



# VA TASK FORCE 2023 REPORT



# Table of Contents

|   |    |
|---|----|
| 1. Acknowledgments                          | 2  |
| 2. Executive Summary                        | 4  |
| 3. Goal - Providing 21st Century Care       | 5  |
| 4. The Challenge – Improving Access to Care | 6  |
| 5. Technology Implementation                | 7  |
| 6. A New Paradigm                           | 13 |
| 7. Veterans Served                          | 18 |
| 8. Conclusion                               | 20 |
| 9. Sources                                  | 21 |



“We have seen an explosion in the use of telehealth...it allows us to meet our veterans where they are, including in rural communities, and it allows us to get them specialists and expertise directly to them.”

Denis McDonough  
Secretary of Veterans Affairs

# 1.

## Acknowledgments

Credit is due to the following individuals whose leadership, knowledge, skills, and ability made this document possible.

### **AMERICAN COLLEGE OF HEALTHCARE ARCHITECTS (ACHA) - VA TASKFORCE**

Clyde “Ted” Moore III AIA, ACHA, LEED BD+C  
*Haskell*  
ACHA VA Task Force Facilitator

Wayne Barger, AIA, ACHA, LEED AP  
*SmithGroup*

Sheila Cahnman, FAIA, FACHA, LEED AP  
*JumpGarden Consulting, LLC*

Anne M. Cox, AIA, ACHA, EDAC,  
LEED AP BD+C, WELL AP  
*A3C Collaborative Architecture*

Jim Hageman, ACHA, NCARB  
*Alesia Architecture, P.C.*

William I. Kline, FAIA, ACHA, EDAC, LEED AP  
*Leo A. Daly*

Steve M. Langston AIA, ACHA, EDAC,  
LEED AP BD+C  
*Rogers, Lovelock, + Fritz (RLF)*

Special thanks to Jocelynn White from RLF  
for providing graphic design services

### **DEPARTMENT OF VETERANS AFFAIRS OFFICE OF CONSTRUCTION AND FACILITIES MANAGEMENT**

Ken Dickerman, AIA, ACHA





## 2. Executive Summary

The American College of Healthcare Architects (ACHA), in partnership with the Veterans Administration Office of Construction and Facilities Management (OCFM), seeks to help the VA streamline the process of delivering care to Veterans. Both organizations seek to understand how the VA can deliver better results more expeditiously with reasonable cost by creating different systems, processes, capabilities and facilities. To accomplish this mission, a task force was assembled of ACHA Certificants and a representative from the VA OCFM. This was a year long effort with findings published in December 2022.

The ACHA Task Force is recommending new healthcare paradigms to improve access to care, and by answering the following questions:

1. How do we improve access to care?
2. How will healthcare be delivered in the future?
3. How can we create an equitable system of care?
4. What kind of new spaces or facilities will be needed to accommodate this new paradigm?

The overarching goal is that all Veterans should have equal access to the same high quality of care and positive outcomes regardless of gender, race, language, socio-economic status, or geographic location. Additionally, the Veteran’s care experience should be consistently humane and reassuring.

To achieve this goal, after research, debate, and reflection, the Task Force recommends that a redoubled effort of broad outreach is required. The program must include and integrate multiple formats of in-person, digital and virtual communication to serve different generations of veterans, all of whom prefer to communicate and receive care in different ways.

We propose a tiered, four-dimensional hub + spoke model that adapts to Veterans’ needs, from the simple to the complex, utilizing high tech/high touch technology to incorporate predictive analytics to forecast needs, identify patients who would benefit from care, and deliver personalized health care services nationwide.

This proposal includes new technologies as well as existing technologies the VA already

utilizes: telehealth, home health, distributed retail locations, robotic vehicles, wearables, tablets, and portable diagnostic tools. This approach must provide care to address the physical, mental, and emotional well-being of each Veteran, and would provide a consistent, forward-leaning, patient-centric and reassuring humane experience.

A substantial number of VA enrollees either live beyond a reasonable drive time from critical points of healthcare delivery, lack transportation options for financial reasons, or are limited by a disability. A program centered around virtual and mobile technology would provide additional healthcare options for veterans in both rural and urban areas. Access for Veterans would increase, while at the same reducing the VA facility real estate footprint, thus allowing resources to be redirected to more effective patient care.

The Rapid Deployment Health Utility Base (RD-HUB ) is a new strategy for bringing primary care to Veterans, expanding access to enrollees via delivery of a mobile, technology-based program that would provide home healthcare to Veterans throughout the US. An assigned care team connects remotely or travels to Veterans, to connect and provide appropriate care. This approach suggests less of a reliance on the built environment and more about a transition to technology and mobility-based strategies. It is a person-centered approach tailored to each Veteran’s needs bringing care to them proactively.

The RD-HUB is a new building prototype created from a kit of parts used individually or fit together to form a larger base hub to distribute

healthcare services. It is a modular approach where one unit could be considered for a small base, or more units planned for a larger base.









Strategically located RD-HUBs could be freestanding or attached to a Community Based Outpatient Center (CBOC). RD-HUBs could be hosted by Critical Access Hospitals, helping secure the financial viability of these important rural community resources. In general, the Task Force proposes reducing fixed investments in construction through a technology enabled strategy that helps to avoid large, expensive, inflexible, difficult-to-maintain built solutions.

The benefits of this approach include:

- Fewer, smaller, modern healthcare facilities geographically distributed, allowing for decommissioning of obsolete VA properties.
- Flexibility in staff deployment / rotation to remote sites, increasing staff satisfaction.
- Improved access through a unified gateway, a single consistent point of care simplifying patient navigation and improving Veteran satisfaction through in person or remote choice of services.
- Technology that bridges the care gap in an economical way, making primary care equitable.
- The RD-HUB can also serve ‘The Fourth Mission’ of the VA, ‘To Improve the Nation’s Preparedness for Disaster Response’. The RD-HUB can serve as a “Resiliency Hub” in times of need.
- Opportunities for more preventative care.

