MILKEN INSTITUTE

Advancing Tech-Enabled Health and Home Care

BY LAUREN DUNNING AND CAROLINE SERVAT

FOREWORD BY NORA SUPER

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Milken Institute Center for the Future of Aging elevates awareness and catalyzes action to promote healthy longevity and financial security through research, convening, advocacy, and partnership.

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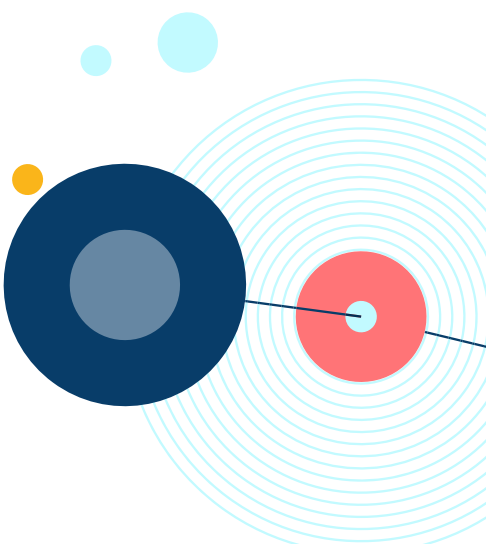


FOREWORD

By Nora Super, Executive Director, Milken Institute Center for the Future of Aging

As we enter the third year of a global pandemic, we must take a moment to pause and consider how enormously our lives have changed—with particular focus on the delivery of health and long-term care. COVID-19 has posed the most significant risk for older adults, forcing us to reconsider the safest and most efficient ways for these individuals to receive care.

Over the last two-plus years, the Milken Institute Center for the Future of Aging ("the Center") has explored the financial and care-delivery gaps in the long-term care market, specifically the barriers to affordable care for middle-income households and the potential paths forward. A recent report detailed findings and opportunities for action developed during a Financial Innovations Lab®, including a large-scale Medicare Advantage demonstration project to test the effectiveness of technology and home-based interventions in reducing cost and improving care across the continuum.[1] In addition, the Center made recommendations to advance telehealth in the wake of the pandemic, which complement and support these efforts.[2]

To recognize the growing demand for virtual care, data supporting home-based and alternative care-delivery models, the rapid expansion of telehealth, and the potential to advance health equity, the Center launched the Advancing Tech-Enabled Health and Home Care Project in 2021. We are grateful for the generous support from our partners CVS Health, Home Instead, Teladoc Health, The Permanente Medical Group, and The SCAN Foundation. This multi-sectoral initiative focuses on actionable solutions to integrate health and home care through technology.

Throughout the project, the Center conducted more than 40 informational interviews with experts representing health, technology, government and policy, research and academia, philanthropy, advocacy, and community-based organizations. The interviews identified common themes on barriers to expansion, innovations in the field, and opportunities to advance tech-enabled care. To build on the insights from the expert interviews, the Center convened a roundtable in December 2021. Experts across sectors came together to explore gaps, identify promising initiatives, develop consensus, and formulate solutions.

This report, written by my colleagues Lauren Dunning and Caroline Servat, presents consensus-built, actionable recommendations from the roundtable to integrate health and home care through technology. The recommendations focus on three key areas:

1. Pandemic-related and larger-scale policy and program-design changes to expand the availability of care in the home through technology.
2. Practices and policies to create an optimal care environment, foster greater alignment of programs, and drive integration within the virtual care ecosystem.
3. Opportunities for collaboration and coordination to accelerate efforts.

We look forward to working with all of you to advance these recommendations to ensure equitable access to high-quality, tech-enabled health and home care for people of all ages.

INTRODUCTION

Nearly two-thirds of older adults will need home-based services and supports to meet health and personal care needs in the course of their lifetimes.[3] Despite widespread and increasing demand related to the growing number of older adults in the United States, persistent structural barriers—including lack of coverage by Medicare and private insurance, out-of-pocket expenses, and workforce constraints—limit access to home care.[4] To address these gaps, innovation is needed to expand availability, ensure quality, and contain costs.

Americans often mistakenly believe that traditional (fee-for-service) Medicare or health insurance will cover services and supports delivered in the home. But Medicare pays for home health benefits only for qualifying home-bound beneficiaries to receive a narrow set of rehabilitative or post-acute services.[5] Skilled nursing services delivered in the home and nonmedical assistance to aid with activities of daily living—even if to prevent adverse health outcomes or when related to medical conditions—are not generally covered. As a result, the average older adult will pay for nearly 60 percent of their long-term care[6] (LTC) needs out-of-pocket—totaling about $138,000 from age 65 until death. Many older adults are forced to spend down their assets to qualify for Medicaid, which covers LTC but has strict income limits.[7]

However, with an expanding body of evidence supporting home-based care models and the preference expressed by the majority of older adults to remain in their homes, new approaches have emerged.[8] Medicaid, the largest payer of LTC, is shifting funding in favor of home and community-based services (HCBS) as alternatives to institutional care.[9] Medicare Advantage (MA) plans can offer supplemental benefits beyond those allowed under traditional Medicare, and program changes in 2018 permitted plans to cover in-home support services that address nonmedical needs.[10] Building on the success of the Hospital at Home® model developed by Johns Hopkins Schools of Medicine and Public Health, the Centers for Medicare & Medicaid Services (CMS) established the Hospitals Without Walls program during the COVID-19 pandemic. This program allows health systems to deliver hospital-level care to acutely ill older adults in their homes by using telehealth, remote patient monitoring (RPM), and other digital tools.

Across these and many other examples, the previously sharp lines between brick-and-mortar health care and home care are blurring, enabled by shifts to virtual care and the rapid expansion of telehealth during the COVID-19 pandemic. A new care ecosystem is emerging where care in the home, previously narrowly conceived as traditional home health services, is integrated with health care and exists on a spectrum that considers patients' fluctuating needs over time.[11] From this perspective, home care encompasses virtual and in-person interaction; high- and low-acuity care needs; and medical, behavioral, and social interventions. With partnerships and acquisitions among health plans, systems, and technology companies multiplying, critical technology infrastructure must be developed to connect health and home care for people of all ages and abilities.

ISSUES AND PERSPECTIVES

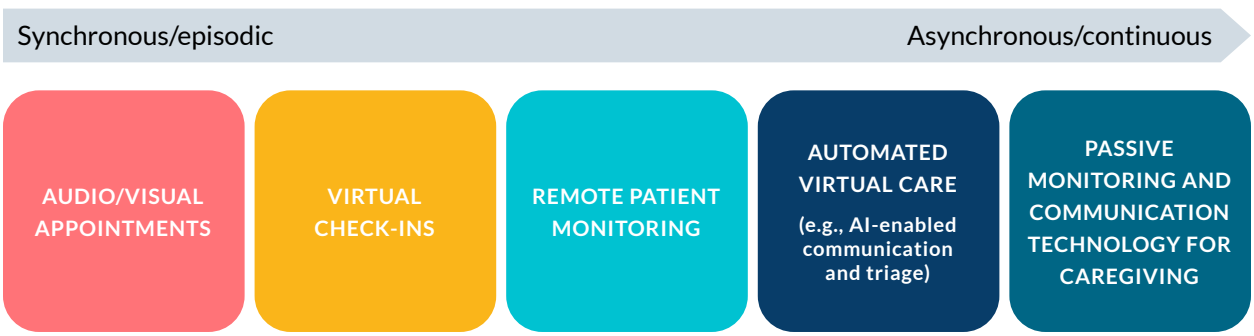
Current Landscape

ACCELERATION IN THE ADOPTION OF VIRTUAL CARE

The pandemic confirmed that factors outside the clinical environment—namely nutrition, quality of housing, and access to transportation—affect health outcomes and overall health-care costs. Virtual care emerged as a promising solution to better integrate health and LTC.

