


Incorporating TechQuity in Virtual Care Within the Veterans Health Administration: Identifying Future Research and Operations Priorities



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BACKGROUND: The Covid-19 pandemic dramatically changed healthcare delivery, driving rapid expansion of synchronous (i.e., real-time) audio-only and video telehealth, otherwise known as virtual care. Yet evidence describes significant inequities in virtual care utilization, with certain populations more dependent on audio-only virtual care than video-based care. Research is needed to inform virtual care policies and processes to counteract current inequities in access and health outcomes.

OBJECTIVE: Given the importance of incorporating equity into virtual care within the Veterans Health Administration (VHA), we convened a Think Tank to identify priorities for future research and virtual care operations focused on achieving equitable implementation of virtual care within the VHA.

METHODS: We used participatory activities to engage clinicians, researchers, and operational partners from across the VHA to develop priorities for equitable implementation of virtual care. We refined priorities through group discussion and force-ranked prioritization and outlined next steps for selected priorities.

KEY RESULTS: Think Tank participants included 43 individuals from the VHA who represented diverse geographical regions, offices, and backgrounds. Attendees self-identified their associations primarily as operations ($n = 9$), research ($n = 28$), or both ($n = 6$). We identified an initial list of 63 potential priorities for future research and virtual care operations. Following discussion, we narrowed the list to four priority areas: (1) measure inequities in virtual care, (2) address emerging inequities in virtual care, (3) deploy virtual care equitably to

accommodate differently abled veterans, and (4) measure and address potential adverse consequences of expanded virtual care. We discuss related information, data, key partners, and outline potential next steps.

CONCLUSIONS: This Think Tank of research and operational partners from across the VHA identified promising opportunities to incorporate equity into the design and implementation of virtual care. Although much work remains, the priorities identified represent important steps toward achieving this vital goal.

KEY WORDS: delivery of healthcare; telemedicine; health equity; veterans; health services research.

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INTRODUCTION

The COVID-19 pandemic's disproportionate impact on minoritized and under-resourced communities underscored the importance of addressing historical health inequities within the USA.^{1–3} Attention to equity increased as the pandemic dramatically changed healthcare delivery, increasing the use of synchronous (i.e., real-time) telephone and video virtual care.^{4–6} Unfortunately, there is substantial evidence of significant inequities in virtual care access, with certain populations being more dependent on audio-only virtual care than video-based care.^{7–10} Virtual care will likely remain a significant part of ambulatory care in the post-pandemic era, so it is critical to

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ensure designs and implementations of virtual care will not worsen current inequities in access and health outcomes.

Unequal access and utilization of virtual care due to socio-cultural and structural barriers predominantly affecting individuals who are poor, rural, disabled, elderly, or from certain racial and ethnic minority groups is referred to as the “Digital Divide.”¹¹ Although virtual care can improve access to care by reducing geographic barriers, it can also worsen access for populations lacking adequate devices (e.g., smart phone, tablet, computer), and connection (e.g., high speed data/broadband) as well as those who do not possess the digital literacy sufficient to navigate virtual care technologies.^{12–14} Furthermore, although inadequate digital literacy is often conceptualized as an individual level-skill set deficiency, it is also the result of historical, accumulated inequities in access to digital technology and knowledge.¹⁵ Therefore, the increasing reliance on digital platforms and web-based tools to access health care positions digital literacy and internet connectivity as critical social determinants of health (SDOH)^{15–17} and further emphasizes the importance of incorporating equity into virtual care design and deployment.

The design and implementation of technology used to deliver health care through digital platforms often neglects to incorporate the perspective of end-users who experience physical and social barriers to virtual care access. For instance, heavy reliance on online patient portals and resources to schedule COVID-19 vaccine appointments inadvertently created additional hurdles for patients without digital access¹⁸ who were, in many cases, at higher risk for COVID-19 infection. Furthermore, according to a recent study, over 60% of COVID-19 tracing electronic application programs were available only in English and exceeded 9th grade reading levels,¹⁹ placing a significant proportion of individuals at a disadvantage for using them. These unintentional barriers to care highlight the importance of considering inclusion and equity in the design and implementation of virtual care.

