Introduction

Louise Arnheim, MPA[a]; Grant D. Huang, MPH, PhD[b]; Amanda P. Garcia, MPH[b]; Rachel B. Ramoni, DMD, ScD[b]; Carolyn M. Clancy, MD[a]

Bad times have a scientific value. These are occasions a good learner would not miss.
Ralph Waldo Emerson

Author affiliations can be found at the end of this article.
Correspondence: Louise Arnheim (louise.arnheim@va.gov)

Fed Pract. 2023;40(suppl 5). Published online November 1. doi:10.12788/fp.0426

Like the flip of a light switch, the world in March 2020 went into lockdown. Suddenly the novel coronavirus disease (COVID-19) was ever-present and everywhere. At a time when very little was certain, scientific inquiry—along with its related skills and disciplines—offered a much-needed pathway for navigating the virus's myriad unknowns.

From the pandemic's onset, the Veterans Health Administration (VHA) of the US Department of Veterans Affairs (VA) made singular contributions to the advancement and acceleration of national and international research activity. This special issue of *Federal Practitioner* demonstrates how the VHA, through its Office of Research and Development (ORD), took advantage of its newly deployed enterprise strategy to meet the unprecedented demands of this public health emergency.

Launched in 2017, the ORD enterprise strategy enabled the VHA not only to capitalize on existing collaborations—both internal and external—but also move swiftly in forging new ones. Additionally, the strategy was key to leveraging unique VHA assets as the nation's largest integrated health care system, including: (1) nationwide clinical trials infrastructure, including its longstanding Cooperative Studies Program; (2) a tightly integrated system of clinical care and research that serves as a ready platform for big data science, the world's largest genomic database, and emergent capabilities; and (3) an established innovation ecosystem that worked with VA research to address rapidly changing circumstances.

In The VA Research Enterprise (p. S12), Garcia and colleagues demonstrate how the VHA pandemic response "arose from an enterprise strategy that was already in motion and aimed at identifying needs for supporting the clinical care mission, more rapidly leveraging resources, and coordinating research across the national VA health care system." Thus, the VHA took a "model for a culture of cooperative research within the VA and with external groups" and translated it beyond the scope of clinical trials, which had been its foundation.

Led by Chief Research and Development Officer Rachel Ramoni, DMD, ScD, this strategy forged 121 VA medical centers conducting research into an integrated enterprise that could respond to needs for scientific evidence in a coordinated fashion, thereby translating research into practice for real impact on veterans. This approach built on relationships with not only scientific communities but also clinical and operational partners working within the VA to address the immediate pandemic-related needs.

In tandem with its physical infrastructure, the VA's longstanding network of collaborators, physical infrastructure, and ability to develop new partnerships became drivers of success. Because of previous, ongoing, multisite clinical trials and observational studies, the VA had already partnered with numerous federal government agencies and industry groups and was able to quickly set up a VA COVID-19 clinical trial master protocol framework called the CURES (VA Coronavirus Research and Efficacy studies) network. The ORD enterprise strategy is noted by several other authors, including Caroff and colleagues, who show how the VA efforts to broaden partnerships prepandemic were critical to its participation in 7 large-scale COVID-19 therapeutic and vaccine trials (p. S18).

Similarly, in discussing the VA Million Veteran Program (MVP), Whitbourne and colleagues (p. S23) demonstrate how the VA research strategy and infrastructure were key to leveraging "unique MVP and VA electronic health record data to drive rapid scientific discovery and inform clinical operations."

Launched in 2011, the MVP is one of the world's largest genomic cohorts, with more than 985,000 veterans enrolled. MVP developers had the prescience to foresee how a robust genomic database could inform public health emergencies. Whitbourne and colleagues show the many ways the MVP facilitated the VHA COVID-19 response. By extending the MVP centralized recruitment and enrollment infrastructure, an ORD COVID-19 volunteer registry successfully registered 50,000 veterans interested in volunteering for clinical trials.

