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When Going Digital Becomes a Necessity: Ensuring Older Adults' Needs for Information, Services, and Social Inclusion During COVID-19

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ABSTRACT

Older adults are in triple jeopardy during COVID-19: compared with younger people, older adults are (1) more likely to develop serious conditions and experience higher mortality; (2) less likely to obtain high quality information or services online; and (3) more likely to experience social isolation and loneliness. Hybrid solutions, coupling online and offline strategies, are invaluable in ensuring the inclusion of vulnerable populations. Most of these solutions require no new inventions. Finding the financial resources for a rapid, well-coordinated implementation is the biggest challenge. Setting up the requisite support systems and digital infrastructure is important for the present and future pandemics.

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Introduction

Older adults and people with underlying health conditions are at high risk from COVID-19, particularly those age 80 years and above who experience the highest mortality rate (Centers for Disease Control and Prevention, 2020a). To protect high-risk populations, CDC recommends that older adults should "stay home as much as possible" (Centers for Disease Control and Prevention, 2020b), and that nursing homes should "restrict all visitation except for certain compassionate care situations, such as end of life situations" and "restrict all volunteers and non-essential healthcare personnel" (Centers for Disease Control and Prevention, 2020c). Senior centers are being closed as well (National Council on Aging, 2020).

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Though necessary during this pandemic, these measures risk further isolating older adults who are already suffering social isolation. Indeed, in 2019, 24% of men and 44% of women aged 75 years and older lived alone (United States Census Bureau, 2019). About 25% of older adults experience social isolation – that is, they have few social contacts throughout the week by virtue of living alone and low participation in outside groups or socializing (Cudjoe et al., 2020). Social isolation is a significant risk factor for loneliness, which is a subjective feeling and desire for greater contact with social partners. Although social isolation and loneliness do not always co-occur (e.g., one can feel "alone in a crowd"), they are both significant risk factors for negative health outcomes (Cacioppo & Cacioppo, 2014; Courtin & Knapp, 2017; Hayashi et al., 2020; National Academies of Sciences, Engineering and Medicine, 2020). Social distancing during a Stay At Home order or concerns about contracting the coronavirus may increase older adults' social isolation and their feelings of loneliness.

While going digital is now a necessity more than ever before, it alone is insufficient in reaching vulnerable populations like older adults. Over the past few decades, we have witnessed the increasing adoption of information technology to disseminate information and resources and to communicate with others. However, older adults' adoption and use of technology lags that of younger cohorts. While Internet use has increased exponentially over the past two decades, still 27% of older adults age 65+ in the U.S. are offline (Anderson, Perrin, Jiang, & Kumar, 2019). Nationally, 81% of American adults own a smartphone and 73% subscribe to home broadband, but these numbers drop down to 53% and 59%, respectively, among older Americans age 65+ (Anderson, 2019). Only 15% of older adults age 65+ mostly go online via their smartphone, the lowest rate of all American adult age groups (Anderson, 2019). Even among older adults who are online, the majority (73%) say they would need help setting up and using new electronic devices (Anderson & Perrin, 2017). Older adults do continue to watch television at a high rate and may obtain relevant information about public health crises in that manner (Gardner et al., 2014; Mares & Woodard, 2006), but television remains a passive technology for information and communication. It does not enable the two-way communication of telehealth portals, direct communication with social services via e-mail, social interactions with family and friends via social media, or search engines that facilitate information seeking via the Internet.

As such, older adults' eHealth literacy, or the ability to access, assess, and use health information to make informed healthcare decisions (Norman & Skinner, 2006, tends to be low and requires extensive assistance (Xie, 2011). Further, caregivers of older adults tend to be similarly disadvantaged, particularly those who are nonwhite, of lower education, and without regular health care (Bangerter et al., 2019).