Virtual care—an umbrella term describing care delivered remotely—encompasses a range of services and modalities, from telehealth visits using synchronous audiovisual technology to remote patient monitoring, and beyond. Projections estimate that up to $250 billion in US health-care spending could shift to virtual care.[12] Beyond virtual care, tech-enabled care is defined by the American Medical Association (using the term "digitally-enabled care") as "fully integrated in-person and virtual care models that hybridize care delivery based on clinical appropriateness and other factors such as convenience and cost."[13]

Figure 1: Spectrum of Virtual Health-Care Services[14]



Source: Adapted from Conversa Health (2020)

Although technology-driven innovation in health and home care was a major focus before the COVID-19 pandemic, the past two years accelerated virtual care adoption across settings. Only 13,000 Medicare fee-for-service (FFS) beneficiaries received a telehealth service each week before the COVID-19 public health emergency (PHE). Early in the pandemic, this figure rose to nearly 1.7 million weekly visits.[15] This rapid change was spurred by necessity and enabled by emergency changes in the policy landscape. Some of these actions include the following:

- Waiver of geographic and originating site restrictions contained in federal statute, providing access to telehealth for traditional Medicare beneficiaries regardless of their location;[16]
- Expansion of the types of telehealth services reimbursable under Medicare and Medicaid, as well as of the providers able to furnish them;[17]

- Exercise of enforcement discretion permitting MA plans to add telehealth benefits to existing plans and to reduce costs for specific services;[18]
- Relaxation of Health Insurance Portability and Accountability Act (HIPAA) requirements for remote video communications[19], which allowed providers to use a wide range of platforms to engage with patients; and
- Lifting of restrictions that prevented providers from delivering care across state lines via telehealth.[20]

In certain instances, the Centers for Medicare & Medicaid Services (CMS) took swift action to make permanent critical updates, such as adding more than 140 telehealth services to the Medicare Physician Fee Schedule (PFS) for 2021 that will remain reimbursable after the PHE ends.[21] In addition, the 2022 PFS introduced new codes broadening RPM beyond the services included in the 2019 PFS, which focused on the remote collection and analysis of physiologic data (e.g., blood pressure, heart rate, and body temperature).[22] The new remote therapeutic monitoring (RTM) codes will fill several gaps, including permitting the collection of self-reported and non-physiologic data (e.g., medication adherence, pain level, and perceived response to therapy) and expanding the types of providers who can be reimbursed. With many waivers still in effect, and legislative and regulatory actions being considered, the path ahead is under construction.[23]

LONGER-TERM OUTLOOK

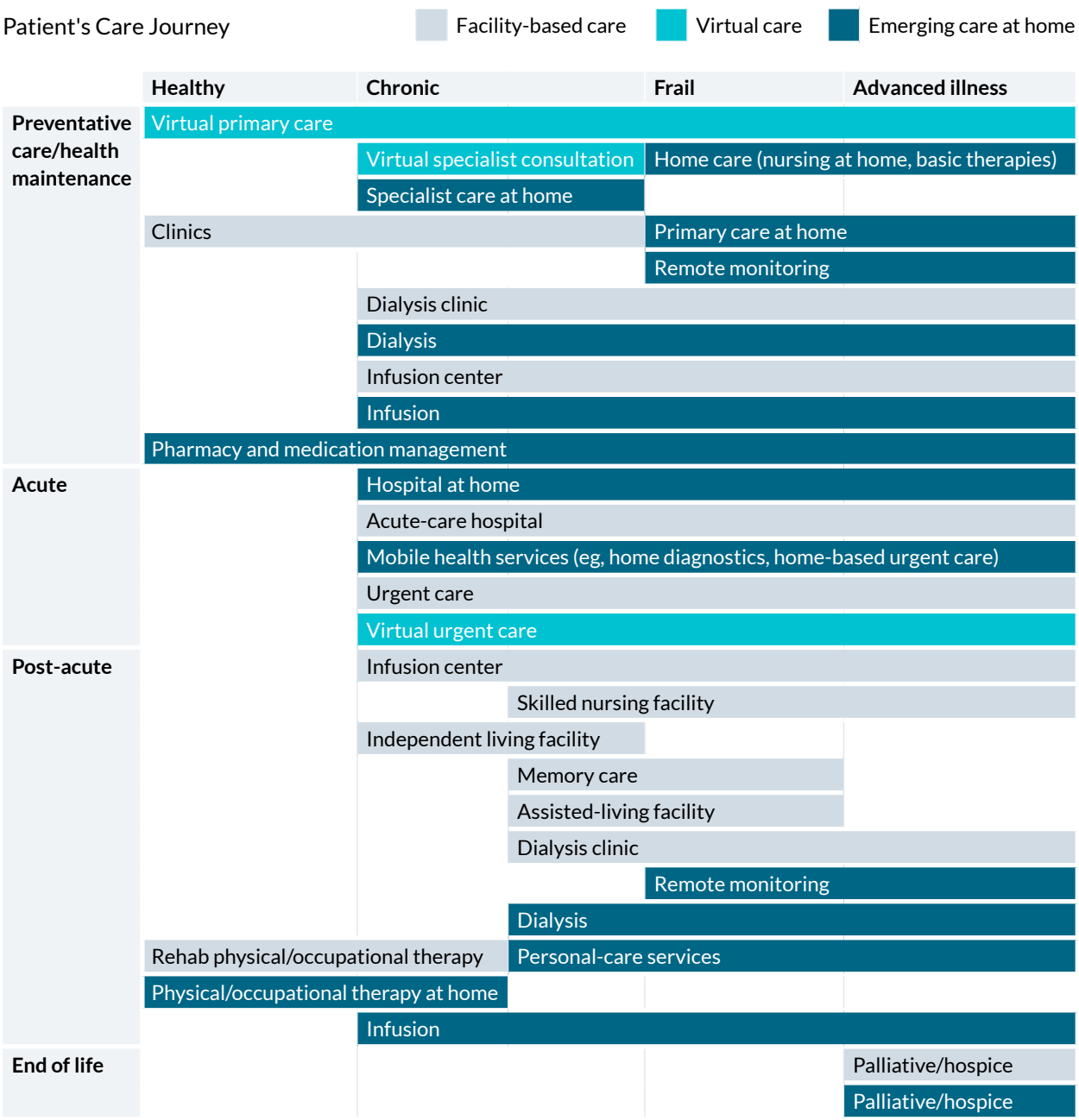
The pandemic accelerated the adoption of telehealth, but long-term shifts toward tech-enabled health and home care remain on the horizon. Across the entire population, telehealth utilization has decreased as access to in-person visits has increased. Telehealth claims peaked in April 2020, when volume grew to nearly 80 times the previous baseline, but have since stabilized at a level 38 times higher than before the pandemic. Patient and provider attitudes toward virtual care reveal additional complexity and potential hurdles.[24] A 2021 analysis found that although 82 percent of patients receiving telehealth services reported high levels of satisfaction, 64 percent still would have preferred an in-person visit.[25] In a recent survey, 63 percent of older nonwhite respondents expressed worry about lower quality of care through telehealth compared to in-person visits.[26] Providers also show varying levels of willingness to shift toward tech-enabled care, citing concerns about quality and impact on workload.[27]

