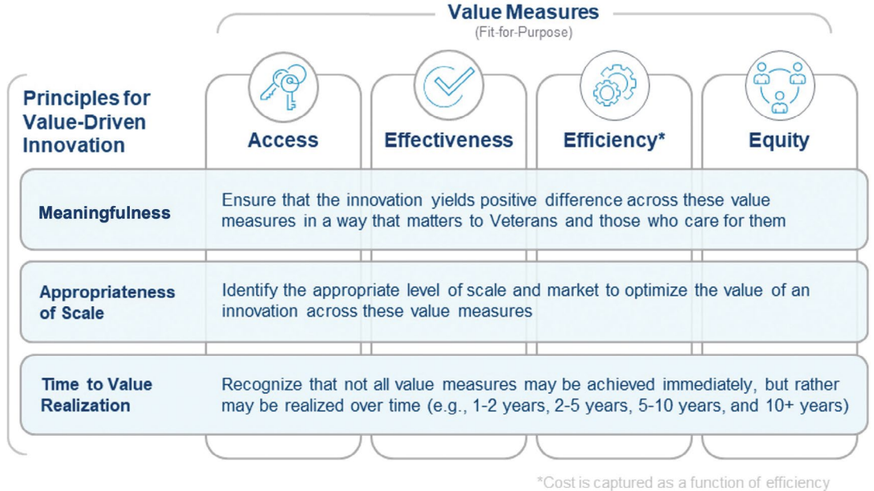
The Oromaxillofacial Advanced Surgical Planning (OMF ASP) System receives VHA's first 510(k) clearance of a Class II medical device as both the developer and device manufacturer. OMF ASP provides a process for surgeons to virtually pre-plan jaw reconstructive surgeries as well as create 3D Printed guides and models for intraoperative surgical guidance.

A Value-Driven Framework for Evaluating Healthcare Innovations

"To redefine value beyond dollars and cents, VHA must ensure that every dollar invested returns value to the Veterans they serve and measures value across the domains of access, effectiveness, efficiency, and equity."
– RYAN VEGA, M.D., MSHA, CHIEF OFFICER, VHA OHIL

Unlike most healthcare systems, VHA cares for Veterans over their entire lives. Thus, it has exceptional opportunities to research and invest in innovations that yield both short and long-term value to its providers and patients. Additionally, VHA is one of the few healthcare systems with the capabilities and incentives to develop novel solutions and systems, create collaborations, and select the best industry solutions to address Veterans' most pressing challenges. While remaining at the forefront of innovation is vital to ensuring that healthcare systems are providing the best care to the patients they serve and retaining the best clinical talent, innovations have historically been assessed only on short-term financial metrics to quantify their impact. In our modern and dynamic care environment, a new, holistic approach to evaluation is required.

To better measure healthcare innovation success, VHA OHIL developed and implemented a value-driven framework focused on four dynamic measures of value—access, effectiveness, efficiency, and equity—and three fundamental principles—meaningfulness, appropriateness of scale, and time to value realization. This framework is core to VHA OHIL's successful innovation strategy, guiding new and ongoing investments, and returning value across multiple domains beyond cost. It provides a rubric that innovators across VA can use to move beyond the status quo and realize the full potential of innovative healthcare solutions for Veterans and the people and systems that care for them.



By using this framework to evaluate potential investments and existing innovations, VHA will have the opportunity to:

- Prioritize what matters to Veterans and continue to support excellence in value-driven Veteran healthcare.
- Design, develop, and deploy a balanced portfolio of mission-driven and sustainable healthcare innovations.
- Realize the dynamism of innovation value, yielding more significant health outcomes over time from individual and population levels.
- Inform operational rigor needed to track the full range of value returned from the innovation portfolio.

Using this framework, VHA OHIL will continue to fortify its systemwide innovation portfolio to pursue growth areas presenting real promise, such as Immersive Technology, Digital Health, Point of Care Manufacturing, and Data Transformation. By focusing on the highest value solutions in these growth areas, VHA can design, develop, and deploy a portfolio of mission-driven and sustainable healthcare innovations. Consistent application of this framework will also ensure that innovation investments are only made if the technology or solution improves care for Veterans and the VHA enterprise that cares for them.

Success requires that we create the organizational capacity and capabilities to advance solutions that return the highest value as measured by the four domains outlined in the framework. Each of these innovation solutions must operate seamlessly within VA business models and enhance how care is experienced by Veterans throughout their VA patient journey. VHA OHIL invites all interested Veterans, innovators, and industry leaders to join them in adopting this new approach for evaluating healthcare innovations.

"Technology is moving quickly and it's hard for Veterans like me to keep up. I love my VA care. They never stop pushing the boundaries of how it can be better for me and my fellow Veterans."
– MICHAEL BORGES (VETERAN PATIENT EXPERT, U.S. AIRFORCE RETIRED)

VHA Office of Healthcare Innovation and Learning

Since its launch in October 2020, VHA OHIL has strategically united three powerhouse programs to deliver on VHA's mission to innovate: VHA Innovation Ecosystem (VHA IE), the Simulation Learning, Evaluation, Assessment and Research Network (SimLEARN), and the Center for Care and Payment Innovation (CCPI).

Through these core programs, VHA OHIL advances VHA healthcare delivery and service by (1) fostering the discovery and spread of grassroots and strategic innovative solutions, practices and products across VA; (2) promoting competencies in innovation and simulation; (3) combining clinical simulation and training to further enhance the utilization and uptake of emerging healthcare technology in clinical practice; (4) developing innovative approaches to testing payment and service delivery models; and (5) advancing the use of clinical training and simulation to further VHA's mission of becoming a high reliability organization.

Built on the foundation of empowering staff members, VHA OHIL operates as an integrated portfolio that drives market transformation, advances care capabilities, and creates new pathways for innovation at scale.

OUR LEADERS

Ryan Vega, M.D., MSHA
Chief Officer, VHA OHIL

Beth Ripley, M.D., Ph.D.
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Kristopher "Kit" Teague
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Eric Bruns MBA
Executive Director, SimLEARN

Roshni Ghosh, M.D., MPH
Executive Director, CCPI

VHA Innovation Ecosystem

SimLEARN
Excellence in Veterans' Healthcare

CENTER FOR CARE AND PAYMENT INNOVATION

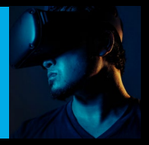
VHA IE is the catalyst for enabling the discovery and spread of mission-driven healthcare innovation to advance care delivery and service that exceeds expectations, restores hope, and builds trust within the Veteran community. VHA IE leverages the collective power of innovation champions from across VA, academia, other government agencies, and industry to operationalize innovation and scale best practices. Through these collaborations, VHA IE is able to test, replicate, and scale innovations into practice to drive operational value for the enterprise.

SimLEARN is VHA's program for simulation in healthcare training. SimLEARN provides an ever-growing body of curricula and tools that improve the well-being of Veterans through simulation based innovation and emerging technologies. The use of emerging technologies in a safe learning environment enhances diagnostic, procedural and communication skills to support quality care and the best possible outcomes. SimLEARN also supports VHA's journey as a high reliability and learning organization through the coordination of all national VHA simulation-based clinical education products and activities.

Authorized by Section 152 of the MISSION Act of 2018, **CCPI** plays a critical role in ensuring that VA maximizes quality of care while balancing costs and delivers needed services to Veterans. CCPI collaborates across the government and healthcare industries to design, develop, and test innovative approaches to enhance the quality and accessibility of care. Through these collaborative efforts, CCPI aims to transform healthcare at VHA and transition the system to a value-based model that comprehensively responds to the needs of Veterans while increasing efficiencies, reducing costs, and enhancing the quality of care provided.

REIMAGINING VETERANS HEALTHCARE

As innovators, our mission seeks to advance VHA's ability to excel as a learning organization and collaborate with one another to design, develop, and test emerging healthcare technologies and care models. In this report, you will find several examples of how VHA is Reimagining Veterans Healthcare, while using the value-driven framework for evaluating healthcare innovations in the areas of access, effectiveness, efficiency and equity. This framework follows three fundamental principles: meaningfulness, appropriateness of scale, and time. All of which is driven by highly skilled teams across the organization to deliver our innovation promise to Veterans, patients, and their families.



HUMAN-CENTERED DESIGN

Steeped in empathy, Human-Centered Design (HCD) is an iterative approach to problem-solving that involves true human perspective every step of the way. Building trust and understanding, engaging community and its stakeholders, and challenging people and systems to pivot when necessary are just a few foundations of HCD innovations.

This section of the report focuses on how VHA Office of Healthcare Innovation and Learning (OHIL) ignites the spark needed to create innovative healthcare solutions with a deep desire for authentic human connection and empathy-driven research methodologies. From our design-focused Innovators Network (iNET) programming to the Reimagining Veteran Healthcare (RVH) HCD Project, and the development of VA Pathfinder, VHA OHIL is leading the way in healthcare innovation.

"Your spark can become a flame and change everything."
– E.D. NIXON

The Workplace Cultural Revolution

Building a community of changemakers dedicated to improving VHA and the lives of Veterans

iNET is a bustling community of employees united by a desire to solve Veteran healthcare problems and engage in shared learning. Innovation Specialists facilitate local programming, lead local and national events, and connect staff members with the resources they need to design, develop, and test their own solutions. iNET does this through its framework of Teach, Do, Collaborate.

iNET's key teaching fundamentals focus on building an innovation strategy and HCD. These fundamentals provide individuals the tools to prioritize their efforts in the ways that Veterans would want them prioritized and ensure that iNET is investing in the right projects for Veterans. iNET's teaching also goes far beyond sharing concepts and illustrating innovation theory. It is focused on the individuals, in cultivating their potential to become an effective communicator and changemaker, so that when they return to their daily tasks, not only are their lives impacted by what they've learned, but also the whole community surrounding them is impacted.

iNET executes its mission with one mantra in mind: "Think big. Start small. Fail small." Everything that iNET does is based off this mantra and that is reflected in iNET's programs. The goal of Spark-Seed-Spread Innovation Investment and Accelerator Program (Spark-Seed-Spread) is to identify and accelerate employee driven innovations to improve healthcare experiences for Veterans, families, caregivers, and staff members. iNET identifies deeply committed staff members via an idea competition (Spark-Seed-Spread), and then trains them to design differently as they develop and implement innovative solutions that improve Veteran healthcare. In the largest integrated healthcare system in the United States, iNET sees failure as a negative experience only if you do not learn from it. iNET's new vision is to lead the cultural revolution in which innovative thinking and doing can lead to endless possibilities.

These endless possibilities will not emerge from thin air. It is only through collaboration and team building that this future can be constructed. iNET's Greenhouse enables the external healthcare innovation community to collaborate directly with iNET sites to co-design the innovative solutions of the future. By working with external organizations to develop and iterate different helpful resources, Greenhouse puts the voice of the Veteran and VA into the healthcare solutions that will transform possibility and opportunity into reality and ideal models of care. Through programs such as Greenhouse, iNET engages with individuals outside of its network to build a community of individuals dedicated to improving VHA and the lives of Veterans.

Innovation Specialists at Summer Camp 2022, an annual training event to build community and learn from peers how to support employee innovation.

PROJECT SPOTLIGHT

Disposable Air Pillow

Suzanne Zwerin, a Post Anesthesia Care Unit (PACU) Registered Nurse (RN) from the Cincinnati Veterans Affairs Medical Center (VAMC), noticed that healthcare providers have faced many new challenges over the past years, including living through and caring for Veterans during a global pandemic. These special circumstances create opportunities for staff members to innovate further and share best practices for wellness. In particular, Suzanne observed that a lot is lost in standard one-size-fits-all pillows and wanted to build a solution that puts the patient's comfort first.

Through collaborating with iNET, Suzanne received seed-level investment from Spark-Seed-Spread. With this investment, Suzanne has been able to pivot, iterate, and develop a prototype called air pillow on-a-roll (APOAR). APOAR can be issued when Veterans seek hospital care, both in the inpatient and outpatient settings. The disposable air pillow will be issued from a roll-out station, available in each patient room or department. The wall mounted pillow dispenser station will house not only the pillows on a roll but also have a user-friendly source of inflation. Patients are also able to take their individualized pillow home for further recovery.

In addition to a positive impact on patient healing, APOAR allows for comfortable positioning, reduces risks of transferring infections, creates smaller waste, optimizes available storage space, and provides caregivers a quick solution for obtaining and positioning a pillow. The ability to adjust the pillow's chambers with air provides caregivers an individualized approach to positioning a patient to maximize healing and recovery. Suzanne noted that, "Disposable air pillows should be our now and certainly our future." as they offer a contaminate-free and environmentally-responsible solution that can be customized to the exact need of the Veteran.

Pillows are a simple accessories that can provide immense comfort and ease for patients while being treated. This innovation shows how sometimes it can be the simple things made with the end-user in mind that can provide a whole new level of patient satisfaction.

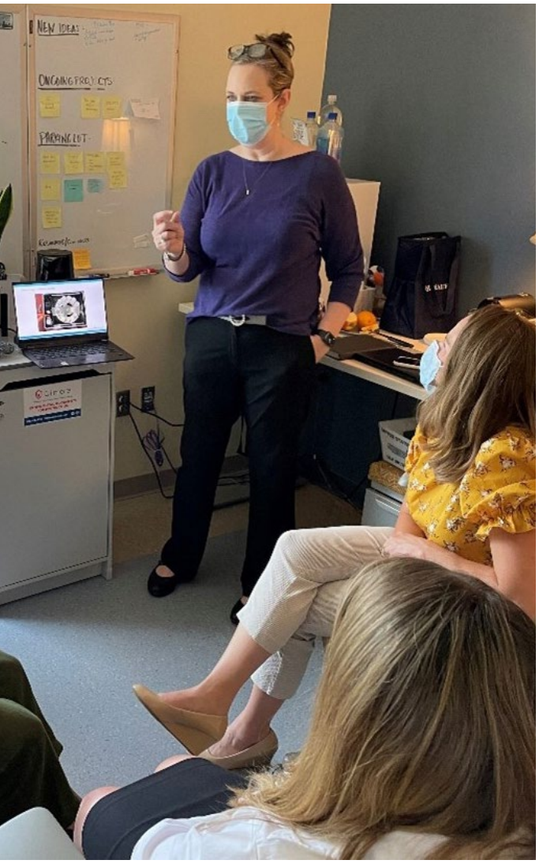
Suzanne Zwerin shares details on her project prototype called air pillow on-a-roll (APOAR).

The Greenhouse is Growing!

Stimulating and empowering frontline innovation

iNET serves as a catalyst for the external healthcare innovation community to collaborate with staff members at iNET sites throughout the country and to co-design innovative solutions of the future. This work is driven by the Greenhouse Initiative (Greenhouse), a collaborative effort launched in 2020 that allows external innovators with early-stage product designs to receive end-user feedback, develop or refine functional prototypes, and potentially conduct small-scale product feasibility testing with appropriate stakeholders within VHA.

How does this fit into iNET's framework and why is it important? Greenhouse solidifies iNET's mission to empower frontline staff members to practice HCD theory and learn by doing. It provides another avenue to engage frontline staff members who may not have time or interest to lead their own innovation projects and allows staff members to co-design innovative products with little or no financial investment. Since its launch in 2020, Greenhouse has received over 300 applications from external innovators. To date, Greenhouse has successfully launched over 25 collaborations and engaged over 400 frontline staff members in different phases of innovation. In a short period of time, iNET has experienced tremendous growth in their Greenhouse program and continues to deliver excitement about innovation to all who participate.



A team member from Verinetics, a Greenhouse Initiative collaborator, displaying their DispenSecur™ device to staff members at VA Gulf Coast Health Care System.

"With the Greenhouse Initiative, we were given the highly valuable and unique opportunity to listen and integrate real feedback from VA facilities and their staff members- making our product truly user-centric."

- JAYIESH SINGH, CEO, ABLE INNOVATIONS

PROJECT SPOTLIGHT

Verinetics

In 2021, Verinetics applied to be a part of Greenhouse when it was a seed-stage startup company located in North Carolina. Dr. Tom Mercolino, Chief Executive Officer, helped determine that overprescribing opioid led to 11.5 million people misusing opioids. The total economic burden of prescription opioid misuse in the United States is $78.5B a year, which includes costs of healthcare, lost productivity, addiction treatment, and criminal justice involvement. The negative health and economic consequences of the opioid crisis demands solutions: 1) reduce the number of new cases of opioid use disorder; and 2) provide better treatment of more than 2 million Americans suffering from Opioid Use Disorder. VA leads the healthcare industry in recognizing the evidence-based value of Medications for Opioid Use Disorder (MOUD).

A staff member from VA Gulf Coast Health Care System testing a Greenhouse project, Verinetics' DispenSecur™.

The opportunity to align the DispenSecur™ product with the needs of Veterans and VA healthcare delivery model will improve access to MOUD. Verinetics collaborated with iNET through the Greenhouse Initiative to evaluate the DispenSecur™ system at multiple VA Medical Centers. Both VHA staff members and Veterans participated in interviews and provided feedback on the DispenSecur™ system, its clinical functionality, and applicable use cases within VHA. DispenSecur™ reduces cost, inconvenience, and stigma for Veterans receiving MOUD. With DispenSecur™, liquid Methadone from opioid treatment programs (OTPs) is delivered in up to 14-day supplies for daily administration, reducing patient hardships in access. The DispenSecur™ system has a built-in 5G radio that communicates with a cloud-based portal reporting real-time information such as dosing time, device GPS location, and remaining drug inventory. The system gives healthcare providers access to dispensing activity and fosters trust with Veterans and their journey to recovery. Since launching their Greenhouse collaboration, Verinetics tested their product at five sites and engaged 49 staff members and 19 Veterans. The next step is to continue User Experience testing with Veterans and staff members in Asheville, Biloxi, and San Francisco.

PROJECT SPOTLIGHT

Able Innovations

A patient transfer is the routine task of lifting and moving an immobile individual between surfaces - such as beds, stretchers, or imaging tables. These transfers take place hundreds of times daily, with each transfer requiring between two to eight staff members exerting back-breaking effort. The current status quo for patient transfers results in higher injury/burnout rates for caregivers, lower clinical throughput for facilities, and lower quality of care for Veterans.

Able Innovations' ALTA Platform™, allows a single caregiver to conduct lateral transfers safely and effortlessly at the push of a button. Its unique technology functions like a compact conveyor belt platform that rolls underneath patients in a seamless fashion, resulting in a comfortable experience.

The reason ALTA is seeing great momentum is simple: Able Innovations is committed to user-centric design. The company takes pride in having a solution that has been designed in collaboration with caregivers and staff members, proving that real value is derived from innovation and ensuring true adoption is accomplished in the fast-paced, high-stakes environment of providing care. Consultations with Subject Matter Experts and Innovation Specialists from participating iNET sites allowed Able Innovations to gain valuable insights and integrate them into its product. Able Innovations is currently working with seven iNET sites and ALTA will continue to be introduced to caregivers and Veterans for further assessment and feedback.

Reimagining Veteran Healthcare

Unearthing and exposing opportunities for lasting healthcare transformation

"If VHA brought their services to me, I would be inspired. I would be impressed, and it would really make me want to advocate for VHA on a larger scale."
– ELIGIBLE VETERAN, UNENGAGED IN VA CARE

For a moment… put yourself back in the summer of 2021. The COVID-19 pandemic rages on, despite hopes that the availability of vaccines would bring it to an end. People across the country – yourself included – continue to experience a range of difficult issues related to the pandemic. The "two weeks to stop the spread" turned into more than a year. So much has changed with the world, with your life, and with the institutions you once thought unshakable. Some changes you love. Others – you loathe.

During this time, VHA Innovation Ecosystem (VHA IE) launched the Reimagining Veteran Healthcare (RVH) project, and a group of human-centered designers set out to unearth and expose opportunities for true, lasting transformation brought about by the pandemic.

Since then, the RVH team connected with more than 250 Veterans, service members, caregivers, VHA staff members, and others who helped imagine what VHA's future could be. Meeting on people's front porches, in their backyards, and over video, RVH found that there are **three persistent areas of opportunity for VHA innovation:**

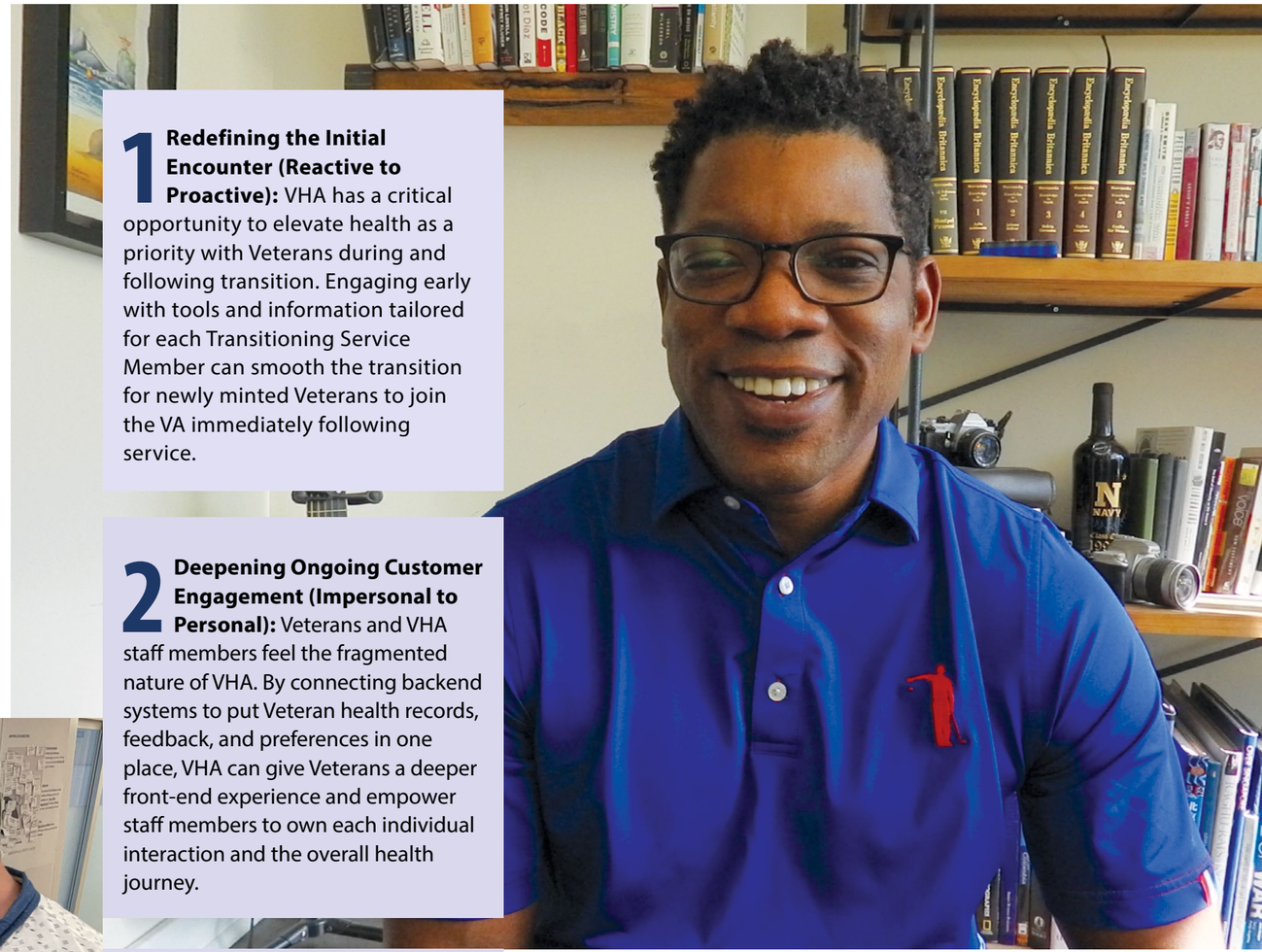
Team members working through qualitative data at a RVH workshop.

