The Department of Veterans Affairs (VA) Healthcare System has faced unique challenges responding to the Covid-19 pandemic because of its large size and widely diverse operating environments, the high disease burden of its patient population, and its role as a back-up system to the private sector in times of national emergency. Three priorities have driven its initial response: (1) how to continue providing access to medical and mental health care to millions of patients who have multiple co-morbidities and live in highly diverse settings; (2) how to prevent spread of Covid-19 within its facilities and keep patients and staff as safe as possible; and (3) how to maintain or expand access in Covid-19 hotspots and in states under “stay at home” orders. Rapidly expanding virtual care delivery by VA providers has been a central element in VA’s response. We have learned several lessons that we believe have broad applicability and have identified areas that require further investigation in what we believe is the beginning of a new era for health care delivery.
The VA Healthcare System

The VA Healthcare System operates facilities in every state (as well as the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and American Samoa) and essentially every major metropolitan area of the country. These facilities include 170 VA medical centers, 1,061 community-based outpatient clinics, 134 community living centers (nursing homes), 300 outpatient readjustment counseling centers, and many residential rehabilitation programs. VA manages a $230 billion/year health insurance program for over 9 million enrolled veterans who also may receive care by private providers. The VA serves elderly veterans living in 157 state-run long-term care facilities (State Veteran Homes). Further, VA is the nation’s largest provider of graduate medical education and other health professional training and manages a $2 billion per year research portfolio. VA is the only national health care system and is unique in that it preferentially enrolls the most complex patients into its healthcare plan.1

VA’s Rapid Expansion of Virtual Care

Virtual care expansion has been critical to VA’s ability to maintain health care access for its patients, including the 30% who live in rural regions and in regions highly affected by Covid-19, such as New York, New Jersey, Louisiana, Massachusetts, and Michigan. While VA was an early adopter of telehealth and was the nation’s first health system to employ a chief telehealth officer in 1999, the vast majority of VA outpatient care continued to be face-to-face visits through February 2020. Despite the ready availability of secure email, telephone care, e-consults and video-to-home visits, the use of these virtual care modalities varied across care sites until Covid-19 abruptly spurred widespread utilization.

“While VA was an early adopter of telehealth and was the nation’s first health system to employ a chief telehealth officer in 1999, the vast majority of VA outpatient care continued to be face-to-face visits through February 2020.”

Beginning in mid-March 2020, dramatic changes occurred in how VA clinicians interacted with patients through virtual methods. Between the beginning of March and the end of April 2020, the number of weekly video-to-home encounters rose from 7,442 to 52,609 for mental health care, from 1,102 to 13,068 for primary care, and from 1,238 to 21,215 for specialty care and rehabilitation (Figure 1). The number of VA clinicians using video-to-home visits increased from 10,542 to 12,880 in primary care, from 8,599 to 11,173 in mental health, and from 2,533 to 5,833 in specialty care. Use of telephone visits increased by 131%, rising from a weekly average of 327,180 to 756,195, with more than 895,000 phone encounters in the last week of April (Figure 1).
Less dramatic increases were also seen in secure email exchanges. VA also increased the use of e-consults/e-referrals for specialty care, with highest volumes being in Gastroenterology and Endocrine/Diabetes (Figure 2). Gastroenterologists in VA reviewed consults/referrals for endoscopies and made recommendations back to primary care via e-consults during the time period of deferral of elective procedures which began across VHA on March 15, 2020 via a national directive mandating deferral regardless of the local epidemiology of Covid-19 infection.
The modality of virtual care that was utilized markedly varied by clinical specialty, with mental health and specialty care preferentially using video-to-home visits and primary care using more telephone. The increase in use of video-to-home visits by mental health providers was rather homogeneous, while specialty care providers’ use of video-to-home visits was quite heterogeneous. The more traditional medical specialties of cardiology, gastroenterology, and pulmonary medicine had the highest rates of heterogeneity among individual providers.

FIGURE 2

Rates of Electronic Consults (E-Consults) per 100 Visits, by Clinical Specialty

Source: Veterans Affairs Collaborative Evaluation Center
NEJM Catalyst (catalyst.nejm.org) © Massachusetts Medical Society

The Mechanics of Shifting to Virtual Care

In rapidly operationalizing VA’s virtual care strategy, five tactical areas were critical:

1) training and supporting both the workforce and patients

2) expanding the technology infrastructure, including distributing equipment
3) providing consistent messaging to diverse stakeholders
4) ensuring the needs of high-risk patients were met
5) maintaining or expanding, where needed, the capacity to support the private sector.

**Workforce: Training and Support.**

On March 15, 2020, VA leadership directed all VA facilities to defer non-emergent care and convert in-person to virtual care whenever clinically appropriate. To do this, early in pandemic, more than forty thousand front-line clinicians, many new to virtual care, were directed to complete already established telehealth training if not already done. While many in Primary Care and Mental Health had already taken VA specific telehealth training, few in Specialty Care had done so prior to March 2020. Restrictions on postgraduate physician trainees’ use of telehealth were relaxed by national VA policy, and mechanisms for virtual supervision implemented. Policy provisions to facilitate telework for VA staff were fast-tracked where needed.