"Some clinicians are still resisting the idea of even telehealth, which is the tip of the iceberg for digital health, because we have not re-engineered the workplace around new technologies."

— Christine Cassel, MD, Presidential Chair, Visiting Professor, University of California at San Francisco School of Medicine

Beyond virtual visits for preventive and episodic care, delivery of hospital-level acute care, post-acute care, and management of chronic conditions such as diabetes and chronic kidney disease is taking place in patients' homes.[28] Preliminary data suggest that providing integrated primary, acute, behavioral health, and long-term care improves health outcomes, access to care, and patient and provider satisfaction.[29] Although the pandemic heightened the focus on, and investment in, the continuing process of scaling delivery, too few people have access to promising initiatives and models.

Figure 2: Expansion of In-Home Care Across Settings[30]



Source: McKinsey & Company (2022)

Bright Spot: ConcertoCare is a startup and tech-enabled, value-based care provider of at-home, interdisciplinary care for older adults with complex care needs. The company recently acquired a primary care practice to help scale its model. Using a proprietary analytics and decision-support platform, Patient3D, Concerto customizes in-home care models across three programs and recently launched its own Program for All-Inclusive Care for the Elderly (PACE) for qualifying members.

To sustain the momentum gained during the pandemic, temporary policy changes to allow reimbursement for home-delivered care should be made more certain as emergency provisions expire. Some provisions have been allowed to sunset, such as licensure flexibilities in many states, but several significant provisions remain in effect as policymakers develop solutions.[31] As of April 2022, Congress was considering more than 40 bills related to telehealth.[32] Existing proposals under consideration include expansion of traditional Medicare reimbursement for telehealth and remote monitoring, federal requirements for insurers to cover telehealth services, and funding for broadband connectivity at health-care facilities, to name a few.

Legislation that would permanently lift geographic restrictions and limitations on originating sites for traditional Medicare has not yet passed.[33] The bipartisan CONNECT for Health Act of 2021 (S. 1512) and Telehealth Modernization Act (S. 368) are both under consideration and would address these significant barriers to telehealth access, as well as other issues such as authorizing Federally Qualified Health Centers and Rural Health Clinics to provide telehealth services.[34] Many of the other active bills to expand access to telehealth under traditional Medicare focus narrowly on specific conditions, modalities, or populations.

As Congress and federal health agencies debate permanent changes, extensions of waivers beyond the PHE have also been recommended to prevent reversion and loss of progress. Advocates recently urged the continuation of the Acute Hospital Care at Home (AHCAH) initiative—which is supported by data on clinical outcomes, patient satisfaction, and reduced costs—through waiver extension in the absence of significant legislation. The Medicare Payment Advisory Committee (MedPAC) issued a report recommending that traditional Medicare continue reimbursement for telehealth for an additional one to two years to permit study of the potential long-term financial impact.[35]

While efforts to preserve COVID-19–related emergency measures are in progress, additional opportunities to expand the home as a site of care are being considered.[36] For example, the Moving Health Home coalition, formed in 2021, supported the Choose Home Care Act, which would allow Medicare beneficiaries to receive post-hospital care in their homes. Addressing the expiration of COVID-19 waivers is pressing, but broader systems-oriented policy changes are needed to expand tech-enabled health and home care further.[37]

INVESTING IN INNOVATION

Even before the COVID-19 crisis, it had become clear that it was critically important to improve access to tech-enabled health and home care and bolster community-based services. With recent expansions in Medicare Advantage and the spotlight more focused on the role of affordable, safe, in-home services, tech-enabled solutions using technology can help integrate systems of care. According to one estimate, venture funding for digital health startups nearly doubled from 2020 to 2021, reaching $29.1 billion across 729 deals.[38] One key area of growth potential, experts emphasized, is RPM, which now includes the newly

defined RTM in clinical health care and home-care settings.[39] RTM is a new digital health vertical defined in CMS' 2022 PFS that is complementary to RPM and focuses on non-physiologic therapeutic data as a source of insight into patients' adherence to therapy.[40] In contrast to CMS' remote physiologic monitoring codes, RTM codes expand the types of clinicians beyond physicians, enabling reimbursement of services provided by nurses and physical therapists.

According to one analysis, the global market for home care is projected to increase from $304 billion in 2020 to $516 billion by 2027—an increase of nearly 70 percent.[41]

Passive and active monitoring devices, both medical and consumer-facing, exponentially increase the amount of information available to caregivers and health-care providers. Non-intrusive, ambient-sensing, passive technologies powered by artificial intelligence (AI) can detect vital signs (e.g., body temperature, blood pressure) in the home and recognize subtle changes in activities of daily living. These devices, enhanced by personalized predictive analytics tools, can provide invaluable data for caregivers and clinicians to improve person-centered care.[42] Advancements in predictive analytics show great promise to augment personalized care of older adults. However, experts in aging agree that developers will need to involve older adults actively in the design process to improve patient engagement and inform decision-making for clinicians.

"There's a big advantage to passive technologies for patients and providers. To the patient, there's simply less to do if they're wearing a watch or sensor—they don't need to step on a scale or report their blood pressure. From a physician standpoint, the visibility into the patient's condition is much higher—akin to going from taking a picture of a patient once a day to a 4k movie, continuously running."

— John Squire, Chief Growth Officer, Population Health and Virtual Care, Philips

As more private companies rush to innovate around these solutions, demand will come from both providers and consumers. According to a recent survey, 88 percent of providers report that they have invested or are evaluating investments in RPM technologies.[43] On the consumer side, by one estimate, 70.6 million Americans will use RPM tools by 2025.[44] Experts highlighted several regulatory uncertainties about the duration of RPM required for billing and the ability to initiate RPM for new patients. If such uncertainties were addressed, wider scaling of these tools among high-need populations would be possible.

Currently, the 16-day rule states that providers who bill for RPM codes must monitor at least 16 days of data per 30-day period to submit for reimbursement from CMS.[45] This requirement was waived to two days during the PHE for patients either diagnosed with or suspected of having COVID-19, but has since been clarified as the default requirement. Some experts noted during the roundtable that this threshold was administratively burdensome for physicians and that more research is needed to build consensus around a clinically appropriate monitoring period to reduce barriers to adoption by providers. Further, the "established patient-physician relationship" rule clarified that after the PHE, RPM services can only be furnished by providers to existing patients, and that a provider-patient relationship cannot be initiated using RPM. Some experts also advocated allowing new patients to receive RPM services to improve access to care.