1 Redefining the Initial Encounter (Reactive to Proactive): VHA has a critical opportunity to elevate health as a priority with Veterans during and following transition. Engaging early with tools and information tailored for each Transitioning Service Member can smooth the transition for newly minted Veterans to join the VA immediately following service.

2 Deepening Ongoing Customer Engagement (Impersonal to Personal): Veterans and VHA staff members feel the fragmented nature of VHA. By connecting backend systems to put Veteran health records, feedback, and preferences in one place, VHA can give Veterans a deeper front-end experience and empower staff members to own each individual interaction and the overall health journey.

3 Extending the Envelope of Care (From Bricks and Mortar to Home and Life): More than ever, Veterans expect care when, where, and how they want it. The COVID-19 pandemic highlighted an opportunity for VHA to extend care beyond its walls and broaden the definition of health and healthcare delivery.

To address these opportunities, RVH codesigned a portfolio of 11 solution concepts that are actively being tested and refined in different areas of the organization. As RVH delves into the next phase of work, they are firmly rooted in the belief that healthcare should be about *people taking care of people,* and that by Reimagining Veterans Healthcare, VHA can lead the way in making that a consistent reality for patients, their families, and staff members.



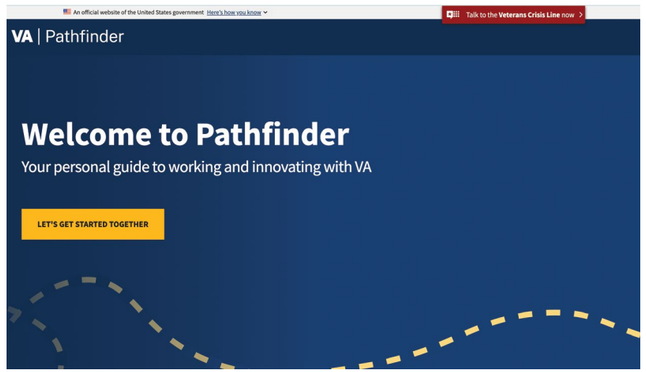
Navy Veteran Cozy Bailey shares his experiences with the RVH team.

VA Pathfinder

Allowing innovators, collaborators, and community members to connect with VA

Since the launch, more than 100 innovation and vendor submissions have been received by VA.

In October of 2020, VHA IE set out to design a "digital front door" to VHA innovation programs for external collaborators to navigate and engage more easily with VHA OHIL. During early stages of design, enthusiastic VA executive champions joined VHA OHIL in this mission to improve the way external collaborators engage with VA and the scope quickly grew to solve this problem at an enterprise scale. With internal partners and executive sponsors within the Office of Acquisition and Construction (OALC) and the Office of Information and Technology (OIT), VHA IE began designing this solution to improve the vendor engagement experience and streamline the VA's market research capabilities with a one-stop-shop for vendors and innovators to engage with VA. This design process began the collaborative journey among VHA IE, OALC, VHA OHIL and OIT in the development and launch of VA Pathfinder.



VA Pathfinder serves as a personal guide to working and innovating with VA.

VA Pathfinder is now a virtual concierge platform for innovators and vendors to learn more about how to sell to or innovate with VA, while they can also use the platform to submit their solutions for review and market research. External innovators and vendors experience a personalized set of questions, resources and prompts while this tool utilizes a backend management process that routes submissions to the relevant VA subject matter experts, contracting teams, and program leaders for review. Evaluation is managed through a collaborative internal approach to reviewing these cutting-edge products and services and ensuring these submissions inform current and future market research when selecting pilots and purchases that aim to improve care for Veterans.

The offerings an innovator or vendor could explore through this tool are collaborating on an idea or innovation at any stage, leveraging VA data to discover health insights, finding successful VA innovations for their own organization, and engaging with VA's innovation community.

Pathfinder Discovery

The design of VA Pathfinder began with over 100 discovery interviews with external innovators, vendors (i.e., Veteran-Owned Small Businesses, for-profit companies, other government agencies, Veteran Service Organizations, etc.) and VA employees (i.e., VAMCs, program offices staff members, etc.). These interviews brought three key takeaways to light:

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1 External innovators and vendors do not understand how to navigate VA – who to share their ideas, products, or services with, how to get in touch with them, and what it means to work with VA.

2 A greater ecosystem of VA stakeholders wants to be involved – Veterans, caregivers, and subject matter experts are interested in getting involved in VA innovation but do not know what opportunities exist and how to contribute.

3 VA staff members frequently receive email requests that are not appropriate for their specific department – This outreach from external innovators, vendors, and potential collaborators creates inefficiencies for both VA recipients and those who are searching for the right departments to engage.

Pathfinder Design and Development

A prototype of an early version of VA Pathfinder was developed in March 2021. Many VA staff members and external innovators participated in feedback and co-design sessions which led to a more advanced solution demoed in July 2021. By March 2022, a beta-version of the platform was launched. For the subsequent months, VA Pathfinder underwent intensive testing, feedback, and multiple rounds of iteration with all key stakeholders. In June 2022, VA Pathfinder officially launched on the VA website.

Since the launch, more than 100 innovation and vendor submissions have been received by VA. These submissions are being matched with offerings; feedback and data is being captured to inform future market research. VA Pathfinder is also empowering VA to aggregate data not only on the types of solutions that exist, but also where VA priorities and appetite for innovation lie. VHA IE continues to explore innovative approaches to better understand the needs of Veterans, caregivers, and frontline staff members through the use of VA Pathfinder.

VHA IE is excited to continue improving and expanding the capabilities of VA Pathfinder in adapting this virtual-concierge platform to meet the needs of additional customers within VA in service to Veterans and their families.

To get involved in VA innovation or learn more about VA Pathfinder, visit pathfinder.va.gov.

Pathfinder

Explore the different ways of innovating with VA

COLLABORATE
on an idea or innovation at any stage

LEVERAGE
VA data to discover health insights

FIND
successful VA innovations for your own organization

ENGAGE
with VA's Innovation Community

COLLABORATION

VHA Office of Healthcare Innovation and Learning (OHIL) has a track record of supporting innovators who are fiercely dedicated to identifying and solving complex challenges in our healthcare system through Human-Centered Design (HCD) and cross-functional collaboration. We bring together diverse perspectives from innovation communities like our own frontline providers, national program office leaders, academia, non-profits, Veteran Service Organizations (VSOs), other government agencies, and Veterans to solve challenges around access, equity, quality, and cost. United, this community is unstoppable.

This section of the report will take you on a journey from the Massachusetts Institute of Technology (MIT) Catalyst Fellowship Program that leverages the institutional power of MIT faculty in advising VA and non-VA innovators as they seek to develop projects with high healthcare impact, to more meaningful engagements with the VSO community and across VA program offices in designing and testing innovative healthcare solutions for diverse communities, and initiatives that address social determinants of health such as transportation and food security. These are but a few of our programs and projects that showcase the power of collaboration.

"Individually
we are a drop,
but together,
we are an ocean."
– RYUNOSUKE SATORO

Innovation is a Team Sport

Program offices tackling challenges together

Written by Lindsay Riegler, Ph.D.
2022 VHA Entrepreneur in Residence Fellow

Lindsay Riegler, Ph.D.
Research Speech-Language Pathologist and Innovation Specialist, Cincinnati VAMC

VHA IE has a long track record of empowering VA workforce in grassroots innovation but more recently, we have uncovered tremendous value in providing innovation products and services to program offices and field leaders who aim to leverage a human-centered design approach to tackling challenges in new ways.

In the spring of 2021, amidst a global pandemic that forced massive expansion of telehealth services across VA, the Office of Connected Care (OCC) invited various VHA innovation team members to help design a remote patient monitoring framework that would empower OCC to institutionalize the use of various at-home monitoring solutions. As 2021 VHA Entrepreneur in Residence Fellow, I took on the role and, in addition to building, began acting as the liaison between VHA OHIL and OCC.

As you might guess, building programmatic framework is no easy feat. It has involved national scale governance, policy, funding and procurement pathways, and most importantly, collaboration. The use-case that helped us blaze this trail was the utilization of remote temperature monitoring solutions. In the context of ensuring the best possible solutions for diabetic foot care for all Veterans across the country, collaboration meant working with subject matter experts, data scientists, service chiefs, medical and VISN level directors, program office executives, and frontline providers. Preventing amputations using remote monitoring technology required immense effort to establish, and we did it.

A large-scale policy shift and the ability to see the forest through the trees was required to make this happen.

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Alongside collaborators from across VA and led by my colleagues in VHA OCC, we obtained approval for new remote patient monitoring stop codes to allow providers the option to obtain workload credit. We engaged governance councils, wrote guidance documents, read federal registers, and though this sounds arduous, and it was, the experience we had was enjoyable. While our motivation was to enable the use of remote patient monitoring technology through systematic integration, the unwritten success of our collaborations were the relationships built along the way.

To stay technologically agile and ensure the highest quality of care for our Veterans, VA must act in a way that allows for the direct adoption of technology within key healthcare service areas. We must work together and navigate the organization as a team of innovators, clinicians, researchers, and administrators… all with one mission, to improve outcomes for the Veterans we serve. Together we are Reimagining Veterans Healthcare and that is an amazing feeling.

We must work together and navigate the organization as a team… all with one mission, to improve outcomes for the Veterans we serve.

This work could not have been possible without the leadership of my colleagues, including:

Kevin Galpin, M.D.
Executive Director, Telehealth Services, VHA OCC

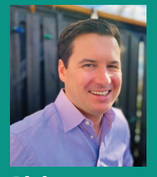
Sara DeRycke
Asynchronous Telehealth Lead, VHA OCC

Lu Beck, Ph.D.
VHA Deputy Under Secretary for Health for Policy and Services

Penny Nechanicky
Executive Director, VHA Prosthetic and Sensory Aid Service

Suzanne Shirley, LCSW
Director, Community Engagement and Fellowship, VHA IE

Kristopher "Kit" Teague
Executive Director, VHA IE



Blake Henderson
Director, Diffusion of Excellence, VHA IE

Danielle Hagan
Diffusion Specialist, VHA IE

Kyle Nordum, DPT
Physical Therapist, Cincinnati VAMC

Jeffrey Robbins, DPM
Executive Director, VHA National Podiatry Program

Nichol Salvo, DPM
Chief of Podiatry, VA Atlanta HCS

Suhail Masadeh, DPM
Podiatry Specialist, Cincinnati VAMC

Ernest Moy, M.D., MPH
Executive Director, VHA Office of Health Equity

Mission Daybreak: A Grand Challenge to Reduce Veteran Suicide

Establishing a network of support for Veterans and their families through transformative collaboration

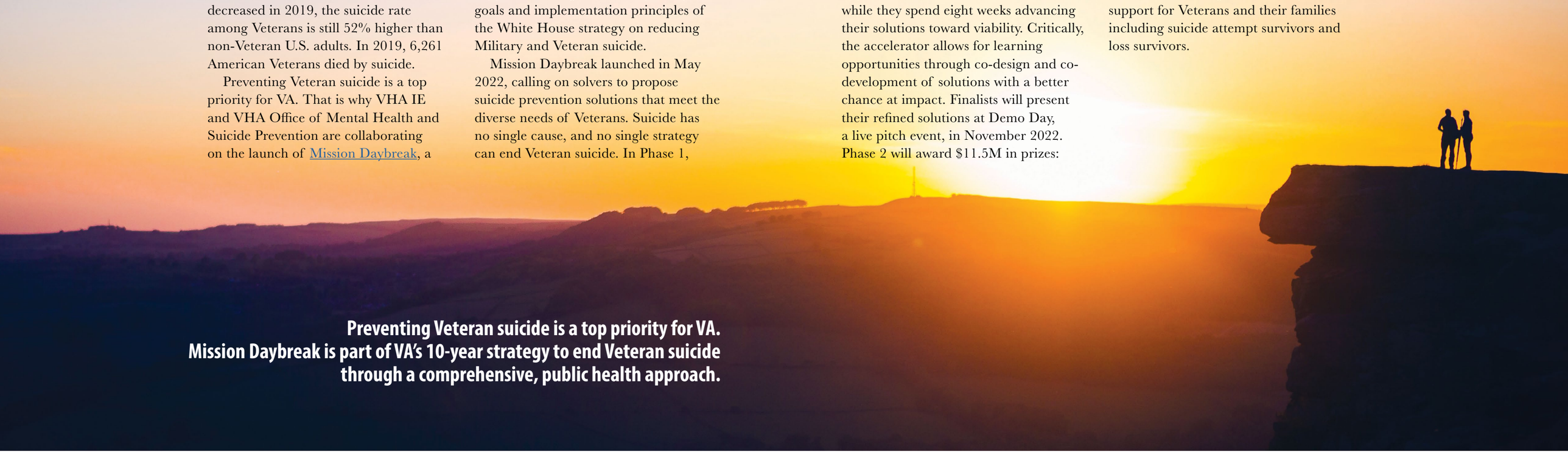
Suicide is a global public health problem that affects communities all across the United States. In 2020, an estimated 45,979 American adults died by suicide, averaging 130 suicides per day. While suicide can affect all Americans, it has a disproportionate impact on the Veteran community. VA's 2021 National Suicide Prevention Annual Report stated that, even while the Veteran suicide rate decreased in 2019, the suicide rate among Veterans is still 52% higher than non-Veteran U.S. adults. In 2019, 6,261 American Veterans died by suicide.

Preventing Veteran suicide is a top priority for VA. That is why VHA IE and VHA Office of Mental Health and Suicide Prevention are collaborating on the launch of Mission Daybreak, a $20M grand challenge to reduce Veteran suicides. As the nation's largest integrated healthcare system, VA is leveraging expertise of Government and non-Governmental collaborators to support this audacious mission. Mission Daybreak is part of VA's 10-year strategy to prevent Veteran suicide through a comprehensive, public health approach. This Challenge supports and aligns with the priority goals and implementation principles of the White House strategy on reducing Military and Veteran suicide.

Mission Daybreak launched in May 2022, calling on solvers to propose suicide prevention solutions that meet the diverse needs of Veterans. Suicide has no single cause, and no single strategy can end Veteran suicide. In Phase 1, solvers submitted detailed concepts across a broad spectrum of focus areas. In September 2022, 30 finalist teams received $250K and advanced to Phase 2. An additional ten teams each received a Promise Award of $100K.

During the Phase 2 accelerator, finalists are being provided with access to data, research, mentorship, collaboration opportunities, and other tailored resources while they spend eight weeks advancing their solutions toward viability. Critically, the accelerator allows for learning opportunities through co-design and co-development of solutions with a better chance at impact. Finalists will present their refined solutions at Demo Day, a live pitch event, in November 2022. Phase 2 will award $11.5M in prizes: two first-place winners will each receive $3M, three second-place winners will each receive $1M, and five third-place winners will each receive $500K.

Hope serves as an anchor for people in crisis, and Mission Daybreak offers a chance to translate hope into action. By catalyzing fresh thinking, outside perspectives, and innovative concepts, solvers are building a community of support for Veterans and their families including suicide attempt survivors and loss survivors.



Preventing Veteran suicide is a top priority for VA. Mission Daybreak is part of VA's 10-year strategy to end Veteran suicide through a comprehensive, public health approach.

Veterans are the Center of Innovation

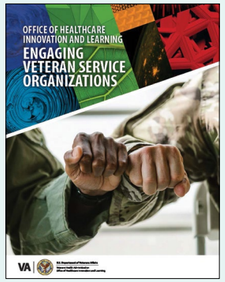
Collaborating with Veteran Service Organizations to identify solutions

VSOs work directly with Veterans and caregivers to provide guidance, assistance, and expertise with healthcare benefits and access. These organizations serve as advocates to protect, improve, and create positive solutions for healthcare services and Veterans who receive them. There are more than 100 VSOs providing personalized on-the-ground engagement with their members, and advocating on behalf of Veterans through national and state level legislative representation. The dedication of these organizations to Veterans and supporting priorities align closely with field-based and national scale opportunities for collaborative innovation.

Long-standing VSOs like Veterans of Foreign Wars (VFW), American Legion, American Veterans (AMVETS), Paralyzed Veterans of America (PVA), Vietnam Veterans of America (VVA) and Disabled American Veterans (DAV) represent over six million members.

After 2001, Post-9/11 VSOs emerged as highly engaged advocates for a "new generation" of Veterans. VSOs like Wounded Warrior Project, Team Rubicon, Iraq and Afghanistan Veterans of America, Team Red White and Blue, The Mission Continues, Travis Manion Foundation, and Student Veterans of America amplify the strengths and challenges of this community, empower Veteran connection, and widen opportunities for millions of Post-9/11 members to engage with VHA.

Additionally, many organizations exist at a local or regional level to support the Veteran community. County-based Veteran service officers work hand-in-hand with local Veterans to support them in navigating their local VA and assist in developing, preparing, and submitting claims.



Engaging Veteran Service Organizations Playbook

To effectively navigate engagement and innovative collaboration with the VSO community, VHA OHIL has published a playbook to serve as a guide for internal stakeholders in understanding collaborators, organizations and roles, engagement vehicles and structure, and processes. The playbook includes additional details on the six plays mentioned below and provides a checklist of activities and key questions to consider when engaging VSOs.

PLAY 1: Understanding Veteran Service Organizations. Identify and understand the VSO landscape and community to better empathize with their missions and membership and begin to identify areas of potential collaboration.

PLAY 2: Engaging VSOs in Your Community. Connect with VSOs and state/county Veteran associations through VISNs or VAMCs to ensure VHA innovation is led by the voice of the Veteran/caregiver. By listening to and learning from our "on the ground" collaborators, we can better design and develop programming/pilots that truly meet Veteran/caregiver needs.

PLAY 3: Sharing Innovative Stories and Opportunities with VSOs. Participate in ongoing, focused, and programmatic networking, and communications that improve VHA OHIL's ability to reach Veteran members with relevant and meaningful information on available innovative solutions.

PLAY 4: Leveraging VSO Advocacy and Legislation. Engage VSO communities early and often to address emerging Veteran legislative and policy priorities (e.g., burn pits, mental health, suicide prevention) through innovation.

PLAY 5: Collaborating on Emerging Technology and Healthcare Solutions and Advancing Pilots. Connect with VSOs and state/county Veteran associations to help inform, pilot, launch, and sustain innovative collaboration and scale pilots.

PLAY 6: Creating Collaborative Agreements. Leverage existing tools and templates, such as the Collaboration Playbook, to put in place a variety of collaborative agreements in support of VSO engagement activities.

VHA and VSOs are tackling innovative solutions around areas such as: military service transition, suicide prevention, novel care coordination models for a personalized healthcare experience, digital health experiences pre and post enrollment, and fellowships designed to bring student Veterans into government service. Together, VHA and VSO communities are working arm-in-arm on uncovering Veteran challenges and co-creating solutions to improve the lives of Veterans and their caregivers.

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PROJECT SPOTLIGHT

Student Veteran Fellowship

Student Veterans of America (SVA) focuses on service, research, programs, and advocacy for Veterans in higher education. To accomplish their vision of empowering student Veterans to lead and live their best lives, they act as a catalyst by providing student Veterans with resources, network support and advocacy to, through, and beyond higher education. In collaboration with SVA, VHA OHIL engages in nationwide discovery to better understand Veteran needs and found that over 650,000 Post-9/11 Veterans are leveraging the GI Bill and have expressed interest in the following career areas: Healthcare, Business, and STEM. Additionally, 42% of student Veterans interviewed shared that they are strongly interested in a career at VA.

Launching in 2023, VA is designing a professional talent pipeline for student Veterans to easily access federal employment at VA or other federal agencies through an innovation fellowship. This fellowship will provide valuable real-world experience for Veterans emphasizing the following:

- Focus will be on areas of innovation including healthcare, STEM, data analytics, and business strategy
- Leverage the Pathways Recent Graduates program; fellows should be in a non-competitive hiring posture
- Strengthen entrepreneurial and innovation skills for student Veterans as they embark on their second careers

Veteran Service Organizations Inspire VA Success

Integrating Veterans into the VA system

Success, for Jose Ramos, is often a surreal moment.

As Vice President of Government and Community Relations for the Wounded Warrior Project® (WWP), a non-profit VSO, Ramos shared that success feels surreal because the innovative solutions developed to overcome each challenge he encounters often takes some time to bring to fruition, in addition to requiring boundless creativity, endless collaboration, and a perpetual optimism while navigating the VA system.

Because, once one problem is solved, a new one immediately takes priority.

"For me, there is a personal purpose of knowing you're out there helping to find solutions to someone's problems," Ramos said. "Sometimes it doesn't seem big because it doesn't impact every individual. But, if it impacts one, it probably impacts others. And that is extremely rewarding."

As combat-wounded Navy Hospital Corpsman, Ramos brings empathy when building relationships with elected officials and working collaboratively to draft policies that can address real-world challenges wounded Veterans face every day.

"It's important for VSOs to be part of the conversation so they can provide their perspective on the impact of a policy and how it could potentially impact an individual."

In 2004, Ramos lost an arm while serving in Iraq. He then spent time recovering at Walter Reed National Military Medical Center, where he learned to adjust to a new life and a new prosthetic limb. Additionally, he had to navigate the VA system, which can be a confusing experience. All of it, he believes, makes him better at what he does for his fellow wounded Veterans.

"I have a unique perspective because I've experienced or personally lived through the programming and policies that are being discussed," Ramos said, noting the value that comes with finding solutions over the years. "You build relationships across the entire country that allow you to get a good perspective on what's happening in different areas. When someone has a challenge, they can call and get direction. Sometimes as Veterans, we just don't know what's out there."

While those relationships between VA and VSOs are vital to creating solutions, they're also critical vehicles for integrating Veterans into the VA system.

According to Ramos, less than half of the nation's Veterans are in the VHA system, including a significant number of Veterans who die by suicide every year. By collaborating with four world-renowned academic medical centers, the Wounded Warrior Project announced Warrior Care Network® in 2015 to increase access and care for Veterans dealing with post-traumatic stress disorder, traumatic brain injury, military sexual assault trauma, and other related conditions. Through this collaboration, Veterans living with these conditions have a path to long-term wellness.