The term “TechQuity” is defined as the strategic development and deployment of technology in health care to achieve health equity.²⁰ TechQuity is particularly relevant for the Veterans Health Administration (VHA), which is both the largest provider of virtual care in the country²¹ and explicitly committed to ensuring equitable health care for all veterans.²² Prioritizing TechQuity is important because the veteran population typically display greater barriers to virtual care due to patients being older, sicker, and more likely living in rural areas than non-veterans.^{23–25} Given these barriers, the VHA mandated virtual care becomes a top priority by allocating nearly \$2.6 billion of the FY 2022 budget to telehealth and virtual care.²⁶ Furthermore, the VHA is addressing digital access barriers through a program to provide video and data-enabled tablets to veterans as well as creating a national phone service to help veterans troubleshoot technical issues with virtual care platforms.^{27–29} More work is needed, however, to determine the extent to which these VHA programs are reducing virtual care inequities. Herein, we report on priorities

from a think tank to outline potential future steps for incorporating equity into the design and implementation of virtual care within the VHA.

METHODS

We invited experts from across the VHA to participate in a think tank focused explicitly on achieving TechQuity within the VHA. We chose this method because a think tank is an ideal forum in which to generate new ideas and solutions on a particular subject among a diverse group of individuals.^{30,31} The preparation was conducted by a core group of health services researchers (AL, CS, SW, HBB, JMG) to develop the meeting goals, objectives, and methods. The think tank occurred virtually during the fall of 2021 via Microsoft Teams.³²

Recruiting Participants

Local, regional, and national VHA collaborators with relevant experience in virtual care, health equity research, and operations were invited to participate in the think tank. Invitees ($n=88$) were identified through ongoing virtual care and health equity research, clinical, and operations activities as well as through prior participation in our 2019 think tank on accelerating implementation of virtual care.³⁰ Invitees were asked to forward the invitation to others with relevant experience if they were unable to attend. The week before the think tank, invitees were asked to read an article by Peterson et al.³³ discussing a health equity framework.

TECHQUITY THINK TANK ACTIVITIES

Identifying Priorities for TechQuity

After introductions, members of the core planning group provided a brief presentation highlighting the Health Equity Framework from Peterson et al.³³ as well as other potential key areas of equity in telehealth and the overall aim of the think tank. The first activity comprised a generative pair and share method.^{30,34} Participants were given 5 min to reflect individually on the following prompt: “From your perspective at the VA, what are the key areas of uncertainty in the application of virtual care in promoting health equity?” After 5 min, participants were sorted into small groups for 10 min to discuss priorities. Afterwards, all participants reconvened, and the think tank facilitator instructed groups to report priorities until there were no more unique priorities identified. After all priorities were reported, the core research group conducted a rapid thematic analysis to sort priorities by theme and combined similar and overlapping priorities. All changes in wording of priorities were presented to participants for approval.

Table 1 Initial List of Priorities Identified for TechQuity**1. Measurement**

- a. How do we even know if we have virtual inequities?
- b. How can we assess patient preferences with virtual care?
- c. How do we efficiently screen patients for digital literacy/need for virtual access?
- d. How do we measure health inequity in virtual care?
- e. How do we measure digital literacy?
- f. How do we assess patient preferences for virtual care?

2. Special/Differently Abled Populations

- a. How do we address personalized patient needs, abilities, and skills related to telehealth for special populations (older adults, rural, etc.)
- b. How do we accommodate differently abled veterans (sight, hearing impaired, attention difficulties, cognition, physical)?
- c. How do we address the emerging inequities in populations?
- d. What are the tools, and devices trainings that would support use of telehealth by older veterans?
- e. What are the special considerations for populations like older adults to consider with virtual care?
- f. What types of care giver support are needed to fully maximize virtual care equitably?
- g. What are the best ways to equitably deploy virtual care to accommodate differently abled veterans?
- h. How do we use intersectionality to identify and address emerging inequities in virtual care?

3. Resources for Special Populations

- a. How do we address needs of individuals (e.g., low broadband in rural) to equitably engage in virtual care?
- b. What are the infrastructure and systems needed to help veterans equitably engage in virtual care?
- c. What are the needed tools and devices trainings support use of telehealth by older veterans?
- d. What are the current resources to support veterans engaging in virtual care?
- e. What is the best way to provide tech support to patients so they can equitably engage in virtual care?
- f. How do we align VHA provided virtual care with veterans resources where they live?

