SPECIAL ARTICLES

Development of telehealth principles and guidelines for older adults: A modified Delphi approach

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Abstract

The COVID-19 pandemic elevated telehealth as a prevalent care delivery modality for older adults. However, guidelines and best practices for the provision of health-care via telehealth are lacking. Principles and guidelines are needed to ensure that telehealth is safe, effective, and equitable for older adults. The Collaborative for Telehealth and Aging (C4TA) composed of providers, experts in geriatrics, tele-health, and advocacy, developed principles and guidelines for delivering telehealth to older adults. Using a modified Delphi process, C4TA members identified three principles and 18 guidelines. First, care should be person-centered; telehealth pro-grams should be designed to meet the needs and preferences of older adults by considering their goals, family and caregivers, linguistic characteristics, and readi-ness and ability to use technology. Second, care should be equitable and accessible; telehealth programs should address individual and systemic barriers to care for older adults by considering issues of equity and access. Third, care should be inte-grated and coordinated across systems and people; telehealth should limit fragmen-tation, improve data sharing, increase communication across stakeholders, and address both workforce and financial sustainability. C4TA members have diverse perspectives and expertise but a shared commitment to improving older adults' lives. C4TA's recommendations highlight older adults' needs and create a roadmap for providers and health systems to take actionable steps to reach them. The next steps include developing implementation strategies, documenting current tele-health practices with older adults, and creating a community to support the dis-semination, implementation, and evaluation of the recommendations.

KEYWORDS
equity, inclusion, health care delivery, technology, telehealth

Members of the Collaborative for Telehealth and Aging and their Affiliations are provided in Table S1.

The principles and guidelines reported here were previously presented at the Mid-Atlantic Telehealth Resource Center's Annual Meeting (May, 2022).

INTRODUCTION

In 2020, COVID-19 taxed the healthcare system exacerbating existing disparities in care access[1] and increasing older adults' medical vulnerability. Staffing shortages, staff exhaustion and trauma, and financial instability impacted patient care.[1,2] Ambulatory care practices reported 60% fewer visits early in the COVID-19 pandemic; most deferred elective and in-person visits and increased their use of telehealth.[2] Older adults were disproportionately threatened given the risks associated with preventable acute exacerbations of chronic conditions from delayed care,[3] and their high-risk association with COVID-19.[4] The pandemic presented the U.S. healthcare system with extraordinary challenges, however, it also accelerated innovation in, and adoption of, telehealth.

Telehealth, defined as the use of communications technology to deliver healthcare at a distance, offers advantages including faster referral times,[2] reduced clinic cancellation rates,[5] hospitalizations,[6] and emergency department use,[6,7] increased satisfaction scores,[8,9] and financial savings,[6,9] reduced or eliminated travel,[9] and increased caregivers' mental health and sense of well-being.[10] However, ongoing challenges include the difficulty of serving people with cognitive challenges such as dementia,[10] or physical challenges such as visual and/or hearing impairment,[11] and the challenges associated with low technical literacy and access.[12]

Prior to the pandemic, widespread adoption and utilization of telehealth to care for older adults was limited to specific use cases (such as telephonic care) and hampered by reimbursement, licensing, training, and other challenges.[13-15] However, in March 2020, the Centers for Medicare and Medicaid Services relaxed regulatory restrictions that historically prevented telehealth expansion.[16] Quickly, providers began using telehealth to serve older adults in unprecedented numbers.[17] In early 2020, roughly 13,000 Medicare fee-for-service beneficiaries received telehealth visits each week; by late April 2020, this number reached nearly 1.7 million and telehealth accounted for nearly 50% of all primary care visits for Medicare beneficiaries.[17]

Telehealth visits slowly declined throughout 2021 as the worst of the pandemic passed, vaccination rates increased, and providers reopened their offices. However, telehealth is now part of the healthcare infrastructure and will continue to be used to care for older adults post pandemic,[18] making it crucial that telehealth is optimized for older adults. Telehealth must be thoughtfully designed and delivered to ensure that care is effective, safe, and efficient. Additionally, telehealth must ensure that care is equitable as it has the potential to both

Key points

- Clinicians are increasingly providing telehealth care to older adults despite a lack of comprehensive guidance on age-friendly implementation and practice.
- The reach of telehealth for older adults remains limited due to several factors, including existing or perceived challenges around physical and cognitive limitations, and a lack of comprehensive guidance on older-adult-focused implementation.
- This is the first comprehensive set of provider-focused telehealth principles and guidelines, developed by aging and telehealth experts, to address the specific needs of an aging population.