During their two- to three-week intensive outpatient program, Veterans also get connected with VA care. VA personnel are on site to connect with Veterans sometimes for the first time, or sometimes for a service or type of care they've never used previously.

Ramos shared that the cohort-style design of the program recognizes that many Veterans in need of care are more comfortable going through a program with their peers. This specific type of patient-level intel and community-based collaboration punctuates the value of the innovative work that VSOs do.

"They all work together in this network. And to have VHA as part of that is a pretty good depiction of what it means to work together to address mental health needs specifically," Ramos said.

When it comes to facilitating progress for Veterans, as it relates to the experience of an individual or the broader needs of a certain Veteran community, Ramos believes that it is incredibly beneficial for VSOs to be involved with new programs or initiatives every step of the way. The Wounded Warrior Project, for example, is working with VA to pilot an application that measures an individual's progress as they transition from military to civilian life.

Jose Ramos is a Veteran and Vice President of Government and Community Relations for the Wounded Warrior Project®. Photography by Jesse Rieser

With 1.9 Million Veterans Going Hungry, We Need to Act Now

Mobilizing the idea that food security is an essential part of healthcare

Written by Priya Joshi, M.D.
2022 VHA Entrepreneur in Residence Fellow

At most hospitals, I see at least one Veteran who will only have reliable access to food while they are hospitalized. According to U.S. Department of Agriculture (USDA) data from 2015 to 2019, about 11% of the Veteran population, or approximately 1.9 million Veterans, are experiencing food insecurity. This means they do not have reliable access to a sufficient quantity of affordable, nutritious food to live an active, healthy life. For these Veterans, talking to a doctor about food is a difficult and vulnerable conversation. To make a difference in these Veterans lives, we must shift our collective understanding that stable and secure access to food is a critical part of every Veteran's healthcare.

VHA OHIL and Veterans Experience Office (VEO) are building momentum to increase awareness through their new food insecurity initiative that I have the privilege of leading. As a clinician who works in operations to address inequities in care, I believe clinical accountability from health authorities, primary care professionals, and local communities will be essential to earning the trust, partnership, and urgency Veterans and the medical community needs to deliver change.

According to U.S. Department of Agriculture (USDA) data from 2015 to 2019, about 11% of the Veteran population, or approximately 1.9 million Veterans, are experiencing food insecurity.

The Veteran Food Insecurity Landscape: Stakeholders, Barriers, and Opportunities

We started by seeking out those working on the front lines with Veterans to tackle food insecurity challenges. Over four months, we collected and analyzed data from 20 interviews with frontline staff members, researchers, and community organizations to understand VA's current effort to address Veteran food insecurity.

Through these conversations, we discovered that the lack of conversations around food insecurity created gaps in data that made it difficult to understand the true impact on Veterans. To address these gaps, we use VHA Hunger Vital Signs (HVS), a screening tool used to identify food insecurity in clinical settings. It is a major step in the right direction to estimate the scope of food insecurity but only identifies 2% of Veterans across the nation as food insecure. The difference in the statistics between the HVS and USDA suggests that there are barriers that prevent Veterans from being able to talk about their food insecurity and highlights the need for Veterans to become frontline leaders behind food insecurity initiatives.

There is no single root cause of food insecurity, but factors can include everything from the affordability of childcare to the availability of grocery stores. Regional thought leaders emphasized the need to consider Veterans and their families, caregivers, and communities as one unit, noting that food insecurity cannot be solved just for a single individual in a household. Those who invested in solutions expressed certainty in the need for change but uncertainty in how to measure widespread impact.

These gaps in current food insecurity work highlight the transformative potential of working with Veterans directly. By creating measurable and ideally scalable metrics of success, our goal is to ensure solutions are resourced to move the needle through in a manner that is accountable to Veterans.

The Path Forward: Engaging Veterans in Strengthening Data and Developing Solutions

The insights from stakeholders laid the critical foundation for the path ahead. Based on those findings, we are embarking on three interconnected efforts to drive the development of innovative solutions to address food insecurity among Veterans.

Dr. Priya Joshi is a Physician and Chief Health Informatics Officer at VA San Francisco Health Care System.

1 Empower the Veteran Voice
We are conducting interviews with frontline VA stakeholders to understand their experiences with food insecurity and to identify root causes that need to be addressed for meaningful change. Our goal is to continue gathering a wide range of Veteran perspectives, ensuring demographical and geographical diversity.

2 Design and Implement Iterative Solutions
We are gathering insights from Veterans and thought leaders to define requirements, metrics, and resources needed to enact change for the causes of food insecurity that Veterans identify.

3 Build a Platform for Change
We are working with programs across VA including the VHA Office of Food Security, VA Homeless Programs Office (HPO), Veterans Experience Office, and New England Innovation Center of Excellence (NEICE) to build an innovation collaboration platform that provides the resources that Veterans, clinicians, and institutions need to design and implement solutions that deliver accountable, measurable change. One example of the types of innovations to expect from this three-step approach, spearheaded by Charles Franklin from VA Rideshare and myself with the backing of Allison Bond from the HPO, includes establishing direct delivery of groceries to Veterans' doorsteps.

Given that reliable access to nutritious food is one of the core components of health, it is critical that we make it a focus of healthcare. We are not the first team to do this work and we do not want to do this work in silos. VHA OHIL seeks to restore trust with our national focus and collaboration with current efforts to better resource and structurally empower change for Veterans experiencing food insecurity.

VA Inclusion, Diversity, Equity, and Access Showcase Event

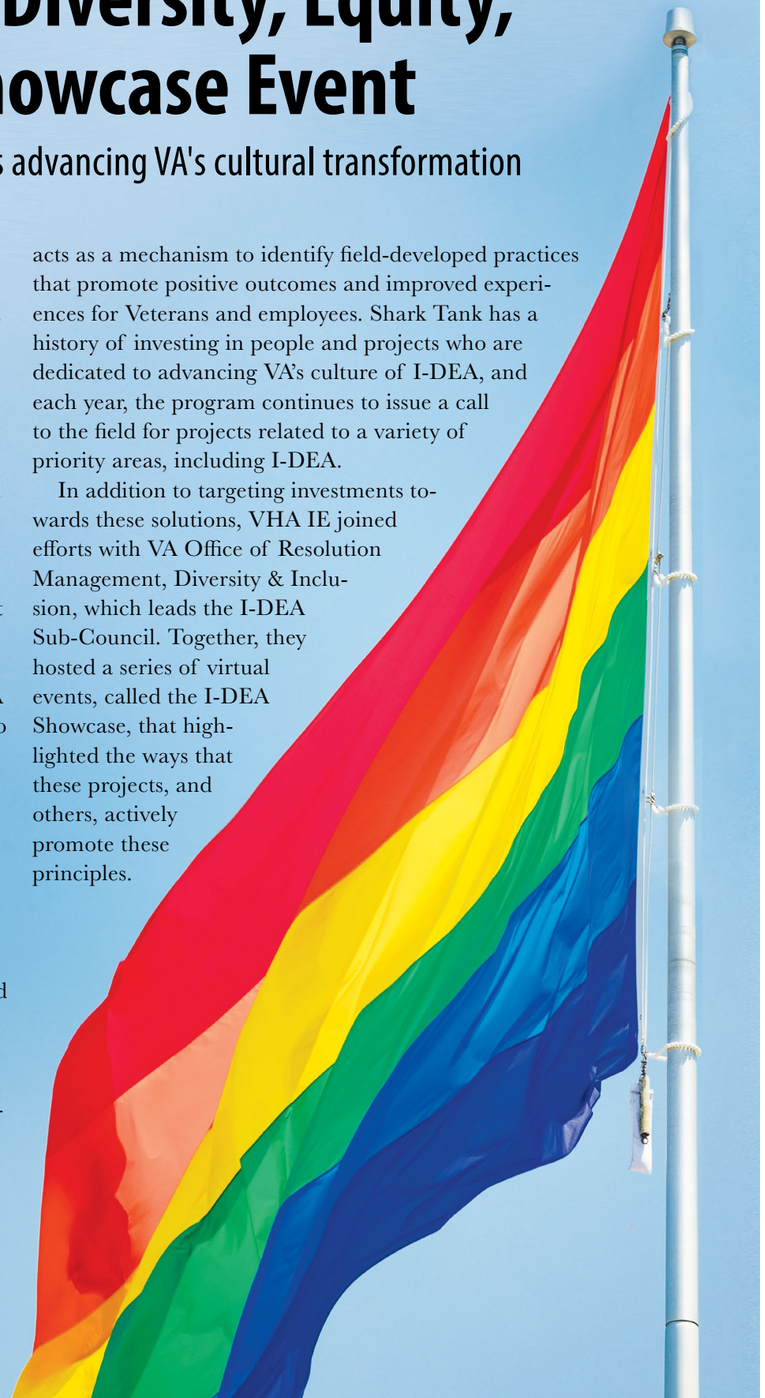
Highlighting how innovation is advancing VA's cultural transformation

VA believes that fostering a culture of inclusion, diversity, equity, and access (I-DEA) is key to organizational resiliency. These principles are necessary to improving experiences for Veterans, their families, caregivers, and survivors.

VA Secretary's I-DEA Sub-Council is made up of a diverse group of leaders from across the organization and is tasked with executing a mission for I-DEA, including designing new programming for underserved communities, integrating I-DEA into hiring and talent development practices, and promoting the culture of I-DEA across the enterprise: from the field to the VA Central Office. The I-DEA Sub-Council has transformed findings into actionable insights and has called upon all levels of the organization to take part in ensuring that all Veterans are receiving equitable care.

VHA IE has built the infrastructure to identify, develop, and scale innovative ideas to VA's most pressing challenges. VHA iNET's Spark-Seed-Spread Investment and Accelerator Program introduced I-DEA as an impact area this year and is sourcing I-DEA focused innovation from the field. Spark-Seed-Spread identifies, accelerates, and empowers employee-driven innovations that advance inclusive, accessible, and equitable healthcare experiences for Veterans, families, caregivers, and employees. Similarly, VHA Diffusion of Excellence's annual event, Shark Tank, acts as a mechanism to identify field-developed practices that promote positive outcomes and improved experiences for Veterans and employees. Shark Tank has a history of investing in people and projects who are dedicated to advancing VA's culture of I-DEA, and each year, the program continues to issue a call to the field for projects related to a variety of priority areas, including I-DEA.

In addition to targeting investments towards these solutions, VHA IE joined efforts with VA Office of Resolution Management, Diversity & Inclusion, which leads the I-DEA Sub-Council. Together, they hosted a series of virtual events, called the I-DEA Showcase, that highlighted the ways that these projects, and others, actively promote these principles.



VA PRIDE in All Who Served

VA PRIDE in All Who Served program, a LGBTQ+ Health Education Group, was designed and refined using human-centered design principles at the Hampton VAMC in 2016. PRIDE is led by Dr. Heather Sperry and Dr. Michelle Hilgeman and is a multi-year Spark-Seed-Spread Investment Program recipient. As of August 2022, PRIDE has reached more than 750 Veterans at 42 VAMCs, but its impact on the organization and our LGBTQ+ Veterans is immeasurable.

VA Diversity and Inclusion Advocate Program

VA Diversity and Inclusion Advocate Program (VADIAP) originated at the Orlando VA Healthcare System and is led by Pamela Black and Nadege Jean-Paul. This innovative program identifies, trains, and empowers employees from across the medical center as Diversity and Inclusion (D&I) Advocates, identifiable by their bright kiwi shirts. Serving as trusted communicators and conflict mediators, these D&I Advocates are building employee trust and creating a community around I-DEA at the local level.

VHA's Extended Reality Network

Dr. Anne Lord Bailey, Director of Clinical Technology Innovation for VHA IE and Co-Lead of VHA's Extended Reality (XR) Network, shared stories of how XR solutions are immersing staff members in environments designed to simulate what it feels like to seek healthcare as an aging LGBTQ+ Veteran through VHA's collaboration with Embodied Labs. These programs are designed as empathy trainings, allowing VA providers to experience and empathize with the experiences that shape the care of the Veterans they serve.

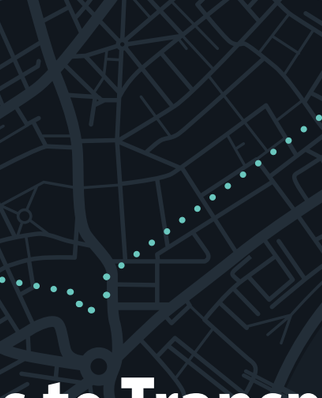
VA PRIDE program helps employees better care for LGBTQ+ Veterans.

Orlando's VADIAP InnoVAtion Project Team Members Ms. Mariel Santana (Paralegal Specialist), Ms. Pamela Black (EEO Manager), and Ms. Nadege Jean-Paul (EEO/IC Assistant).

Embodied Labs' immersive virtual training platform is used in healthcare across the United States by senior living organizations, families of older adults, education, and even by consumer companies.

VA Expands Veteran Access to Transportation

Addressing transportation as a social determinant of Veteran health and well-being



Maxger/iStock

Veteran Mark Goddard has struggled with addiction for much of the last decade. While he continued to seek the medical care needed for his recovery, he faced a recurring uphill battle – access to reliable transportation. "If I used public transportation [to get to VA Medical Centers], it would take me two hours to get to my appointments. I'd get 'lost' somewhere downtown and end up missing on the streets for days," Mark shared of his journey.

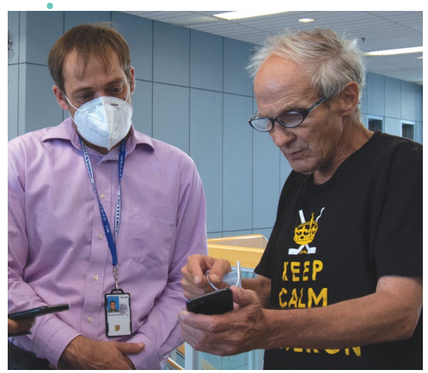
Transportation remains one of the greatest barriers to increasing access to healthcare for Veterans. Many Veterans, like Mark, face a wide range of transportation challenges – not having access to transportation, relying on a caregiver who may be unavailable for recurring medical appointments, or living in rural areas where transportation is limited.

Understanding transportation had become such a basic social determinant to health, then Community Care Coordinator Charles Franklin launched VA Rideshare Program to offer Veterans experiencing homelessness transportation to and from their workplace and healthcare settings.

With the support of VA's emerging rideshare capabilities, VA Boston Health Care System (HCS) was ultimately able to provide the tailored solution needed for his healthcare journey and the opportunity for a sustained recovery.

VA Rideshare Program

Beginning as a pilot with just ten Veterans at VA Boston HCS in 2018, Charles Franklin collaborated with VHA IE and later with the New England Center for Innovation Excellence (NECIE) to offer supplemental transportation options for Veterans experiencing homelessness. This initiative was named VA Rideshare Program. Since August 2021, the program has facilitated more than 250,000 rides across 2.5 million miles for Veterans – an average of over 12,000 rides weekly. These miles translate to life-altering access transportation to over 105,000 for healthcare medical appointments, 20,000 for housing, 15,000 for food and critical community services for Veterans, and 25,000 for employment.



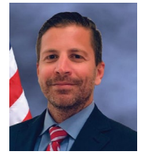
Army Veteran Mark Goddard shares his experience with VA Rideshare program.

While the program began with transportation to and from workplace and healthcare settings, VA Rideshare Program has expanded its uses for greater Veteran impact. Rideshare now operates nationally to support the VA Homeless Program Office across more than 165 VA Medical Centers (VAMCs) in 53 U.S. States and territories. When VAMCs saw a need to help Veterans get home from emergency room visits and inpatient stays, VA Rideshare Program pivoted to support more than 70 Emergency Departments with discharges and over 50 healthcare systems with their inpatient discharges leveraging a competitive Rideshare Platform with over 25 transportation companies. When Hurricane Ida made landfall in fall 2021 and raging wildfires hit the Northwest in 2022, the program pivoted yet again to provide critical emergency transportation services for disaster relief as well as supporting those impacted by the recent water crisis in Jackson, Mississippi.

"This program allows transportation to revolve around Veterans' treatment plans, rather than making treatment plans evolve around transportation availability," shared VA Rideshare Program Innovator and NECIE Project Manager Charles Franklin.

VA Rideshare has facilitated more than 250,000 rides across 2.5 million miles for Veterans.

NECIE Innovation Team



Leandro Da Silva
Acting Director

Charles Franklin
Project Manager

Rachel Wilk
Project Manager

Stacey Lewis
Data Scientist

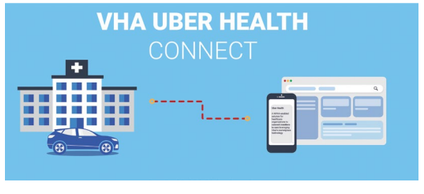
"The pilot program has been well run and I am extremely satisfied with the support we have received from the Program Cadre. Without a doubt this has been the best experience I have had in my fourteen years with a new VA program!"
- JOHN GEORGE, ARMY VETERAN, MOBILITY MANAGER, JAMES H. QUILLEN VA MEDICAL CENTER (MOUNTAIN HOME, TN)

VHA-Uber Health Connect Initiative has offered upwards of 10,000 Uber rides across 160,000 miles for Veterans.

VHA-Uber Health Connect Initiative

In October 2020, Dr. Indra Sandal, 2021 VHA Entrepreneur in Residence Fellow, started developing innovative solutions that would address transportation barriers to accessing healthcare for Veterans. Understanding the critical role of transportation in providing equitable health outcomes, Dr. Sandal and her teams from Veteran Transportation Program (VTP), VISN 9 and 15, began working with Uber Health to ensure compliance with VHA regulations. Through collective efforts, VHA IE, VTP, and Uber Health rideshare services created a unique collaboration and the VHA-Uber Health Connect (VUHC) Initiative was born in January 2022.

VUHC launched across ten VAMCs in VISN 9 and 15 with the goal of improving access to care, decreasing VA costs, and enhancing Veterans' mobility experience. It is designed to offer supplemental transportation options for beneficiary travel eligible Veterans and care givers to get to and from medical appointments. VUHC integrates Uber Health's HIPAA-compliant technology solutions into existing transportation systems at VAMCs, which then provides a ride-sourcing platform to healthcare providers. These capabilities allow clinics and VAMCs to book rides, track trips, record billing and spending information, and send reminders to patients' mobile phone or landline from a centralized dashboard. Patients can track their rides via text message or phone call, and the expense is reimbursed directly by the VAMC, so the Veteran does not have to file a separate claim.



The pilot program delivers a number of benefits to healthcare providers, medical facilities, and Veterans. For healthcare providers, VUHC reduces the number of no-shows and late arrivals, increases treatment adherence, and improves health outcomes for Veterans. For VAMCs, it offers cost-saving potential due to improved adherence to preventive and maintenance care, leading to decreased need for costly emergency department visits and hospitalizations. VUHC promotes positive health outcomes and provides convenience for Veterans. Being able to book transportation on the same day or a few days in advance enables reliable access to medical appointments and allows for greater flexibility in scheduling rides for patients with physical limitations. "The VHA Uber Health Connect Initiative makes sure to get Veterans in the doors of VA facilities and to the care they deserve by providing transportation as easy as raising your hand.", shared Dr. Sandal, National Lead of VUHC.

VUHC initiative leaders interviewed Veterans, VA staff members, VISN leadership, and other key stakeholders to build relationships, track outcomes, solicit feedback and gather learnings for national rollout of VUHC. Top image: Lexington VAMC team. Above: Karen Adams, Active Reserve Soldier, Lead transportation Specialist, Memphis VAMC and Indra Sandal, VUHC National Lead.

Maxger/iStock; Antonio_Diaz/iStock

From January-August 2022, the VUHC program has offered upwards of 10,000 Uber rides across 160,000 miles for Veterans. These rides have increased access, improved clinical engagement, and saved VHA an estimated $10M to date, in part by facilitating faster emergency department and inpatient discharges (i.e., saved 750 bed days) and fewer appointment cancellations (i.e., avoided 9,000 missed appointments) across VISNs 9 and 15. The VUHC team collaborated with the Veteran Experience Office (VEO) and VEText team to capture Veteran experiences by sending the survey via text message to Veterans. Based on a survey, 82% of Veterans stated they would not have been able to access their medical care without this program. Given the success to date, VUHC is expanding to 45 hospitals across seven VISNs starting in January 2023.

Evolving VA's Transportation System for Veterans

Through the vast impact of these two rideshare programs, VHA has witnessed first-hand how transportation serves as a critical social determinant of well-being for Veterans. In addition to limiting Veterans' ability to receive timely healthcare, lack of reliable transportation can also deter Veterans' ability to seek and retain employment, secure housing, and achieve food security.

VHA IE continues to collaborate with VA Rideshare Program and VUHC to support the overall well-being of Veterans, whether it be rides to medical appointments, secure employment, housing, or food security. Unlike other healthcare problems, this is one that VA can solve.

Using VA Rideshare to make his daily appointments at VA Boston HCS, Mark is near reaching his goals. He attributes his success in large part to VA Rideshare, sharing, "without the VA Rideshare Program, I know that I would not be alive."

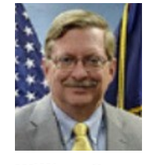
VUHC Initiative Leaders

Indra Sandal, Ph.D., MBA
National Lead
Innovation Specialist,
Memphis VAMC

Ben Williams, MBA
Co-Lead
Director, Veterans
Transportation Program

Garth Miller, FACHE, MHSA, M.Ed.
Executive Director
VHA Member Services

Gregory Goins, FACHE
VISN 9 Network
Director



William Patterson, M.D.
Former VISN 15
Network Director

MIT Catalyst Fellowship Program

Developing high potential healthcare projects from idea to impact

"The MIT Catalyst Fellowship Program is early-stage innovation at work. It exposes our VA providers to fundamental human-centered methods for solving challenges they've experienced while caring for Veterans and enables them to invest in their careers by nourishing their collaboration, negotiation, design, and leadership skills."
- SUZANNE SHIRLEY, LCSW, MIT CATALYST FACULTY

The MIT Catalyst Fellowship Program is an academic collaboration with VHA IE that aims to increase the potential impact of biomedical research and improve the likelihood that newly developed solutions will address unmet healthcare needs in VHA. MIT Catalyst Fellows are recruited from VHA, academia, and the broader healthcare industry to form cross-functional teams and bring diverse perspectives to the program. This year's fellows include biomedical engineers, mental health professionals, emergency and anesthesiology physicians, gastroenterologists, computer scientists, and design professionals. With VA providers from VHA Innovator's Network (iNET) sites across the nation, the Catalyst Program leverages VHA OHIL programs like iNET Greenhouse, Spark-Seed-Spread, Diffusion of Excellence, and SimLEARN Simulation Centers.