VERTICAL INTEGRATION OF CARE DELIVERY

Acquisitions in 2021 signal new industry standards for value-based and longitudinal care delivery at home. MA plans have increasingly launched their own pilot programs and initiatives to test different technology-based interventions for beneficiaries with complex care needs in the home setting, often in partnership with community-based providers. These pilot programs are essential to providing an evidence base to demonstrate the potential cost savings of technology and home-based supplemental benefits for eligible beneficiaries. With the expansion of Hospital-at-Home® programs, as well as several years of experimentation with the rollout of new special supplemental benefits in the home, many MA plans have started to move further upstream to manage costs and improve care under their capitated payment structures. For example, with the rise of acute-care companies tailored for the home setting, MA plans moved swiftly to acquire these types of flexible, person-centered models, creating a new frontier of hybrid provider-payer (or "payvider") entities, as illustrated by Table 1.

Table 1. Summary of Major Investments or Acquisition of Home-Based Care Models by Medicare Advantage Plans in 2022

Payer/Date	Acquisition/ Investment	Description	Patient Profile	Size of Model
Kaiser Permanente 2021	Medically Home model Invested $100 million along with Mayo Clinic	Involves the creation of medical command centers led by physicians and nurses who work with field clinicians, including nurses, paramedics, and technicians, to provide care at home	High initial acuity Severity of illness index level between 2 and 3[46] Admission from emergency department or home Provides restorative care	1,100 patients treated within Kaiser Permanente (out of 7,000 patients total within the Medically Home platform)
Humana 2021	Full acquisition of Kindred at Home, the largest home health provider in the US	Payer-agnostic, value-based provider of home-based clinical solutions	High acuity, high cost	40 states, employing roughly 43,000 caregivers who deliver home health, hospice, and community-based services to more than 550,000 patients annually

Payer/Date	Acquisition/ Investment	Description	Patient Profile	Size of Model
United Healthcare 2021	Acquisition of Landmark Health, a "mobile provider group"	24/7 comprehensive in-home medical care and chronic care management; directly contracts with CMS and can serve both FFS and MA beneficiaries	High acuity, high cost: The average Landmark consumer is aged 79 with eight chronic health conditions[47]	400 providers performing 335,000 house calls annually

Source: Milken Institute (2022)

These commercial activities underscore broader health-care industry trends around the vertical integration of care, with important implications not only for executives and clinicians, but for patients and their support networks.[48] Therefore, it remains critical that ongoing data and transparency around quality and cost metrics be made available for consumers and patients and that new models deliver on their objectives to provide more efficient person-centered care for older adults and their caregivers.

Guiding Principles

Across key informant interviews, experts put forth four guiding principles to underpin the recommendations that begin on page 15 of this report. Visual icons associated with each guiding principle will correspond, where relevant, to specific recommendations that most directly reflect and reinforce each principle.

Access to broadband and devices, digital literacy, and navigation assistance will support equitable access to virtual care.

Digital devices and internet connectivity are critical tools for participating in virtual care, but inequities in access currently exist. Forty-two percent of older adults lack internet access at home, and Black and Latino seniors are more than 2.5 and 3.3 times more likely, respectively, to be offline.[49] Although smartphone use increased during the pandemic, only 62 percent of adults age 70 and older use a smartphone.[50] Broadband access, which is important for simultaneous audiovisual communication, remains out of reach for many, with nearly one-fourth of the population in rural America lacking high-speed internet.[51] Given these barriers, lower-income older adults living in remote or rural locations face significant challenges in receiving telehealth services.[52]

Even with devices and connectivity, digital literacy and inclusive design are needed to support the navigation of often-complex video-visit platforms, health apps, and data-collection devices. People with low digital literacy tend to be older and less educated. They are also more likely to be Black, Hispanic, or foreign-born, which may compound existing access issues.[53] In addition, few digital health tools are designed with the needs in mind of people experiencing hearing and visual impairments and cognitive decline.[54]

Bright Spot: The Gary and Mary West PACE provides comprehensive health and supportive care for high-need older adults in northern San Diego. Using Personal Care Attendants (PCAs) as "tele-presenters," West PACE deployed a hybrid model of technological outreach during the pandemic, enabled by on-site staff to deliver care to isolated older adults.[55] PCAs go into the home environment to facilitate virtual appointments with an individual's provider, overcoming digital access and literacy barriers to receiving virtual care. During the visit, the PCA also checks in with individuals regarding their well-being, including taking vital signs and surveying the home environment for any risks or hazards.

"We talk about clinical models and protocols, but we also need to be thinking about behavioral health, social risk factors, and upstream social determinants of health. We need a broader framework built upon an integrated care team approach that ensures that the caregiver and everyone who has an influence on the individual's needs, wants, and preferences are participating."

— Sarita Mohanty, MD, President and CEO, The SCAN Foundation

Realizing improvements in quality and cost from tech-enabled care will require focused efforts on person-centered systems and protocols.

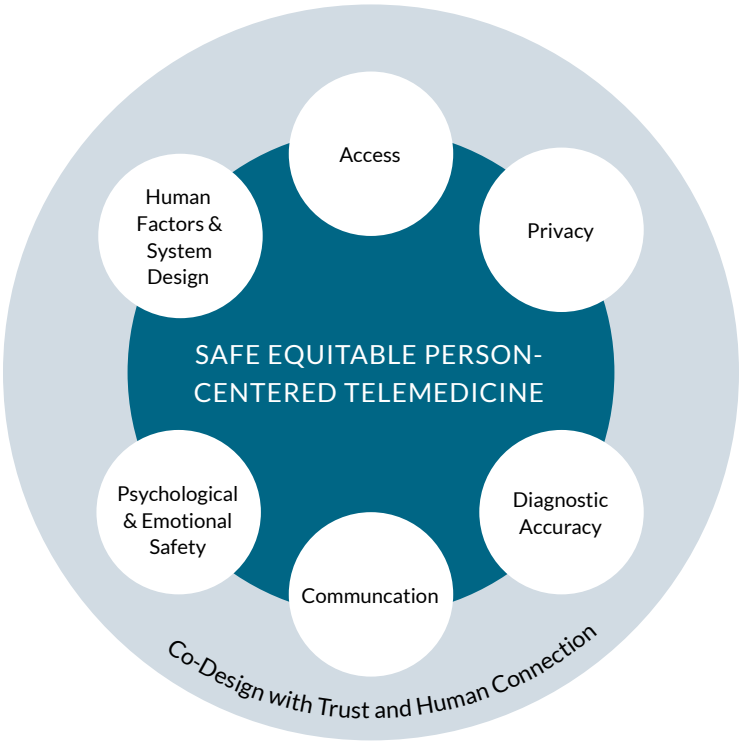
Generally, studies have found the quality of telehealth to be at least equal to that of in-person care. Still, many potentially influential factors exist, such as the type of condition, the setting (e.g., rural or urban), and the availability of devices and monitoring equipment.[56] Similar dependencies apply with regard to cost.