Why does this paper matter?

The emergence of COVID-19 stretched the US healthcare system and its providers thin. Older adults were tremendously impacted due to their medical complexities and increased risks associated with exposure to COVID-19. Amidst lockdowns and office closures, providers turned to telehealth to provide care to older adults. Because many programs were created rapidly in response to the pandemic, providers had very few resources to consult about how to serve older adults well. Existing resources were often narrow in scope or did not specifically address the unique needs of older adults despite the fact that older adults, especially those in underserved communities, are uniquely at risk when receiving services within a healthcare system that is not designed to meet their needs.

Telehealth should remain a vital tool for caring for older adults as it allows providers to care for people whom they might otherwise have difficulty accessing – such as those who are homebound, those without access to transportation, those with mobility challenges, and those in rural areas where specialists may be non-existent or difficult to access, for example. The Collaborative for Telehealth and Aging (C4TA) was created to develop a set of comprehensive recommendations for providers to help them create telehealth programs designed with older adults' needs in mind. C4TA is a unique and robust group of subject matter experts including geriatricians, experienced telehealth providers, health system

ameliorate and exacerbate inequities in care.[19] The goal of this report is to introduce a set of provider-focused principles and guidelines for age-friendly telehealth practices, which will help providers meet the needs of older adults. We adopt the World Health Organization's definition of 'age-friendly' which states "age-friendly practices recognize there is great diversity in the capacity and circumstances of older adults, anticipate and respond to older adults' needs and preferences in an equitable way, respect older people's decisions and choices, and protect the most vulnerable".[20]

EXPERT PANEL SELECTION

In September 2021, West Health Institute (WHI) convened the collaborative for Telehealth and Aging (C4TA) to explore issues involved in using telehealth to serve older adults. C4TA consists of 40 members who are experts in telehealth, geriatrics, emergency and family medicine, healthcare service delivery, staff of leading foundations focused on the care of older adults, patients, patient representatives, and representatives of professional societies (See Table S1). Several months prior, WHI researchers met with potential collaborative members to share the purpose, plan, and intentions behind the initiative and to invite participation. Selected members had expertise in caring for older adults, using telehealth, administering a telehealth program, and/or the unique needs of older adults.

DEVELOPMENT PROCESS

C4TA members used a modified Delphi process[21] to develop recommendations called the 'principles and guidelines' for telehealth and aging between September 2021 and January 2022. Here, we define *principle* as a general rule meant to guide behavior. We define *guideline* as a more specific goal that programs and providers should aim to achieve.

The traditional Delphi process builds consensus from a group of experts engaged around a particular topic. Group members review and respond to materials. Then, iterative rounds of anonymous feedback collection are conducted and group opinions are shared to give insight into all experts' perspectives. This pattern is repeated until consensus is reached.[21]

For its initial set of materials, WHI researchers conducted internet searches for telehealth guidelines, implementation resources, toolkits, and best practices. No set of guidelines or principles specifically addressing telehealth for older adults was found. See Table 1 for

administrators, and older adult and patient advocates. C4TA's recommendations are that telehealth must be delivered in ways that are person-centered, equitable and accessible, and integrated and coordinated across people and systems. C4TA's 18 guidelines provide specificity around each principle. Future work will support providers as they make decisions about how best to operationalize these recommendations and analyze their utility.

findings. Given the limitation in pre-existing materials, the traditional Delphi process was amended so that initial material included members' responses to WHI-produced questions (See Table S2).