This experience starts with a six-month deep dive into healthcare needs assessment, validation, and solution development with the opportunity to move to a second phase of prototype development. Catalyst Fellows meet weekly as a cohort with faculty from MIT, VA, and Industry and learn through development of fellow driven projects. During the course of the fellowship, there are three intensifications conducted to facilitate project progress and fellow education. This year, Catalyst Fellows have worked to develop early-stage solutions related to the ergonomics of colonoscopy scopes, post-stroke grip recovery, detection of counterfeit drugs, and nerve stimulation unit for lower back pain. As select projects mature, many leverage VHA innovation infrastructure to further design and develop their solutions to improve care delivery.

MIT Catalyst Faculty members Suzanne Shirley and Eric Bruns discussing project progress and coaching teams on the development of innovative solutions using a needs-driven approach during intensification week.

MIT Catalyst Fellowship Program Spring 2022 Cohort

Aksha Abbott, M.D.
Opthamologist,
Technology Based
Eye Care Services
Program
VISN 23

Marth Duffy, M.D., MPH
Interprofessional
Advanced Fellow in
Addiction Treatment and
Primary Care Physician
VA Boston HCS

Smitta Patel, M.D., MPH, MBA
Chief of Innovation,
Department of
Mental Health
Greater Los Angeles
VAMC

Amos Raymond, M.D.
Assistant Chief,
Emergency Department
Memphis VAMC

Aparna Repaka, M.D., MBBS
Staff Physician and
Gastroenterologist
VA Boston HCS

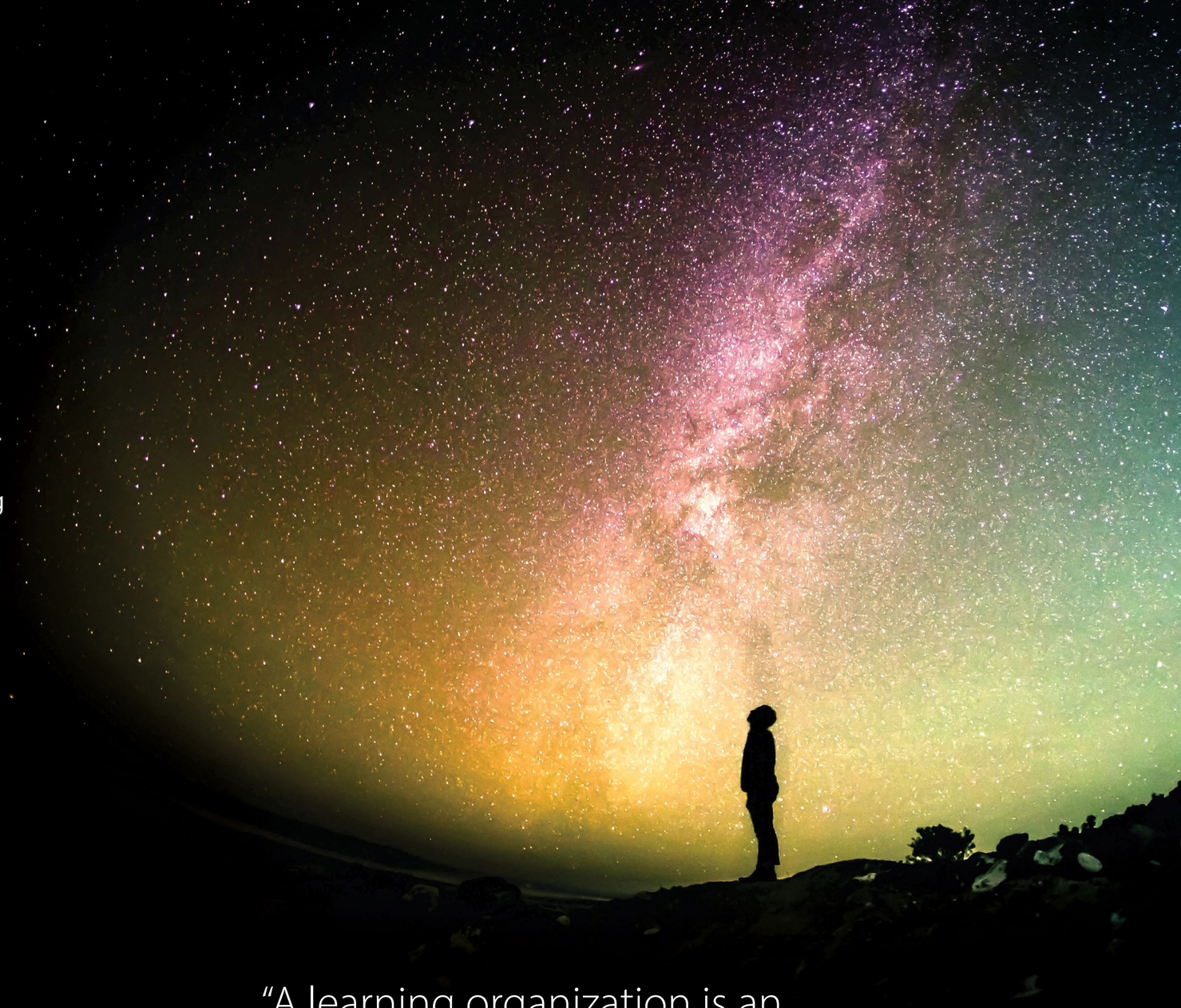
Jonathan Sherrod, M.D.
Staff Anesthesiologist
Memphis VAMC

"Through MIT Catalyst and other initiatives, VA wants to bring innovation into practice, through small investments in not only someone's project, but also their career."
– RAVI RASALINGAM, M.D., M.B.CH.B., MIT CATALYST ALUMNA AND FACULTY, STAFF CARDIOLOGIST AT VA BOSTON HCS

LEARNING

This section of the report will share information on how VHA Office of Healthcare Innovation and Learning (OHIL) is identifying new and innovative opportunities to grow as a learning organization. With the goal to enhance VA's reputation as the premier learning and training healthcare system in the world, VHA is providing innovative healthcare education solutions that range from simulation-based learning strategies to clinical workforce development. Through using existing VA data to better inform decision making processes towards care delivery and operations across the enterprise with Arches, to collaborating with the Simulation Learning, Evaluation, Assessment, and Research Network (SimLEARN) in exploring cutting-edge technology that can be implemented into VHA simulation labs and medical facilities, these efforts are setting the standard as testing environments for innovative technologies and practices.

With support from VHA's Diffusion of Excellence (DoE) program, VHA OHIL is also discovering unique ways to empower the frontline by disseminating clinical and administrative best practices that promote positive outcomes for Veterans systemwide. These engagements provide VA staff members with advanced competencies and training experiences that are invaluable to delivering safe and reliable care.



"A learning organization is an organization that is continually expanding its capacity to create its future."

- PETER SENGE

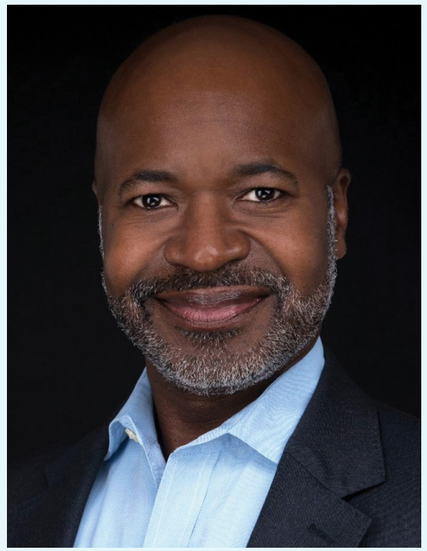
SimLEARN at the Intersection of Education and Technology Innovation

Advancing clinical training through simulation and emerging health technologies

Written by Eric Bruns, MBA

SimLEARN will continue transforming simulation by providing world-class innovation and simulation education to enhance Veteran care and wellness.

Over the last two years, you have heard the term "new normal" to describe the changing landscape that has emerged out of the COVID-19 pandemic. This term codifies the different and new realities in which we live. In the healthcare industry, this new reality includes a massive wave of health technologies and innovations. The Simulation Learning, Evaluation, Assessment, and Research Network (SimLEARN) has been a critical resource in using simulation to test, develop, and advance those technologies and innovations.



Eric Bruns, MBA, is the Executive Director of Simulation Learning, Evaluation, Assessment, and Research Network.

Accordingly, the accelerating rate of change in healthcare requires a shift in the traditional training and simulation model to better suit today's healthcare system for clinical providers in VA and beyond. Rather than looking at training or simulation as stand-alone products, the new reality for clinical education and healthcare requires simulation-based training in a realistic, immersive environment. SimLEARN's five portfolios provide a body of programs and tools that improve Veteran well-being through simulation-based innovation and technologies delivered in a safe learning environment. Each of these portfolios contribute to ensuring VHA clinicians have access to training and simulation resources that reflect current and emerging care models.

Emerging Healthcare Technology Integration (EHTI) portfolio focuses on the integration of emerging health technology into clinical care through identifying solutions that advance the standard of clinical learning and simulation and optimizing workflows of emerging health technologies in a simulated, risk-free environment.

Resuscitation Education and Innovation (REdI) portfolio, which is the national VHA resuscitation program, uses innovative tools and transformative processes to enhance medical emergency responses.

Assessment, Collaboration, and Outreach (ACO) portfolio provides proactive simulation experiences for medical facilities which include scenarios for clinical staff activities, assessments and evaluations for medical system and hospital activations, and simulation training programs at local VA medical facilities supporting Veterans who live in rural areas.

Supersmario/iStock

Learning Management (LM) portfolio facilitates simulation-based development, curricula, distribution, and tools that support innovative, enterprise-level healthcare solutions. LM reimagined learning in 2021 by leveraging virtual platforms to distribute just-in-time clinical-based simulation training.

Participants engaged in learning sessions during the Summer Immersive Summit.

Clinical Training and Engagement (CTE) portfolio leverages its clinical simulation expertise to educate and collaborate with VA medical centers to deliver critical skills to staff members and ultimately enhance Veteran outcomes. CTE reimagines learning by delivering simulation-based training through innovative, virtual distribution channels.

All five of SimLEARN's portfolios facilitate simulation-based education in immersive environments, allowing learners to engage in realistic, simulated environments that help with learning, unlearning, or relearning. Immersive technologies empower SimLEARN to provide unique training platforms that allow clinical training anytime, anywhere using realistic simulations in a safe and evolving environment.

One of our key objectives is to ensure clinical staff members are prepared and able to deploy emerging technologies and transformational care models. This intention was manifested through the collaboration of government, academic, and industry professionals during the 2022 VA Summer Immersive Summit held on June 28-30, 2022. This two-and-a-half-day event at SimLEARN's National Simulation Center (NSC) highlighted how VA's use of immersive technology is defining a new reality for Veterans, clinicians, facilities, and healthcare.

We witnessed change in the hearts and minds of some attendees at the 2022 VA Summer Immersive Summit. A member of VA leadership shared, "every single presentation, demonstration, interaction and networking opportunity was awe inspiring, powerful and highly impactful. This summit was a tour de force…."

Another transformative event held at NSC was the SimLEARN Innovation Center for Education (SLICE) and Simulation Showcase held on August 30-September 1, 2022. This event presented an opportunity for VHA educators, specialists, and experts in simulation to collaborate and share strong practices related to simulation team initiatives. Event participants had discussions and workshops around several topics which included strong simulation

Eric Bruns presented updates to the SLICE Network and Facility Certification programs during the SLICE & Simulation Showcase 2022.

education practices for effective simulation-based training, challenges and barriers in educational strategies, key concepts in simulation education and, strong practices focusing on Veteran outcomes. SimLEARN leaders provided updates to the SLICE Network and Facility Certification programs and offered a demonstration of Sim Ops workshops.

Moving forward, SimLEARN will reimagine learning and transform simulation to enhance Veteran health and wellness through activating new clinical spaces, adding new SLICE centers across the country, and enhancing VHA simulation networks. Additionally, we will continue development of SimLEARN's Simulation, Validation, Evaluation and Testing (SimVET), which allows VA to test drive healthcare solutions before they reach Veterans.

I remain proud of all that SimLEARN has accomplished since its creation and am energized about where our simulation network is headed in the future. SimLEARN will continue transforming simulation by providing world-class innovation and education to enhance Veteran care and wellness.

Moving forward, SimLEARN will reimagine learning and transform simulation to enhance Veteran health and wellness through activating new clinical spaces, adding new SLICE centers across the country, and enhancing VHA simulation networks.

SimVET: Test Driving Healthcare Solutions

Setting guardrails for Veteran safety

SimLEARN is VHA's leader in building an ever-growing body of curricula and tools that improve Veteran well-being through simulation-based innovation and technologies within a safe learning environment. Simulation Validation, Evaluation and Testing (SimVET) is a new model that leverages SimLEARN and the National Simulation Center (NSC) for pre-procurement testing to include technology, processes, and VHA integration. The emerging innovative service test drives healthcare solutions (e.g., clinical software applications, medical devices) in a fail-safe simulated clinical environment prior to acquisition and deployment across the VHA and in VA Medical Centers. For example, SimLEARN's Emerging Healthcare Technology Integration (EHTI) team tests technology such as the Medivis Surgical Augmented Reality (AR) suite, which is used for pre-surgical planning, interventional radiology, reviewing patient's anatomy, and navigating images. These efforts enable SimVET to provide objective reviews of emerging healthcare solution to reshape the Veteran experience.

VA Under Secretary for Health, Dr. Shereef Elnahal, was briefed on SimLEARN programs during a tour of the VHA National Simulation Center in Orlando, Florida.

SimVET also supports VHA modernization efforts to become a High Reliability Organization (HRO) by identifying risks that could potentially lead to harmful events. SimVET empowers frontline staff members and clinicians who directly provide care to Veterans, to be an essential component of the vetting process. By replicating complex care environments such as Intensive Care Units, Community-Based Outpatient Clinics, and Community Living Centers, SimVET develops use-case scenarios to analyze healthcare solutions for patient safety, impact on clinical workflow, and technical feasibility.

Through SimVET, artificial intelligence (AI)-enhanced voice recognition programs are assessed to construct encounter notes and document clinician-patient conversations and interactions. These healthcare solutions have been marketed and proposed as opportunities to reduce time and workload while enhancing accuracy for encounter documentation. This was specifically identified as a possibility to improve employee experiences and decrease burnout factors from the recent Reduce Employee Burnout and Optimize Organizational Thriving (REBOOT) Task Force.

The SimVET model was shared with VA Under Secretary for Health, Dr. Shereef Elnahal, during his visit to SimLEARN's NSC on August 5, 2022. Dr. Elnahal received a tour of the NSC, witnessed a simulation demonstration, learned about the operations of each SimLEARN portfolio, and the national impact that SimVET plans to make on VHA. At the conclusion of his visit, Dr. Elnahal commented on how SimVET identifies safety risks, provides objective analysis, and can inform acquisition decisions that will impact Veteran health and wellness.

VA Under Secretary for Health, Dr. Shereef Elnahal, with SimLEARN leadership and staff members during a tour of the VHA National Simulation Center in Orlando, Florida.

Veterans spend a career simulating and practicing on complex combat scenarios to prepare for every eventuality. Their healthcare deserves the same preparation from VA. Military service members go into harm's way, but our Veterans should not. The SimVET model will produce consumer report style analysis including relevant comparisons, unique advantages, patient safety risks, and end-user recommendations. This final report is intended to inform acquisition decisions throughout the enterprise. In summation, SimVET allows VHA to test drive healthcare solutions before they reach Veterans and clinical end-users. The criteria for healthcare solution analysis will be based on priorities from leadership in VHA, VISN, or VAMC levels and/or recommendations from VHA program offices or other stakeholders such as staff members and Veterans.

The SimVET model provides a simulation environment that accurately represents diverse clinical settings while decreasing cost, variability, and interoperability challenges.

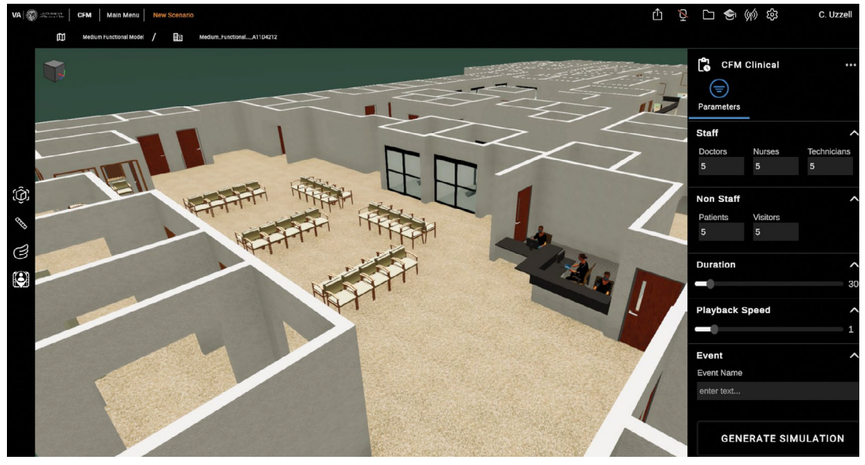
Construction Planning through Virtual Replicas

Improving patient outcomes by optimizing physical spaces

This innovative project is an example of how simulation can transform VHA's delivery of services for VA staff members and facilities and enhance Veteran health and wellness for years to come.

In October 2021, SimLEARN collaborated with VA Office of Construction and Facilities Management (CFM) and leveraged its expertise in Simulation-based Hospital Design Testing (SbHDT) to validate designs prior to the start of construction and avoid corrective costs. SbHDT uses common and high-risk clinical scenarios to determine if a room's configuration can accommodate a variety of staff configurations, equipment, and workflows to effectively meet the needs of clinical staff members providing care to Veterans. SimLEARN created a virtual representation simulation system for real-time collaboration and dissemination of simulation content, scenarios, and best practices across 171 VA Medical Centers.

A team of VA emergency department providers, healthcare architects, and simulation experts created a full-scale mock-up of multiple individual treatment areas under development where they evaluated the safety and functionality of the spaces. The team was able to identify positive attributes of the designs to maintain and uncover potentially negative design elements that could impact workflow, patient flow, and safety hazards. The use of simulation-based healthcare design training improves the quality and accuracy of VA Design Standards. This innovative project is an example of how simulation can transform VHA's delivery of services for VA staff members and facilities and enhance Veteran health and wellness for years to come.



Designers and reviewers are capable of adding or deleting exam room contents based on their needs.

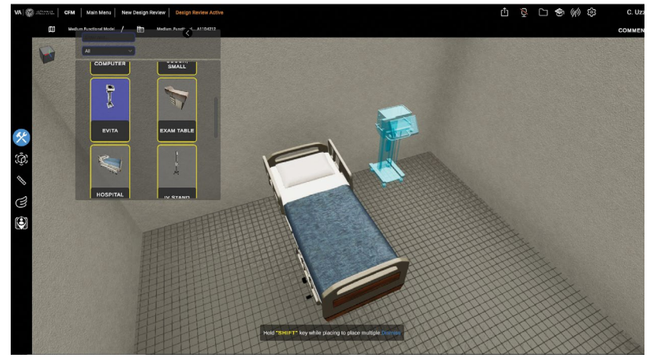
The digital twin simulation system was developed to support the design, construction, planning, and assessment of designs and workflows for existing and new healthcare facility spaces. The system provides a comprehensive picture of real-time, historic, and future scenarios while being able to present data that is user-friendly in 3D visual environments. Running simulations and controlling assets connected digital enable users to reimagine approaches to systems design and operations.

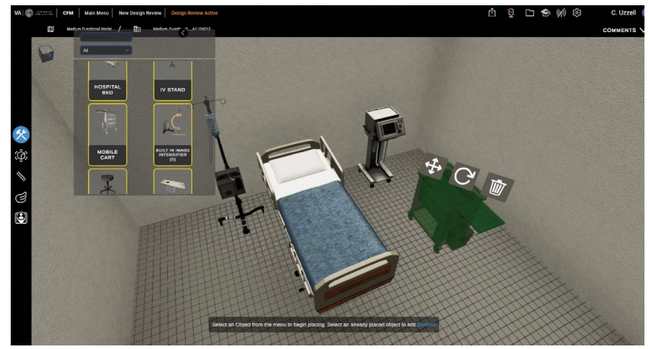
The software application includes the following capabilities:

1 Generative Design: The Design Simulator allows VA facility designers to programmatically create design options that optimize design standards, design guides, and even individual project designs. Generative Design creates viable options by iterating through variable parameters and keeping fixed constant parameters. These designs are exported from 3D Revit Models and used for simulation and construction.

2 Scenario Simulation: With the Scenario Simulator, SimLEARN uses artificial intelligence (AI) powered avatars to emulate human movements and clinical activities in clinical layouts created by CFM personnel. By controlling scenario parameters, such as patient volume and clinical staff members, SimLEARN can quantify and compare task completion time, workflow efficiency in a space, safety, and more.

3 Design Reviews in Virtual Reality: Design Reviews allows clinical and design stakeholders to virtually walk through a 3D model of the space and collaborate with each other asynchronously or in real-time.





The generative design tool creates 3D representation of architectural designs.

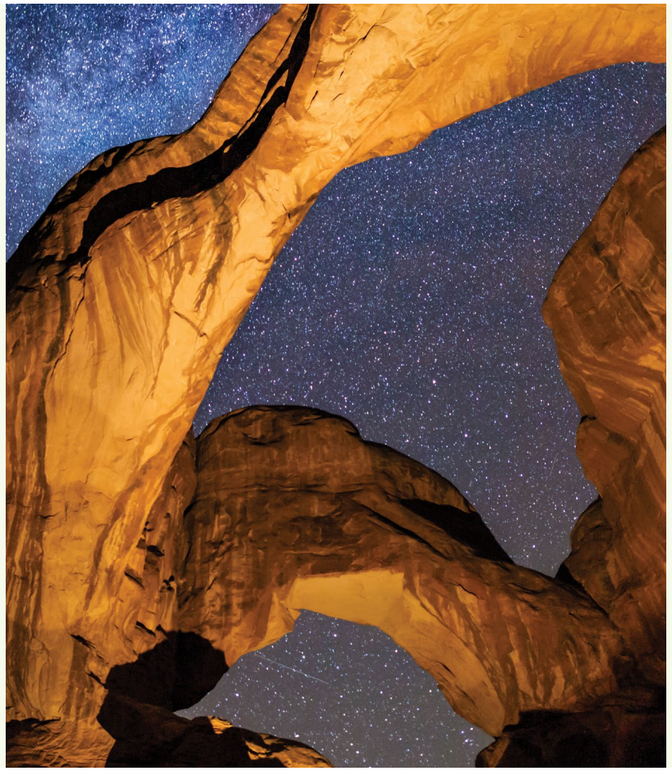
The application provides measurement tools to verify size, square footage, and distances of exam spaces.