Since the majority of patients were first time telehealth users, teaching basic digital skills was in some instances a substantive process for patients with little prior use of the technology. Though we increased staffing substantially at the national helpdesk, sites most successful at onboarding patients quickly and in greatest numbers specifically dedicated local staff to this effort.

Among clinicians, early adopters and those more comfortable with the use of technology adapted quickly to video-to-home use. Others required dedicated training or individually tailored guidance, such as developing illustrative examples for video-to-home visits. Some patients and clinicians remained skeptical regarding the benefit of video, opting to prioritize telephone-based care and convert telephone visits to video only if absolutely necessary. This approach often resulted in additional work for the clinician, who had to take on the additional task of setting up an impromptu video visit and managing technical troubleshooting. It is unclear to what degree this may have eroded satisfaction with the experience for both patient and clinician.

Newly tele-working clinicians no longer co-located with their support staff had to adjust to a new workflow, although this change seemed to be generally readily embraced by clinicians enthusiastic about their new commute-free work site. Previous locally developed training and scripting for front-line schedulers to introduce telehealth to veterans at the time of appointment scheduling were nationally standardized and broadly implemented.

**Technology Infrastructure and Access.**

Anticipating an expansion in virtual care, VA began to invest in necessary equipment and resources to ensure robust bandwidth and technological infrastructure soon after the first Covid-19 cases in the U.S. were identified. Funds were re-allocated to expand VA’s national loaned tablet program, and to expand and deliver equipment for remote patient monitoring (e.g., thermometers, pulse oximeters, and smartphones).
VA was not immune to the widespread supply chain problems that plagued the early response to the pandemic, and these issues resulted in some equipment delivery delays. Special efforts were directed to homeless veterans and veterans living in subsidized housing, including a process to screen veterans for the Federal Communications Commission’s Lifeline program that facilitates access to technology for these persons.2

**Consistent Communication.**

A centralized communications team was established in early March to coordinate communication with VA's many and diverse stakeholders. A multi-medium strategic communications plan was deployed to explain the importance of using face-to-face visits only for urgent or emergent care needs. Video conferences, traditional forms of written communication, e-mail, social media postings, and text messages were utilized to describe VA's virtual tools. VA Insider, a VA website, became a principal venue to highlight new Covid-specific programs (e.g., a text-messaging-based protocol for home self-monitoring for signs of Covid-19 infection). Detailed instructions about accessing live helpdesk support and other messages especially aimed at new virtual care users were disseminated.

**Interventions for High-Risk Populations.**

Frontline clinicians were instructed to identify high risk populations in primary care and mental health (e.g., through an available VA Care Assessment Needs risk score3) and to proactively and systematically reach out and check on them. Between March 1 and April 30, 2020, VA distributed tablets on loan to more than 850 inpatient settings and more than 7,000 high risk veterans with access needs (Figure 3). Tablets were also distributed to all State Veterans Homes and CLCs.
Video-to-home visits were encouraged because of the perceived opportunity for a more comprehensive visit via video, however, for patients with multiple comorbidities living in rural or broadband-poor areas, a quality connection posed a challenge, resulting in fewer than optimal high-risk patients engaging in care by video. New disease management protocols were introduced to manage these veterans for in-home Covid-19 isolation and quarantine. Inpatient virtual “check-ins” by tablet, when appropriate, preserved personal protective equipment and optimized infection control.

**Capacity to Serve as a Back-up System in a National Emergency.**

Virtual care was critical to VA’s mandated role to support both the military and private health systems during national emergencies. Rapid redeployment of VA personnel to increase staff at facilities with Covid-19-related surge demand was augmented by an on-call pool of national physicians available for remote telehealth consultation. The “Anywhere to Anywhere” legislation of
2018 provides VA health care professionals with the authority to deliver telehealth services across state lines; this license portability was critical to leveraging enterprise-wide capacity to support local demand. For example, to support Intensive Care Units, mobile tablets were set up at more than 70 VA sites and staffed round the clock by an on-call pool of remote, nationally dispersed critical care specialists, complemented by other on-call consultants.

What We Have Learned So Far

The VA’s response to the Covid-19 pandemic is ongoing, albeit now focused more on recalibrating the response and rebalancing resources as facilities begin to resume non-emergent care, while also continuing to support private providers in Covid-19 hotspots. Several published reports have described the increased use of virtual care by individual hospital services or small groups of practices because of the Covid-19 pandemic, and VA’s experience both underscores some of these more local experiences and highlights additional issues that have broad applicability.

"The ability for clinicians to practice across state lines was foundational to VA’s ability to quickly mobilize a national telehealth response to Covid-19."