### 3. Goal: Providing 21<sup>st</sup> Century Care

The following were identified as the desired qualities of Veteran healthcare in the future.

|  |   |  |  |
|--|---|--|--|
|  <p><b>PARTNERSHIP</b></p> <p>Encourage synergistic partnerships with private industry, vertically and horizontally integrated, to create relationships which optimize care and diminish cost to the government. The VA would benefit from having key partners for technology and delivery.</p> |  <p><b>HOLISTIC</b></p> <p>Provide holistic medicine emphasizing the person’s ability to engage in self-care that is self-directed to allow a person to be part of his or her own healing processes. It fosters a cooperative relationship between Veterans and caregivers, leading towards optimal attainment of the physical, mental, emotional, social and spiritual aspects of health.</p> |  <p><b>CONNECTION</b></p> <p>Increase communication and care coordination with multiple access pathways to care through a unified, reliable platform that is simple to use. Technologically integrated and utilizing electronic portals that patients prefer, the platform would provide all remote care coordination with a single, consistent point of contact for home based primary care.</p> |  <p><b>RESILIENCE</b></p> <p>Provide both shelter and medical care for displaced and endangered individuals and families thus supporting the Fourth VA Mission. This system would improve the nation’s disaster preparedness and provide a better, more effective response.</p> |
|  <p><b>EFFICIENCY</b></p> <p>Exhaust non-capital solutions first, maintaining quality. Care in VA facilities should be provided with an eye toward Lean methodologies, reducing waste and improving flow.</p>   |  <p><b>CHOICE</b></p> <p>Deliver concierge medical services in a personalized way; how each Veteran wants to receive care.</p>   |  <p><b>VETERAN-CENTRIC</b></p> <p>For patients, this is a journey, and Veterans deserve a holistic approach to healthcare that adapts the delivery to individual needs and individual location.</p>   |  <p><b>QUALITY</b></p> <p>Advocate for effective treatments, optimized service, improved quality of care and improving patient outcomes.</p>  |

# 4. The Challenge: Improving Access to Care

The Department of Veterans Affairs, with an annual budget of about \$240 billion, has 360,000 employees and over 6,000 buildings, including 1,600 health care facilities, 171 medical centers, and 1,000+ outpatient sites. It is the Nation’s largest integrated healthcare provider and serves over 9 million veterans annually.

The VA Report to the Asset and Infrastructure Review (AIR) Commission issued in March 2022 identifies aspirational goals and a number of challenges for the enterprise. While the AIR Commission recommendations were not adopted by Congress, the goals remain critically important:

- Cement VA as the primary, world-class provider, integrator and coordinator of Veterans’ health care for generations to come

- Build a health care network with the right facilities, in the right places, to provide the right care for Veterans in every part of the country
- Ensure that the infrastructure that makes up VA in the decades ahead reflects the needs of 21st century Veterans—not the needs and challenges of a health care system that was built, in many cases, 80 years ago
- Strengthen VA’s dual roles as the leading health care researchers in America, and the leading health care training institution in America

The VA must continue to transform to provide the best possible care to our nation’s veterans while being judicious about its capital outlay. There remain a variety of challenges. Some of the most frequently voiced concerns heard from Veterans include:

- Care is not convenient
- Appointments are not available
- Concerns about quality of care
- Lack of access to transportation
- Lack of care coordination
- Specialty services not available
- Inadequate internet/social media/electronic presence
- Inadequate women’s healthcare
- inadequate ability to serve the Veterans’ homeless population



**The VA uses standard metrics of 30 and 60 minute drive times to their facilities in evaluating ease of access for their enrollees. According to the AIR report, proximity to secondary VA sites outside of dense urban areas usually range between 40-85% of enrollees living within a 60 minute drive of those sites. This means that a substantial number of enrollees live beyond a reasonable drive time to these critical points of healthcare delivery. This drive time metric does not address the significant number of enrollees who live relatively close to a VA site,**

**but lack transportation options for financial reasons, or who are limited by a disability.**

**A program centered around mobile technology would provide additional healthcare options for veterans in both rural and urban areas. The VA has already moved to partner with private industry to accomplish this goal and a full roll-out of such a system enterprise-wide would provide increased access for Veterans, while reducing the real estate footprint of secondary VA facilities. This effort would reduce costs and improve service and quality of care.**



**1/3 of the 9 million Veterans enrolled in the VA Health Care System live in rural areas.** [National Center for VA Services]



# 5. Technology Implementation

## A Technologically Enabled, Tiered Approach to Access the VA Integrated Continuum of Care

In the words of acclaimed science fiction author William Gibson: “The future is already here – it is just not evenly distributed.”

Technology has the potential of democratizing healthcare in a way that improves both access and equity, giving the Veteran choice. Automation of repetitive tasks will allow providers to concentrate on more important medical needs. By utilizing technology, the traditional healthcare point-of-care can shift for the convenience of both the Veteran and the provider.

### Benefits of Technology

**INFRASTRUCTURE REDUCTION**  
Building fewer/smaller buildings; Allows deaccessioning of obsolete properties, providing flexibility to Veterans wherever they are.

**STAFF SATISFACTION**  
Flexibility in hiring of staff where they live; Allows Veterans to access caregivers similar to themselves (relatable). This could include a rotation/ short deployment model to service remote areas.

**IMPROVED ACCESS TO CARE FOR ALL**  
Adapt technology to patient needs using a personalized approach regardless of location or economic status; a unified gateway providing simplified patient navigation (Patient-centric) improving Veteran satisfaction

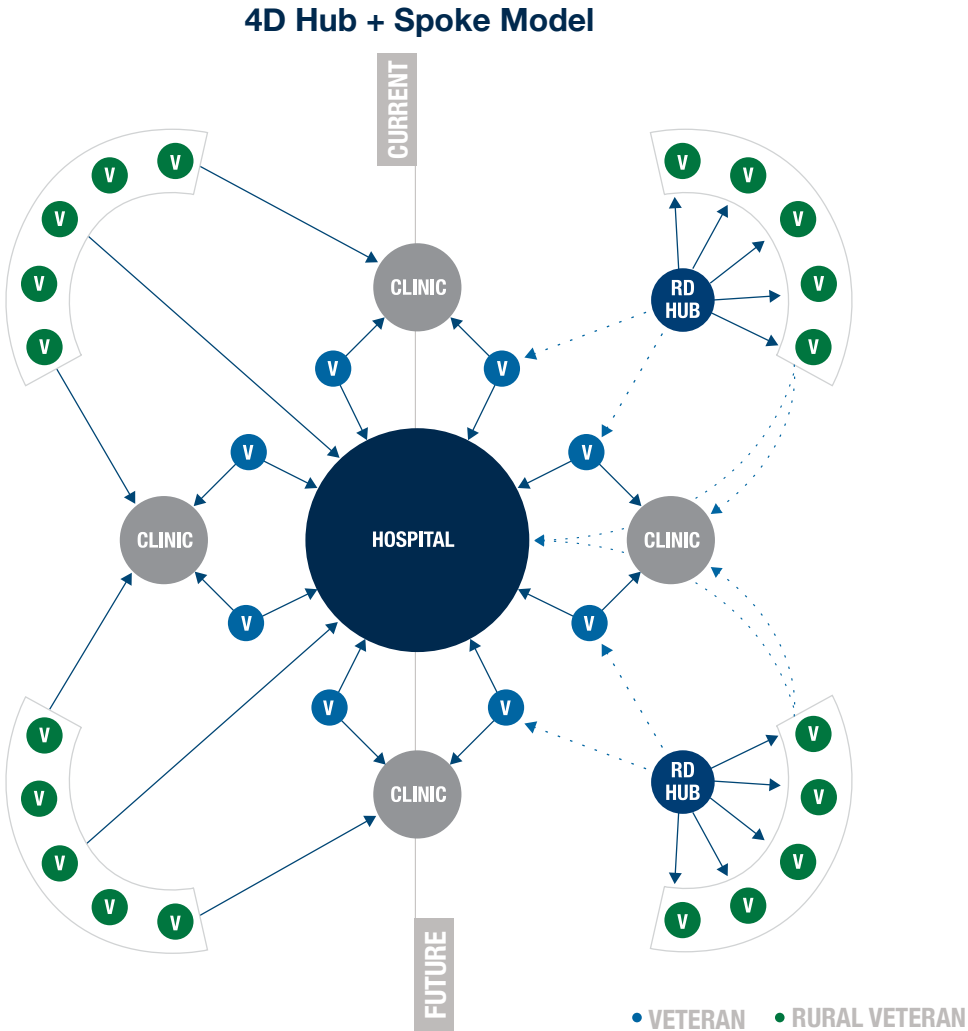
**ECONOMICAL SOLUTION**  
Technology bridges the gap in care, via an economical solution.