The Power of Data and Analytics

Empowering VA staff members to leverage resources when identifying solutions for Veteran needs

The growth of artificial intelligence and machine learning has informed critical healthcare decisions and continues to provide value to health research applications. Through the leadership and efforts of Dr. Amanda Purnell, VHA IE Director of Data and Analytics Innovation, 2019 VHA Senior Innovation Fellow, and her team, VA is expanding its use of original and synthetic data to improve Veteran health outcomes.

For the past two years, collaborations with VA's Office of the Chief Technology Officer (OCTO) have helped make significant strides to address and resolve past obstacles with accessing data.These data and analytics projects are currently leveraging vast amounts of VHA clinical data to better understand, present, and respond to Veteran issues without comprising patient privacy and the process of delivering quality care.



lightphoto/iStock

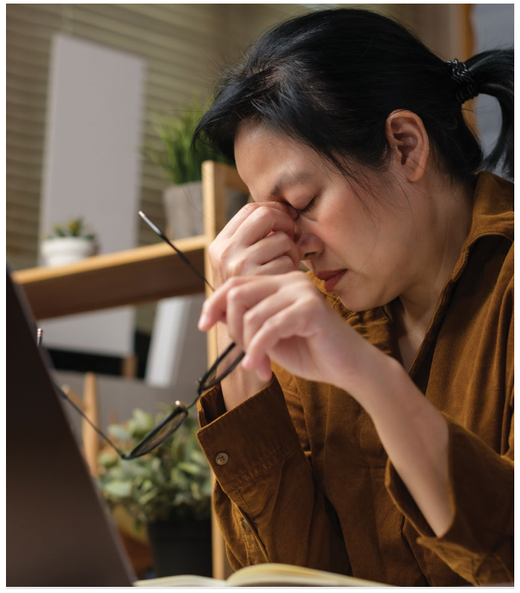
PROJECT SPOTLIGHT

Arches

By launching Arches, a cloud-based data analytics platform, VA is changing lives. Arches connects frontline staff members, medical providers, innovators, researchers, and other key stakeholders to access essential data that can also be used as customizable solutions to their individual needs. (e.g., using original and/or synthetic data to predict when a video call would benefit a Veteran more than a direct phone call, developing tools for earlier identification of chronic disease risk, and other care pathway innovations). It houses a rich set of computational tools and harnesses the power of collaboration and innovation to provide a one-stop data workshop.

While original patient data is available and approved for use in Arches projects, one major feature in the Arches development pipeline is the ability to access synthetic data. Sharing synthetic data to the larger community opens the doors for more researchers to address pressing challenges Veterans may face when receiving their healthcare while ensuring privacy is not compromised. Arches provides users with a "walled playground" to solve problems within the platform. Users are encouraged to produce containerized solutions that allow their proven data driven research to be migrated on to production-ready platforms.

The uncertain times of the COVID-19 pandemic and the challenge of Veteran populations facing a higher prevalence of risk factors for severe diseases has emphasized the need for innovations that quickly adapt to emerging and existing health concerns. Through Arches, synthetic data cohorts are actively being utilized for artificial intelligence and machine learning based projects related to heart disease, kidney disease, Parkinson's Disease, suicide risk, hospital acquired infections, hypertension, and Long COVID.



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PROJECT SPOTLIGHT

Long COVID

VA provides care to approximately 8.5 million Veterans. Of those, over 560,000 known Veterans have tested positive for COVID-19 and that number is still growing. Approximately 4-7% of individuals with COVID-19 have or will experience Long COVID (LC) symptoms. Individuals who develop LC experience a range of symptoms that deeply affects their quality of life and increases the chances of developing other chronic diseases. In order to standardize LC care across the nation, an interdisciplinary team formed a Community of Practice (COP) in the spring of 2021 for knowledge transfer and resource sharing. VHA LC COP is made up of over 160 VA clinicians, staff members, and leaders who are diligently working together to establish standardized processes, templates, and programs to ensure high-quality LC care for Veterans.

In the spring of 2021, VHA IE and OCTO worked together to perform a VHA-wide environmental scan to understand the current state of LC and identify opportunities and barriers that VA medical facilities were facing. A second environmental scan was completed in the spring of 2022 and both results led to the creation of an internal, interactive dashboard providing users with insights into the current state of the Long COVID care across the VHA; out of the 140 VHA facilities who responded, over 20 had established LC programs and over 40 were considering programs.

The Integrated Project Team (IPT) for LC in collaboration with the LC CoP are blazing a new trail for how to establish a program and share informational resources. The IPT published the Whole Health Approach to Long COVID, Patient-Aligned Care Team (PACT) guide which includes pre-screening templates, tools, signs and symptoms, and considerations. This guide has been shared within VA, with other healthcare systems, the private sector, and other government agencies. Other efforts include establishing a VA-wide Practice-Based Research Network (PBRN) that will allow new knowledge to be distributed and infused into clinical practice. The members of the CoP and the IPT are working collaboratively to improve VA's research contributions to enable the nation to better understand Long COVID and the broad array of prior COVID associated infections, and the protective effects of vaccines. These efforts will be integral to that understanding, leading to human-centered care and other beneficial processes for a healthier tomorrow.

Approximately 4-7%
of individuals with COVID-19 have or will experience Long COVID (LC) symptoms.

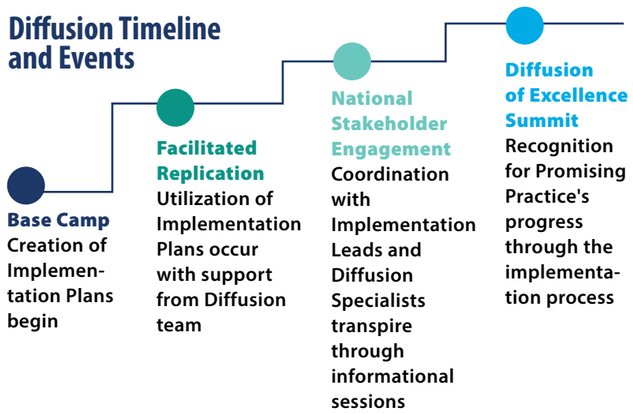
The Journey of Diffusion of Excellence

Reaching new heights through replicating and scaling healthcare innovations

The goal of VHA's Diffusion of Excellence (DoE) program has been to identify and disseminate clinical and operational Promising Practices to enable high-value care. Since its inception in 2016, DoE has supported a wide range of engagement activities that accelerate innovation. Notably, DoE has carried out eight VHA-wide all employee VHA Shark Tank Competitions. Those competitions have resulted in nearly 3,300 submissions directly from employees, following in the award of 79 Promising Practice designations that have since been replicated more than 1,500 times across the VHA enterprise. To date, 12 practices have been recognized as National Diffusion Practices, scaling broadly across VHA in collaboration with national stakeholders.

Beginning the Journey

DoE meets its goal through deploying a model to replicate and scale. Once Promising Practices have been identified in the VHA Shark Tank Competition, they are launched into the facilitated replication phase. This phase consists of two key events in the program, DoE Base Camp and Diffusion Summit. These events allow Diffusion Fellows to establish important relationships, develop actionable materials, and share experiences that are integral to their journey through replication. At the end of facilitated replication, DoE leadership analyzes each practice and determines the appropriate path forward.



Reaching the Peak

As part of facilitated replication, DoE provides project management and communications support to Diffusion Fellows and Implementation Facility Fellows (IFF) during the replication of their practice at the implementing site. Facilitated implementation is important because this period effectively serves as a "replication study" to help mature the practice and deepen the understanding of its impacts.

The three primary goals during the facilitated replication period are:

1. **Package the Knowledge Base:** Project managers, also known as Implementation Leads, assist Diffusion Fellows with development of a comprehensive Implementation Guide and supporting materials (e.g., one-pagers, leadership presentations, training materials).

2. **Confirm Impact:** DoE works with the IFFs to design a metrics and measurement plan to confirm the practice is achieving the desired outcomes.

3. **Cultivate National Stakeholder Support:** DoE facilitates informational briefings with potential national stakeholders, help them design the briefing materials, and collect data after stakeholder meetings to ascertain their level of support.

Creating New Heights for Innovative Trailblazers

Once a cohort of Promising Practices climbs toward the end of facilitated replication, DoE reviews these innovations to understand their levels of impact, replicability, cost effectiveness, and support from national stakeholders. With this evaluation, one of three Diffusion Pathways are recommended to move forward. An Organic Diffusion pathway shows moderate impact; Initial Diffusion shows strong impact; and National Diffusion demonstrates very high impact. Promising Practices that undergo Initial Diffusion are invited to VHA Diffusion Academy to develop diffusion strategies over the course of one to two years, while National Diffusion Pathways allow for a three-year implementation effort support by a Diffusion Specialist. Most Promising Practices are made available on Diffusion Marketplace for VA Innovators to get involved in spreading them.

Finally, the facilitated replication process concludes with the DoE Summit. This event provides each Promising Practice's Diffusion Fellow(s) and IFF(s) the opportunity to report out on the Promising Practice's replication, including initial outcomes, lessons learned, and next steps to an audience of program office leaders, facility leaders, and fellow colleagues.

National Diffusion Practice Highlights

With the support of national stakeholders, embedding PT in PACT has been beneficial to both Veteran patients and VA facilities. Subject Matter Experts pictured left to right: Ashley Cassel, Christopher Rowedder, Amanda Simone, Mark Havran, Brandon Peterson, and Evan Kelley.

Improving Physical Therapy in PACT

Traditionally, Veterans are referred to Physical Therapy (PT) from their Primary Care Provider after or while medications are prescribed and imaging is ordered. This conventional method delays critical PT care, increases healthcare costs, and negatively impacts both access and recovery time. Embedding PT within Patient Aligned Care Teams (PACT) offers a streamlined solution to the PT care process, which provides immediate care during Veterans' Primary Care visits. This innovation began at James A. Haley Veterans' Hospital in 2008, and in 2016, VISN 23 embraced it as standard beginning at Des Moines VAMC. Today, PT in PACT continues to scale across VA and has implemented in nearly 40 sites with 44 additional sites in-progress. With the support of national stakeholders, Office of Rural Health, Veterans Experience Office, and VHA DoE, embedding PT in PACT has been beneficial to both Veteran patients and VA facilities.

Remote Temperature Monitoring

For VA, diabetes persists as a major disease impacting Veterans. In 2021 alone, VA treated 123,000 new diabetic lower extremity ulcers, comprising 86% of non-traumatic amputations performed, and resulting in $3.2B in healthcare costs. Dedicating efforts to address this critical concern, the Remote Temperature Monitoring (RTM) team collaborated with Podimetrics to transform care through empirically based preventative technology. When a Veteran places their feet on the smart mat for 20 seconds per day, it automatically sends real-time thermal images of their feet to Podimetrics and VA. If any abnormalities are noticed, the vendor reaches out to provide next steps and communicates with the VHA provider as needed. This innovation has rapidly spread across VHA with literature to support decreasing hospitalizations by 52% and reducing emergency room visits by 40% at multiple facilities.

Unlock VA Innovation on Diffusion Marketplace

Energizing VA innovators to bring Veteran solutions to life

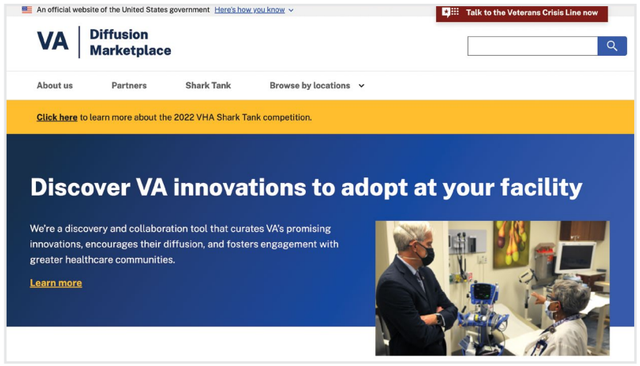
Diffusion Marketplace (Marketplace) is a powerful knowledge platform addressing the persistent challenge of siloed information to enable VA's success as a learning healthcare system. This web-based storefront houses innovative solutions for Veterans, caregivers, and VA employees. The Marketplace also fosters collaboration among innovators, empowering healthcare practitioners to identify and diffuse promising innovations across VA and beyond.

Connecting the Nation

Launched in February 2020 by DoE, the Marketplace was first available to VA employees. In October 2021, the Marketplace transformed into a publicly available site, providing equitable access for Veterans, caregivers, external organizations, and the public to explore VA innovation.

For Veterans, this means the ability to access nationwide healthcare solutions, to identify the efforts of VA staff members who are transforming care and to maintain trust in VA's commitment to provide the highest quality of care. For non-VA innovators, this means the opportunity to connect with VA innovation owners and potentially collaborate.

Today, the Marketplace publicly features over 100 innovations, with more than 3,000 implementations logged, and over 25,000 VA users.

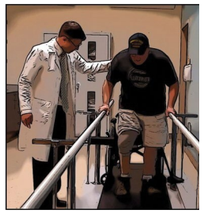


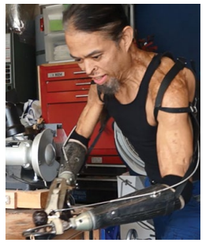
The Diffusion Marketplace is a discovery and collaboration tool that curates promising clinical, operational, and strategic innovations from VA.

Spreading Solutions for Veterans

Innovations on the Marketplace provide solutions within a variety of strategic, clinical, and operational healthcare topics, such as Veteran experience, extended reality, whole health, and more.

The Marketplace supports the discovery and spread of these promising innovations – FLOW3 to improve prosthetic limb delivery; the Surgical Pause to improve surgical outcomes; Physical Therapy Embedded within PACT to improve access to care; Remote Temperature Monitoring to reduce hospital admissions and prevent amputations; Compassionate Contact Corps to reduce loneliness; THRIVE to reduce employee burnout and improve the healthcare experience; REACH VA to support caregivers; Veterans Mental Evaluation Team to provide outreach efforts; and Virtual Reality for Pain and Anxiety to transform the use of digital technology. These are only a few of many solutions on the Marketplace that are changing and saving lives across VA.





The Marketplace supports the discovery and spread of many promising innovations such as FLOW3, Physical Therapy Embedded within PACT, Reach VA, and Virtual Reality technologies that are changing and saving lives across VA.

Offering a Collaborative Environment

Making innovation easy to discover. The Marketplace allows users to easily search for innovations by keyword, category, or location. Using human-centered design, tailored pages for each innovation communicate the problem, solution, results, steps to implement, and contact information. Each page also features an interactive map displaying the spread of adoption across VA facilities.

Giving the VA community a voice. The Marketplace provides a seamless experience for collaboration. VA employees can nominate innovations to the Marketplace that align with VA best practices and priorities. Users can comment and connect with innovation owners to learn more about adopting innovations at their facilities.

Calling All Innovators

Recognizing the immense knowledge that VA staff members hold for improving care for Veterans, the Marketplace helps bring their emerging practices to life.

VA staff members can find VHA Shark Tank Competition information on Diffusion Marketplace – a competition that identifies promising innovations and provides support for replication. The page announces and highlights Finalists as they join the Marketplace.

As a preferred platform for discovering VA employee ideas and promising innovations, the Marketplace Open Call Central Repository calls on innovators to connect their solutions to VHA priority needs.

In July 2022, the VHA Innovators Network (iNET) Greenhouse Initiative Open Call was launched on Diffusion Marketplace to communicate opportunities from external organizations and individuals interested in participating in collaborative efforts that may be of interest to VA researchers, clinicians, and VA facility leadership.

Connecting the Community

The value of the Marketplace is expansive across the nation, furthering VA's success as a learning healthcare system and supporting the brilliant innovations of VA staff who work relentlessly to shape a better future for Veterans, caregivers, and VA community.

"Innovation starts with the spark of a simple idea for change. Through the Marketplace we hope to show existing solutions that have emerged and spread from the ideas of our very own VA staff."
– BLAINE FITZGERALD, DIFFUSION MARKETPLACE COMMUNITY MANAGER

Visit Diffusion Marketplace today at marketplace.va.gov to explore featured VA innovations and subscribe to the monthly Marketplace newsletter to stay informed of VHA IE events

TECHNOLOGY

Emerging healthcare technologies, such as advanced manufacturing, artificial intelligence, extended reality, digital health tools, and personalized medicine, are becoming a part of the core fabric of VA Health Care Systems across the country and are being utilized to address both acute and chronic challenges Veterans face. These new technologies provide an opportunity to revolutionize our approach to healthcare innovation.

VHA Office of Healthcare Learning and Innovation (OHIL) together with key stakeholders across VA, industry, academia, non-profits, and other government agencies, continue to define the future of extended reality (XR), expanding access to advanced manufacturing, implementing novel solutions, and producing actionable recommendations to ultimately transform the way we deliver and experience healthcare.

Diversity drives innovation – when we limit who can contribute, we in turn limit what problems we can solve."

– TELLE WHITNEY

A New Reality Defined

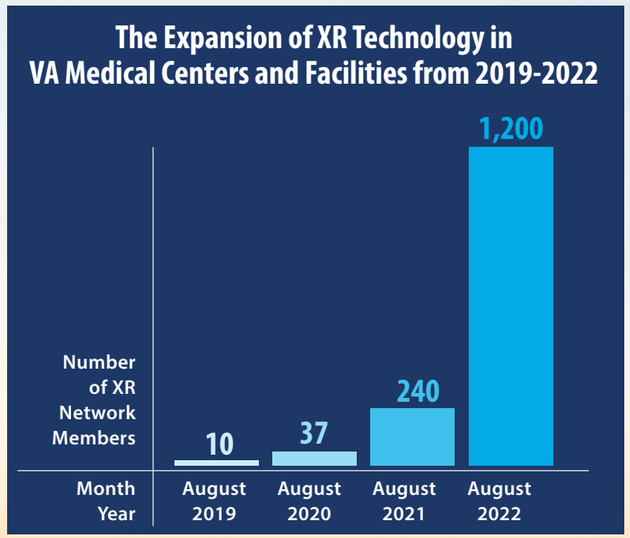
Simulating, scaling, and sustaining innovation through immersive technology

As of August 2022, the VHA XR Network engages and supports over 1,269 VHA staff across more than 168 VA facilities.

Immersive technology is at the forefront of disruptive innovations in the healthcare industry, and VA is paving the way forward. Dr. Anne Lord Bailey is the Director of Clinical Technology Innovation for VHA Innovation Ecosystem (VHA IE) and the Immersive Technology Lead for VHA OHIL. Dr. Bailey works across VHA OHIL's strategic programs to enhance and support the simulation, scaling, and sustainment of innovations related to immersive and clinical technologies.

Simulate:

The Simulation Learning, Evaluation, Assessment, and Research Network (SimLEARN) encourages the use the emerging technologies by developing and providing simulation that leverages immersive technology. Through SimVET, the team assesses the technology landscape, identifies solutions to advance the standard of clinical practice and training, works toward integration into professional development, and supports inclusive workflows in a risk-free environment.



Scale:

VHA IE helps grow the innovation muscle of frontline staff members. Prior to 2018, only a few VHA frontline staff members and VA facilities were leveraging immersive technology for Veteran care and employee training. These efforts were disjointed and siloed, with no opportunity to share best practices and resources. Recognizing both a problem and an opportunity, VHA IE established the VHA Extended Reality (XR) Network to advance use of XR – including augmented reality (AR) and virtual reality (VR) – in healthcare and gather clinicians, researchers, administrators, and leaders onto a common platform to identify challenges, share resources, evaluate opportunities, and facilitate collaborations. As of August 2022, the VHA XR Network engages and supports over 1,200 VHA staff members across more than 160 VA facilities.

Since its inception, the VHA XR Network has launched a variety of single and multi-site pilots assessing almost 20 different XR use cases; facilitated donation of XR equipment at 39 VA sites and created a thriving Community of Practice with two special community spin-offs. The VHA XR Network enables and encourages use of immersive technology across VA and to the broader healthcare community.

Sustain:

Center for Care and Payment Innovation (CCPI) was established to develop and test innovative approaches to payment and service delivery models. The CCPI team is working to test and assess the business case for integrating immersive technology into Veteran care. They are also evaluating how immersive technology might transform standard care models. Currently, multiple efforts are underway to assess the value of adding immersive technology to Veteran care, including assessments of at home physical therapy/occupational therapy.

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Improving the lives of VHA Employees and Veterans

VHA Employees: During a monthly VHA XR Network call, Adelina Sowell and her team shared that the Employee Well-Being Center created Well-Being Carts, which included XR headsets, to offer a Whole Health approach for employee self-care. The XR headsets enable the staff member to virtually "leave" their work area and escape to a tropical beach, a snow-covered vista in the mountains, swim with dolphins, or enjoy a serene mindfulness exercise, all while seated at their own workspace. Prior to launching Well-Being Carts, mini pilots were conducted to introduce the concept of XR to employees. Of the 106 staff members who tested the XR headsets, 93% shared that stress was reduced and 91% said they felt relaxed after their experience. All employees who participated recommended use of XR for employee wellness.

Several other VA medical facilities (e.g., VA Roseburg HCS, Western North Carolina VA HCS, Orlando VA HCS, VA Palo Alto HCS, VA Gulf Coast HCS, VA Southern Nevada HCS, and VA Sierra Nevada HCS) are also using XR to support their own employees' wellness, decrease the feelings of burnout, and build resiliency. The Immersive Technology team provides an outlet for ideas like this to be shared, allows clinicians to receive support and resources, and influences and inspires others to innovate across their facilities.

Veterans: As immersive technology is implemented across VHA, the data on Veteran benefits speak for themselves. For example, at Western North Carolina VA HCS, led by Caitlin Rawlins, who also co-leads the VHA XR Network, over 450 sessions have been completed using XR as a distraction tool to help decrease pain, stress and anxiety, boredom and restless behaviors while also aiding relaxation. For Veterans suffering from acute and chronic pain, 66% saw a drop in pain intensity. 100% of Veterans using XR to aid with behavioral concerns felt a decrease in restlessness, and 93% of those Veterans exhibited overall improved behaviors.

Following use of XR, Veterans have shared the following: "I didn't even notice my pain while I was doing the XR. It also helped relax me and make it easier for me to talk about things;" "That really helped bring my anxiety down and my headache;" and "I rather enjoyed that. It was fun and really did help distract me from my back discomfort. Let's do that again."

Point-of-Care Manufacturing: Innovations of the Future

Delivering patient-matched solutions to Veterans

Advanced manufacturing (AM) at VHA describes in-house manufacturing processes that incorporate innovative technologies, like three-dimensional printing (3DP). VHA is leveraging AM to deliver customized solutions targeting the unique needs of Veterans that cannot be solved with "off-the-shelf" products. These unmet needs can arise from a lack of exposure to the problem or because the demand is not large or profitable enough for a traditional manufacturer to take on. AM allows for increased flexibility and responsiveness to patient needs for new products. VHA is working to design and develop a suite of products spanning assistive technology, dental and surgical guides, medical models for pre-operative planning, prosthetic and orthotic devices, dental applications, and beyond. Leading the charge is the Office of Advanced Manufacturing (OAM), a national program office with the vision of providing personalized, safe and equitable care for eligible Veterans by building AM capabilities across the enterprise.