4. Clinical Burden

- a. How do we ease clinician burden with virtual care and especially for video telehealth?
- b. How do we improve provider literacy virtual care to better support veteran engagement?
- c. What are provider perspectives on who is appropriate for virtual care?
- d. How can we align the virtual care modality with the clinical team and the clinical workflow as appropriate?
- e. What are the misalignments between patient preference and provider preferences?
- f. Do we have the appropriate workflows to account for patient preferences?
- g. How can we align the virtual care modality with the clinical team and workflow as appropriate?
- h. How can we increase provider comfort with virtual care?
- i. How can we decrease provider burden when providing virtual care?

5. Bias

- a. How does implicit bias impact the provision of virtual care?
- b. How do we efficiently screen patients for digital literacy/need for virtual access?
- c. What role does implicit bias play in the provision of virtual care?

6. Care Coordination

- a. How do we effectively coordinate care between providers providing virtual care?
- b. How do we break down the siloes in virtual care support and delivery?
- c. How do we account for meshing virtual and needed in-person care?
- d. How do we optimize the referral between providers providing virtual care?
- e. How do we account for the need for in-person care (exam, labs, procedures) in combination with virtual care?

7. Innovation and Implementation

- a. What level (patient, clinician, health system, policy) of virtual care-related intervention works best to minimize health disparities?
- b. How can virtual care innovations be developed and assessed to not just focus on the early adopters and focus on others?
- c. What are elements of tech design that will address digital divide/advance health equity?
- d. What virtual care technologies and implementation strategies are most effective in addressing digital divide and disparities in care?
- e. What level (patient, clinician, health system, policy) of virtual care-related intervention works best to minimize health disparities?
- f. How can we make virtual care more flexible and more nimble?
- g. What virtual care technologies and implementation strategies are most effective in addressing digital divide and disparities in care?
- h. How can virtual care innovations be developed and assessed to not just focus on the early adopters and focus on others?

8. Patient Preferences

- a. How do we align patient perceptions with the virtual care they receive?
- b. How can we assess patient preferences with virtual care?
- c. How do we efficiently screen patients for digital literacy/need for virtual access?
- d. How can we support virtual care workflows that incorporate patient preferences?
- e. How can we align patient perceptions of care with the deployment of virtual care modalities they receive?
- f. How do we account for differences between patient and provider preferences for virtual care?

9. Clinical Decision Making

- a. How do we determine when virtual care is the right care for the right patient at the right time?

10. Trust in Virtual Care

- a. How does one develop and support trust in the virtual care process and does this differ across different groups of patients?
- b. How do we address patient expectations that they will get the correct care and follow-up?
- c. How do we ensure that virtual care remains patient centered?
- d. How does one develop and support trust in the virtual care process?
- e. How do we ensure that virtual care remains patient centered?

11. Unintended Consequences and Adverse Effects of Virtual Care

- a. What are the potential adverse consequences of pushing to expand access to individuals who are already at risk for receiving lower quality care?
- b. How do we measure and address the potential adverse consequences of expanded virtual care access across populations?

12. Policy and Legal Issues

- a. How do current policy & legal issues (e.g., telehealth across state lines) inhibit or promote virtual care use?
- b. What are the issues in the equitable virtual care deployment in the policy and legal arenas?

13. Virtual Care Quality

- a. How do we ensure that virtual care remains patient centered?

14. Dynamic Nature of Virtual Care Delivery

- a. How to account for changing landscape of virtual care resources within VA and at patient level?

PRIORITIZING KEY AREAS OF UNCERTAINTY

The second activity utilized a forced ranking prioritization method employed previously by our team in similar projects.^{30,35,36} This ranking method allows participants the flexibility to endorse something as a priority and weigh the strength of that endorsement. Participants were allowed 12 votes, could give up to three votes to any single priority, and could choose not to use all 12 votes. After all voting was conducted using Poll Everywhere software,³⁷ the full group reviewed the ranking of all priorities. The group advocated for any priorities ranked lower than fifth and discussed which priorities could be combined due to similarities. A second round of forced rank prioritization occurred in which each person voted once and the top five were selected as key priorities.

DEVELOPING NEXT STEPS FOR SELECTED PRIORITIES

The final activity involved small groups of four to six participants assigned to each top priority. Each group identified for their specific priority what information and data were necessary, who were key partners within the VHA, and what were some next steps to address this priority. Afterwards, all participants reconvened and discussed what each of the small groups had identified for their priority.