In short, older adults are in triple jeopardy during this crisis: compared with younger people, older adults are (1) more likely to develop COVID-19 and experience higher mortality; (2) less likely to obtain high quality information or obtain food, supplies, and services online; and (3) more likely to experience social isolation and loneliness. Moreover, older adults from ethnic or racial minority groups are suffering a disproportionate burden during the COVID-19 pandemic, with higher rates of experiencing the disease, hospitalization, and death (Centers for Disease Control and Prevention, 2020d). Combined, this situation requires hybrid solutions, coupling online and offline health informatics strategies to addressing these challenges.

Hybrid informatics solutions

Health care is an information-intensive business where timely, accurate, and relevant information can be the difference between life and death. Informatics solutions can be invaluable in the prevention and management of COVID-19 and managing other health problems older adults experience during this outbreak. It is critical that researchers, educators, and practitioners find creative ways to extend the reach of informatics into every aspect of society, including work and personal lives. However, we must also acknowledge that informatics solutions alone are insufficient in reaching vulnerable populations. Government agencies, for-profit and nonprofit organizations, and community volunteers are required to ensure the accessibility and usability of effective solutions and interventions, both high-tech and low-tech (Xie et al., 2020). Toward this end, we recommend the following hybrid solutions to help address the challenges that older adults face during COVID-19.

Health information

Digital health information can spread rapidly via social media. Such information can help the public and healthcare workers alike obtain timely information that authoritative sources are unable to provide (Stephens et al., 2018; Xie et al., 2019), thereby improving management of a crisis. However, misinformation and disinformation spread fast as well. In rapidly developing situations like a pandemic, being able to discern misinformation and disinformation from high quality information is of critical importance. No sources, whether traditional print media, broadcast media (television, radio), or online media services, are immune to potential conscious or unconscious bias that can imperil the full understanding of ongoing public health crises.

To be effective, digital public health campaigns also need to be linguistically and culturally attuned to a diverse population of older adults, including

those with disabilities. Given that vulnerable populations of older adults (e.g., those over age 80, ethnic or racial minorities, with less education, and fewer resources) tend to have insufficient eHealth literacy, we recommend the following solutions:

(1) Develop informatics tools that enable local organizations to identify needs and create appropriate digital content that matches the eHealth literacy levels of older adults (John A. Hartford Foundation, 2020), and explore timely and effective strategies to disseminate such content to older adults, their family members and caregivers, and healthcare providers;
(2) Develop usable (Czaja et al., 2019) intergenerational tools to support family members and other caregivers of older adults to be more effective in providing them with health information (Czaja et al., 2017);
(3) Develop digitally delivered training and interventions to improve older adults' eHealth literacy that are scalable and can be deployed rapidly;
(4) Develop informatics tools that are operational with basic technologies like telephones and that work with low or intermittent Internet availability;
(5) Train community health workers to be information and cultural brokers as well as technological brokers for socially isolated ethnic minority older adults. With the major influx of consumer information technology into everyone's daily lives, older adults in ethnic minority communities with limited resources often find themselves intimidated by the expanded choices or skeptical about unfamiliar approaches. Thus, they do not obtain the optimal benefits that these technology-incorporated features provide, including those of various mHealth interventions. Given the strengths of community health workers in community outreaching such as brokering culture, evidence-based practices, and language in many disadvantaged communities, they may be the ideal technological brokers, acting as strong bridges between the "digital touch" and "human touch". The use of community health workers with proper training and coordination can be a viable means of reducing health disparities among members of underserved populations in this new technological era.
(6) Promote informatics tools that allow older adults, or their authorized caregivers, easy access to their electronic medical records from multiple providers on a single mobile or online platform in accord with the 21st Century Cures Act, to be expedited by the Office of the National Coordinator for Health IT.

In short, it is important to explore hybrid ways – that may entail both high-tech and low-tech strategies (and balancing digital and personal

touches) – to deliver trustworthy information to older adults, family caregivers, and healthcare providers to enhance preparedness and prevention of COVID-19 and manage daily lives. Older adults are not a homogenous population; thus, it is also important to consider their diversity in language, literacy levels, and cultural norms in developing informatics solutions. Active engagement and involvement of caregivers and older adults from diverse communities will be essential to the development of informatics tools.