MEETINGS AND VOTING

C4TA held its first three virtual meetings to align on key themes of care delivery for older adults. Group discussions were held to collect input on what high-quality and low-quality care for older adults looks like, brainstorm the goals and intended audience for principles and guidelines, and identify overarching themes. Breakout sessions were held to discuss each theme in greater detail with the following goals: to reduce duplication of topics; to develop more specificity; and, to ensure that all members' voices were heard. All meetings and breakout discussions were recorded.

At the first meeting, C4TA members agreed that the intended audience was providers, staff and health systems. The agreed-upon goal was to create provider-focused criteria that describe how telehealth should be delivered to meet the needs of older adults. Full group discussion was held to discuss age-friendly values and principles. Next, four breakout rooms were opened to discuss the topic areas that were most often repeated in the pre-work answers (integrated care and access to care). Members self-selected breakout rooms. Breakouts allowed for small group discussions (7–10 people) and included a facilitator and notetaker. Facilitators had a set of conversation starters but only used them when conversation ebbed. After 30 min, members reconvened, and facilitators summarized the breakout discussions.

At meetings two and three, breakout groups met to discuss one potential principle each with the goal of creating a draft set of guidelines for each principle. Members self-selected their breakout rooms. Meeting two discussion topics were data-informed care and proactive care.

TABLE 1 Landscape review of existing resources and principles/guidelines for telehealth and aging

Organization	Resource	Year published	What is included	What is excluded
AARP	Using Telehealth to Improve Home-Based Care for Older Adults and Family Caregivers	2018	Example use cases (heart failure, palliative care, chronic disease management, etc.) Challenges/Concerns Opportunities/ Recommendations	Care models and settings other than home-based care Implementation processes
Age Friendly Health Systems	Guide to Using the 4 ms in the care of Older Adults	2020	Senior-specific recommendations for implementing 4 M framework Specific guidance for implementing framework into the clinic and hospital setting	Focus on telehealth
American Medical Association	Telehealth Implementation Playbook	2020 & 2022	Implementation processes Specific goals for telehealth workflow development and implementation; staff and patient education, evaluation, etc.	Text specifically focused on older adults Not specific to care delivery setting
American Telehealth Association	ATA Practical Guidelines (website, links to multiple toolkits/guidelines)	Varied	Specialities/Clinical focuses: mental health, behavioral health, derm, ocular health, stroke, etc. Provider training: etiquette, patient interactions, lighting, patient satisfaction Specific guidance for children and adolescents	Focus on older adults
Center for Technology and Aging	Telehealth in Skilled Nursing Facilities: Opportunities to Improve Quality, Health, and Costs of Care	2012	Use cases, reimbursement info, proposed state policy for CMS	Text directed at providers and health systems Implementation processes Comprehensive and directly connected information, principles and recommendations
CMS	Telehealth for Providers: What you need to know	2021	Considerations for various populations - specific disabilities, Info re: billing, policies, and staff check- list items	Text specifically focused on older adults Comprehensive and directly connected information, principles and recommendations
CMS	Long-Term Care Nursing Homes Telehealth and Telemedicine Tool Kit	2020	Recommendations	Not inclusive of all care delivery settings Implementation processes
Federation of State Medical Boards	Model Policy for the Appropriate Use of Telemedicine Technologies in the Practice of Medicine	2014	High-level overview of telehealth and important considerations for specific policy (consent, ethics, etc)	Text specifically focused on older adults Comprehensive and directly connected information, principles and recommendations

TABLE 1 (Continued)

Organization	Resource	Year published	What is included	What is excluded
HIMSS	Four Best Practices for Data Privacy and Telehealth	2021	Information on data privacy practices	Text specifically focused on older adults Comprehensive and directly connected information, principles and recommendations for patient-facing care
National Quality Partners	Shared Decision Making in Healthcare Playbook	2018	Although specific to shared-decision making principles Information on staff training models/opportunities, tracking, monitoring, and reporting, outcome measures, and accountability	Focus on telehealth
National Quality Forum	Creating a Framework to Support Measure Development for Telehealth	2017	A conceptual framework for quality measurement of telehealth; includes proposed measure concepts, use cases, impact, future considerations, etc.	Text specifically focused on older adults Information/recommendations for patient-facing care
Rural Health Info	Implementation Considerations for Telehealth Programs Serving Older Adults	Varied	Shares three telehealth models for improving rural care delivery: increasing access to and engagement with care outside of healthcare settings; increasing access to specialty care; and increasing access to pharmacy services They provide info regarding care transitions/post-acute care, chronic disease management, home-based care, etc.	Only partially focused on older adults Comprehensive and directly connected information, principles and recommendations
Advisory Board	Tips to Improve your Webside Manner	2020	Provides tips for keeping patients at the center of telehealth visits: Before the visit, During the visit, and After the visit	Text specifically focused on older adults Comprehensive and directly connected information, principles and recommendations