REFINING PRIORITIES

After the conclusion of the think tank, the core group of health services researchers (CWW, CS, HBB, SW, JMG, KBG, FM, HH, AAL) developed a table describing each priority in depth.

To increase validity and rigor of findings from the think tank, the core group engaged in member checking^{38,39} with multiple research groups at the Durham Center of Innovation to Accelerate Discovery and Practice Transformation (ADAPT) to refine priorities. Due to significant conceptual overlap, the priorities regarding intersectionality and technical support for addressing virtual care inequities were combined.

RESULTS

Participants included 43 individuals from across the VHA including researchers and clinicians as well as VHA administrators and operational partners. Attendees self-identified their roles as primarily associated with operations ($n = 9$), research ($n = 28$), or both ($n = 6$) and came from offices across the VHA including the Office of Connected Care (OCC), Virtual Care Consortium of Research, Office of Health Equity, and numerous others. Participants identified 63 potential priorities during the first activity (Table 1). The core research team (ALL, HBB, JMG, CS) refined the list by combining similar priorities into 26 priorities (Table 2). Through multiple rounds of forced rank voting on all 26 identified potential priorities, participants narrowed the list to the top five with the greatest number of votes. These five were then narrowed to four priorities (Table 3).

Priority 1: How Do We Measure Health Inequities in Virtual Care?

Explicitly defining standard measures that best capture inequities in virtual care is a necessary and vital first step toward achieving TechQuity. These measures may include access and

Table 2 Refined List of Priorities Identified for TechQuity. Bolded Items were Identified as Top 5 Priorities

1. How do we measure health inequities in virtual care?
2. How do we measure digital literacy (i.e., comfort vs knowledge)?
3. How do we assess patient preferences for virtual care?
4. What are the best ways to equitably deploy virtual care to accommodate differently abled veterans (i.e., veterans with visual impairments, hearing impairments, cognitive and/or attention concerns, physical disabilities, etc.)?
5. What tools, devices, trainings, and caregiver support would support the use of virtual care by older veterans?
6. How do we use intersectionality to identify and address emerging inequities in virtual care use?
7. What is the best way to provide tech support to patients so they can equitably engage in virtual care?
8. How to align VA provided virtual care with veteran's resources where they live? (e.g., broadband in rural areas)
9. How to align the virtual care modality with the clinical team and the clinical workflow as appropriate?
10. How can we increase provider comfort with virtual care?
11. How can we decrease provider burden in providing virtual care?
12. What role does implicit bias play in the provision of virtual care?
13. How do we optimize the referral between providers providing virtual care (e.g., general mental health, coordinating care)?
14. How do we account for the need for in-person care (e.g., labs, procedures) in combination with virtual care?
15. What level (patient, clinicians, health system, policy) of virtual care related intervention works best to minimize health disparities?
16. How can we make virtual care modalities more flexible and nimbler?
17. What virtual care technologies and implementation strategies are most effective in addressing digital divide and disparities in care?
18. How can virtual care innovations be developed and assessed to not just focus on early adopters and focus on others?
19. How can we align patient's perceptions of care with the development of virtual care modalities they receive?
20. How do we account for misalignment between patient and provider preferences for virtual care deployment?
21. When is the right care for the right patient at the right time for virtual care deployment?
22. How to develop and support trust in the virtual care process?
23. How do we ensure that virtual care remains patient centered?
24. How do we measure and address the potential adverse consequences of expanded virtual care access across populations?
25. What are the issues in the equitable virtual care deployment in the policy and legal arenas?
26. How to account for the changing landscape of virtual care resources within VA and at patient level?