Office of Advanced Manufacturing

OAM is establishing the digital and physical infrastructure for in-house medical device innovation at VA and promoting best practices to ensure patient safety, regulatory compliance, and consistency in care delivery. Creating an integrated digital network allows any clinician from across VHA to request AM capabilities through OAM and ensures equitable access to patient-matched medical devices for all eligible Veterans. OAM developed a VHA Directive that incorporates a Quality Management System and defines national standards and responsibilities for integrating AM into VHA operations.

Charleston OAM Hub Lab lead, Nikki Beitenman, demonstrates 3DP equipment and applications to The Honorable Denis McDonough, Secretary of Veterans Affairs.

Patient-matched 3D Printed pre-procedural model requested for clinician use.

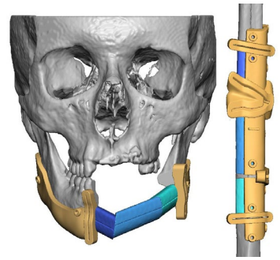
Seattle OAM Hub Lab lead, Dmitry Levin, conducts training at Segmentation Bootcamp held in April 2022.

OAM is building the business case for point-of-care AM by understanding and actualizing the value created by 3DP medical devices including cost avoidance from reduced numbers of patient visits, decreased travel times, increased patient safety, higher patient satisfaction from shorter turn-around of prescription medical devices, and improved clinical outcomes.

OAM is increasing AM capabilities across the enterprise through training, sharing of resources and guidance documents, and planned investment in workforce development and recruitment. This past year, OAM hosted AM trainings for VA staff members and concluded the inaugural year of the 3DP Surgical Fellowship hosted at the Central Virginia VA Healthcare System, which provided 3DP training and clinical exposure for practicing surgeons. In addition to coordinating AM efforts across VA, OAM is working with other government agencies, academia, and industry to learn from best practices, discuss challenges and opportunities, develop collaborative capabilities, and maximize impact. Over the past year, VHA continued to collaborate with the U.S. Department of Defense (DOD) on a scalable 3DP Consortium and with the U.S. Food & Drug Administration (FDA) in May to co-host a workshop focused on point-of-care manufacturing.

Office of Advanced Manufacturing Products

Thermal Fuse Cover
VA Researchers across VISN 4 Prosthetics Service and the Human Engineering and Research Lab (HERL) at the Pittsburgh VAMC developed a design prototype for a thermal fuse cover in 2020 to answer a need raised by the National Center for Patient Safety (NCPS) for a home oxygen delivery system safety device that could prevent burns and fires. OAM's product development team worked with the Office of Research and Development's (ORD) Technology Transfer Program (TTP) to mature the design through the manufacturing, testing, and regulatory process to produce a new FDA-regulated device. In November 2021, the thermal fuse cover became OAM's first product listed as a medical device with the FDA. VA holds the patent on this device.



OMF ASP System
OAM is leveraging 3DP to help surgeons plan for complicated surgeries. The Oromaxillofacial Advanced Surgical Planning (OMF ASP) System provides a process for surgeons to virtually pre-plan oro-maxillofacial (jaw) reconstructive surgeries as well as creating 3D Printed guides and models for intraoperative surgical guidance. This product will serve Veterans with cancers, chronic infections, or complex trauma to the mandible. In August 2022, the OMF ASP System became VHA's first 510(k) clearance of a Class II medical device as both the developer and device manufacturer.

"We want to empower frontline clinicians to design and implement product-based solutions to serve our Veterans at the point-of-care and strengthen supply chain resiliency by providing 'insourcing' manufacturing capabilities."

—KATHRYN SHERRILL, EXECUTIVE DIRECTOR, VHA OFFICE OF ADVANCED MANUFACTURING

Office of Advanced Manufacturing Hub Labs

OAM Hub Labs are VAMCs operating under OAM to develop, test, and manufacture new products, devices, and processes. Ralph H. Johnson VA Medical Center in Charleston, Central Virginia VA Health Care System in Richmond, and VA Puget Sound Health Care System in Seattle currently serve as OAM Hub labs. Engineers, technicians and clinicians at OAM Hub Labs move product designs from brainstorm to bedside. OAM Hub Labs follow an FDA-compliant Quality Management System, which provides the tools to repeatably create and produce safe and effective medical devices, complies with FDA medical device regulations, and ensures equitable access across the enterprise. Charleston and Seattle OAM Hub Labs are registered with the FDA as medical device developers and manufacturers, allowing for in-house production of FDA regulated products.

An additional three sites are in the process of becoming OAM Hub Labs: VA Pittsburgh Health Care System in Pittsburgh, VA Northeast Ohio Healthcare System in Cleveland, and VA Great Lakes Health Care System (VISN 12) in Milwaukee.

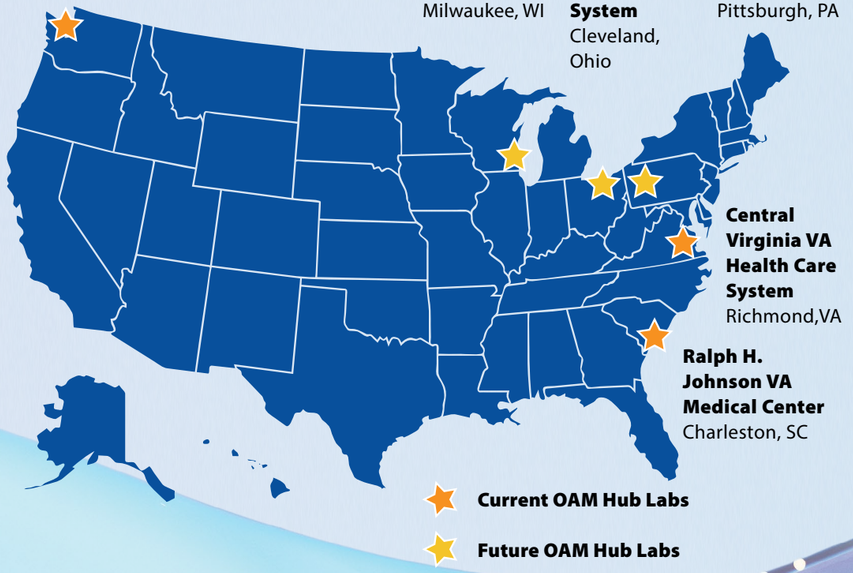
OAM Hub Labs

VA Puget Sound Health Care System
Seattle, WA

VA Great Lakes Health Care System (VISN 12)
Milwaukee, WI

VA Northeast Ohio Healthcare System
Cleveland, Ohio

VA Pittsburgh Health Care System
Pittsburgh, PA

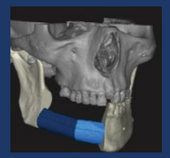


FY 2022 OAM Highlights

November 2021
Thermal fuse cover is the first OAM medical device to be listed with the FDA.

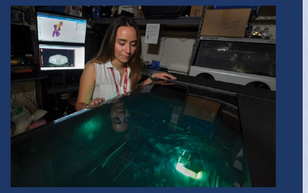
April 2022
OAM hosted a two-day Segmentation Bootcamp, an immersive course in anatomy, segmentation, and advanced manufacturing workflows at the VA Puget Sounds Health Care System.

August 2022
The OMF ASP System became VHA's first 510(k) clearance of a Class II medical device as both the developer and device manufacturer.



March 2022
VHA collaborated with the FDA to host a two-day virtual public workshop focused on challenges, opportunities, and experiences in point-of-care 3D Printing with speakers from VHA, FDA, industry, private medical systems, and academia.

July 2022
Year two launch of the 3DP Surgical Fellowship hosted at the Central Virginia Health Care System, with returning fellow, Dr. Diana Otoya.



September 2022
VA and FDA announced a collaboration that aims to accelerate the time it takes for medical innovations to reach Veterans and non-Veterans alike.

FDA U.S. FOOD & DRUG ADMINISTRATION

A Relentless Focus on Veterans and Products

In the coming year, OAM will focus on expanding AM product lines available to Veterans. Product development ideas will be sourced from across VA clinical program offices and frontline staff members who are uniquely positioned to understand patient needs. OAM will continue collaborating with partners in the field to explore patient-matched AM medical applications, such as product development with Walter Reed Hospital and nightguards for teeth grinding in collaboration with 3D Systems. OAM also anticipates expanding offerings with products in the pipeline, like pre-surgical planning models. AM technologies are revolutionizing healthcare and OAM is ensuring that medical device development and production capabilities are available to Veterans first, and at any facility across VHA.

Integrated Project Team Paves the Way for Innovative Technology to Take Flight

Elevating care delivery with emerging health technologies

Recommendations were developed based on input received from six working sessions and 52 participants spanning a broad spectrum of subject matter experts from 26 program offices.

Emerging Health Technologies (EHT) have the potential to transform care delivery and are rapidly entering the health-care landscape in this digital age. With more access and use of these technologies, Veterans are experiencing positive outcomes in treating conditions like diabetes, pain management, and rehabilitation. Examples of these technologies include but are not limited to, remote patient monitoring devices and services, immersive reality devices, and patient wearables.

Currently, little VHA guidance is offered to program offices and frontline clinicians testing, funding, implementing, and governing these emerging health technology solutions. This can result in a stifling of programmatic adoption and scaling of these solutions across VHA.

In 2022, VHA IE chartered and facilitated an Integrated Project Team (IPT) focused on EHT. The goal of this IPT was to produce actionable recommendations to VHA leadership for improving the ability to manage EHT from cradle to grave in the enterprise. Most importantly, this will ensure Veterans have access to the most promising new technologies in healthcare.

Recommendations were developed based on input received from six working sessions and 52 participants spanning a broad spectrum of subject matter experts from 26 program offices. Special breakout sessions were held for members to consider the future state as well as examine the current state of several emerging technology programs within VHA. Members in each of the breakout groups offered insights on the operations, safety, and compliance impacts of these technologies.

At the conclusion of the six working sessions, 14 actionable recommendations were developed that identify a specific problem, describe a tangible action to be taken and identify the office(s) that will lead the action. As of Fall 2022, many of the IPT members began implementing these recommendations allowing Veterans and clinicians access to cutting-edge, promising new healthcare technologies.

Areas of Recommendation

Human-Centered Design

Develop processes for the testing and evaluation of EHT.

Simulate adoption of new technology into existing or clinical workflows through SimLEARN and simulation collaborators.

Governance

Establish an enterprise governance group for EHT.

Create a living inventory of EHT in the discovery, testing, and scaling phases.

The established governance group define key operating principles that will guide its work.

IT Integration

Establish a menu of requirements and existing solutions being undertaken through the OIT and Innovation collaboration.

Request assistance from OIT identifying specialized IT personnel that can pioneer EHT application and integration.

Financial Tools & Investment

Develop a standardized project and funding request process for EHTs to inform investment decisions.

Create a recurring enterprise investment fund for EHTs and create financial incentives for EHT investment at the VISN and local level.

Examine how to centrally budget for EHTs that will be scaled across the enterprise to reduce uneven adoption and mitigate inequities in care.

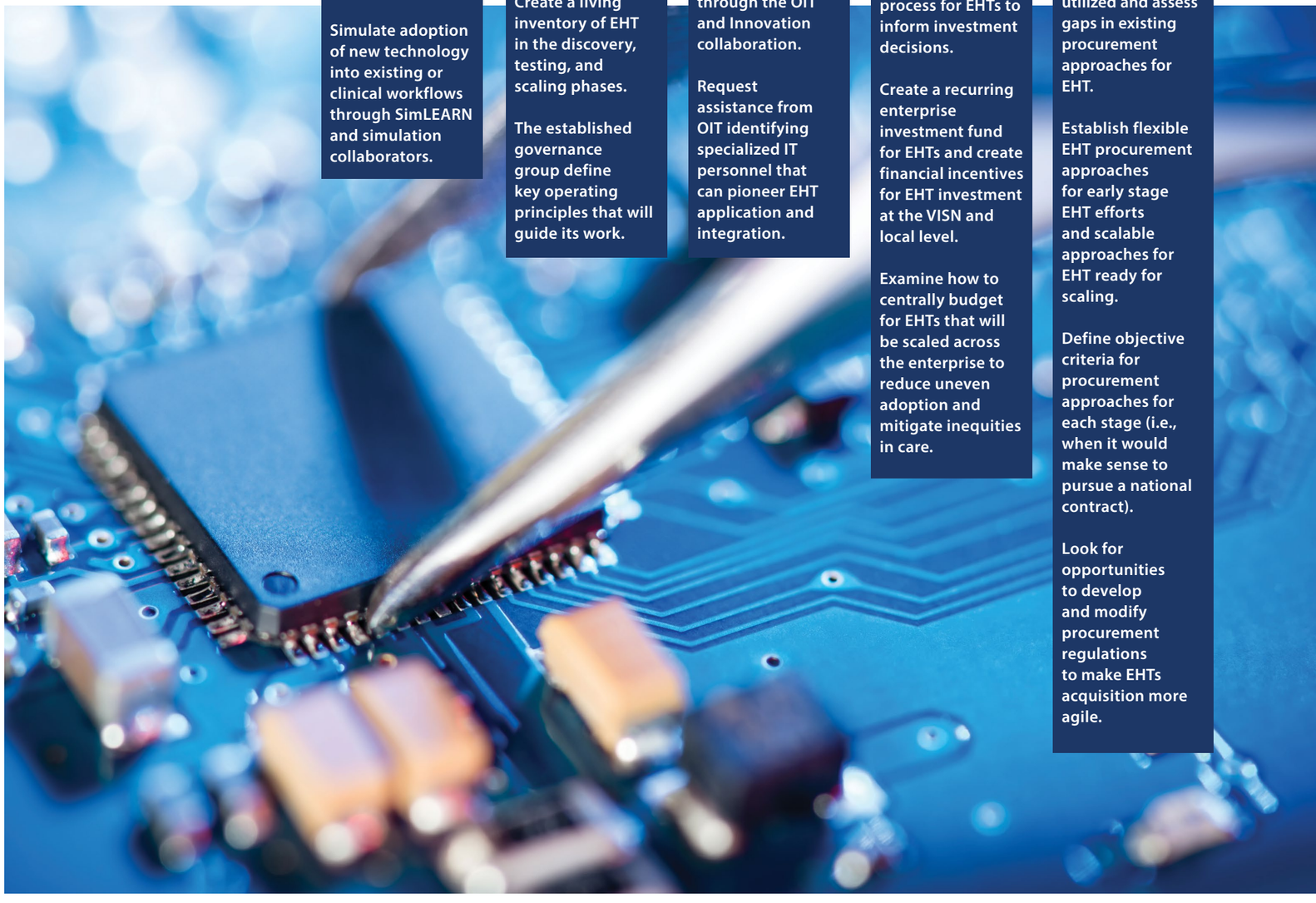
Procurement

Complete environmental scan to see where national contracts were utilized and assess gaps in existing procurement approaches for EHT.

Establish flexible EHT procurement approaches for early stage EHT efforts and scalable approaches for EHT ready for scaling.

Define objective criteria for procurement approaches for each stage (i.e., when it would make sense to pursue a national contract).

Look for opportunities to develop and modify procurement regulations to make EHTs acquisition more agile.



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VA Innovation Unit holds first Innovation Challenge

Creating solutions that enhance Veteran and employee experiences at VA

"VAIU will serve as an orchestrator of innovation investments by identifying and integrating innovative solutions and operationalizing how innovators can connect their solutions with our community of technology professionals."
-ANGELA GANT-CURTIS, PROGRAM MANAGER, VA INNOVATION PROGRAM

In June 2022, Angela Gant-Curtis, led an Office of Information Technology (OIT) wide, two-day-long "VA Innovation Unit (VAIU) Challenge". The challenge was designed to catalyze innovation across the enterprise by providing an opportunity for participants to discover new technological tools and engage with the VA Innovation Lifecycle. A total of 47 participants from 18 VA offices came together to propose and build solutions for issues they experienced in their day-to-day work. Discussion topics ranged from reducing frontline staff members burnout to workstream-specific solutions, such as streamlining signature authorization with PIV cards.

VAIU exists to facilitate, coordinate, and drive innovation by using technology to deliver IT breakthroughs in three focus areas: enhancing service delivery to Veterans, increasing operational efficiency, and improving Veteran and employee experiences. VAIU collaborated with the IT Program Integration (ITPI) Office, Development, Security, and Operations (DevSecOps), and IT Strategic Communications (ITSC) to deliver this innovation challenge, ensuring that VA staff members leverage their experience and understanding of Veterans' needs to identify innovative solutions for organizational concerns. Through this challenge, 18 problems and their solutions were proposed by Business Leaders and participants. For example, Veteran Benefits Administration aimed to answer the question, "How might OIT reduce the amount of time spent verifying post-traumatic stress disorder (PTSD) benefits for stressor incidents?". The winning team answering this problem statement created a searchable database (i.e., PTSD Stressor Verification Automation and Rework Reduction tool) to verify "stressor events". This tool aims to save individual time spent on what was previously a manual search.

Participation

47
challenge participants from 18 VA offices

16
solutions submitted by 14 challenge teams

228
VA employees engaged by registration email from 155 VA offices

At the end of the Challenge, 12 innovative ideas were added to a backlog in VA's Innovation Lifecycle, 16 solutions were submitted for judging and of the submissions, five winning solutions will be developed into minimal viable products for piloting. The event was very successful, generating over a dozen practical solutions that could be deployed in the coming months and years ahead. The Innovation Challenge poses a unique opportunity for VA staff members to think critically and continuously improve processes that can be shared across the enterprise. Ultimately, these solutions will be integrated into operation and have a positive impact for Veterans, their caregivers, and VA staff members. The collaboration between OIT and business leaders is a focal point of the Innovation Unit, and this inaugural challenge is an encouraging sign for what's to come.

Khanchit Khirisutchalual/iStock; laflor/iStock

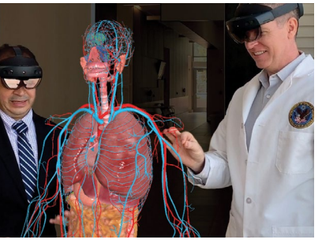
Getting Involved with VAIU

Opportunities to contribute to innovation at VA extend beyond challenges. The VA Innovation Unit is a central hub where innovation experts can transform your ideas into real-world solutions.

For more information about how to get started, visit VA Pathfinder at pathfinder.va.gov.

At the Crossroads of Silicon Valley and Healthcare

NCCHI is translating complex technologies from the research bench to the clinical bedside



The National Center for Collaborative Healthcare Innovation (NCCHI) is driven to enhance healthcare delivery at VHA and in the broader healthcare community by engaging in groundbreaking collaborations and cutting-edge technology. Located in Silicon Valley, NCCHI continues to build relationships with industry leaders, other government agencies, academia, and across VHA to create far-reaching positive impact for Veteran care. Dr. Thomas Osborne, Director of NCCHI and Chief Medical Informatics Officer at VA Palo Alto Health Care System, and his team act as catalysts to transform illness to wellness and help shape the healthcare system of the future.

INNOVATION SPOTLIGHTS

Fall Prevention Socks

Falls are one of the most common causes of accidental harm, leading to increased length of hospital stay, discharge to long-term care facilities, and approximately $50B in annual costs. In collaboration with the medical company Palarum, NCCHI has configured and deployed a wireless electronic textile SmartSock system designed to immediately detect and send a safety alert, with the room number, directly to the most appropriate nurses in the ward. The system is optimized for efficient clinical response and decreased alerts, empowering nurses to be in the right place at the right time.

Smart White Cane

Safe and independent navigation is one of the largest challenges for those who are blind or visually impaired. The traditional mobility and orientation tool known as "white cane" has not significantly changed in the last 100 years until now. NCCHI has been working closely with Brian Higgins, a retired VA employee and Veteran, to continue reviewing and improving solutions for this tool. The team has been co-developing an advanced "smart cane" with sensors so that visually impaired Veterans can navigate with sound. This breakthrough invention is designed for increased safety and independence through technologically enhanced mobility and navigation.

5 for 5G

5G is the next generation of advanced telecommunications technology that can utilize more data, at a rapid pace, with better performance. This infrastructure has potential for multiple mission-critical applications for improved healthcare communication and patient care. NCCHI is leading an exciting collaboration called "Project Convergence" with Verizon, Microsoft, and Medivis to develop the technology needed to provide wireless healthcare solutions.

Augmented Reality (AR) and Virtual Reality (VR) for Clinical Teaching and Training: The bandwidth of 5G combined with AR technologies creates new virtual and interactive learning opportunities for Veterans, patients, and trainees. Multiple projects are underway at NCCHI to improve clinical training for medical students, interns, residents, and fellows so they can have a safe and controlled environment to learn procedures. Virtual procedures will be taught and practiced on dynamic three-dimensional (3D) holographic human anatomy models and other medical topics can be discussed in these virtual settings.

AR for Presurgical Planning: The ability to utilize 5G and large amounts of data combined with AR technologies allows the traditional flat computerized tomography (CT) and magnetic resonance imaging (MRI) scans transform into more intuitive 3D models. In doing so, Veteran diagnostic scans can be altered to optimize the best possible surgical and treatment approaches. NCCHI is developing these tools with industry leaders to allow smaller incisions, improve recovery time, avoid critical structures, and therefore, improve patient safety and outcomes.

AR for Procedural Guidance: New 3D holograms of patients' CT and MRI scans can be positioned in a way that equips a clinician with virtual x-ray vision, opening the doors for improved care and enhanced surgeries. Advanced visual awareness enables surgeons to see the full depth and complexity of the target, including otherwise hidden critical structures, allowing for more precise surgeries.

NCCHI leads collaborative projects around falls, safety and navigation tools, augmented reality, and 5G to advance mission-driven healthcare innovations.

Advanced Sensor Enabled Drones for Emergent Response: NCCHI is working with VA Police, Safety, Engineering, Facility Planning, and Executive teams to improve emergency response protocols for important use cases such as: fires, earthquakes, search and rescue, security, incident responses, routine campus inspections, and maintenance. Drones are a promising technology for improving patient survival, outcomes, and quality of life, particularly for those in areas that are remote or that lack funds or infrastructure.

Virtual Teleportation: The combination of advanced hardware, software, 5G, and creative engineering has allowed the NCCHI team to teleport an individual into another room virtually. Bringing this science fiction technology to life has significant healthcare applications, including more natural and safer interactions between patients and providers when Veterans are on infection risk precautions or isolated in remote locations.