We propose a tiered, four-dimensional hub + spoke model that adapts to the Veteran’s needs, from the simple to the complex, utilizing high tech/high touch technology to predict and deliver personalized health care services wherever they are located. This includes new technologies to enhance the ones the VA already utilizes including telehealth, home health, distributed retail locations, robotic vehicles, wearables, tablets, and portable diagnostic tools. This approach would provide immediate assistance for the physical, mental and emotional well-being of the Veteran, while providing a consistent forward-leaning, patient-centric, reassuring, and humane experience. By utilizing technology to personalize their experience, we can improve access, equity, and quality in delivering world-class healthcare.

What is a tiered, four-dimensional hub + spoke model?

This model revises a traditional hub + spoke approach (a business model that uses distributed outpatient clinics to drive patients to more acute centralized facilities), but reverses the flow to meet the Veteran where they are in

multiple ways by their choice and convenience. With the advent of new technologies that can connect, monitor, predict, and assist the healing process, it is now possible to affordably personalize the health experience for the Veteran improving both medical outcomes and experience. To achieve this, the following technology applications should be considered:



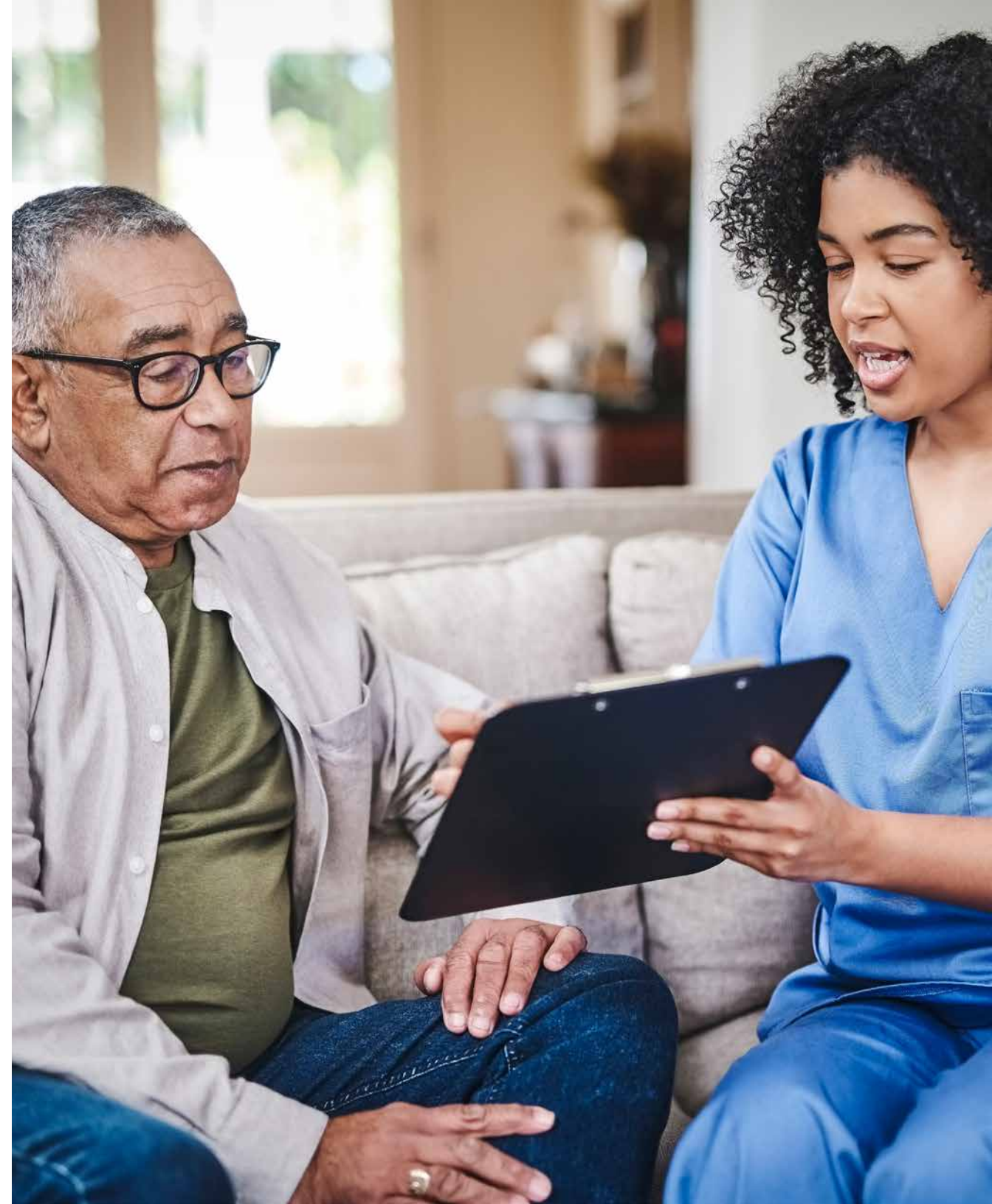


## A. AI/Predictive Care

“LET’S KEEP YOU HEALTHY.”

Artificial Intelligence (AI) sounds like a far-flung future technology, but it assists us everyday. Amazon and Google use computerized algorithms (sorting equations) to understand our likes and dislikes, creating suggestions and choices. AI provides predictions based upon our past decisions, knowledge from others, and known outcomes/ solutions. Medical providers are already incorporating AI to augment their practices:

- Improved quality and speed of results: With medical staff shortages, utilizing AI could allow for many repetitive tasks to be done quickly and consistently to save time for medical providers. For instance, AI algorithms can review data to identify and diagnose skin lesions/cancers or to detect abnormal breathing patterns efficiently and accurately as a digital medical assistant.
- Provides definitive answers to specific medical questions: AI can assist the physician in determining the correct diagnosis. AI can be used with little training, so as not to burden the caregiver with extensive investment. Information can be easily regulated and updated, so that it can be efficiently integrated into daily practice.
- Smartphone detection of medical issues: AI technologies already in use are Skin-Checking Apps (cancer), Vocal biomarkers (Alzheimer detection), and Cough / Breathing pattern analysis (respiratory issues). These simple AI technologies can help with detection of medical issues and pave the way for further acceptance by the medical community. Dr. Bertalan Mesko of the Medical Futurist reported that 79 AI technologies were applying for FDA approval in 2022.