Meeting three discussion topics were patient-centered care and efficient and affordable care. A full group discussion and recap were held at the conclusion of the breakout discussions.

After an informal yet comprehensive review of the recordings of these meetings, engaging in additional (individual) discussions with C4TA members, and consolidating recommendations from all communications (emails, meeting chats, Google Jamboard notes), WHI researchers created the first draft of the principles and guidelines. This draft, containing six principles and 24 guidelines, was provided to C4TA members who were asked to review and

offer edits. Recommendations were received and incorporated into a second draft, which was shared with C4TA members ahead of the fourth meeting. When recommendations were inconsistent or incompatible, multiple options were provided and voted upon in meeting four.

At meeting four, each potential principle and its associated guidelines was displayed to C4TA members, followed by a 10-min full group discussion of each principle and its associated guidelines. Discussion was followed by voting using Padlet. C4TA members voted yes or no to each guideline. Voting took place primarily synchronously via video. Members could provide written

TABLE 2 Principles and guidelines for telehealth and aging

Principle 1	**Care is person-centered.**	
	Guideline 1	Person-centered telehealth accounts for older adults' healthcare goals, care preferences, and 'what matters'.
	Guideline 2	Person-centered telehealth promotes high-value use cases that drive older-adult focused goals, incorporating payer and provider perspectives.
	Guideline 3	Person-centered telehealth supports coordination and continuity of care.
	Guideline 4	Person-centered telehealth ensures that older adults and their caregivers are prepared and understand what to expect from a telehealth encounter.
	Guideline 5	Person-centered telehealth promotes opportunities to use telehealth to increase access to care while reducing hardships for older adults.
	Guideline 6	Person-centered telehealth reduces time to access providers across healthcare settings.
	Guideline 7	Person-centered telehealth incorporates older adults' families and caregivers when appropriate and consistent with the older adults' wishes.
Principle 2	**Care is equitable and accessible.**	
	Guideline 1	Equitable and accessible telehealth accounts for older adults' physical and cognitive differences.
	Guideline 2	Equitable and accessible telehealth accounts for cultural and linguistic differences of older adults and their caregivers.
	Guideline 3	Equitable and accessible telehealth accounts for technology literacy and readiness of older adults and their caregivers.
	Guideline 4	Equitable and accessible telehealth addresses needs across all settings, including the home, as promptly as possible.
	Guideline 5	Equitable and accessible telehealth ensures that staff and providers engage in ongoing education on best practices for using telehealth with older adults.
	Guideline 6	Equitable and accessible telehealth accounts for differences in access to technology and connectivity.
Principle 3	**Care is integrated and coordinated.**	
	Guideline 1	Integrated and coordinated telehealth facilitates access to older adults' health records.
	Guideline 2	Integrated and coordinated telehealth facilitates safe, coordinated transitions of care.
	Guideline 3	Integrated and coordinated telehealth is integrated into the care continuum.
	Guideline 4	Integrated and coordinated telehealth connects crucial stakeholders throughout the entire process.
	Guideline 5	Integrated and coordinated telehealth supports staff working at the top of their licenses to drive efficiency.

comments in addition to votes, both of which were anonymous but visible to everyone.

The voting threshold was set at 80%: ≥80% 'yes' meant approve; <80% 'no' meant reject. During meeting four, eleven guidelines were approved, one was rejected and ten did not meet either threshold. The WHI team used C4TA members' input from the Padlet voting session to revise the principles and guidelines that did not meet the vote threshold. C4TA feedback to WHI researchers was to simplify the principles and guidelines, to reduce duplication of concepts, to reduce the operational guidelines and to remove guidelines that did not directly address age-friendly practices and/or principles.