The National Center for Collaborative Healthcare Innovation Team

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Terri Blumke
Data Scientist

Ilya Vrublevskiy, PMP
Project Manager

Megan Rumzie, RN
Innovation Specialist

Benjamin Salatin
Innovation Lab Manager

Brian Higgins
Innovator

Machine Learning to Audit and Impact Prescription Benefit Decisions

Increasing Veteran trust in VA's billing accuracy and reliability

Cory E. Fominaya, Pharm.D.,
VHA National Program Manager for Health Solutions, Population Health

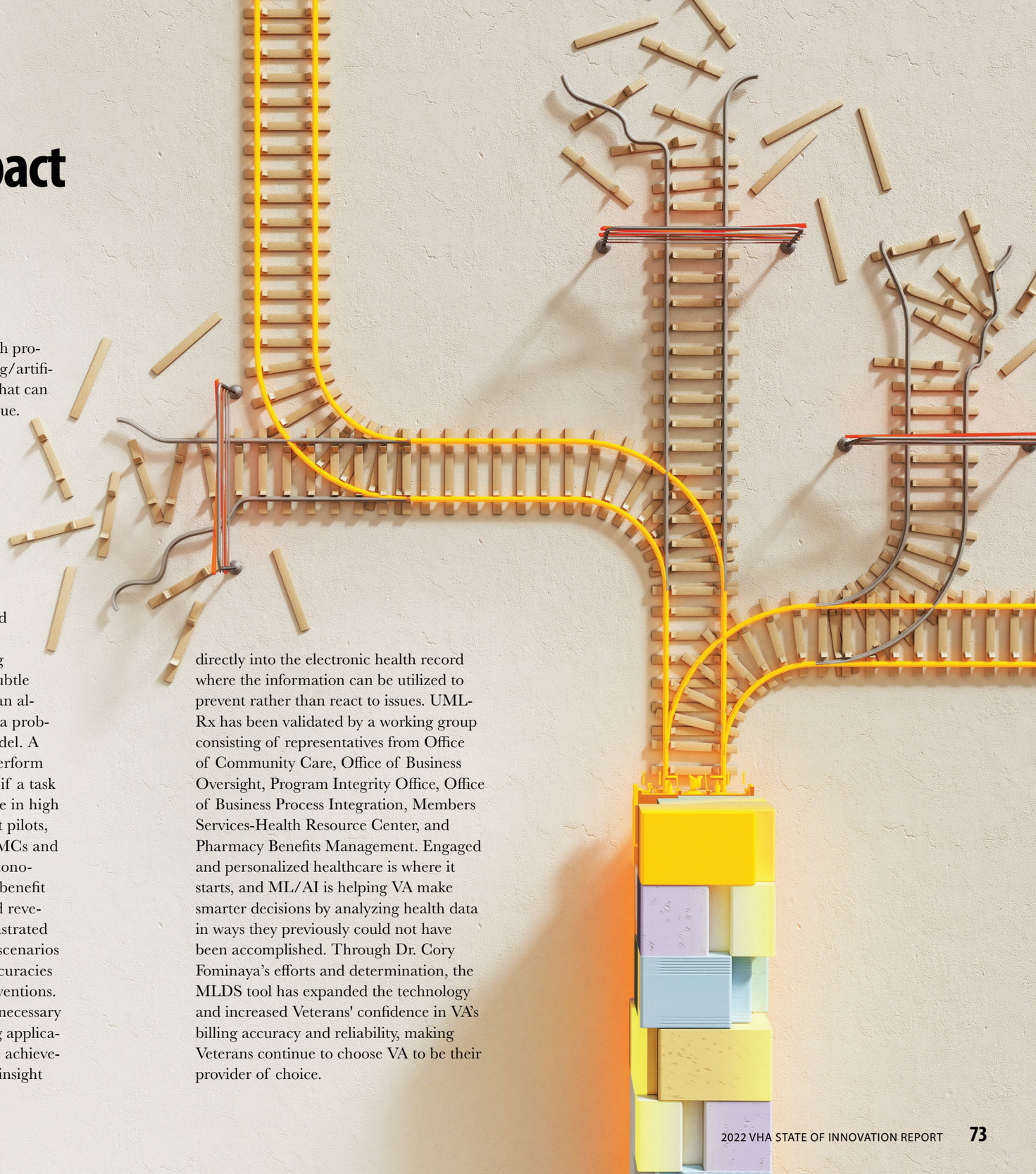
UMLRx is an innovative practice that has audited 79 million prescriptions and examined 193 million decision points. UMLRx helps ensure that prescription-related disability benefits are justly applied.

In 2020, approximately 4.7 million Veterans had a service-connected disability, and VA pharmacies dispense more than 45 million prescriptions per year for service-connected Veterans. For each prescription written for a Veteran with service-rated disabilities, providers must evaluate the information to determine if prescription benefits apply. Inaccurate benefit determinations lead to two types of issues related to billing for prescriptions, no charge co-pays when there should and charged co-pays when there should not be. As prescriptions are entered by providers, the ordering provider designates an order as service connected or non-service connected. The order is then processed by a pharmacist to verify the accuracy and clarity of the prescription and to evaluate drug-drug or drug-disease interactions. Upon completion of the order by pharmacists, the service-connected determination will evaluate if charges are generated to third-party insurance and when the prescription is dispensed the charges are posted to the Veteran's account. Beyond the financial impact to Veterans, payors and VA, the billing errors create a poor Veteran experience and additional burden on VA clinical and administrative staff members.

Dr. Cory Fominaya, 2022 VHA Senior Innovation Fellow, is designing a platform Machine Learning Decision Support (MLDS) to host services utilizing machine learning solutions. This platform aims to support innovative projects through productionization of machine learning/artificial intelligence (ML/AI) models that can improve the quality, safety, and value. Dr. Cory Fominaya previously developed one such service called "Utilizing Machine Learning to audit and intervene on service-related prescription benefits (UMLRx)" an innovative practice that has audited 79 million prescriptions and examined 193 million decision points. UMLRx helps ensure that prescription-related disability benefits are justly applied.

UMLRx uses machine learning algorithms that can understand subtle patterns that exist in data. Once an algorithm is successfully applied to a problem, or trained, the result is a model. A well-trained model can reliably perform a task repetitively, which is useful if a task requires many resources which are in high demand. During proof-of-concept pilots, UMLRx was deployed to ten VAMCs and has successfully identified and autonomously corrected nearly 150,000 benefit decisions resulting in an increased revenue by $1.5M. The model demonstrated reliable predictions in real world scenarios and to date no substantiated inaccuracies have been identified among interventions.

MLDS is the support structure necessary to fully integrate machine learning applications into workflows. The pinnacle achievement of MLDS will be delivering insight directly into the electronic health record where the information can be utilized to prevent rather than react to issues. UMLRx has been validated by a working group consisting of representatives from Office of Community Care, Office of Business Oversight, Program Integrity Office, Office of Business Process Integration, Members Services-Health Resource Center, and Pharmacy Benefits Management. Engaged and personalized healthcare is where it starts, and ML/AI is helping VA make smarter decisions by analyzing health data in ways they previously could not have been accomplished. Through Dr. Cory Fominaya's efforts and determination, the MLDS tool has expanded the technology and increased Veterans' confidence in VA's billing accuracy and reliability, making Veterans continue to choose VA to be their provider of choice.



CARE & PAYMENT MODELS

"It adds to the joy of discovery to know that your work may make a difference in people's lives."

– DR. FLOSSIE WONG-STAAL

The Center for Care and Payment Innovation (CCPI) plays an important role in transforming VA into a nationwide, coordinated, value-based healthcare system. CCPI works to reduce administrative burden and optimize care delivery resources, which improves the quality of care and health journey for Veterans. CCPI also engages with other government agencies and stakeholders within the healthcare industry to develop and test innovative approaches to Veteran care that cover a wide range of service areas. These efforts ensure innovations are developed and tested to address the root cause of care and payment challenges.

This section of the report shares how care models provide positive impact on Veterans in a matter of months, rather than years, through the waiver authority granted by Congress in the 2018 MISSION Act. This allows innovators and project teams to develop a proof of value for its innovations and rapidly deliver access to care for Veteran patients. Providing the organization with a structured, repeatable, outcomes-driven process to amplify grassroots and strategic solutions across the organization is a key part of how innovation is evolving at VHA and plays a critical role in ensuring Veterans continue to choose VA.

The Center for Care and Payment Innovation

Advancing value-based care for all Veterans

Through innovative and effective pilot programs, CCPI can help improve the quality of care and health journey for Veterans nationwide.

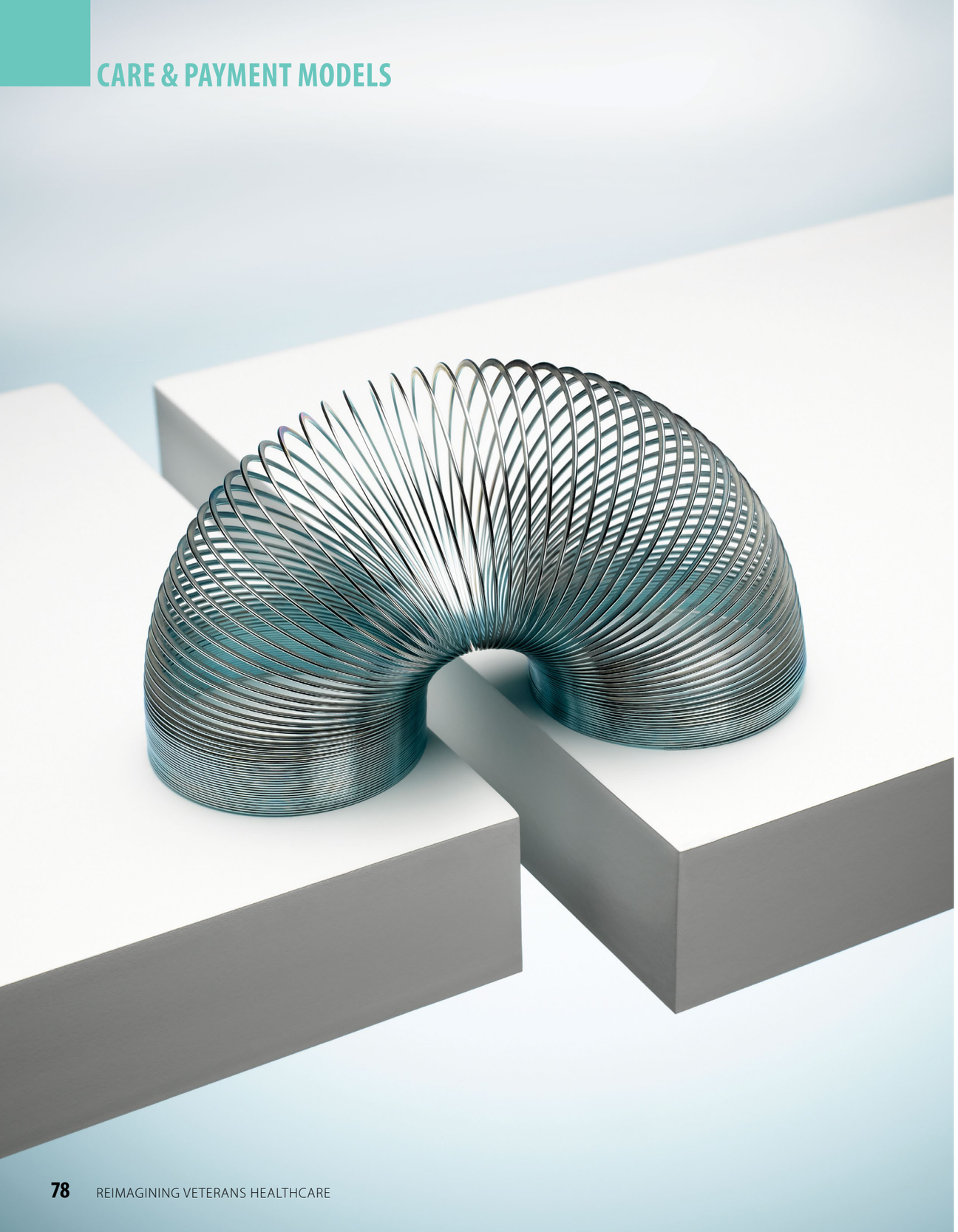
The Center for Care and Payment Innovation (CCPI) has a single, unifying mission: transform VA into a nationwide, coordinated, high-value healthcare system that actively reduces administrative burdens and optimizes care delivery resources. To achieve this mission, CCPI leverages VHA OHIL's Value Based Innovation Framework, which guides CCPI in examining healthcare challenges at every level of the VA healthcare system and advancing solutions to address them. The framework provides a standardized approach to developing pilot programs based on four dynamic measures – access, effectiveness, efficiency, and equity – and three fundamental principles – meaningfulness, appropriateness of scale, and time to value realization.

A core tenant of CCPI's work is to identify and eliminate value-based risks for VA. Value-based risks are areas of care delivery where most care is provided in the community, has high cost for VA, leads to care quality variations, and amplifies capacity challenges due to delivery structures or team staffing. If not addressed, these risks place a significant burden on VA and healthcare teams – ultimately impacting the care Veterans receive. CCPI confronts these risks by studying the challenge, amplifying potential solutions already in play inside VA, or leveraging new innovations in collaboration with program offices and care teams.

In addition to identifying value-based risks, CCPI is an ideal partner for innovation development and advancement because of a unique waiver authority granted to it by Congress. Section 152 of the Maintaining Internal Systems and Strengthening Integrated Outside Networks (MISSION) Act of 2018 gave VA the unique authority, upon approval by congress, to waive statutes that govern certain Veteran benefits to develop innovative approaches for testing payment and service delivery models. This allows CCPI to pilot new models that expand beyond current system parameters, providing the platform for revolutionary work. As CCPI identifies pilots that can scale with waiver authority, CCPI will utilize comprehensive data collection and analysis to generate insights from these groundbreaking pilots to assist the VA Secretary and Congress in making policy decisions that reinforce VA as a cutting-edge leader in healthcare.

CCPI is positioned to design and implement creative solutions that have tangible impacts on the care Veterans receive. Through innovative and effective pilot programs, CCPI can help improve the quality of care and health journey for Veterans nationwide.

Andy Roberts/iStock



Eoneren/iStock

Codifying innovation, repeating success, and transforming healthcare

Since joining VHA OHIL in April of 2021, CCPI is establishing itself as a key partner and collaborator in advancing value-based care and integrating approaches to care delivery across VHA. CCPI's ultimate aim is to transform healthcare at VHA and transition the system to a value-based model that comprehensively responds to the needs of Veterans while increasing efficiencies, reducing costs, and enhancing the quality of care provided. To achieve this future state, CCPI is building bridges between program offices, elevating the perspectives of frontline medical workers, and advancing healthcare solutions that fundamentally change how VA provides care.

CCPI has the right mix of legislative support and forward-leaning ambition to integrate innovative value-based care and payment models. CCPI is also uniquely positioned to incubate healthcare solutions, test their viability, and provide a road map on how to turn a small-scale solution into a transformative force. Applying the value-based pilot evaluation framework provides a formalized and repeatable approach to innovation that also allows the program to successfully innovate in collaboration with partners across VA, government, and industry. Coupled with robust data analytics, partnership building, and change management, CCPI can implement solutions that guide VHA in overcoming some of the biggest healthcare challenges.

As VHA OHIL continues to adopt a new approach for evaluating healthcare innovations, CCPI is developing pilot programs in collaboration with a variety of stakeholders and program offices to redesign existing models and integrate value-based principles. Areas of focus include identifying and addressing opportunities to optimize VA resources through bundled payment and cost-sharing payment models, enhanced management of and reduced reliance on community care services, utilization of virtual care modalities, and alternative care settings and integration of digital health tools with meaningful application of patient-reported outcomes.

Through pilot programming, CCPI is addressing key Veteran priorities and VA healthcare system issues that span nationwide. Pilots selected for advancement have the ultimate goal of scaling nationally, demonstrating the potential for impact on thousands of Veterans and staff members. CCPI is an increasingly important actor in VA's innovation space and is supporting the advancement of value-based innovations by implementing 21st century solutions that make VA the best choice for Veterans now and in the future.

CCPI is building bridges between program offices, elevating the perspectives of frontline medical workers, and advancing healthcare solutions that fundamentally change how VA provides care.

CENTER FOR CARE AND PAYMENT INNOVATION

Cancer Prevention from Your Home

Empowering Veterans with direct access to colorectal cancer screening through mailed FIT

"There's a common saying among the colon cancer screening advocates: The best test is the one that gets done."
— JASON DOMINITZ, M.D., MHS, VHA EXECUTIVE DIRECTOR, VHA NATIONAL GASTROENTEROLOGY AND HEPATOLOGY PROGRAM

Colon cancer is the second leading cause of cancer death in America, but according to Dr. Jason Dominitz, it doesn't need to be. As the National Executive Director of Gastroenterology for VHA, Dr. Dominitz knows that over 90% of colon cancer can be cured if it is detected early. The problem? Only two-thirds of Americans are up to date with their colon cancer screenings.

For him, it's a simple numbers game: screen more Veterans and you can prevent more cancer. Which is why Dr. Dominitz has been working with Diffusion of Excellence to roll out a national Mailed FIT (Fecal Immunochemical Test) Program — a simple kit that can be mailed to Veterans' homes for convenient, annual colon cancer screening. "It's a non-invasive way to get a lot of people screened very efficiently," Dr. Dominitz says.

When it comes to colon cancer screening, most people think only of colonoscopies, which can be uncomfortable and are time consuming for patients. In fact, many Veterans defer undergoing colonoscopies, which are one of several recommended colon cancer screening tests. The onset of the COVID-19 pandemic introduced new challenges for colon cancer screening. Dr. Dominitz says routine colonoscopies came to a halt in March 2020 and have not yet recovered: many tens of thousands of Veterans are overdue for their screenings.

Based upon his experience co-leading a clinical study of mailed FIT in 25,000 Veterans at 46 facilities, Dr. Dominitz knew that this screening test could address this gap in screening. FIT is a simple, non-invasive screening method that looks for small amounts of blood in a patient's stool. The sample can be easily collected at home and mailed back to a lab, with abnormal results leading to a colonoscopy and follow-up care.

Seeing the writing on the wall when routine colonoscopies were being postponed, VA sprang into action in early 2020. Dr. Dominitz advocated for adoption of FIT as the preferred colon cancer screening strategy during the COVID-19 pandemic, and this became VA policy. VISN 21 launched a Mailed FIT Pilot Program which was an important step in further engaging key stakeholders across the VA and building momentum for the program. An impressive 45% of Veterans in the pilot returned their FIT kits, and the experience was instrumental in preparing VA to extend the program nationwide.

Dr. Dominitz notes that the program is expected to have three major impacts: increase the number of Veterans screened; reduce the annual incidence of colorectal cancer and mortality; and reduce VA's reliance on colonoscopy care in the community. As an added benefit, adoption of mailed FIT is expected to generate cost savings.

With help from Diffusion of Excellence, Mailed FIT is now ramping up to serve Veterans across the nation. When it comes to catching and stopping the second leading cause of cancer death in America, Dr. Dominitz is hopeful mailed FIT will be a game changer.

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Mobilization of VA Prosthetic and Orthotic Care

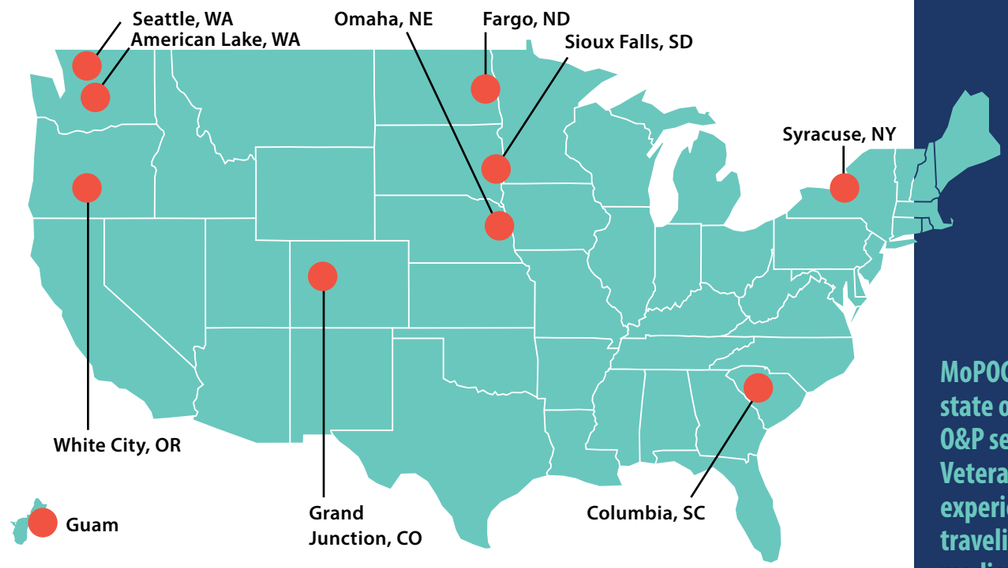
Expanding access to care for Veterans living in rural communities

Between June 2021 and September 2022, MoPOC clinicians conducted over 2,000 patient visits, 58% of which were with rural or highly rural Veterans.

Amputations, strokes, traumatic brain injuries, and spinal cord injuries are common among the Veteran population. Healthcare providers frequently observe how mobility disability coupled with other issues such as mental health, transportation, finance, or life's unexpected curveballs can make the simple act of showing up for an appointment exceptionally difficult. This can be particularly true for Veterans living in rural communities far from their local VA Medical Centers.

In 2019, then VISN 20 Prosthetist-Orthotist Daniel Abrahamson, CPO and VA Puget Sound Research Prosthetist and 2021 VHA Entrepreneur in Residence Fellow Eli Kaufman, CPO piloted mobile care with support from VHA Innovators Network (iNET). Having seen the detrimental effects of deferred orthotic and prosthetic (O&P) care on their patients' health and quality of life, their pilot work aimed to break down barriers to O&P care access by reducing or eliminating the patient burden of travel. The two-year pilot demonstrated increased access to care, high levels of Veteran satisfaction, and a 48% reduction of costs, prompting outspoken support from stakeholders within and outside of VA.

Mobile Prosthetic and Orthotic Care (MoPOC) was adopted by VHA Office of Rural Health (ORH) as an Enterprise-Wide Initiative in February 2021. The program's strategy for increasing access to care for Veterans is simple: move the point of care closer to home. Though the strategy is simple, implementation is complex. Through collaboration between ORH, VHA Rehabilitation and Prosthetic Services, VISN 20 Prosthetics, and VHA OHIL, the program is continually evolving to improve processes and better meet the needs of the rural Veterans.



The MoPOC model incorporates teams of mobile O&P clinicians that are equipped with specialty vehicles and tools to provide care at small VA clinics in rural communities, Veterans' homes, and, when needed, other locations such as Veteran Service Organizations. Participating sites are provided with the custom-modified vehicle, mobile care specialty tools, standard operating procedures, and the administrative support needed to start-up and run the program successfully. The MoPOC team strives to create consistency across the program, ensuring the highest quality of services at all locations, cost effectiveness, and scalability. MoPOC can be implemented at most VA facilities that serve rural Veterans.

