

CASE STUDY

Veterans Health Administration

Providing Exceptional Healthcare to Improve America's Veterans' Health and Well-being

MDCLONE

VA



U.S. Department
of Veterans Affairs

Veterans Health
Administration

Veterans Health Administration

VHA Innovation Ecosystem



HEADQUARTERS

Washington, DC

SIZE

1,298 Healthcare Facilities

171 Medical Centers

367,000+ Employees

27 Medical & Surgical Specialty

Care Services

9M Veterans served each year

AREAS OF FOCUS

Mental Health

Suicide Prevention

Acute Events

COVID-19

Hypertension

Cancer

Chronic Disease Management

WEBSITE

va.gov/innovationecosystem

The Veterans Health Administration (VHA) is America's largest integrated healthcare system. The VHA mission is to honor America's Veterans by providing exceptional healthcare that improves their health and well-being.

The VHA Innovation Ecosystem (VHA IE) is the catalyst for enabling the discovery and spread of mission-driven health care innovation to advance care delivery and service that exceeds expectations, restores hope, and builds trust within the Veteran community. The VHA IE was established to enable mission-driven healthcare innovation to advance care delivery for Veterans.

Strategic priorities of the VHA IE include:

- + Embedding innovation as a core fabric of the VHA
- + Building a collaborative innovation community
- + Delivering repeatable processes for scaling innovation across the VHA

Challenges

The VHA, like other healthcare organizations, faces access, quality, experience, and cost challenges in regard to using healthcare data to their full potential. With almost 1,300 care facilities serving over 9M Veterans per year, the VHA had massive amounts of data that were being under-studied and under-utilized.

The VHA knew that aggregating and reformatting patient data would be necessary to build a collaborative innovation community. By enabling non-technical specialists to discover and implement new best practices, the VHA would reduce time to insight, leading to higher quality and wider-access healthcare as well as increased cost savings.

The VHA needed a solution that could overcome the following challenges:

FRAGMENTATION OF DATA

VHA data was in multiple systems and formats, spread across an electronic health record (EHR) system, making these data difficult to be utilized for research. The VHA needed its data to be organized into a cohesive database in a longitudinal fashion to make them useful.

SCARCITY OF SPECIALIZED SKILLS

To study data in unstructured and fragmented formats, the VHA required researchers with specialized skills so they could fully explore and understand these data. The VHA needed non-technical users to be able to explore and analyze data.

PRIVACY REGULATIONS

Getting insights quickly and efficiently and then sharing and comparing them across health systems was near impossible due to necessary patient privacy regulations. The VHA needed a technology solution that would maintain patient privacy while also maximizing data utility.



Solution

The VHA sought out MDClone to implement a synthetic data generation engine to improve access to data so healthcare workers could explore and learn about Veteran patient health and optimize care. The adoption of a synthetic data generation engine would provide on-demand access to understanding care pathways for direct patient care for any population of interest without the need for lengthy quality or IRB review, dramatically increasing the ability to use data to improve operations for patient care.

Innovation would require empowered and imaginative staff as well as timely, accurate, and accessible data.

The partnership was designed to mitigate the VHA's data challenges by:

- + **Inciting Grassroots Data-Driven Innovation Across the Enterprise**

Innovation and research are often constrained by complicated analytics tools only available to informatics experts. The first goal of this project was to foster a culture of innovation by bringing exploration and insight creation to a wider network of VHA researchers, clinicians, and decision-makers without the assistance of specialized IT resources.

- + **Increasing Access to Data while Enhancing Patient Privacy**

Many regulations and safeguards protect Veterans' medical data, but these also limit access and create delays. The second goal of the project was to demonstrate the value of synthetic data to accelerate the innovation cycle at the VHA.

- + **Improving Interoperability**

The VHA data environment includes many fragmented, siloed systems. Data are often in multiple formats that are difficult to combine for innovation projects and research. The third goal of the project was to aggregate data from multiple sources, including the VHA's EHR, wearables, patient-generated data, genomics data, and others to provide a holistic view of patients and unlock greater insights regarding VA mental health patients and others.

The three use cases the VHA initially focused on were:

- + **Operations/Quality**

Surface insights from data can lead to increased efficiencies, clinical outcomes improvement, and reduced costs at the VHA.

- + **Citizen Research**

Expanding the self-service population of researchers, clinicians, and managers at the VHA can reduce the time from idea to insight.

- + **Collaboration & Innovation**

Synthetic data can enable users to freely collaborate with internal or external stakeholders.



Outcomes

The VHA IE and MDClone finalized an agreement in late 2020, giving the VHA IE access to clinical data so it could better understand and improve the health of its Veterans.

Examples of the VA's current project scope include:

- + Defining leading indicators for a programmatic response to suicide
- + Analyzing COVID-19 trends and treatment best practices
- + Managing clinical variation in chronic disease to find opportunities for standardization



“The VHA has long been at the forefront of healthcare informatics and the use of data to improve patient outcomes and drive operational improvements. The selection of MDClone’s unique platform builds upon this tradition. With one of the largest medical databases in the world, the VHA requires enterprise-scale tools to explore data, innovate, and improve patient care. MDClone’s dynamic environment will help VA staff deliver on their mission to provide the best healthcare services to Veterans across the US.”

Ziv Ofek, Co-founder and CEO of MDClone

Significantly, Veterans’ privacy and health information is protected via MDClone’s synthetic data generation technology, which surpasses traditional de-identification methods.

With MDClone, the VHA IE is broadening access to clinical data to empower its staff, accelerate transformation, and elevate teaming with external agencies, providers, and industry – all of which can positively impact the lives of Veterans nationwide.

Initial Results

The VHA is leveraging synthetic data generated at MDClone to expand access to clinical data and enable collaboration with other third-party agencies, healthcare providers, and industry.

For the VHA, the chronological timeline feature is another one of the key benefits of the platform. Although numerous ways to query and access data exist, working with an output file can be difficult. MDClone's platform has a user-friendly and easy to understand interface, designed for a wide range of uses – adopting an “any question, any person, any time” model.

Today, the VHA is taking advantage of MDClone's ability to provide high quality synthetic data to support rapid innovation. Examples of use cases for the VHA include:

- + Heart Failure Patient Predictions**

Using MDClone's synthetic data, the VHA is developing machine learning algorithms that are being used to predict and minimize readmissions of heart failure patients. The VHA aims to build ML models, validate them against original data, and then implement them into the quality space. This will allow the VHA to predict Veteran specific discharge readiness and allow for early intervention for those at risk of readmission.

- + Suicide Prevention**

The VHA is using MDClone to support its suicide prevention grand challenge, which involves analysis of data in their Veterans Crisis Line. The VHA's goal is to reduce Veteran suicide by at least 10%.

- + Validating Technologies**

The VHA is working with the technology vendor Equideum to validate their technologies using MDClone's synthetic data. At the national level across federal agencies, the VHA is looking at federated learning and privacy protection technologies for managing innovation.

Forward Thinking

In the future, the VA will use MDClone as a testing environment to see what kinds of information would be valuable to embed in the health record and in what ways and to whom. MDClone allows users a safe exploration in subsections and enables them to then build it out before going into production.

The VHA ultimately hopes to have a process that enables many different diverse users – including nurse care managers, clinic managers, individual care providers, and medical center directors, to name just a few – to easily get feedback about how things are performing in the work that they do.



TAKE THE FIRST STEP

Get Started Today

**Unlock healthcare data.
Transform care.**

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SEE A DEMO

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