## B. Active electronic monitoring

“ARE YOU FEELING RESTED? WE CAN HELP YOU SLEEP BETTER. WANT TO EXPLORE SOME IDEAS?”

Wearable trackers monitor a person's health through measuring their traditional vital signs (blood pressure, heart rate, temperature, etc.). Coupled with smartphone connected portable electronic devices, a Veteran can relay vast amounts of data to the healthcare provider in a simple manner in a chosen location. When connected to an EHR (electronic health record) a Case Manager can monitor a Veteran's health and predict and possibly prevent a future health crisis.

For wearable devices to be effective they must be:

- Unobtrusive: Not noticeable so that the user is unaware of its use and operation.
- Comfortable: Not bulky or heavy making it easy to wear with clothes in any condition.

- Non-threatening: Alerts to issues are kept discrete.
- Easy to use: Little to no training to use properly providing choices and options.
- Attractive and fun: A pleasant and visually interesting experience building one's confidence and well-being.
- Apple watches and FitBits are excellent examples of proven devices that have shown promising results. These devices can be also used to detect falls, physical activity, balance, etc. and can be used for remote diagnosis and therapy. When coupled with higher fidelity electronic medical devices focused on specific issues such as heart monitoring (ECG), breathing machines (CPAP) etc., they reduce the need for travel to acute medical settings.



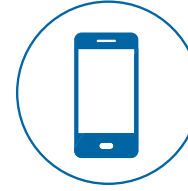


## C. Proactive remote case management

“GOOD MORNING, WE SEE YOU DIDN’T TAKE YOUR MEDS TODAY.”

Lack of compliance with prescribed medication protocols can be a major cause of recurrent health issues. According to Dr Fred Kleinsinger, “Medication nonadherence for patients with chronic diseases is extremely common, affecting as many as 40% to 50% of patients who are prescribed medications for management of chronic conditions.... This nonadherence to prescribed treatment is thought to cause at least 100,000 preventable deaths and \$100 billion in preventable medical costs per year.”

With the appropriate data analytics, the VA could reduce this tragic and needless mortality rate by identifying non-compliance and gently managing patients. This approach could significantly reduce re-admits and save both money and lives.



## D. Enhanced Communication

“HOW WOULD YOU LIKE TO COMMUNICATE TODAY?”

Providing Veterans a choice on how they would like to communicate with healthcare providers, humanizes the process and respects the individual. This choice will increase use, communication, and the perception of care. A digital interface that allows for this interaction is crucial to achieve both access to healthcare and equity within the system. An effective digital interface must:

- **Offer communication choices** that cater to the individual's preference: A Veteran can choose to meet a provider via a phone call, text or chatbot, video chat, physically visit a facility or even meet in the metaverse. Technology allows for a variety of devices to be used (smart phones, computers, tablets) on different networks (web, wireless mobile) both virtually or in-person. The technology can also inform the Veteran of the wait time

to see a provider so they can schedule according to their preference (in-person could be two weeks, voice on a phone with a person of their choice may be an hour, or a text or chatbot could be one minute)

- **Be easy to use:** A Veteran can use it quickly and intuitively without frustration.
- **Have scalable consistency:** A variety of devices that look and work the same, seeming consistent to the user. Consistency is paramount in building trust and confidence for the Veteran, making the process more effective.
- **Be Personable and human:** The experience should be pleasant, non-threatening, and rewarding. The ability to connect Veterans with a caregiver of similar races, religion, gender, or ethnicity can bring comfort and increase communication.





## E. Advanced Mobile Medical Vehicles

“STAY THERE, MR. JONES, WE HAVE A VEHICLE IN THE AREA AND WILL COME HELP YOU.”

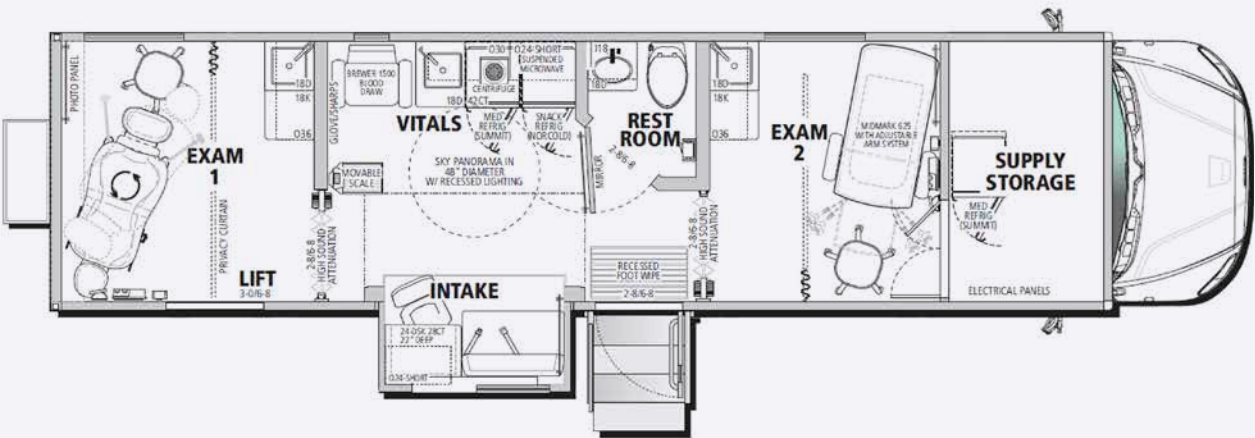
Veterans have difficulty traveling to a medical facility due to a variety of reasons: lack of access to transportation, remoteness or distance to the right medical facility, mobility difficulties, inability to take time due to work schedules/family commitments and difficulty in communicating (language/culture), etc. Allowing the Veteran to remain in or close to home, but still having a personal connection with their caregiver is critical. A Mobile Medical Vehicle that has advanced medical technology and modalities that goes to the Veteran can provide this necessary service. For this strategy to be effective, the vehicles must be:

- Flexible: Providing a variety of interchangeable health modules that are “plug-ready” and easy to install + change.
- Functional and Comfortable: An environment that is sized to allow for effective care delivery to be comfortable and inviting.
- Sustainable: Supported by power sources that are beneficial to our environment.
- Cost-effective: Easy to purchase, operate, and maintain.