Factors that contribute to whether telehealth has a net impact on cost include (1) whether it is additive or substitutive for a particular condition, (2) whether parity exists in reimbursement for virtual and in-person services, and (3) whether access to remote care prevents more costly health events.[57] In light of these complexities, protocols that are patient-centered, technologies that help optimize workflow, and systems that integrate health information and provide decision support are needed.

Trusted community-based organizations, primary care practices, and nontraditional health-care delivery settings are essential front-line partners for technology outreach and care delivery at home.

Virtual primary care is taking off: A survey of more than 400 health-benefit managers at companies across the country found that 15 percent of them planned to offer a virtual-first health plan in 2022, which they expected could save approximately 6 percent in health-plan costs.[59] Despite widespread appreciation of the clinical and economic value of primary care, disparities in access persist related to complex socioeconomic, geographic, and workforce factors, among others.[60] But virtual primary care can change the dynamics in access to high quality primary care. Research also shows that pharmacists are effective in helping patients manage their health and wellness.[61] As more retail entities engage in community-based preventive health, tech-enabled options at ancillary-care sites will be essential facilitators of health equity.

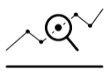
Figure 3: Framework for Ensuring Safe, Equitable, Person-Centered Telemedicine[58]



Source: Institute for Healthcare Improvement (2021)

Research is needed to measure impact and shape best practices.

The COVID-19 pandemic brought urgency to identifying what works in telehealth and the use of technology across the continuum of care.[62] Studying data and experiences from the pandemic is valuable, but forward-looking testing of models is integral to shaping best practices and recommendations. Findings from evaluations of models and pilot programs will be foundational for policy formulation, particularly for care delivery innovation and payment methodologies.



The TECH Act

Introduced to Congress on March 10, 2022, the bipartisan Technology-Enabled Care in the Home (TECH) Act S. 3793, would authorize and fund the Center for Medicare and Medicaid Innovation (CMMI) to initiate a three-year demonstration project testing telehealth, remote patient monitoring, and other technology-enabled care interventions in the home with participating MA plans. If enacted, the demonstration would yield critical data for measuring the impact of tech-enabled care on quality, cost, and care coordination for chronically ill enrollees.

BARRIERS TO EXPANSION

Many factors challenge the virtual-care ecosystem ranging from incongruencies with the traditional home-care delivery system, a lack of financial incentives to care for patients in the home, and decentralized technology platforms that are poorly equipped to integrate into complex health systems.

The current health-care reimbursement system does not provide incentives for patients to be treated at home.

A recent survey of Medicare claims revealed that, because of inadequate reimbursement and limited provider expertise in conducting home visits, only 5 percent of Medicare FFS beneficiaries received any home-based care, including home-based primary care and other ongoing medical services.[63] Further, the CMS 2021 PFS decreased reimbursement rates for home-based primary care by 8 to 10 percent, despite 93 percent of beneficiaries and caregivers reporting being satisfied or very satisfied with the quality of care they received in the home setting.[64]

Providers operating under risk-based or managed-care contracts are more likely to adopt tech-enabled and holistic home-care services. However, under Medicare FFS, which serves the majority of beneficiaries, payment barriers persist for non-physician providers (e.g., nurses, social workers) delivering care in the home.[65]

> **"We need to shift our focus towards care that needs to be rendered between the "visits"—and establish payment mechanisms that can spur innovation and transform health-care delivery."**
>
> *—Lewis Levy, MD, Chief Medical Officer, Public Policy and Strategic Partnerships, Teladoc Health*

Provider, consumer, and caregiver technology training is limited and fragmented across settings.

A study assessing the variance in telemedicine unreadiness among older adults in the United States during the pandemic estimated that 38 percent were not ready for video visits, and 20 percent of older patients were ill-equipped for telephone visits because of hearing difficulties or cognitive decline.[66] Experts caution that without improved accountability for coordinated service delivery and personalized caregiver training, new challenges for families will emerge as care is shifted to the home.[67]

Robust technology training is a significant predictor of clinicians' perception of the quality of care, as well. Physicians who report poor training in electronic health record (EHR) management are more than 3.5 times more likely to report that their EHR system does not enable them to deliver high-quality care.[68] Approximately two-thirds of the nation's family caregivers use at least one digital tool to manage their caregiving responsibilities efficiently, and about 40 percent of them want more help with care management.[69]

Interoperability challenges persist in the absence of comprehensive health information exchange across the continuum of care.

Tech-enabled care coordination suffers from decentralized information exchange among caregivers, clinicians, specialists, and nonmedical home-care providers. This information discontinuity puts older patients at higher risk of adverse health events, including medication errors, infections, and—ultimately—hospitalizations or use of emergency services.[70]

Nonmedical home-care providers, who often have the most comprehensive vantage point into the home, operate outside the health-care reimbursement system, aside from a growing proportion of providers funded by Medicaid HCBS and Veterans Affairs programs. These providers may possess critical information about an older adult's daily life, with nuances that are often unaccounted for in an EHR. Leaving these workers out of an evolving health-data infrastructure would limit understanding of the complex health issues and social needs of older adults. The new interoperability framework established by the Office of the National Coordinator for Health Information Technology (ONC) goes a long way toward creating critical national data-exchange standards for payers and providers. However, much effort is still needed to ensure that both paid and unpaid caregivers can access this information.[71]

Principle 5 of the Trusted Exchange Framework and the Common Agreement (TEFCA) stipulates that "Health Information Networks should ensure that individuals and their authorized caregivers have easy access to their digital health information." However, even among licensed home health-care workers, fewer than half report being able to view patient data in an EHR.[72] Overall, 85 percent of home-based care providers also report that although they can accept some variety of clinical or demographic information from referral sources, 79 percent are dissatisfied with their EHR's capabilities.[73]

"Interoperability is necessary to break down the silos between traditional and virtual care—so that the individual solutions which include software and/or hardware that supports the various parts of the health value chain (wellness/prevention to diagnostics/monitoring) will come together in a way that is seamless, low-friction, and accessible for older adults in the home."