In response, principles were reduced from six to three by combining concepts and edits were made to the ten guidelines that did not meet the voting threshold. Revisions were shared with C4TA members prior to a second round

of voting in meeting five. Voting followed the same process as round one but addressed the revisions made to the outstanding principles and guidelines that were neither approved nor rejected during the first round of voting. All principles and guidelines met the 80% threshold during round two. See Table 2 for the approved set.

PRINCIPLES AND GUIDELINES FOR DELIVERING CARE TO OLDER ADULTS VIA TELEHEALTH

Principle 1: Care is person-centered

The older adult being served is at the center of all decision-making. Care accounts for older adult's care preferences, goals, wishes, abilities, support system, and conditions.

Guidelines

1. Person-centered telehealth accounts for older adults' healthcare goals, care preferences, and 'what matters'.

    Older adults are not monolithic; they vary in their health conditions and goals for treatment. The different factors that individuals identify as meaningful impact the types of care they prefer to receive and how they prefer to receive care.[22] Delivering care that aligns with goals and preferences can improve health-related quality of life, and satisfaction and reduce the costs of care.[23] Providers should discuss older adults' goals and preferences during encounters.

2. Person-centered telehealth promotes high-value use cases that drive older-adult-focused goals, while also incorporating payer and provider perspectives.

    Telehealth can be used in high-value and low-value ways. For example, high-value use cases are those where telehealth replaces or augments in-person care rather than those where telehealth visits are additive to in-person care.[24] When used to deliver high-value care, telehealth can help all stakeholders achieve their goals. Providers and administrators should use data to identify those use cases that optimize telehealth benefits and minimize potential downsides.

3. Person-centered telehealth supports coordination and continuity of care.

    Care coordination and continuity are linked to better health outcomes, higher satisfaction rates, and more cost-effective healthcare.[25] Older adults are specifically at risk of the negative consequences of fragmented and siloed care due to their tendency towards higher levels of medical complexity, greater number of comorbid conditions and larger number of providers with whom they typically engage. When telehealth is delivered via a third party or via a provider who does not have the ability to coordinate with the older adults' other providers, the risk of errors increases. For example, a record of each telehealth visit should be sent to the older adult's primary care physician.

4. Person-centered telehealth ensures that older adults and their caregivers are prepared and understand what to expect from a telehealth encounter.

    Telehealth is a new experience for many older adults and their caregivers. Many would benefit from pre-visit preparation including an explanation of the benefits and limitations of telehealth, setting expectations, and identifying and addressing concerns and barriers that may impede the telehealth visit.[26]

5. Person-centered telehealth promotes opportunities to use telehealth to increase access to care while reducing hardships for older adults.

    Top barriers to care include patients' costs for healthcare services and limited access due to geographic location. For example, over 23 million people live in health professional shortage areas, the majority of which are in rural areas. Many older adults are mobility challenged due to physical limitations or lack of safe, affordable transportation, and others are fully homebound. Telehealth offers care to people in underserved regions and to those without the ability to easily get to an appointment to reduce access barriers and the patients' financial burden of transportation.[27]

6. Person-centered telehealth reduces time to access providers across healthcare settings.

    Delays in care are associated with poor health outcomes for all populations, particularly older adults.[3] Telehealth can help reduce the time that older adults must wait to see a provider by increasing the number of providers who are available to them. This is particularly relevant to older adults living in rural areas where access to specialists may be limited and where telehealth may make providers available who are located geographically far from the older adult. For example, providers in rural emergency departments can use telehealth to access specialists (such as neurologists for tele-stroke care) to provide specialized care to older adults quickly.

7. Person-centered telehealth incorporates older adults' families and caregivers when appropriate and consistent with the older adults' wishes.