Table 3 Top Priorities Identified for TechQuity*

<p>Priority 1: How do we measure health inequities in virtual care?</p> <p>Necessary Information and Data:</p> <ol style="list-style-type: none"> 1. Define disparities in virtual care (access and utilization, video visit failure rates, and/or health outcomes) and ability to sort by various populations 2. Examination of various Social Determinant of Health (SDOH) factors on virtual care delivery. 3. Identification of barriers and populations at risk for health disparities in virtual care. 4. Veteran and provider perceptions on virtual care quality and potential for bias. 	<p>Key Partners:</p> <ol style="list-style-type: none"> 1. Veterans and their caregivers including vulnerable populations, veteran community groups 2. Front line VHA staff 3. Office of Connected Care, Office of Health Equity, Office of Rural Health, Health IT staff 4. Research funders 	<p>Next Steps</p> <ol style="list-style-type: none"> 1. Implement regular collection of qualitative and quantitative virtual care data related to SDOH factors 2. Develop accessible process and outcome metrics for virtual care equity (e.g., utilization, video visit failure rates by subpopulations, virtual care health equity dashboard) 3. Identify populations and conditions where virtual care leads to improved, equivalent, or worse health outcomes compared to in-person care.
<p>Priority 2: How do we address emerging inequities in virtual care use?</p> <p>Necessary Information and Data:</p> <ol style="list-style-type: none"> 1. Comprehensive assessment of current virtual care resources within the VHA 2. Identification of current barriers to utilizing VHA resources to support virtual care. 3. Assessment of different population's preferences and trust in VHA to provide care virtually 4. Developing assessment of veteran abilities to engage in various virtual care modalities. 	<p>Key Partners:</p> <ol style="list-style-type: none"> 1. Veterans and family/caregivers, Veteran community groups 2. Front line staff including primary and specialty care, facility telehealth coordinators, local health IT staff, Clinical Application Coordinators 3. Office of Connected Care, Office of Health Equity, Office of Information and Technology, HHS, FCC 4. Research funders 	<p>Next Steps:</p> <ol style="list-style-type: none"> 1. Develop and disseminate long term vision and goals for equity in virtual care across all levels within the VHA 2. Provide access to virtual care data at local, regional, and national levels to unify virtual care focus across the VHA. 3. Ensure robust technical support and resources for virtual care services at launch and post-deployment 4. Inclusion of veterans and caregivers as partners in virtual care development process (e.g., user-centered design and usability testing with veterans) 5. Identify and develop methods to better match veterans to the right modality and location of care (video, phone, in-person, community care) 6. Organizational support for integrating and streamlining virtual care into clinical workflows and disseminating updated resources broadly across the VHA
<p>Priority 3: What are the best ways to equitably deploy virtual care to accommodate differently able impairments, cognitive and/or attention concerns, physical disabilities, etc.)?</p> <p>Necessary Information and Data:</p> <ol style="list-style-type: none"> 1. Identify and quantify needs to facilitate equitable access to virtual care for differently abled Veterans (e.g., vision, cognition) 2. Veteran and Provider perceptions on virtual care and resources for differently abled veterans 3. Frequency with which veterans who need accommodations for virtual care require in-person follow-up 4. Health outcomes for veterans who receive virtual care accommodations 	<p>Key Partners:</p> <ol style="list-style-type: none"> 1. Veterans and family/caregivers who require accommodations 2. Service Organizations for veterans who may require accommodations (e.g., Paralyzed Veterans of America) 3. Front line VHA clinical staff, Clinical Application Coordinators, Telehealth Coordinators 4. National Office of Connected Care, Office of Rural Health, Office of Health Equity 5. National Offices for Spinal Cord Injury & Disorders and Rehabilitation & Prosthetics Service and subsidiary programs 	<p>(i.e., veterans with visual impairments, hearing)</p> <p>Next Steps:</p> <ol style="list-style-type: none"> 1. Identify and develop needed resources for differently abled Veterans and promote their dissemination 2. Include differently-abled veterans in development, implementation, and adoption of virtual care 3. Integrate accommodation needs assessment into clinical workflows
<p>Priority 4: How do we measure and address the potential adverse consequences of expanded virtual care across populations?</p> <p>Necessary Information and Data:</p> <ol style="list-style-type: none"> 1. Defining potential adverse consequences of increased virtual care by modality at multiple levels; patient level (health outcomes), clinic (increased burnout), system level (worsened health inequities). 2. Assessment of what adverse consequence measures are currently being collected 3. Virtual care utilization, cost, and health outcomes data by various populations and diseases 4. Veteran and provider preferences with virtual care 	<p>Key Partners:</p> <ol style="list-style-type: none"> 1. Veterans and their caregivers 2. Primary and specialty care teams, facility telehealth coordinators 3. Office of Connected Care, VHA Systems Redesign, VHA Innovation Ecosystem 4. Non-VHA integrated health care systems (e.g., Kaiser) for interoperability and shared lessons 	<p>Next Steps:</p> <ol style="list-style-type: none"> 1. Develop virtual care quality metrics for various populations of interest 2. Actively develop resources and operational flexibility to respond to potential adverse consequences at appropriate level (patient level, clinic, facility, system level) 3. Anticipate current and future data needs as virtual care landscape changes and impact of virtual care becomes better understood