This tight integration between research and clinical care is one of the VHA's greatest assets as a health care system. More than 60% of VA researchers are also clinicians who provide direct patient care. This enables VA

physician-researchers to learn directly from veteran patients and quickly translate new findings into improved care. It also supported numerous capabilities that played a key role during the pandemic.

For example, in the article VA Big Data Science (p. S39), Young-Xu and colleagues note that the VA use of health care data proved medical research could be performed "quickly and judiciously." Foundational to this research was a data sharing framework, electronic health record, and VA Corporate Data Warehouse that were accessible to all VA researchers. Researchers had access to clinical data and patient health records that allowed them to perform targeted, time-sensitive research. By building a cohort of 1,363,180 veterans who received ≥ 1 vaccine dose by March 7, 2021, VA researchers added significantly to our understanding of the real-world COVID-19 vaccine clinical performance.

In addition to leveraging existing capabilities, VHA clinicians and researchers created new ones in response. Krishnan and colleagues discuss the launch of 2 clinical and research consortiums focused on COVID-19 genomic surveillance (p. S44). SeqFORCE positioned the VHA to rapidly detect emergent variants and better inform the care of patients with COVID-19. SeqCURE focused on the broader study and trends of variants through sequencing.

The tightly integrated nature of VA care also supported the creation of a large-scale biorepository of specimens with accompanying clinical data to advance research and improve diagnostic and therapeutic research. Epstein and colleagues share the developmental history of the VA SHIELD biorepository, its structure, and its current and future contributions to research science (p. S48).

Finally, the same forward-learning culture which gave rise to the ORD enterprise strategy also resulted in an innovation ecosystem that was well established prior to March 2020. Now a firmly established portfolio within the VHA Office of Healthcare Innovation and Learning (OHIL), the VHA Innovation Ecosystem engages frontline clinicians in reimagining veteran health care. Iaquinto and colleagues discuss how the ecosystem's preexisting partnerships were critical to addressing shortages in personal protective equipment and other vital resources (p. S52). The OHIL provided the quality system and manufacturing oversight and delivery of swabs for testing, while the ORD furnished research infrastructure and human subjects oversight. Together, these offices not only addressed the shortage by producing swabs but also validated the swabs' safety and efficacy in the clinical setting.

The articles in this special issue chronicle how the VA quickly mobilized its considerable enterprise-wide resources—especially during the pandemic's acute phases—to contribute to timely veteran, national, and global evidence about what interventions were effective, what factors were associated with better care and outcomes, and how to flip the switch back to a nonemergency response. As Emerson might have observed, the scientific value of these recent "bad times" did not go unnoticed by VHA learners. In addition to catalyzing opportunities that accelerated the VHA enterprise strategy, the pandemic strengthened existing partnerships, led to new ones, and yielded lessons learned. With variants of the virus continuing to circulate, the VHA continues to harness the lessons learned from the emergency response perspective of the pandemic in order to effectively meet and exceed our mission to serve veterans.

The 35 authors whose work is featured in this issue—and their 3665 colleagues across the VHA research enterprise—offer testament not only to the power of scientific inquiry but of dedication to the mission by the individuals whose lives and families were also impacted by the pandemic.

VA Research continues working to unravel the ongoing impact of COVID-19. As the nation observes an increase in cases again, the VA is ready and well positioned to help lead and address needs for this and other public health crises.

Acknowledgments

This special issue is dedicated to Mitchell (Mitch) Mirkin and his enduring legacy at VA Research, helping to make the contributions of VA Research known as broadly as possible. A superb writer and "editor's editor," Mitch had an outstanding ability to translate complex scientific findings into layman's terms. From the start of the pandemic to his unexpected passing in 2022, Mitch was Acting Director of VA Research Communications. He was a key member of the VA Office of Research and Development COVID-19 research response team. His contributions included his work leading to the generation of this Issue.

Author affiliations

[a]Office of Discovery, Education and Affiliate Networks, Department of Veterans Affairs,
[b]Office of Research and Development, Department of Veterans Affairs

Disclaimer

The opinions expressed herein are those of the authors and do not necessarily reflect those of *Federal Practitioner,* Frontline Medical Communications Inc., the U.S. Government, or any of its agencies.