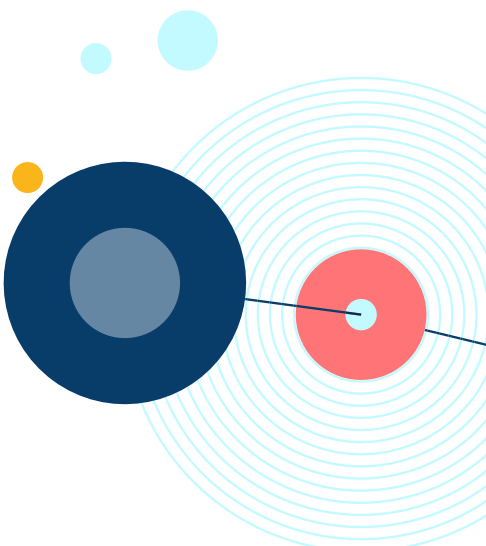
—Hon Pak, MD, Chief Medical Officer, Samsung Electronics America

Despite substantial federal and state investment in digital infrastructure, geographic disparities also remain a foundational challenge for health information technology. A recent study found that although EHR adoption is nearly ubiquitous, critical-access hospitals serving rural communities lag in advanced-use functions, including patient engagement and clinical data analytics.[74] The EHR infrastructure is also constrained by a lack of standardization within and across health systems: The average hospital uses 16 disparate EHR vendors at affiliated practices.[75] In addition, post-acute and home health-care providers have not been eligible for CMS' EHR payment incentives ("Meaningful Use") that hospitals have received, so their uptake rates have been lower.[76]

The virtual care infrastructure lacks agility and workflow integration across sites of care as patients' needs evolve.

Much attention has been paid to the use of virtual care for acute, episodic needs; for many, the PHE served as an entry point. However, the pandemic has also given rise to increased use of virtual care for specialty care, chronic conditions, and behavioral health needs. As home-based care models develop, remote care management for older adults living with multiple chronic conditions can be expanded. Care transitions after a skilled nursing facility (SNF) stay can exemplify the growing pains associated with merging the "analog" world of traditional home care services with the increasingly digital clinical environment. For many reasons, only 29 percent of certified US home health-care agencies have adopted point-of-care EHRs, which further constrains an already fragmented workforce and its capacity to participate in valuable data-sharing across clinical environments.[77] According to Home Instead, nonmedical home-care agencies have virtually no access to point-of-care EHRs.

Asynchronous data captured through remote monitoring technologies cannot be applied to the fullest potential without addressing significant workflow capacity constraints within health-care and LTC systems to intervene effectively in real time and reduce the risk of a catastrophic health event.[78]



OPPORTUNITIES TO ADVANCE TECH-ENABLED HEALTH- AND HOME CARE

Looking toward what is needed to accelerate and scale progress, experts focused on policy and systems change, as well as collaborative strategies. The following recommendations are consensus-built and represent perspectives from expert interviews, a half-day roundtable, and a follow-up survey.

Policy Changes to Facilitate and Support Tech-Enabled Care to Address Barriers to Expansion

PANDEMIC-RELATED FLEXIBILITIES

Over the course of two years, the PHE flexibilities of the pandemic have driven considerable movement toward virtual care. Although it is unclear when the pandemic will end, a regulatory cliff looms for many critical changes that have not yet been made permanent. Therefore, roundtable participants recommended the extension of core telehealth and home-care flexibilities to enable further evaluation of cost and quality, as well as the development of requirements and guidelines on appropriate use.

Continued lifting of traditional Medicare geographic and originating site restrictions is central to any extension. Before the COVID-19 pandemic, only traditional Medicare beneficiaries living in areas with a shortage of health-care professionals could access telehealth services. Further, patients could not receive telehealth services in their homes and were required to travel to specific sites to receive care. These geographic and originating site restrictions, along with distant site restrictions limiting the types of clinicians able to provide telehealth services, severely limited the reach of virtual care for older adults.

A return to the status quo would represent a step backward, but the potential impact of ensuring long-term payment coverage is significant. MedPAC, the advisory body to Congress on issues related to Medicare, recommended a temporary extension of specific telehealth flexibilities, including those on originating sites, which would allow time to gather data to inform consideration of permanent coverage of additional telehealth services based on the principles of access, quality, and cost.[79] The bipartisan Telehealth Extension and Evaluation Act, introduced on February 7, 2022, would establish a two-year extension after the end of the PHE, allowing Medicare to continue payments for a broad range of telehealth services while conducting evaluation.[80] An omnibus spending bill passed by Congress in March 2022 put in place a stopgap extending these flexibilities for an additional five months post-PHE.[81]

Other critical PHE-related provisions to prioritize for extension include access to audio-only telehealth services, waiver of the SNF three-day requirement, and continuation of the AHCAH initiative. All three promote health equity and person-centered care.

- **Audio-only telehealth services:** Some audio-only telehealth services were included in the 2022 PFS, but they were limited to mental and behavioral health. Other uses will not continue beyond the PHE and related temporary extensions without further action. The availability of audio-only services supports equity in access to virtual care and fills a gap for vulnerable older adults, especially because

transportation to medical appointments is a known barrier to care.[82] In addition, audio-only supports individuals in low-bandwidth, rural environments.

- **AHCAH initiative:** Hospital-at-home care has proven effective, with improved clinical outcomes and patient satisfaction, reduced costs, and safety comparable to inpatient care. The AHCAH initiative, an expansion of CMS' Hospitals Without Walls program, allows traditional Medicare beneficiaries to receive inpatient-level care at home.[83]

- **SNF three-day rule waiver:** Prior to the pandemic, traditional Medicare required a three-day prior hospitalization for coverage of a SNF stay. This rule has been waived during the pandemic, enabling qualifying older adults to receive needed rehabilitative care without an inpatient hospital stay, thereby reducing costs and preventing unnecessary transfers between sites of care.[84]

"Federal and state regulations can support the shift in health-care delivery from a physical hospital building to a home-health setting. These are larger policy issues that require changes to our regulatory framework, allowing us to codify new systems."

—Stephen Parodi, MD, Executive Vice President, The Permanente Federation

LARGER-SCALE POLICY AND PROGRAM DESIGN

A national survey of older adults conducted during the pandemic found that 85 percent of adults view the expansion of Medicare coverage for at-home health care as a high priority for the federal government.[85] Looking beyond the immediacy of policy change related to PHE waivers, larger-scale policy and program design changes are critical to integrating health and home care through technology. Roundtable participants recommended action on two specific longer-term, larger-scale issues: addressing workforce challenges and expanding value-based payment models.

Although virtual care enables providers to engage with patients regardless of geographic location, state laws circumscribe how and when care can be furnished across state lines. In addition, states set licensure rules that define the scope of practice for specific health-care professions. During the pandemic, all 50 states and the federal government waived, at least in part, aspects of licensure requirements for health professionals.[86]

Loosening existing restrictions on care across state lines and expanding the scope of practice for many types of practitioners helped meet increased demand and address worker shortages. However, notwithstanding the extraordinary surge of need during the pandemic, there are projected shortfalls in the health-care workforce, especially home care. By 2025, the US will face a gap of nearly 450,000 home health aides and 95,000 nursing assistants.[87]

Modifications to licensing and scope of practice rules, such as interstate compacts, telehealth-specific licenses for out-of-state providers, and expanded scopes for home-care providers, provide paths to meeting the demand for care and harnessing the potential of virtual care. For example, both Florida and Arizona now allow providers licensed in other states to furnish telehealth services within their jurisdictions following

registration with the state medical board or oversight authority.[88] Many states have also allowed expansion of the tasks that nurses can delegate to home-health aides, with more than half of states allowing delegation of many activities, such as administration of oral medications and management of ostomy care.[89] Medicare scope of practice requirements also present potential levers, as discussed in research by Manatt Health and Health Management Associates.