These vehicles can either visit a Veteran at their home or be used to set up a mobile health clinic within a community reducing a Veteran’s travel distance. Again, providing flexibility and choice for the Veteran is a proven and successful model for the delivery of needed health services.

## RECREATIONAL VEHICLE BASED MOBILE CLINIC

[publichealth.harriscountytexas.gov/Services-Programs/All-Services/Mobile-Health-Village](http://publichealth.harriscountytexas.gov/Services-Programs/All-Services/Mobile-Health-Village)







## F. Homecare

### “HOW WOULD YOU LIKE TO RECEIVE CARE TODAY, IN PERSON OR REMOTE?”

Technology has enabled a large portion of health services to be administered in the comfort of the Veteran’s home. There are advances in home testing kits, remote monitoring of vital signs up to an ICU level, tracked compliance, prescribed remote therapies, and remote robotic procedures. With the continued development of these technologies and others, Veterans can stay in their home and receive a variety of health services. This flexibility can reduce hospital patient volumes, decreasing exposure to nosocomial infections. Studies have shown this can reduce operating costs while aiding a faster healing process (given a healthy home environment).



**Telehealth Visits increased more than 1,000% from March to June of 2020 and the demand has continued to increase.**

[National Center for VA Services]

For this to be effective, it must be:

- Flexible: Able to adapt to a variety of spaces and limited infrastructure.
- Simple: Easy to install and use in the home-environment.
- Connected: Monitored remotely and in person by caregivers.

The additional benefit of homecare is the caregiver’s deeper understanding of the life-style and living environment of the Veteran. An unhealthy home environment can either create health issues or hamper a Veteran’s recovery. By understanding the Veteran more holistically, we can understand how to help them live a healthier and fuller life.

A high-speed, reliable connection is critical for all of this technology to work effectively. With the advent of 5G networks that provide high bandwidth and low latency, this 5th generation mobile network should allow for a reliable connection with fast data download that can support the stable interplay of health sensors and smart software essential to the Internet of Medical Things.

**When it is necessary for a Veteran to meet a provider face-to-face for diagnosis or treatment at traditional care sites, improved use of technology will facilitate better outcomes and Veteran experience:**

#### Ambulatory Care

**Better outcomes will result from moving the system from disease treatment to health management. Immediate access to a patient’s data, and a primary care provider’s personal familiarity with the Veteran enables more time for diagnosis, and less time reviewing histories and associated files. This correlates to better patient satisfaction, less risk of inappropriate medications, and higher physician satisfaction. Telemedicine allows for consults with specialists without travel to regional VA hospitals. Providers such as nurse practitioners, midwives and physician assistants can provide services at the “top of their licenses” when enabled by technology and virtual access to physicians.**

#### Women’s Healthcare

**The FemTech movement addresses the special needs of women’s healthcare by providing new technologies to improve women’s health. The specific disciplines include the entire life cycle of concerns including contraception, menstrual care, fertility, pregnancy, delivery and nursing, general sexual health, and menopause. Entrepreneurs are currently developing new apps, with consolidated data, promising to revolutionize the field in this decade. New services and innovative products are in the pipeline, and the VA should consider partnerships to help develop these innovative solutions, refine their**

**usefulness, deploy them, and measure the improved results and outcomes to support the increase of women Veterans.**

#### Hospital Based Care

**The VA’s effort to create integrated databases to receive and analyze data will assist in the effort to provide the highest quality care. The Highly Reliable Organization model enhances patient outcomes, patient and staff safety, accountability, learning, and transparency. By utilizing big data techniques, analysts correlate procedural standardization, patient safety, clinical quality and outcomes data. If sufficiently robust, this data can be utilized to predict outcomes for difficult and specialized procedures. Further, when physicians utilize the data, studies show that it improves continuity of care, and increases work efficiency.**

**Utilizing data analytics, VA can consolidate surgical procedures to higher volume locations shown to enable a higher percentage of more positive outcomes. New technologies will also improve care. Wearable, implantable or ingestible sensors will enable shorter hospital stays and better continuing care after procedures. Finally, the VA should study establishing centralized centers to allow intensivists to monitor Veterans in multiple critical care units and even at home.**

**A technologically integrated approach will allow emergency medical personnel to instantly obtain a Veteran’s complete medical history, allowing safe and effective care for the emergent situation, informed by a complete picture of the person, including chronic conditions, comorbidities, medications, and family history.**



## 6. A New Paradigm

The Rapid Deployment Health Utility  
Base (RD-HUB)





## The Rapid Deployment Health Utility Base (RD-HUB) is a new strategy for bringing primary care to Veterans. It is a mobile, technology-based program that would provide home healthcare to Veterans in rural and urban areas.

The designated care team links remotely or travels to a cohort of Veterans, to connect them with providers and provide appropriate care. This approach suggests less of a reliance on the built environment and more about a transition to technology, travel medicine and mobility-based strategies. It is a person-centered approach that would be tailored to each Veteran's needs to bring care to them in specific locales.

The RD-HUB is based in a building created from a kit of parts used individually or joined together to form a larger base hub to distribute healthcare services. It is a modular approach where one unit could be considered for a small base, or more units planned for a larger base. This flexible approach could be implemented based on the services to be provided in a region or area.

### LOCATION

The RD-HUB base could be located in remote areas or partnered with other existing infrastructure opportunities like a Community Based Outpatient Center (CBOC) or a Critical Access Hospital. Existing sites could function as test areas to more rapidly implement the RD-HUB. Another approach is reuse of existing commercial areas: as many commercial properties are being abandoned due to online retail, an abundance of this type of space is becoming available that could become a RD-HUB base. This would allow for quick mobilization providing healthcare to Veterans, close to where they live. The reuse and adaptation of existing abandoned commercial spaces would save the money, resources, and time needed to implement the concept.

### RD-HUB: A kit of parts

#### VEHICLE DEPOT

The Vehicle Depot is a deployment hub where vehicles are staffed, stored, charged, stocked, and serviced. The deployed vehicles include Mobile Care Vans with exam and diagnostic capabilities, smaller electric passenger vans, electric cars, SUVs, motorcycles, and scooters as well as drones. The depot is stocked with medications, medical supplies, and any needed vehicle maintenance items. As a self-reliant energy efficient building, it utilizes roof solar panels for supply of building energy and vehicle charging needs. Partnerships with US mobility companies like Ford and GM could help to fast track the design and availability of specialty vehicles.







### TECHNOLOGY SHOP

The Technology Shop is a supply, education, and repair location for providing devices to Veterans. With a stock of tablets, wearables, and MetaVerse devices (goggles VR/AR, wearable NFTs) the shop will deliver, mail, or provide technology support for Veterans. A tech hotline with online or phone capabilities will provide a service to field Veteran inquiries. The Tech Shop can respond to service calls in a Veteran's home or implement remote solutions and in partnership with visiting healthcare staff implement a home-based technology that can monitor day to day health. Partnerships with technology companies such as Apple and Google could be a way to quickly start up and staff the Technology Shop.