First, the ability for clinicians to practice across state lines was foundational to VA’s ability to quickly mobilize a national telehealth response to Covid-19. Temporary waivers for state-specific licensure, such as those adopted by CMS and some individual states, can enable rapid augmentation of clinical capacity in highly impacted areas, but the limitations associated with these waivers differ, resulting in an inconsistent landscape of laws. Currently, more than 27 states have signed on to the Interstate Medical Licensure Compact (a streamlined multi-state licensure qualification). Onboarding of additional states and other efforts to expand license portability, as recently recommended by the National Quality Task Force, will make clinical capacity sharing easier, facilitating access to care nationally as the country monitors ongoing regional Covid-19-related surges in demand.

Second, although virtual care was widely accepted by veterans to reduce risk of Covid-19 exposure in health care facilities, acceptance and technology adoption has not been uniform across patients or clinicians. There has been substantial variation in how and to what degree telehealth visits have been integrated into clinical care. Many patients, when offered the option of a video-to-home visit, chose instead to receive care by telephone. The reasons motivating such choices are unclear. Overall, much further investigation is needed to determine the optimal combination of virtual and in-person care for different clinical conditions and patient populations, and especially for patients with complex medical, social, and behavioral needs.

Third, the technology infrastructure to support virtual care remains undeveloped in many parts of the country. The digital divide has narrowed, but connectivity in rural America and internet affordability remain a challenge. Strategies to boost cellular signal and roll out 5G in the short term,
coupled with cellular and broadband expansion efforts, are needed to give every American the choice to receive care from home.\textsuperscript{10}

Fourth, payment can be a significant incentive or barrier to the uptake of virtual care even in a largely capitated system like the VA. For example, because of the seemingly more comprehensive nature of video-to-home compared with telephone visits, VA’s payment structure prior to Covid-19 compensated the institution for video-to-home visits three times more than for telephone visits (even though there was no difference in payment to the clinician providing the care). This disparity created a stronger institutional incentive to expand video-to-home telehealth during the pandemic, with no corresponding expansion of phone visits even though they were available to more patients and preferred by some. Despite this potential financial incentive, many facility leaders and frontline providers are unconvinced of the additional value of video-to-home over telephone. Further studies are needed to clarify the specific circumstances which make video visits clinically preferable to telephone visits. We believe future policy should consider how payment can equally incentivize the different virtual care modalities so that use is driven by clinical appropriateness and patient acceptance.

Fifth, as seen in Figure 1 the increase in use of video-to-home visits differed among primary care, mental health and specialty care, with the biggest increase occurring in mental health. Both primary care and mental health were propelled by a national video-to-home expansion initiative launched more than a year prior to the onset of the pandemic, while specialty care, newly added to this national initiative and facing suspension of all elective procedures, saw the largest increase in number of clinicians offering video-to-home visits. These differences likely reflect a combination of patient preferences, the nature of the clinical problems being managed, requirements for caregiver involvement, and the clinician’s need to visualize the patient’s non-verbal cues and home environment; however, further evaluation is needed to understand these differences.

Sixth, adopting a ‘learning system’ implementation strategy was important in operationalizing the rapid shift to virtual care and will be essential to sustaining the gains going forward. To support a learning health organizational model, strong practices were disseminated via weekly videos for both inpatient and outpatient care, many featuring unique applications of telehealth in areas such as physical therapy, audiology and optician care. Since VA enrolls patients where it has no facilities, and manages a disproportionally multi-morbid population,\textsuperscript{1,12} telehealth was foundational to enhancing access prior to the Covid-19 pandemic, particularly in rural and underserved areas. Many years of solidifying policy, training and telehealth-quality oversight positioned VA to rapidly ramp up for Covid-19. During this surge in virtual care, VA has tailored its quality monitoring and process redesign to align with operational changes, implementing multiple feedback loops to support continuous improvement.

The Covid-19 pandemic has been a watershed event in the evolution of virtual care, and we believe the landscape has been indelibly changed. Going forward, the Covid-19 pandemic will continue to drive utilization of virtual care in VA and other health systems,\textsuperscript{13} making it essential to determine the optimal balance of virtual and in-person care and understand how to best integrate emerging virtual care tools (e.g., touchless vital signs, digital stethoscope,\textsuperscript{14} point-of-care ultrasound, and home laboratory testing). In order to fully realize the potential of these technologies, we need

\textsuperscript{NEJM CATALYST INNOVATIONS IN CARE DELIVERY 9}
evidence about who benefits most, and how, from virtual care, and to what degree the benefits of virtual care depend on the care setting, among other things. The virtual care-into-the-home revolution has only started.

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**Acknowledgements**

The authors would like to acknowledge staff from the VA Office of Veterans Access to Care, Office of Telehealth, the VA Virtual Access QUERI and the VA Collaborative Evaluation Center for supporting data analysis.

**Disclosures:** The views expressed here are those of the authors and do not necessarily represent the views of the Department of Veterans Affairs or the Veterans Health Administration.

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