VHA Veteran Health Administration, HHS Department of Health and Human Services, FCC Federal Communications Commission

*Due to significant conceptual overlap, priorities regarding intersectionality and technical support for addressing virtual care inequities were combined by the research group after discussing the list with other research and virtual care groups at the Durham VA ADAPT

utilization rates of various modalities (e.g., telephone, synchronous video telehealth, asynchronous telehealth, messaging, remote monitoring), modality failure rates (e.g., video

telehealth being converted to audio-only), and health outcome inequities for individuals receiving virtual care. Key partners include veterans and their caregivers, frontline VHA staff, and

research and operational partners at the OCC and ORH. Next steps include ensuring the regular collection of relevant quantitative and qualitative data related to SDOH factors and equity that contribute toward inequities, creating virtual care health equity metrics and dashboards to help target efforts to reduce inequities, and by supporting efforts to better understand how virtual care affects health outcomes for various populations and conditions.

Priority 2: How Do We Address Emerging Inequities in Virtual Care?

Understanding how to address identified inequities in virtual care is critical to ensure equitable healthcare delivery. Addressing emerging inequities will likely include a comprehensive assessment of current virtual care resources and identifying barriers to their use by various populations. It will be important to understand different populations' trust and preferences so as to better match VHA resources to veteran needs. Key partners include veterans and their family and/or caregivers, front line staff at multiple levels (clinical staff, health technologists), and VA and non-VA research and operational partners (e.g., OCC, Office of Health Equity, Office of Information and Technology). Next steps could include developing a long-term vision for virtual care that explicitly incorporates equity, including veterans as partners in virtual care development, and ensuring robust technical support at both launch and post-deployment. Other important steps include making virtual care data and quality metrics more widely available to drive improvement efforts to reduce inequities. Finally, a key part of addressing inequities in virtual care is ensuring that the tools and methods (e.g., Digital Divide Consult) used to improve equity are integrated into existing workflows.

Priority 3: What Are the Best Ways to Equitably Deploy Virtual Care to Accommodate Differently Abled Veterans (i.e., Veterans with Visual Impairments, Hearing Impairments, Cognitive and/or Attention Concerns, Physical Disabilities, etc.)?

Veterans are a unique patient population who can have higher rates of hearing, sight, physical, and cognitive impairments related to their military service,⁴⁰⁻⁴³ and whose health needs must also be addressed with virtual care. It is necessary to identify veteran accommodations required for virtual care and understand the frequency with which veterans with disabilities need additional in-person follow-up visits as well as the potential risks for inequity in virtual care health outcomes compared to in-person care. Key partners include veterans and their families and/or caregivers, veteran service organizations (e.g., Paralyzed Veterans of America, Disabled American Veterans), frontline staff, operational partners, and national offices for veteran-specific challenges such as the Office for Spinal Cord Injury and Disorders. Next steps involve including the key partners outlined above as well as differently abled

veterans in the development and deployment of virtual care and ensuring that interventions are seamlessly integrated into clinical workflows.

Priority 4: How Do We Measure and Address the Potential Adverse Consequences of Expanded Virtual Care Across Populations?

Preventing inequities related to the potential adverse consequences of expanded virtual care is of the utmost importance for ensuring TechQuity at the VHA. Adverse consequences must be defined and examined across multiple levels such as patient outcomes (e.g., potential reduction in preventative services, delayed diagnoses), provider burnout, and system-level inequities. Here, veteran and staff perspectives and satisfaction will be important to understand. Additional necessary information includes an assessment of what adverse consequences are currently being collected as well as an examination of virtual care utilization, cost, and health outcomes by populations. Key partners include veterans and their caregivers, staff from primary and specialty care, Systems Redesign, OCC, and other healthcare systems that are also investing heavily in virtual care for shared insights. Next steps include establishing virtual care quality metrics to identify inequities in virtual care. Recognizing that the technology for virtual care will likely change over the coming years, it will also be important for the VHA to invest in resources to anticipate and respond to future challenges of expanding virtual care.