    Approximately 53 million informal caregivers provide care to loved ones in the United States.[28] These caregivers are often familiar with older adults' preferences and impacted by the older adults' treatment plans and decisions. Historically, their input has not been solicited or well incorporated into treatment planning.[29] A system that incorporates the opinions and knowledge of family and caregivers (when appropriate and desired by the older adult) builds trust and enables care to be delivered more efficiently and effectively.[22,30] For example, providers can use video technology to include family members who live far from the older adult.

Principle 2: Care is equitable and accessible

Regardless of age, ability, socio-economic status, health literacy, technology literacy, access and rural, suburban or urban location, everyone has equal access to the same level of high-quality care.

Guidelines

1. Equitable and accessible telehealth accounts for older adults' physical and cognitive differences.

   Care delivered via telehealth should accommodate patients' physical and cognitive challenges, just as in-person care requires.[2] An estimated 6.3 million older adults are unready to use telehealth due to a physical disability.[31] Methods to accommodate needs include using devices and platforms with simple user interfaces, large fonts and selectors, and adjustable audio capabilities with options for voice-to-text or text-to-voice.

2. Equitable and accessible telehealth accounts for cultural and linguistic differences of older adults and their caregivers.

   In the United States, English proficiency impacts access to care and health status.[32] People with limited English proficiency are more likely to forgo medical care and are at an increased risk of having poor emotional health.[33] Barriers in access to care caused by linguistic and/or cultural differences are key problems that must be addressed when designing telehealth programs. Systems must continually monitor access to, and utilization of, care across demographics, cultures, and communities. Systems providing telehealth should track and review the demographics of patients served to identify underserved patient groups and address uncovered inequities. Additionally, patient experience and satisfaction surveys in the primary languages of patients, and perhaps designed to address some of the principles outlined in the Framework for Digital Health Equity[34] can be incorporated into telehealth programs to track and address areas of need. New language translation technologies can help bridge linguistic gaps. Technology can also connect older adults and their providers with a certified translator when appropriate.

3. Equitable and accessible telehealth accounts for technology literacy and readiness of older adults and their caregivers.

   While older adults' comfort, and readiness to use, technology is on the rise, many still lack the technology literacy and readiness, and/or confidence to make telehealth successful.[27] Telehealth programs must focus on digital health equity in access. Providers must advocate for "overcoming structural deficiencies within the digital infrastructure of the US" that were highlighted by lower utilization and worse health outcomes for underserved communities.[19] Additionally, barriers to access cannot be addressed if they are not identified. Assessments of barriers, the use of telehealth facilitators, simpler technology including audio-only visits, and training programs can help increase equity and access.

4. Equitable and accessible telehealth addresses needs across settings, including the home, as promptly as possible.

   Older adults live in, and access care from, a variety of settings including the traditional home, congregate housing, and long-term care facilities. For example, more than 1.3 million older adults live in long-term care facilities, and another 1 million live in residential care communities.[29] For telehealth programs to be truly equitable and accessible to as many older adults as possible, programs should be designed to deliver care to older adults wherever they reside. We encourage providers to work with staff and providers at long-term care facilities, for example, to create telehealth programs that reach more older adults and connect them with care for acute changes in condition, behavioral health, and other types of consultative specialized care.

5. Equitable and accessible telehealth ensures that staff and providers engage in ongoing education on best practices for using telehealth with older adults.

   Providers should have sufficient knowledge to understand the technology's applications, safeguards, and nuances for best practice. They should also be aware that incorporating telehealth into their practices can be disruptive in the early stages of adoption.[24] Stakeholders, such as the C4TA and the American Telehealth Association, are investing resources to establish best practices and accreditation programs to support providers as they engage, implement, learn, and lead.

6. Equitable and accessible telehealth accounts for differences in access to technology and connectivity.

   An estimated 13 million older adults have trouble accessing telehealth services which could exacerbate barriers to care, particularly for those older adults living in rural underserved areas. To ensure that telehealth is reducing access barriers, programs should collect and

analyze data regularly to understand who they are serving and who they may be missing. Telehealth programs should seek innovative ways to overcome challenges including using hotspots, caregivers, and telehealth facilitators who travel to older adults' residences and simple solutions including using the telephone or asking a family member to help facilitate a visit.