MoPOC has expanded to ten anchor sites, including highly rural areas such as Sioux Falls, SD, and Guam. Between June 2021 and September 2022, MoPOC clinicians at the initial five VA sites conducted over 2,000 patient visits, 58% of which were with rural or highly rural Veterans. Preliminary data from an independent program evaluation shows that MoPOC is successfully delivering on its mission to increase access to O&P care.

The MoPOC leadership fosters a culture of innovation by actively engaging team members to ideate, test, and implement innovative approaches to the care model and by collaborating with other service lines across the enterprise to advance the state of O&P care for Veterans. They are continually sharing their work outside of VA by speaking at conferences, sitting for interviews, and presenting their work to students, members of other government agencies, and Congressional representatives. With 2.7M rural and highly rural Veterans enrolled in VA, MoPOC is poised for further expansion in the coming years.

MoPOC offers state of the art O&P services for Veterans who experience barriers traveling to VA medical facilities

ACCESSIBLE

MoPOC addresses Veteran health and travel limitations by providing accessible care at locations that feel safe and comfortable to the Veteran.

VETERAN CENTERED

MoPOC is structured to serve Veterans closer to home with the critical services they need most. Veterans report increased satisfaction with care and increased trust in VA.

COST-EFFICIENT

MoPOC reduces costs for Veterans and the delivery of VA care. MoPOC averages 48% savings compared to community care.

MoPOC clinician, Nathan Dooley, CPO, providing prosthetic care at a small VA clinic close to the Veteran's home.

A MoPOC vehicle being used to provide services at a rural VA clinic in Mount Vernon, WA.

MoPOC clinicians utilize a broad range of specialized hand tools and power tools.

Digital Health Platform: The Discovery Engine for Connected Health Technologies

Advancing early-stage health solutions for Veterans and care teams

For Veterans, the goal will be to eliminate the complexity and inconvenience associated with sharing their health device data with their VA care teams.

The continued rise of connected health, boosted in recent years by the COVID-19 pandemic, has untapped a stream of new opportunities to integrate patient-generated health data (PGHD) into the health system due to the rapid adoption of mobile health tools by patients. The potential for seamless integration of real-world health data from patients provides possibilities to support VA's transformation into a learning health system and unlocks new care models that incorporate multiple data sources to provide a more accurate view of each Veteran's lived experience.

Until now, there has not been a centralized pathway to quickly evaluate whether new connected health devices and their associated PGHD can feasibly integrate into existing VA care models. This lack of clarity has hindered VA frontline teams and digital health innovators from conducting early-stage testing to determine VA product fit and measure potential value drivers to the system. Integrating the PGHD that is being generated usually requires navigating an ever-changing, multi-layered, and confusing process involving disconnected VA offices with rare approvals. Without a clear pathway for how new devices integrate into the health system and a dedicated cloud platform to receive and make the data accessible to clinicians and care teams, digital health innovation has remained inefficient, with a significant burden placed on Veterans and their care teams. Often, Veterans must either email or upload snapshots (i.e., bursts of data) to providers through messaging portals such as My HealtheVet, display data on their devices with clinicians during appointments and even print records from their device's dashboard. These methods do not create a consistent or secure workflow for clinicians and do not allow patients the time they need to discuss proper treatments and courses of action based on their readings.

Dr. Stefany Holguin, Presidential Innovation Fellow, Dr. Arash Harzand, Director of Digital Cardiology at Atlanta VA Medical Center and 2021 VHA IE Senior Innovation Fellow, and

bearsky23/iStock, Giuseppe Lombardo/iStock

Blake Henderson
Director, VHA Diffusion of Excellence

Arash Harzand, M.D., MBA
Director of Digital Cardiology, Atlanta VAMC

Stefany Holguin, Ph.D.
Presidential Innovation Fellow, Office of the VA CTO

Blake Henderson, Director of VHA's Diffusion of Excellence program, are leading efforts to establish a new Digital Health Platform (DHP) to enable more effortless connectivity with health devices by addressing the existing technical, operational, and policy constraints within a single platform. The collaborative effort between OHIL and OIT has expanded to new stakeholders such as Office of Connected Care (OCC) who collectively support the long-term vision for the project; integrations with a wide range of connected and wearable health devices that Veterans are increasingly adopting. In its first iteration, the DHP will allow Veterans to easily connect their devices with VA and provide the necessary authorization for data sharing through VA.gov patient portal. From there, data collected is stored in a dedicated VA cloud environment where it can then be presented to care teams using a dashboard contextualized with electronic medical record (EMR) data and customized for each specific device and use-case being evaluated.

One of the initial use cases evaluated through the DHP is a pilot program for integrating continuous glucose monitors (CGMs) to make their high-resolution blood glucose data more easily accessible to VA care teams managing diabetes. The goal of the CGM pilot is to develop and test a direct patient-to-clinician pathway for sharing and visualizing data from CGMs without requiring VA clinicians to log into individual vendor portals to review data separately. If successful, pilot programs such as these will help determine requirements for what a future enterprise integration that would be deployed through aligned program offices would entail. Therefore, the DHP team has been closely coordinating efforts with key stakeholders such as OIT, OCC, and clinician champions to help guide these early-stage pilots. For Veterans, the goal will be to eliminate the complexity and inconvenience associated with sharing their health device data with their VA care teams.

RECOGNIZING SUCCESS

VHA Office of Healthcare Innovation and Learning (OHIL) strives to promote the discovery and spread of innovative healthcare solutions across VHA. VHA OHIL continues to influence the future of the healthcare industry and has received recognition from numerous internal and external organizations for outstanding work. In 2022, VHA OHIL staff members, programs, practices, and projects received the following awards.

AMSUS Annual Awards

AMSUS, The Society of Federal Health Professionals, is a non-profit member-based educational and professional development association whose annual awards recognize individuals who have made outstanding contributions in their field.

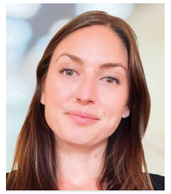
Ryan Vega, M.D., MSHA
Innovator Award
Developing novel approaches to overcoming complex and persistent challenges in healthcare delivery

Suzanne Shirley, LCSW
Management and Administration Award
Superior leadership and collaboration in advancing healthcare administration

Service to the Citizen Awards™

Champions of Change Program recognizes public servants who demonstrate excellence in delivering services that impact the public's lives. This year, six VHA OHIL leaders were recognized for their transformative leadership impacting Veterans nationwide. The 2022 honorees reimagined what it means to deliver individualized care to Veterans and customizable solutions for patients' needs.

Brian Stevenson, FACPPM, FACCOR



Caitlin Rawlins

Bailee Bannan

Anne Lord Bailey, Pharm.D., BCPS

Lindsay Riegler, Ph.D.

Angela Gant-Curtis

Ragan PR's Top Women in Communications Award

The Ragan Communications and PR Daily's Best Women in Communications "Dynamic-Doers" Award honors leaders for their ability to get things done. **Allison Armhein, MPH,** was honored for fearless leadership of the VHA Innovators Network (iNET) and within the communications industry.

Arthur S. Flemming Awards

Arthur S. Flemming Awards honor public sector leaders who demonstrate exceptional achievements within their field. **Thomas Osborne, M.D.,** Director of the National Center for Collaborative Healthcare Innovation (NCCHI), was awarded for his outstanding achievements in advancing care through collaboration, cutting edge technologies, and transformative leadership.

G2X Disruptive Technology and Innovation Awards

DISRUPTIVE TECH AWARDS 2022 WINNER

The G2X Change Agent Award honors those who take calculated risks and drive disruptive healthcare solutions to impact care outcomes and the culture of the organizations they serve. Programs Shifting the Landscape recognizes disruptors that are leading and transforming Federal information technology. The following people and programs were honored with the 2022 G2X Disruptive Tech Program Awards:

Amanda Purnell, Ph.D.
Arches
A platform that makes original and derived synthetic VHA data accessible to a broader group of users than previously possible.

Anne Lord Bailey, Pharm.D., BCPS
VHA Extended Reality (XR) Network
An inclusive network, engaging clinicians, researchers, thought leaders, and administrators at all levels of augmented, mixed, and virtual reality use that exists to share resources, lessons learned, successes, and failures.

Brian Higgins
Smart White Cane
A cane that incorporates sensors and processors to aid in navigation and safety while walking.

Caitlin Rawlins
VHA XR Network
The use of virtual reality as non-pharmacological approach within Western North Carolina VA Health Care System.

Megan Rumzie, DNP, RN, CNL, HNB-BC
VHA XR Network
Virtual Reality utilization in VA Sierra Nevada Health Care System.

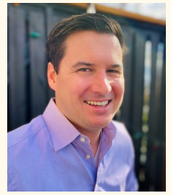
Thomas Osborne, M.D.
Fall Prevention Socks
A novel solution to utilize their smart sensor sock system to immediately detect and alert nurses when a fall-risk patient attempts to get out of bed.

Nicole Beitenman Giostent
A personalized 3D printed ear canal stent that was created for a Veteran and received FDA compassionate use approval.

RECOGNIZING SUCCESS

Modern Healthcare's Top 25 Innovators

Modern Healthcare's Top 25 Innovators Award honors those who have introduced ideas that have transformed healthcare in their fields. **Dr. Beth Ripley** was recognized for her work as the lead of VHA's 3D Printing Network and chair of the VHA 3D Printing Advisory Committee.



Modern Healthcare's Top 25 Emerging Leaders

Modern Healthcare's Top 25 Emerging Leaders Award honors individuals under 40 who have sparked continued growth and innovation in their fields. **Blake Henderson** was selected because of his history championing frontline innovations like the Light Electronic Action Framework (LEAF), Remote Veteran Sleep Apnea Management Platform (REVAMP), and Diffusion Marketplace.

2022 Winner FedHealthIT℠ Innovation Awards

FedHealthIT Innovation Awards

The annual FedHealthIT Innovation Awards recognizes and honors the Federal Health technology and consulting community by celebrating programs nominated and selected by their peers for driving innovation and results across federal departments and services. This year's awards goes to the following innovations:

Smart White Cane: National Center for Collaborative Healthcare Innovation

Long COVID Care at VHA: VHA OHIL and VA Office of the Chief Technology Officer

THE FEDERAL 100

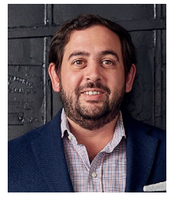
Federal 100

Angela Gant-Curtis
IT Program Manager, Innovation and Emerging Technologies, Office of the VA Chief Technology Officer, Department of Veterans Affairs

VA CDCE American Spirit Award

The **VA Rideshare Program** received the Center for Development and Civic Engagement (VA CDCE) American Spirit Award. The project originated as an idea by Innovation Project Manager **Charles Franklin** with the support from his project team. Since 2018, VA Rideshare Program has facilitated more than 250,000 rides for Veterans to break down barriers to care for Veterans experiencing homelessness.

FLC Awards



The Federal Laboratory Consortium (FLC) Impact Award

The FLC Impact Award recognizes technology transfer efforts that have made a tangible and lasting impact. RightEye is a technology developed by researchers from VA and Virginia Commonwealth University, including **Dr. George Gitchel,** to allow clinicians to quickly and accurately diagnose Parkinson's disease and other neurological conditions based on a detailed analysis of a patient's eye movements.

Nextgov Bold Gov Showcase

NextGov's BOLD Gov event is a showcase that honors the most forward-thinking public servants who have developed innovative solutions. **Dr. George Akingba** was honored to present on his solution, a Retraction Housing Device (RHoD) that uses 3D printing technology to effectively reduce interventional procedural time, sedation requirements, overall associated costs, and indirectly reducing radiation exposure.

International Hospital Federation Awards 2022

Under **Dr. Sara Battar's** leadership, **Michael E. DeBakey VA Medical Center** was nominated as a finalist for the Austco Excellence Award for Quality and Patient Safety for their work on VIONE. This innovation is a simple, portable, modern medication optimization, and deprescribing methodology to improve patient safety and quality of care.

HeRO High Reliability Hero

National HeRO Award

The National HeRO Award recognizes staff members who advance VHA's Journey to High Reliability by demonstrating VHA's High Reliability Organization (HRO) Principles in action. The 2021-2022 honorees from VHA OHIL were selected because of their commitment to serving Veterans and going above and beyond in patient care.

VA Rideshare Program
The VA Rideshare Program team from NECIE was honored for their dutiful response to a Veteran in need of transportation to their local VA substance abuse treatment center.

VIONE
The VIONE (Vital, Important, Optional, Not needed, Every medication has an indication) team was honored with a HeRO Award. VIONE is a safe medication management and medication deprescribing methodology created by Dr. Sara Battar at the Central Arkansas VA Health Care System.

VHA Innovation Experience
2021 Award Winners

Each year VHA celebrates boundary breaking innovations, collaborations, and technologies that are forging the future of Veteran healthcare through the VHA Innovation Experience (iEX). This multi-day event hosted by VHA OHIL serves as a powerful forum that brings together leaders in innovation from VA and the private sector to engage, network, connect with each other, and hear from the Veterans whose lives their work is impacting. VHA iEX engages over 3,000 individuals and continues to be a noteworthy event in the innovative healthcare industry that stimulates meaningful conversations.

Dr. Robert L. Jesse Award for Excellence in Innovation

Established in 2019, VHA OHIL recognizes a current VHA employee or group of employees who promote innovation across the enterprise either at VA medical facilities, Veterans Integrated Service Network, or VHA program offices, and honors their demonstrated excellence within the Veteran community. Dr. Robert L. Jesse had a clear 'why' delivering exceptional care to Veterans. Throughout his roles at VA as Chief of Cardiology at the Central Virginia VA Health Care System, Chief of Academic Affiliations, Principal Deputy Under Secretary for Health, and Acting Under Secretary for Health, Dr. Jesse never lost sight of this purpose and ultimately dedicated over 30 years to advancing healthcare for Veterans. This award pays tribute to how innovation restores hope, builds trust, and advances healthcare delivery for Veterans.

2021 Recipients

Clinical: Melissa Tran of Orlando VA HCS for her work developing a multi-disciplinary medical team to provide services for perinatal and postnatal Veterans.

Non-Clinical: Angela Gant-Curtis of VA OIT for her work standing up an innovation department within OIT.

Team: 3D Innovation Center of the Ralph H. Johnson VA Health Care System; Nikki B. Beitenman, Bethany M. Baldwin, Jose M. Rodriguez III, David J. Gaitlin, and Dr. Kent Flanagan for their work designing the GioStent which is VA's first ever 3D printed device that received compassionate use authorization from the FDA.

VHA Innovators Network Awards

Innovation Specialist of the Year Award: Kathryn Beckner of Richmond VAMC for catapulting the Richmond VA Medical Centers iNET site forward in her first year as a Specialist.

Tanked Award: Debra Cole of Richmond VAMC for her determination in innovating for Veterans after applying three times for the iNET Spark-Seed-Spread program before being accepted this year.

Investee of the Year Award: Brian Higgins of VA Palo Alto HCS for embracing the experiential, iterative attitude that exemplifies iNET.

iEX
2022 VHA INNOVATION EXPERIENCE

Coming in 2022

Innovation Stories: Through Innovation Stories, formerly known as Demos, exciting live demonstrations are presented and discussed by VHA frontline staff members. This showcase highlights three unique innovation presentations focusing on how VHA frontline staff members incubate, test, and scale their innovative practices and solutions that drive delivery of improved healthcare to Veterans.

VA Intrapreneur Product Marketplace Day: This year VHA Innovators Network (iNET) is hosting a special in-person event during the annual VHA iEX: the first VA Intrapreneurial Product Marketplace Day. During this face-to-face industry day-like event, guests will hear from 14 frontline staff members from across the country who have designed innovative products ready for manufacturing or commercialization (with the ability to license) and see their completed product design or minimally viable product.

iEX Talks: VHA innovators bring their experiences to life in a series of thoughtful TED-style talks that highlight innovative solutions that are changing and saving Veteran lives. Every year, selected speakers across VA and the healthcare innovation industry are invited to present their ideas to inspire attendees with a sense of empowerment and understanding that every VA employee can make a difference in improving Veteran care.

2022 VHA SHARK TANK COMPETITION

SHARK TANK LIVE!: Each year, VHA leadership reviews applications from hundreds of innovative practices implemented across the enterprise and selects 15 finalists to compete in the VHA Shark Tank Competition at VHA iEX. At the live event, finalists pitch their practices and learn if they received bids and the winning designation of a Promising Practice. Ten Promising Practices are selected during the annual VHA Shark Tank Competition and continue to work with Diffusion of Excellence and their bid facilities to implement and grow their practices throughout VHA.

iEX Awards: VHA iEX promotes and celebrates innovations for healthcare that surpass expectations, inspire ambition, and provide assurance for Veterans across the nation. Several prestigious awards are presented at iEX to recognize outstanding innovation across VA enterprise.

INNOVATION AND YOU

VHA works hard to connect the dots between innovative efforts and their people. Whether it is reimagining large-scale processes or shaping delivery for local Veteran care, innovation is present across the enterprise. Acknowledging the efforts of VA employees to improve VHA and the care that Veterans receive is vital to sustaining an innovation culture that encourages and supports fresh ideas, learning, and ultimately, transformation. As innovators, let us be reminded of ways we can inspire the innovation community.

Educating our teams

Educating staff members with what innovation is and what resources they can utilize to plan and execute solutions is vital for their development. By encouraging employees to cast their net wide and collaborate with innovation champions both internal and external to VA, we can build an innovative workforce around diverse skill sets and experiences. Engaging in human-centered design, entrepreneurship, and emerging health technologies are all great areas to build capacity in innovation.

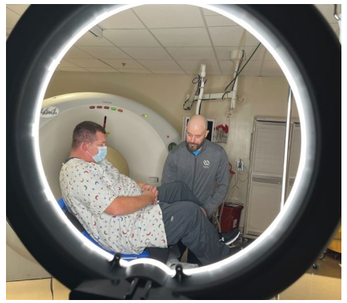
Ignite Creativity

Providing a transparent outlet for staff members to share their ideas ignites the spark needed to pursue solutions and deliver results. Creating opportunities for frontline staff members to embody innovation beyond their day-to-day tasks enables innovation in VHA to change and save Veteran lives. It is important to remain focused on mission-driven innovation that improves the Veteran experience through advancements in care delivery and services.

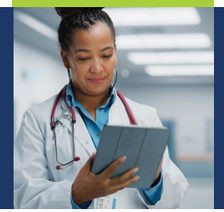
Embrace and Lead Change

Mentoring and supporting VA employees plays a significant role in accelerating innovation. Encouraging conversations around how to do things differently and investing time and resources in ideas that come directly from the frontline can result in solutions that truly help transform Veteran care.

Today and every day, we recognize VHA's best solutions that begin from innovative ideas and the people who transform them into impactful solutions. VHA's successes must be attributed to the innovators we work alongside, and we cannot thank them enough for all they do. We appreciate everyone for supporting us in driving our mission forward. Thank you for being the heart of innovation at VHA.



THANK YOU



Ryan Vega, M.D., MSHA
Chief Officer
Office of Healthcare Innovation and Learning
Veterans Health Administration

I want to thank you for being consistent advocates and ambassadors for all the amazing innovation work at VHA. This year's theme, Reimagining Veterans Healthcare, is not only our coat of arms but an ideal we pursue with enthusiastic dedication. As innovators, our mission is to advance the standard of care and ensure that Veterans, their caregivers, and VHA employees experience superior service throughout the entire care delivery journey.

While we have incredible momentum, we shouldn't be complacent - the impacts of the COVID-19 pandemic will still be a part of our lives for the foreseeable future. The pandemic exposed vulnerability and, at times, made it difficult to evolve as an organization. Part of the emphasis of Reimagining Veterans Healthcare is not to lose sight of the tragedy, challenges, and remarkable resilience of VHA and the innovation community. A pessimist sees the difficulty in every opportunity; an innovator sees the opportunity in every difficulty. How do we use our current momentum to move forward and catalyze the substantial progress we've all worked so hard to achieve?

We must be cautious of simple answers to complex problems. Often, we don't understand or are not privy to the intricacies and interdependencies that lead to surprising outcomes. Therefore, it is our responsibility to adopt a rigorous mindset where we evaluate every conclusion from multiple perspectives, especially from the viewpoint of those receiving or providing care. We must continue listening to and engaging Veterans and care teams to uncover insights beyond traditional healthcare constructs. The convergence of this feedback and thinking with a robust innovation mindset will drive revolutionary changes in healthcare culture, policy, process, and technology.

This report explored the transformational innovation endeavors occurring daily at our VHA facilities, clinics, and centers. Whether we are utilizing point-of-care advanced manufacturing for personalized solutions, implementing machine learning for clinical decision support, scaling immersive technology for pain management, or revolutionizing at-home care with digital health, we are creating a system that enables continuous health engagement and focuses on the production of health. We must continue to invest in these core growth areas – Advanced Manufacturing, Data Transformation, Immersive Technology, and Digital Health – to stay competitive and provide new value to Veterans, their caregivers, and our staff members. Innovation requires that we create the organizational capacity and capability to deliver demanded solutions, and VHA has the infrastructure and resources in place to achieve our collective mission and vision. I believe no institution is better positioned to lead the Nation and serve as a blueprint for integrated care where health and care harmonize in an equitable, accessible, sustainable, and efficient model for patients and the systems that care for them.

It will take all of us to lead this next evolution of healthcare, and we have proven that we are up to the challenge. Let's celebrate the transformation underway and appreciate the people who make this transformation possible, but also remain driven and actualize the power we yield as an organization. Success is not final, and failure is not fatal: it is our continued courage and willingness to advance that matters. Collectively, with our instinctive passion to heal and care for, we can Reimagine Veterans Healthcare.

Acknowledgements

On behalf of VHA Office of Healthcare Innovation and Learning, we'd like to say THANK YOU to the following colleagues who work tirelessly behind the scenes to enable the amazing innovation that VHA delivers to Veterans every day. Without their support, day in, day out, none of this would be possible.

VA Center for Development and Civic Engagement
VA Center for Women Veterans
VA Financial Services Center
VA Infrastructure Operations, IT Franchise Fund
VA Medical Centers' Public Affairs Offices
VA Office of Acquisition, Logistics, and Construction
VA Office of Enterprise Integration
VA Office of General Counsel
VA Office of Information and Technology
VA Office of Public and Intergovernmental Affairs
VA Office of Resolution Management, Diversity, and Inclusion
VA Pharmacy Benefits Management Services
VA Secretary's Veterans Services Organizations (VSO) Liaison
VA Strategic Acquisition Center
VA Strategic Investment Management
VA Technical Acquisition Center
VA Technology Transfer Program
VA Veterans Experience Office
VHA Center for Limb Loss and Mobility
VHA Chief Strategy Office
VHA National Center for Health Promotion and Disease Prevention
VHA National Center for Patient Safety
VHA Office of Academic Affiliations
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VHA Office of Health Informatics
VHA Office of Mental Health and Suicide Prevention
James A. Haley Whole Health Service endorsed by VHA Office of Patient Centered Care
VHA Office of Population Health
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