### TELEHEALTH CENTER

The VA is a leader in Telehealth implementation. With the Technology Shop providing technology to more Veterans, more virtual visits will be possible. The Telehealth center would provide a multi-disciplinary PACT team. Patients would be connected to a care coordinator, who has access to a variety of services and specialists including mental health and nutrition consults. The consultation team could all be remote or co-located in a call center setting where staffing is available. They could provide a coordinated care plan to any Veteran in all urban or rural settings. The care team could identify if a visit to the Veteran's home is needed. The Telehealth Center could be hospital-based, stand-alone or paired with any of the other components in the RD-HUB kit.

### OUTPATIENT CLINIC

When a clinic visit is required, the mobile vehicle and careteam could treat them in a better equipped Outpatient Clinic Van or

transport them to a CBOC that may be co-located with a RD-HUB Vehicle Depot and Technology Shop. Transportation for Veterans is often an issue due to remote locations, inclement weather or personal mobility issues. This is a mobility strategy to get Veterans the care they need, when they need it.

### PHARMACY

Mobile and mail delivery of prescriptions insure Veterans are getting and taking the medications they need. Stocking of the vehicles and clinics would all be implemented from the RD-HUB pharmacy component, filling and delivering medications within the local services area. A virtual Pharmacist could provide consults to insure compliance. Pharmaceuticals are increasingly assuming a greater, sophisticated role in treatment and may include nano-technology in the future. This includes delivery of cancer care, gene therapy, respiratory therapy and ocular therapy.

### DURABLE MEDICAL EQUIPMENT (DME)

A supply of DME including wheelchairs, walkers, canes, and crutches would be stocked in the RD-HUB to be distributed to the mobile service vehicles for delivery and instruction to Veterans in their homes during a provider visit. A bioengineering representative could be dispatched to install more complicated equipment or an Occupational Therapist could provide an Activities of Daily living (ADL) assessment for Veterans that requires more enabling devices or home modifications.

### BEHAVIORAL HEALTH

RD-HUB staff could organize both individual group and behavioral health visits. A caregiver can visit a Veteran in their home for a counseling



session or set up a telehealth visit via a tablet supplied by the Technology Shop so Veterans can conveniently connect remotely with providers. Group meetings for social companionship could be facilitated by the Behavioral Health staff, providing transportation to Veterans as needed, and using existing local community spaces for meetings.

**OUTREACH**

Assessing the challenges of a Veteran’s daily life in their home environment is a very important component of improving their total health and wellbeing. Social Work services based at the RD-HUB has a counseling component as well as an outreach component. Social Workers could travel to Veterans Homes to counsel on services, help in filling out forms, and assess living conditions. As an outreach service, the RD-HUB staff could host Farmer’s Markets, Healthy Food Fairs, Healthy Lifestyle events, Clothing Distribution, Diabetes Awareness, and Benefits Fairs aimed at educating Veterans on available services and helping in gaining access to care and services. Partnering with a local Walmart, Dollar Tree, CVS, and town grocery store, the vehicle could use an existing parking lot as a platform for the event, even giving out coupons for healthy food and supplies to be used at these retail partner locations. This quick implementation does not require an additional built environment, but uses existing infrastructure, staff, and a mobile van. This could also supply outreach to homeless Veterans, even hosting special events to counsel and supply them with needed items. This would be implemented and supplied from the RD-HUB where the Vehicle and supplies would be housed.

**VISION AND DENTAL SERVICES**

A mobile van equipped with Vision and Dental Services could be used for free screenings, setting up appointments, education sessions, and performing exams either in a Veteran’s home or at one of the retail sites mentioned above. The distribution of vision and dental supplies could be implemented through the RD-HUB and delivered to the Veterans in person or by mail.

**STAFF QUARTERS**

In remote areas, where staff is hard to hire, a one week, one month or longer rotation at the RD-HUB would help to staff the location for service, deployed through a centralized VA staffing service. There would be sleeping quarters, canteen, office areas, exercise rooms, robust internet connectivity and other amenities. This model is suited to very remote areas, where it is hard to find and employ regular staff.

**AIR DELIVERY / DRONES**

Drones are increasingly being utilized to receive and deliver supplies by Amazon and others, especially in hard to reach locations. The RD-HUB would have a drone landing port to potentially deliver directly to the Veteran’s home. In some locations, a Helipad may also be included on site.

**RESILIENCY CENTER**

As the ‘Fourth Mission’ of the VA is providing a response network for our nation in disaster preparedness, selected RD-HUB locations would have a Resiliency Center Component. Acting as an Emergency Conditions location, they would be stocked with emergency supplies, water, medicine, food, and could be a self-supporting unit in times of need.

**DESIGN SUMMARY**

These conceptual graphics depict a small to medium sized version of the “Rapid Deployment Health Utility Base” (RD-HUB). An 8-acre site is shown in a rural or suburban location adjacent to key roads. It assumes that basic utilities, such as sanitary, water, and electrical, are available. This concept also assumes that the site soils and topography are manageable with relatively low-cost site preparation and structural solutions.

The site and building choices are optimized to bring the facility into service in approximately 6-8 months as a design and construction goal. The idea of the RD-HUB is to install, relocate, or even dismantle these project sites with a relatively limited investment of time, resources, and financial cost. This campus is designed to provide a rapid response to the health needs of Veterans as quickly as possible, and at a relatively low cost.

**BUILDING FEATURES**

The conceptual building shown is a two-level stacked modular design. Conventional construction methods are also suitable if that is the most economical choice in certain regions. The modular, repetitive components could be manufactured at central or regional plants and shipped to sites throughout the US, reducing overall construction costs and the need to find qualified labor at more remote sites. The building length and height can flex to adapt to the needs of a particular service area. This example shows a 36,000 gross square foot building.

The first level is designed to handle incoming shipments of medical and pharmaceutical supplies, durable medical equipment, and similar items. After sorting and processing, there are also garage bays for loading equipment and supplies directly into the service vans etc. The second level of the facility includes the following: the telehealth center of excellence, base operations, communications center, information technology support, as well as team administration.

The proposed concept for this facility is net-zero energy, net-zero water usage, and has substantial on-site power generation that could make it completely an off-grid campus. The building is designed to support the operations and ideas described in this document and is not programmed to provide any direct interface with Veterans or their families.

**SITE FEATURES**

The site shown is designed to support traffic flows for deliveries as well as covered parking of service cars, service vans, medical imaging rigs, transport buses, and other support vehicles. The site also supports staff parking, a drone landing pad, satellite communications, emergency power, and a helipad for emergencies. All vehicle areas are designed to extensively support electric charging. Some small green houses could grow fresh herbs, fruit and vegetables to improve nutritional outreach for Veterans and their families.