Principle 3: Care is integrated and coordinated

Systems are set up to facilitate access to the information and support necessary to provide quality care to older adults. This includes cooperation and communication between and within systems and stakeholders.

Guidelines

1. Integrated and coordinated telehealth facilitates access to older adults' health record.

   As people age, their care becomes more complex as they tend to have an increasing number of medical, socioeconomic, cognitive, functional, and organizational statuses.[35] For example, prescribing recommendations for older adults are more difficult because older adults have substantial interindividual variability including differences in health, disability, co-morbidities, and medication usage.[36] Thus, it is vital that providers serving older adults have access to their patients' health records and medication lists to avoid potentially harmful interactions.

2. Integrated and coordinated telehealth facilitates safe, coordinated transitions of care.

   Older adults face many care transitions across healthcare settings. Much effort has been invested in the field of geriatrics to optimize transitions for older adults, their providers and their caregivers. When used well, telehealth should also ensure that all stakeholders are communicating effectively and safely coordinating transitions of care. Shared records of telehealth visits, e-consults between providers, and shared electronic medical records can all help enable safe transitions of care.

3. Integrated and coordinated telehealth is integrated into the care continuum.

   When well-managed, telehealth services can reduce some costs including facility and provider costs (in that providers can see a greater number of patients). Yet, creating and running telehealth programs that are financially sustainable may require economies of scale and optimized workflows, use cases, and protocols that reduce inefficiencies. As such, fully integrating telehealth within the care continuum and within providers' practices may be necessary to realize the financial benefits of telehealth.[37]

4. Integrated and coordinated telehealth connects crucial stakeholders throughout the entire process.

   Older adults often require a higher level of involvement from their family for care coordination and decision-making than people under age 65. For example, in the United States, family members provide 83% of the help older adults receive[38] and more than 11 million family members provide care to older adults with dementia specifically.[39] Telehealth can allow for connections to be made directly between geographically close and distant stakeholders who can be included in visits to foster direct communication and connection.

5. Integrated and coordinated telehealth supports staff working at the top of their licenses to drive efficiency.

   Currently, the healthcare workforce lacks sufficient numbers of people who are trained to care for older adults. With labor shortages, clinical resources must be carefully appropriated to maximize the services each individual can provide to patients. With telehealth, this means organizations can pull from larger pools of providers to better match the right provider with the level of care needed for each telehealth appointment.

DISCUSSION

The presented principles and guidelines were developed by C4TA using a modified-Delphi process. Additional work is needed (and is underway) to create implementation strategies, which will provide more specific guidance on how to operationalize the current recommendations. Creating and implementing solutions that adhere to the general principles and guidelines will depend greatly upon local context and circumstances of health systems and the patients they serve. A solution for a healthy 95-year-old may be vastly different than a solution for a homebound 65-year-old, for example. A solution in a rural area may be quite different from a solution in an urban area. The guidelines are deliberately not prescriptive to allow for flexibility in operationalization. However, a constant in all telehealth programs must be a commitment to developing programs that also address

healthcare disparities and outcome gaps. Optimal telehealth programs can work to limit (and improve) the digital healthcare gap in vulnerable communities. We note that our guidelines are consistent with prior work on digital health equity.[40]

C4TA members engaged in discussions about the degree to which the recommendations should describe an optimal state given that the principles and guidelines correspond to systemic challenges in healthcare: challenges and problems that have not yet been fully addressed within the healthcare system. Members decided that recommendations should be written to describe the optimal state, with the understanding that improvement does not require fully addressing all recommendations. We recognize and appreciate that any step towards the optimal state represents an improvement of the care that older adults receive.