DISCUSSION

The TechQuity think tank examined how to incorporate equity into the development and deployment of virtual care within the VHA. Bringing together research and operational partners as well as practicing clinicians from across the country fostered conversations about equity, technology, and the future of virtual care. The key topics discussed included the need for additional virtual care outcomes research, explicitly identifying and measuring health inequities in virtual care delivery, the need to develop and match virtual care resources to meet the needs and preferences of veterans in ways that overcome multiple patient and socio-structural barriers, and the importance of recognizing and mitigating potential adverse consequences from inequities in access to and use of expanded virtual care.

Knowing which virtual care interventions are best suited for improving health outcomes is critical to informing the deployment of virtual care to overcome health inequities. However, it is important to recognize the effectiveness of virtual care is dependent on the specific modality, application, and patient populations involved. Before the COVID-19 pandemic, virtual care was used primarily as a supplement to, rather than a replacement for, in-person care. As a result, an extensive amount of literature exists on the effect of nurses and care managers using remote monitoring and phone calls to supplement in-person care with providers for chronic

conditions such as diabetes and congestive heart failure.^{44–46} In contrast, virtual care during the pandemic was often used solely as a replacement for in-person care between patients and providers.^{4–6}

Use of virtual care as a replacement represents a fundamentally different application of the technology; therefore, there is uncertainty regarding the potential for benefit and harm. A recent systematic review found very little literature supporting the use of virtual care as a replacement for in-person care for the management of congestive heart failure, diabetes, and chronic obstructive pulmonary disease.⁴⁷ This paucity of evidence likely applies to many other conditions and represents a gap in our understanding of the effectiveness of virtual care as used during the pandemic. Given the different application of the technology, future outcomes research focused specifically on the use of virtual care to replace in-person care for various populations and conditions is needed to inform how best to achieve equitable health outcomes.

Measurement is critical to identifying and improving inequities related to virtual care. There needs to be sustained focus on measurement and data collection related to virtual care quality, utilization, and health outcomes stratified by various patient characteristics and SDOH factors. Although the VHA has recently created an equity dashboard for certain primary care measures,⁴⁸ one that includes virtual care measures would be critical to understanding and reducing current inequities. For example, one important quality metric for video visits could be the “video visit failure rate” (i.e., the proportion of patients whose video appointments are canceled or converted at the point-of-care). A disproportionate failure rate among certain populations could identify the need for additional patient resources during the pre-appointment period. Only through close collaboration between VHA research, operations, and informatics partners can virtual care inequities be identified clearly and targets be set for improvement.

Utilizing virtual care to ensure that patients receive the right care at the right time via the right modality is a complex process. Many factors such as clinical context, provider’s willingness to adopt new technologies and workflows, patient preferences, and digital literacy and capability play large roles in determining whether virtual care best meets patients’ needs. As each patient has their own unique perspectives, health conditions, and ability to engage in virtual care, it is important to recognize that a single standard approach toward virtual care delivery will likely result in inequitable outcomes. As Moy et al. discuss in their paper on incorporating equity into high reliability organizations, it is not enough to eliminate inequities in processes; we must also support variation in care delivery when appropriate to eliminate inequities in outcomes.⁴⁹ Understanding when variation in virtual care delivery is needed for specific populations should result in part through inviting patients as partners in the virtual care process. As the saying goes, “Nothing about us without us,” so we must actively strive to bring patients from diverse backgrounds into

the development process to understand how and when virtual care can meet their needs.

LIMITATIONS

There are some important limitations to our work. Although we invited many key collaborators and experts in virtual care research and operations, not all were able to attend, which potentially impacted the development of, and voting on, priorities. Additionally, conducting the think tank virtually could have resulted in more limited discussions than in-person meetings would have produced. Furthermore, we did not include patient perspectives or measure demographics (age, sex, race, ethnicity, rurality, professional background, research focus, etc.) among attendees. Ideally, discussions on virtual care and health equity should include patients, caregivers, and attendees with diverse perspectives, including those resulting from experiences affected by systemic and structural inequities. Despite these limitations, our think tank successfully brought together many research and operational partners to think critically about the future of equity within virtual care.

CONCLUSION

TechQuity must be an explicit priority for all healthcare systems and should be central to the development and implementation of virtual care. The path forward requires developing a deep understanding and coordination of many domains including virtual care effectiveness, patient digital preferences and readiness, clinical workflows, health information technology, and informatics. Although much work remains to be done, the priorities identified in our think tank represent important steps toward achieving TechQuity in virtual care at the VHA.

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