**SECONDARY  
ENTRANCE**

**HELIPAD**  
Disaster Relief Events

**GREENHOUSES**  
Flowers, Herbs, Vegetables

**WIND GENERATOR  
ARRAY**  
On-site Power Generation

**SERVICE VEHICLE COVERED PARKING AND  
EV CHARGING STATIONS**  
Cars, Vans, Buses, Specialty Imaging Vehicles, PV Arrays

**EMERGENCY GENSETS**  
Fuel for Extended Disaster Relief  
Support

**DELIVERIES**

**SATELLITE  
COMMUNICATIONS**  
Enhanced Connectivity to  
Veterans and to Central  
Operations

**DRONE  
LANDING PADS**  
Small Package  
Deliveries

**EV CHARGING  
STATIONS**

**STORM WATER  
MANAGEMENT**  
Irrigate Campus and  
Greenhouses

**RAPID DEPLOYMENT HEALTH UTILITY BASE (RD-HUB),  
PRIMARY BUILDING**  
Modular or Conventional Construction, Height and Length Flexibility,  
Adaptable Program Elements, Relatively Low-Cost and Rapidly Built,  
Net-Zero Water and Energy Use

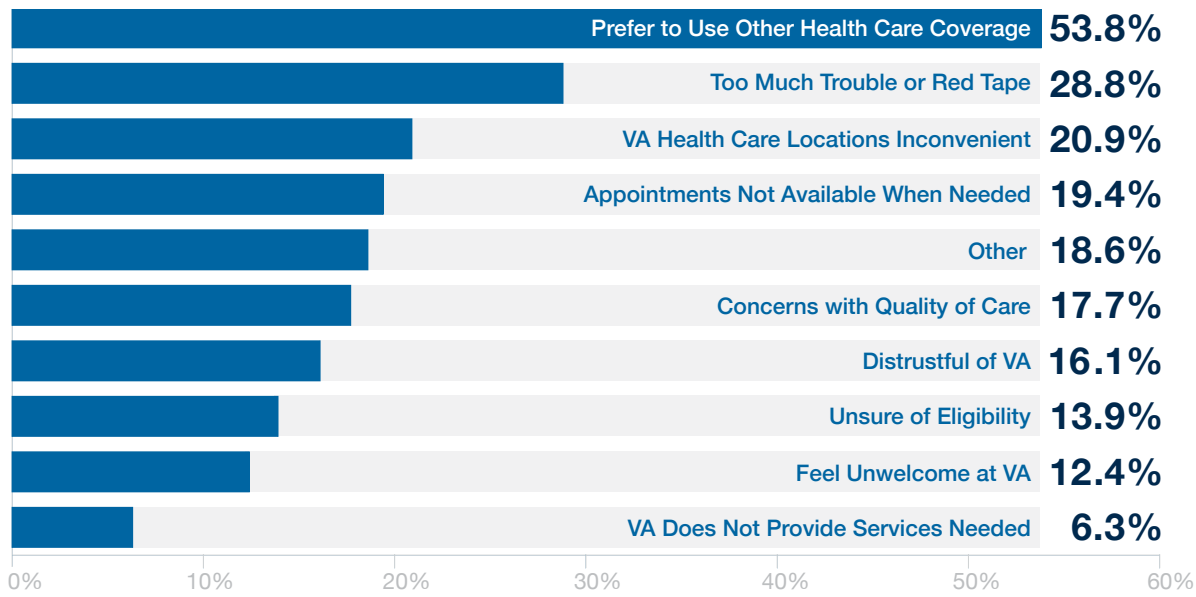
**STAFF PARKING**

**PRIMARY ENTRANCE**  
Limited Site Access: 2 Entry  
Points with Barrier Gates for  
Staff and Delivery Flow Only



# 7. Veterans Served

The following reimagines how rethinking healthcare delivery could positively affect the lives of different Veterans.



PERCENTAGE OF U.S. VETERAN AND ACTIVE SERVICE RESPONDENTS WHO HAVE NEVER USED CARE SERVICES FOR SELECT REASONS IN 2021

MARK  
VIETNAM  
AGE 69



Mark is an Army veteran living in Florida who has suffered from chronic heart disease and diabetes for most of his adult life. Although he has no service-related injury, complications from his diabetes several years ago resulted in the amputation of both legs below the knee. In addition to those challenges, Mark was recently diagnosed with prostate cancer.

## CHALLENGES

Mark is one of many homeless Veterans. He is food insecure and finds it difficult to follow a diet that won't exacerbate his diabetes. He does not have reliable and secure space to store his medications and maintaining personal hygiene and physical comfort are a daily challenge. With his mobility issues, transportation is one of his most acute problems. Accessible routes to the community homeless shelter are limited. Therefore, he often sleeps outside in a tent when the weather is nice. While this arrangement is challenging, and makes it difficult to charge his wheelchair, it does give him closer proximity to preferred stores, banks and offices. He is on a waitlist for both subsidized housing and a VA Domiciliary.

## SOLUTION

A more connected and mobile VA delivery system could mitigate some of Mark's challenges. Mobile units described previously, could be deployed to urban sites on a predictable schedule. A unit deployed near Mark's homeless shelter would provide wound care for his legs, regular dispensing of his diabetes and cancer medication, maintenance of his wheelchair, and consultation on his diet. Mental health consults could be provided either in-person or via a telehealth visit. The RD-HUB staff would coordinate access for Mark to community farmers markets and local grocery stores for better dietary options. Ideally, Mark would be provided with wearable monitoring devices – including blood glucose – that are remotely monitored by the VA to help manage his diabetes.

**MARIA**  
PERSIAN GULF  
AGE 44



Maria is a Navy veteran who served aboard an aircraft carrier in the Arabian Sea and Persian Gulf. She is living in San Jacinto, California and she suffers from mental health comorbidity including PTSD, depression and alcohol use. Her physical health is still reasonably good, but could deteriorate in the next ten years.

**CHALLENGES**

Maria is divorced with two children ages 10 and 6. She can only work a part-time job as she is the primary caregiver for her children with limited access to childcare options in her community. Access to VA healthcare is challenging because the nearest clinic is 50 minutes away, and the nearest VA hospital is a 1-½ hour drive. Appointments for primary care and mental health at the clinic take 3-4 weeks to schedule and she has no one to watch her children. She needs more reliable help to manage her mental health issues and for primary care visits. Maria’s preference is to have female health providers, but only male providers seem to be available - VA healthcare settings with so few women make her uncomfortable.

**SOLUTION**

Maria’s challenges could be reduced if she could access mental health providers via telehealth in her home, including female providers from other VA sites. The RD-HUB could arrange virtual or in person group chats for women Veterans to share experiences, providing childcare when needed. Home health primary care / gynecology visits via mobile vans would reduce her travel issues and work around her schedule. She would benefit from the RD-HUB’s guidance on how to access reliable internet healthcare information for her and her children.