Services

With proper coordination between health systems and testing sites, telehealth services can aid large-scale screening for the virus (Hollander & Carr, 2020). Telehealth can also help meet older adults' needs for routine healthcare services. Prior to COVID-19, Medicare had already been paying for telehealth, however only on a limited basis. On March 17, 2020, the Centers for Medicare and Medicaid Services (CMS) has broadened the coverage of telehealth, enabling Medicare beneficiaries to receive a broader range of healthcare services at home (Centers for Medicare & Medicaid Services, 2020). This policy change alone may not ensure prompt telehealth adoption given that telehealth has not been mainstreamed in our routine health systems (Smith et al., 2020). However, in just over two months health systems that have not had large volumes of telehealth encounters have seen extraordinary (>300%) increases in telehealth visits (Garrity, 2020). At one of the author's affiliated health system (OHSU Health Care), 69% of outpatient visits were conducted as remote digital visits during April 2020. These recent developments are encouraging; still, training and resources are important to ensure the least tech-savvy adult population have the necessary hardware, software, Internet connectivity, or eHealth literacy, to be able to actually use the broadened range of telehealth services.

Beyond health care, accessing food and household supplies during COVID-19 can be challenging for anyone due to closures of restaurants and crowded grocery stores. It is especially challenging for older adults due to closures of senior centers (where many older adults could get free meals) and due to inexperience with online shopping. Many older adults depend on social services such as Meals on Wheels for their food. These services may be more limited during a crisis. It is important to explore hybrid solutions that connect older adults in need of these services with their families, neighbors, local organizations, and community volunteers. Specific solutions for improving access to health care, food, and other services include:

(1) Guidance from healthcare providers for older adult patients to ensure that they are aware of and able to use telehealth services;

(2) Support from Internet service providers to ensure older adults' access to the equipment and connectivity necessary to use telehealth services, which may include arranging to offer Internet hotspots in neighborhoods with low income older adults;
(3) Training to improve older adults' eHealth literacy, particularly their use of telehealth services and online shopping; this should include training about cybersecurity to ease privacy concerns (Xie et al., 2012) and mitigate fraud (Gavett et al., 2017);
(4) Informatics solutions that connect older adults with their families, friends, and communities who can provide necessary training and support to ensure older adults' service needs are met. Examples of such solutions may include an intergenerational mobile app where older adults can use voice to record their grocery list, and this list would then be processed, either automatically by a vendor's system or manually by a younger family member to put into an online order or an application that allows older adults to ask for help from their neighbors for groceries or transportation;
(5) Currently, many vendors' online shopping windows open at midnight and are typically all taken within an hour if not sooner (e.g., Amazon Fresh, Walmart), which creates an additional barrier to older adults. Already, grocery stores nationwide are providing "protected time slots" for older adults to shop in store. Online vendors should follow this facilitated access practice to ensure older adults' online purchasing of groceries and other essential items (it is worth noting that, over the past several weeks as we developed this paper, we have seen vendors getting more experienced in overcoming this bottleneck and providing better online shopping services);
(6) Informatics solutions to help older adults identify and connect with community-based organizations that provide social services based in their zip code. Some of these applications are already in operation with varied coverage across the country but they need to be connected to local public health and social service agencies to be effective for older adults.

Social interaction

During COVID-19, as we practice "social distancing" and reduce visits to older adults, we need to also mitigate older adults' social isolation and loneliness. To use more precise language, older adults should experience "physical distancing" rather than "social distancing". In fact, we believe that all informatics solutions for older adults must incorporate, and emphasize, the *social* aspect. Specific recommendations include:

(1) Develop informatics tools like apps for mobile devices and intelligent voice assistants that promote intergenerational interactions among family members;
(2) Help older adults stay connected with friends they typically interact with at senior centers or churches, which may no longer be desirable or even feasible when many of these facilities are closed. Virtual gathering spaces have existed for years; however, they were typically considered inferior to in-person interactions, especially among older adults. During COVID-19, it is the opposite. Initiatives exist – for example, the Institute for Successful Longevity [ISL] at Florida State University has launched a Zoom initiative to help older adults fight social isolation (Institute for Successful Longevity (ISL) at Florida State University, 2020). More resources need to be channeled into the design, development, and implementation of these virtual gathering spaces, particularly spaces aimed at older adults;
(3) Develop informatics tools that enable older adults to continue to contribute to society. Many older adults remain active and desire to continue making positive contributions in retirement. Informatics tools can help older adults stay active by, for example, enabling their (virtual) participation in volunteering and community engagement, as illustrated in the ISL initiative (ISL, 2020);
(4) Provide hybrid solutions for those who are more digitally literate to help those who are less literate. For instance, digitally-connected people could arrange videoconferencing meetings and provide non-Internet connected people with phone-in numbers (ISL, 2020). In this respect, training community health workers' who have deep knowledge of and integration within resource-limited communities to be effective health information messengers can be a viable strategy.

Looking to the future

The recommendations proposed here address the current COVID-19 crisis and have implications for future pandemics. Most of these solutions do not require new inventions or technology. Finding the financial resources for a rapid, well-coordinated implementation is the biggest challenge. As a first step, it is important to identify an entity responsible for coordinating the efforts. This is no easy task, and it will require much deliberation to find the right entity or entities that can be efficient during a crisis while at the same time ensuring equity and inclusion. Public health departments clearly should play a major role in preventing and managing pandemics, which is the "Public Health 3.0" framework promoted by Dr. Karen DeSalvo and others,

but any meaningful discussions about this topic should involve stakeholders in both the public and private sectors at all levels – federal, state, regional, local, and across national borders.

A hybrid solution may work best in this regard: specific informatics initiatives should come from the community level, because community organizers understand the unique needs of their residents, know the local resources available, and can move quickly. Meanwhile, community organizers should coordinate with agencies like the Area Agencies on Aging that have a state and federal mission (and state and federal funding) to support community need, and specifically support for aging and disabled individuals. For infrastructure needs, the federal government is an important piece of the puzzle, particularly in enabling Internet access in rural communities (e.g., through funding via FCC and USDA programs). Private agencies (e.g., Meals on Wheel), have always played an important role in serving older Americans. In light of COVID-19, when much information, services, and social interactions are forced to move online, there is an increasing need for funding to facilitate these agencies' ability to deliver digital technology to older adults.

Traditional clinical trials needed to develop medications to combat a virus can themselves expose more people to infection. Digital technologies may enable clinical trials to be conducted entirely remotely using telemedicine, digital sensors and devices that monitor vital functions, and point of care home-testing. Digital technologies may more quickly and efficiently identify the course of an epidemic (McNeil, 2020; Yasinski, 2020). For example, in a norovirus outbreak in a retirement community, those with infection could be identified by their activity passively monitored at home (Campbell et al., 2011). Opportunities such as these will require support for evidence-based research to ensure that promising approaches translate to the real-world of aging in place. Open-source, federal efforts have begun in this realm to enable researchers across the US to incorporate these models and methods into their research (Center for Research and Education on Aging and Technology Enhancement [CREATE], https://create-center.ahs.illinois.edu/; Collaborative Aging Research Using Technology [CART] Initiative, https://www.ohsu.edu/collaborative-aging-research-using-technology). More of these efforts are needed.

The length of the current pandemic and thus the duration of self-isolation is unknown, possibly ranging from a few months to well into the next year. Unfortunately, this is unlikely to be the last pandemic or health-related crisis that we will endure. Setting up the systems and digital infrastructure for the present and the future is an important goal. Hopefully, the lessons learned now will be well-taken, and there is much more that can be achieved with the assistance of digital technologies, both at a personal level as well as for public health.

Key Points

- Older adults require special attention from policy makers, tech companies, and other professions during COVID-19;
- Going digital alone is insufficient in reaching vulnerable populations like older adults;
- Coupling online and offline strategies are invaluable in addressing the challenges older adults face;
- Rapid, well-coordinated implementation of the requisite support systems and digital infrastructure are important for the present and future pandemics.

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