Strengths and limitations

A strength of this work is that it incorporated a variety of perspectives and areas of expertise with a shared goal of improving care for older adults. Technology vendors' voices were not included to keep the focus on delivering high-quality, safe, effective care to older adults rather than on specific technology hardware or software solutions. Additionally, recommendations were specifically targeted to clinical care providers and health systems across care settings and specialties to make tangible changes to existing practices, regardless of organizational factors and state and federal policy structure. A limitation is that the proposed guidelines are not all-encompassing and certain topics important to care delivery were not directly addressed. These topics include Health Insurance and Portability Accountability Act adherence, data privacy, and reimbursement. This is not because such issues are irrelevant or unimportant, but rather because there are many existing resources supporting providers in these areas.[41] Instead, the goal of the current work was to focus on the gaps in knowledge and resources specific to caring for older adults via telehealth across healthcare settings. As such, attention was focused on considerations that are specifically and particularly relevant to the care of older adults.

Next steps

We are encouraged by our experience creating and working with the collaborative, which we believe represents a groundswell of support for this initiative. The next steps for this initiative include dissemination, implementation, community engagement, and evaluation. Dissemination will be achieved through written work and presentations across a variety of settings and to audiences around the country and through the Center of Excellence for Telehealth and Aging (CE4TA). Implementation support will grow as we develop implementation strategies to help define and describe the ways that the current guidelines can be operationalized across care settings and communities. Community engagement will be developed through CE4TA where we ask all stakeholders to contribute to the growth of this initiative. Finally, we recognize that the science from which these guidelines were developed is continuing to evolve. C4TA will, along with the stakeholder community through CE4TA, continue to evaluate and add to the scientific literature related to best practices for delivering telehealth to older adults.

In summary, telehealth has remarkable potential to improve the safety, efficiency, and equitable distribution of healthcare for older adults, but without sustained attention to constructing telehealth programs for older adults in a manner that is person–centered, equitable and accessible, and integrated and coordinated, the programs will fail to meet the needs of many older adults.

Steven Handler, MD, PhD, Rebecca Harless, MBA, Josh Hoffmeyer, Stephen Hoy, Jana Katz-Bell, Michael Kurliand, RN, David Lindeman, PhD, Dallas Nelson, MD, Corey Owens, MS, Mia Phifer, MS, Ting Pun, Veronica Rivera, MD, Caroline Servat, MPP, Frank Sites, MHA, Rane Snyder, MPA, Meredith Sonnet, MD, Leak Steckler, MD, Robyn Stone, PhD, Virginia Suarez, Nora Super, MPA, Nancy Wexler, MPH, Jon Zifferblatt, MD provided subject matter expertise and support for the concept and design of the principles and guidelines.

ACKNOWLEDGMENTS

FUNDING INFORMATION

CONFLICT OF INTEREST

The following authors have conflicts that they acknowledge related to this manuscript. Dr. Biese is an advisor at Third Eye Tele Health and UNC Health Alliance Board member. Dr. DeCherrie is a board member of the American Academy of Home Care Medicine and an employee of Medically Home. Dr. Swati Gaur is the Treasurer for AMDA – The Society for Post-Acute and Long Term Care. Dr. Gillespie is a board member of AMDA – The Society for Post-Acute and Long Term Care. Mr. Hoffmeyer is employed by Avel eCare. Dr. Leff is a clinical advisor to Dispatch Health, Medically Home, CVS, and Chartis Group. He is also a member of the clinical advisory board of Home Instead/Honor, Patina Healthcare, MedZed and Medtronics. Dr. Leff is also a voluntary board member for the Alliance for Home Health Quality and Innovation and a member of the quality committee for Ascension Healthcare. Dr. Ritchie is a board member for the International Palliative Care Society. Dr. Sikka is the CMO/Founder of Snostik. Dr. Steckler is the President of the Washington, DC chapter of the American College of Emergency Physicians, a contractor for M Medical group, and is married to a board member of Dynamic Infrastructure. None of the other authors reported any conflicts.

SPONSOR'S ROLE

West Health Institute provided stipends for members of the Collaborative for Telehealth and Aging (who are not West Health Institute employees) to partially cover their time.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

Table S1. Members of the collaborative for telehealth and aging and their affiliations.
Table S2. Pre-meeting questions asked of the collaborative members.

> **How to cite this article:** Wardlow L, Leff B, Biese K, et al. Development of telehealth principles and guidelines for older adults: A modified Delphi approach. *J Am Geriatr Soc*. 2023;71(2):371-382. doi:10.1111/jgs.18123