**JIM**  
DESERT STORM, AFGH  
AGE 52



Jim is a Veteran living in Valentine, Nebraska and has suffered from multiple symptoms of Gulf War Syndrome for the past 20+ years. His symptoms include headaches, fatigue, dizziness and memory loss. Jim is continuing to see deteriorating health which he believes is related to exposure to open burn pits while he was stationed in Afghanistan.

**CHALLENGES**

Jim has asthma since returning from Afghanistan, and now has been diagnosed with cancer in his lungs. He is married with three children and his wife holds a steady job. However, he has struggled and finds himself underemployed frequently causing him depression and drug dependencies. Access to VA healthcare is challenging because the nearest clinic is 1-½ hours away, and the nearest VA hospital is a 3-½ hour drive. He needs more proximate mental health support to help him manage his substance abuse. His new cancer diagnosis requires long trips for treatment at the closest VA hospital.

**SOLUTION**

Many of Jim’s challenges could be mitigated by a more connected, mobile VA healthcare delivery system. The mobile units deployed from a RD-HUB in Jim’s region would provide telehealth devices in his home to allow easy access to mental health providers, regular dispensing and access to his cancer medications, and wellness consultation. Virtual Oncologist and other specialist exams could reduce the need to travel to hospitals or clinics.



## 8. Conclusion

The following reimagines how rethinking healthcare delivery could positively affect the lives of different Veterans.

To deliver equitable, high-quality, Veteran-centered, accessible care in the future, the VA must adapt the delivery of healthcare to individual needs and location. The system must be predictive and proactive, humane and secure, adaptive and flexible, sustainable and resilient, affordable and lean, collaborative and vertically integrated. The care experience must be holistic, Veteran-centric, personalized, and accessible, stream-lined and coordinated. This approach suggests less of a reliance on the built environment and more about a transition to technology and mobility-based strategies, augmented by strategically placed facilities to support mobile units.

The RD-HUB and its components would implement technology and delivery of service to Veterans; reducing the need for Veterans to travel to service since service will travel to them. Personalized in-home health care, technology that is provided and maintained, and close access to needed services is the success of this strategy. There would be less reliance on brick and mortar solutions, more reuse of existing infrastructure and more partnering with businesses to support Veteran whole health at a community level. In summary, a system built around the needs of those who served.





# 9. Sources

The following sources were accessed in preparation of this document

## VA

VA History Overview [https://www.va.gov/HISTORY/VA\\_History/Overview.asp](https://www.va.gov/HISTORY/VA_History/Overview.asp) Accessed 11/15/22

VA Report to the Asset and Infrastructure Review (AIR) Commission <https://www.va.gov/aircommissionreport/> Accessed 11/26/22

Veteran Community Care Eligibility [https://www.va.gov/communitycare/docs/pubfiles/factsheets/va-fs\\_cc-eligibility.pdf](https://www.va.gov/communitycare/docs/pubfiles/factsheets/va-fs_cc-eligibility.pdf)

## Health Care

Søren Ventegodt, Isack Kandel , David A. Ervin, and Joav Merrick, Concepts of Holistic Care,

[https://www.researchgate.net/profile/Soren-Ventegodt/publication/301641481\\_Concepts\\_of\\_Holistic\\_Care/links/58aeb84c45851503be923d06/Concepts-of-Holistic-Care.pdf](https://www.researchgate.net/profile/Soren-Ventegodt/publication/301641481_Concepts_of_Holistic_Care/links/58aeb84c45851503be923d06/Concepts-of-Holistic-Care.pdf)

Fred Kleinsinger, The Unmet Challenge of Medication Nonadherence, The Permanente Journal, Published online September 1, 2018, <https://doi.org/10.7812/TPP/18-033>

McKinsey & Co, The Dawn of the FemTech Revolution, February 14, 2022awn of the FemTech revolution

<https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/the-dawn-of-the-femtech-revolution>

## Technology

Billig JI, Sears ED, Travis BN, Waljee JF. Patient-Reported Outcomes: Understanding Surgical Efficacy and Quality from the Patient’s Perspective. Ann Surg Oncol. 2020 Jan;27(1):56-64. doi: 10.1245/s10434-019-07748-3. Epub 2019 Sep 5. PMID: 31489556; PMCID: PMC7446737.<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7446737/>

Effect of Hospital Volume, Surgeon Experience, and Surgeon Volume on Patient Outcomes After Pancreaticoduodenectomy , A Single-Institution Experience, C. Max Schmidt, MD, PhD, MBA; Olivier Turrini, MD; Purvi Parikh, MD; et al

“Finding the future of care provision: The role of smart hospitals”, McKinsey, May 31,2019, <https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/finding-the-future-of-care-provision-the-role-of-smart-hospitals>

Kerr RS. Surgery in the 2020s: Implications of advancing technology for patients and the workforce. Future Healthc J. 2020 Feb;7(1):46-49. doi: 10.7861/fhj.2020-0001. PMID: 32104765; PMCID: PMC7032584.<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7032584/>

Kim, S., Lee, KH., Hwang, H. et al. Analysis of the factors influencing healthcare professionals’ adoption of mobile electronic medical record (EMR) using the unified theory of acceptance and use of technology (UTAUT) in a tertiary hospital. BMC Med Inform Decis Mak 16, 12 (2015). <https://doi.org/10.1186/s12911-016-0249-8>

“Virtual Care for the Rural Veteran”, Philips, Accessed 11/25/22 <https://www.usa.philips.com/healthcare/government/our-approach/partnerships-and-collaborations/atlas>

The Medical Futurist, Welcome to the Virtual Ward, Accessed 11/25/22

[https://medicalfuturist.com/welcome-to-the-virtual-ward/?utm\\_source=The%20Medical%20Futurist%20Newsletter&utm\\_campaign=bb9605110c-EMAIL\\_CAMPAIGN\\_2022\\_02\\_01\\_COPY\\_02&utm\\_medium=email&utm\\_term=0\\_efd6a3cd08-bb9605110c-420695813&mc\\_cid=bb9605110c&mc\\_eid=808bdd683f](https://medicalfuturist.com/welcome-to-the-virtual-ward/?utm_source=The%20Medical%20Futurist%20Newsletter&utm_campaign=bb9605110c-EMAIL_CAMPAIGN_2022_02_01_COPY_02&utm_medium=email&utm_term=0_efd6a3cd08-bb9605110c-420695813&mc_cid=bb9605110c&mc_eid=808bdd683f)

## Additional contributors

Rebecca Olson, AIA, ACHA, LEED AP  
*Romanyk Consulting Group*

Luke Leising, AIA, PE, ACHA, LEED AP  
*Guidon Design, Inc.*



VA TASK FORCE  
2023  
REPORT