"The integration of high-tech and high-touch creates an opportunity for a complete recasting of the caregiver workforce. To enable technology in the home, there has to be emphasis on the people side—we need to create the workforce that is in the home providing the care that interacts with the technology."

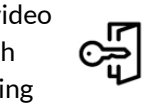
—Jeff Huber, CEO, Home Instead

In 2021, the CMMI released a strategy refresh announcing a goal for all Medicare beneficiaries to be in an accountable care relationship by 2030.[90] Accountable care relationships hold providers accountable for both quality and total cost of care. These value-based payment models (VBPMs) move away from FFS approaches that reimburse providers for the volume of services and care provided, rather than for its quality or associated patient outcomes. VBPMs typically pay providers using a capitated, bundled, or shared savings approach to reimbursement.

The push toward VBPMs supports the integration of health and home care through technology, as a wider variety of services and benefits for home-based and virtual care, including those to address social determinants of health, can be provided. These types of changes are already seen under MA, which covers about 40 percent of Medicare enrollees.[91] These plans can cover home-based care and virtual care through basic and supplemental benefits in many ways that traditional Medicare cannot. For example, 95 percent of plans in 2022 offer telehealth services. But only 10 percent offer in-home support services, and 3 percent offer telemonitoring services, which are in-home equipment and telecommunication technology to monitor enrollees with specific health conditions.[92]

The transition to accountable care under Medicare presents important opportunities to integrate tech-enabled health and home care into existing and future payment models, as well as the opportunity to carefully craft policies that foster the availability of services and innovations in care delivery. These opportunities include the following:

- Enabling risk-adjustment for a variety of virtual modalities and not just synchronous audio-video appointments; MA plans and advocates have raised this issue related to audio-only telehealth appointments, citing the negative impacts for vulnerable populations,[93] and supporting pending legislation.[94]



- Identifying ways to integrate episode-based and population-based payment models that smooth transitions in services linked to changes in a person's acuity.[95]

- Supporting the participation of home-based care providers in value-based care through up-front investments for planning and development of the infrastructure needed to enter into agreements, as described in research from the Duke-Margolis Center for Health Policy.[96]

"We must move from a closed-loop system to one that is open and inclusive of standardized workflows, allowing the individual to access care where and when they want. This will need to be addressed at the federal regulatory level, as well as the network and payment level."

—Thomas Moriarty, Executive Vice President, Chief Policy and External Affairs Officer, and General Counsel, CVS Health

Development of a Systems Approach That Integrates Health and Home Care to Bridge Gaps and Bolster Equity

Both policy and systems changes can contribute to the development of an ecosystem that integrates health and home care—where the optimal arrangement of care is facilitated by technology and enables people to live well in the place they call home, even when facing health challenges. To build this ecosystem, stakeholders will need to work together to align existing programs and design new ones, develop best practices to support caregivers, and implement approaches to promote equity in access to tech-enabled care.

ALTERNATIVE CARE SETTINGS

When prompted about practices and policies that should be altered or expanded to create an optimal arrangement of care, foster greater alignment of evidence-based programs, and drive integration within the virtual-care ecosystem, experts highlighted the gap in virtual-care integration for alternative sites of care, namely, senior housing settings, where many of these integrated care models can be tested at scale.

These congregate buildings have historically fallen far behind in terms of both digital capabilities and the aging physical structures themselves. For many, the pandemic forced a sea change in investment and partnership models to support new technology platforms serving older adults with complex care needs. As the guardrails for virtual care are developed for the traditional home setting, it remains a high priority for many experts that the regulatory structures account for senior housing sites, where many older adults with complex care needs currently live.

Experts raised several concurrent priorities tailored for these alternative care settings, including the following:

- Enact H.R. 596/S. 57, the Advancing Connectivity during the Coronavirus to Ensure Support for Seniors (ACCESS) Act, originally introduced in 2020 and re-introduced in 2021.[97] The legislation would allocate $50 million from the US Department of Health and Human Services (HHS) Telehealth Resource Center to expand Medicare and Medicaid coverage of telehealth services in nursing facilities and create a grant for nursing homes to offer virtual visits through September 2022.

- Preserving telehealth flexibilities that remove originating site restrictions, documenting the specialized need and potential for their application within senior housing sites, and offering technical assistance to ensure equitable access across diverse populations.

OPEN-SOURCE DATA-SHARING

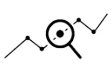
"Most of the apps available are provider-facing apps to help with use cases and workflow within their systems. As we think about the broader care continuum, the ability to have a platform-based business and technical approach will allow consumer-facing apps to connect to the clinical system via open application programming interfaces. We can imagine a world with a rich app ecosystem that complements the EHR systems in place today."

—Micky Tripathi, PhD, National Coordinator for Health Information Technology, US Department of Health and Human Services

Many experts point to the important strides ONC and broader HHS initiatives have made in the past decade and emphasize that the TEFCA, released in January 2022, constitutes a groundbreaking policy shift to hold health information networks accountable for measurable progress. Still, home-care integration amid broader data-sharing goals in this discussion are lacking, and experts emphasized that adherence to national interoperability standards will vary across the continuum of care because participation is voluntary.[98] As part of TEFCA, entities will soon be able to apply and be designated as Qualified Health Information Networks (QHINs), which represent the network-to-network nodes enabling seamless data exchange.

Because these federal standards will become effective in 2022, recommendations for larger-scale adjustments to the ambitious open-source vision would be preemptive without an evaluation period. Still, several strategies can be considered to further align efforts between home-care providers and traditional health-care settings, including:

- Expanding interoperability requirements to ensure that providers are aware of the home-based services provided to a given person or patient.



- Investing in the development of application programming interfaces (APIs) for home care and community-based providers that integrate with certified EHRs to improve continuity of data exchange among hospitals, payers, and interdisciplinary care teams.[99]
- Bolstering collaborative data practices for longitudinal management across care teams. In particular, governance of and expectations for clinical integration could be more specific for home and community-based providers and caregivers as part of care planning, including role-based access to technology platforms.

Collaboration and Coordination to Accelerate Efforts

Across sectors, collaborative approaches and overarching strategies that facilitate coordination among stakeholders in this complex environment must be implemented. Already, these efforts are moving the needle, from coalitions such as Innovate Kidney Care advocating for home-based dialysis, to partnerships like Teladoc Health and The Ohio State University Wexner Medical Center, coming together to improve diabetes care through technology using the Livongo for Diabetes Program.[100] By spreading best practices, developing the evidence base, and advancing policy, multi-stakeholder approaches speed progress.

Bright Spot: Home Instead, one of the largest global providers of in-home care, recently joined forces with Honor, a home-care technology and operations platform. The 2021 acquisition represents an industry first with its unique combination of high-tech and high-touch personalized solutions, which have the potential to scale and provide uniform technology tools and training for an in-demand workforce of the future.

MODELS FOR COLLABORATION

Beyond partnerships focused on specific settings or conditions, roundtable experts elevated the possibility of a national strategy or plan that could engage agencies across federal and state governments, break silos, and align stakeholders toward shared goals. Because this approach has advanced new solutions in other complex policy arenas, participants agreed that it warrants further development.

A foundational example is the National Alzheimer's Project Act (NAPA), which was signed into law in 2011 and directed HHS to create and maintain a national plan. The plan's objectives included coordination across federal agencies and international bodies; advancement of health equity; and improvement in treatment, diagnosis, and care coordination.[101] Through the national plan and its associated processes, goals are set, progress is assessed annually, and priority recommendations are identified.

NATIONAL PLAN FOR INTEGRATING HEALTH AND HOME CARE THROUGH TECHNOLOGY

A coordinated plan for integrating health and home care through technology could replicate the structure and framework of NAPA and other national plans, such as the Recognize, Assist, Include, Support, and Engage (RAISE) Family Caregivers Act, to provide a platform for connecting and coordinating issues, stakeholders, and strategies.[102] Roundtable participants identified five key elements of a national plan or strategy to drive progress on tech-enabled care and noted the importance of developing measurable outcomes for each (Fig. 4).

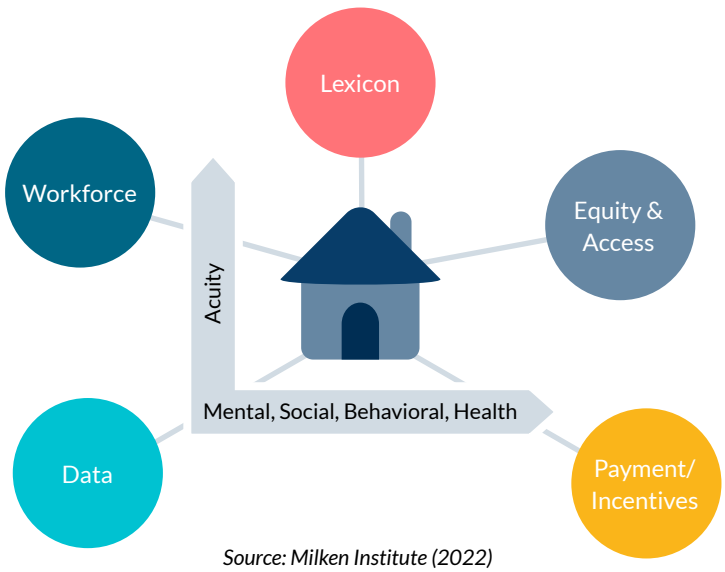
1. **Establish a common lexicon:** Because stakeholders working in the field span health, technology, government, finance, and communities, a shared language with defined terminology is needed to support coordination and increase clarity.
2. **Advance digital equity and access:** Central to any effort is ensuring that the digital divide does not leave a large portion of our population unable to benefit fully from the potential gains in health and well-being made possible by tech-enabled care.

3. **Build the case through data:** To validate what works, identify the return on investment, and demonstrate the impact on health outcomes and spending, coordination among stakeholders—through projects, pilots, and data-sharing for research—will accelerate the development of the evidence base and support quality of care.

4. **Address workforce challenges:** Innovative strategies and policy progress to build the health and home-care workforce are essential to meeting demand and increasing access to home-based care.

5. **Develop and scale payment models and incentives:** Shifts toward value-based arrangements from traditional FFS are critical to aligning incentives and scaling new models of care.

Figure 4: Key Elements of National Plan to Advance Tech-Enabled Health and Home Care



Source: Milken Institute (2022)

While legislative and executive approaches to national plans and strategies are powerful and have proved effective, they are not the only available route. Given the significant inputs needed, alternative options could be employed, beginning the journey to a presidential strategy or congressionally-mandated plan, or as ends unto themselves. For example, HHS undertook the development, publication, and implementation process of the National Plan to Improve Health Literacy as an agency-level priority in support of progress on *Healthy People* objectives. Published in 2010 after an extensive engagement process, the plan serves as a resource for public and private stakeholders focused on health literacy. Further, many national and state-level advocacy groups organize and lead impactful coordinating plans, such as the National Physical Activity Plan.

Roundtable participants acknowledged the long road to a national plan but urged that beginning the process was critical to propel progress.

"One of the keys to changing the way that care is delivered and integrated into new settings is being able to engage across the various stakeholders that are then impacted. Developing partnership across sectors and involving different perspectives—with an eye towards adapting and scaling—will ensure that an innovation in one setting will be successful in another setting."

—Meena Seshamani, MD, PhD, Deputy Administrator and Director, Center for Medicare at the Centers for Medicare & Medicaid Services, US Department of Health and Human Services

CONCLUSION

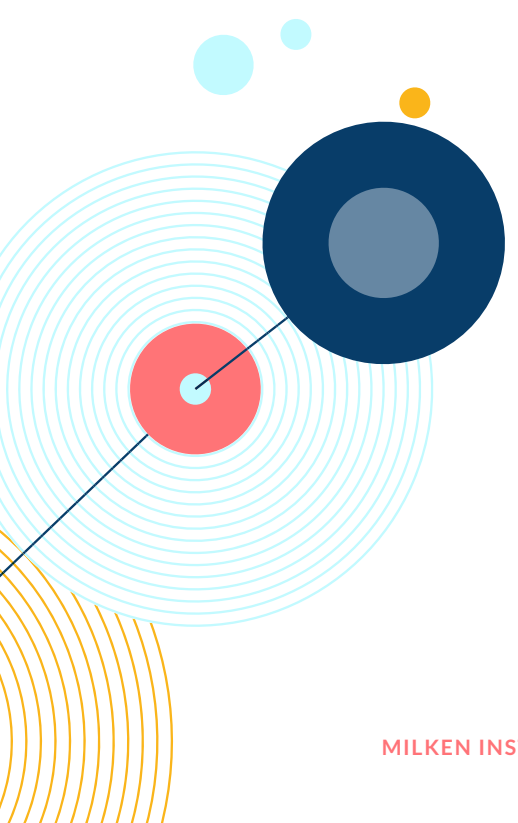
A broad range of factors could accelerate or hinder progress toward tech-enabled health and home care in the coming years. Long-standing issues related to payment models, interoperability, and workforce capacity, to name a few, must be addressed if the promise of integrated care through technology is to materialize.

The recommendations of this report focus on **policy changes** to enable and support tech-enabled care that address specific barriers to expansion, the development of a **systems approach** that integrates health and home care and to bridge gaps and bolster equity, and **collaborative models** and over-arching strategies that facilitate coordination among stakeholders.

Over the coming months, we will work across sectors to achieve the following aims:

- Amplify the recommendations outlined in this report to build stronger consensus and advance actionable short- and mid-term policy opportunities on tech-enabled health and home care;
- Convene multidisciplinary experts across sectors to explore the development of a national plan; and
- Spur further research and investment to realize the potential quality, cost, and equity-related improvements stemming from integration of health and home care.

We support efforts to test and scale solutions, bolster equity, and build the policy and systems infrastructure needed for tech-enabled care. The recommendations in this report, which are the result of a cross-sector, consensus-building process, provide a range of complementary solutions and move us in this direction. With continuing collaboration, there are attainable steps to realize better care for all through technology.



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