State of Technology in Aging Services: Summary

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Executive Summary

This issue brief, based on the two-part report entitled *State of Technology in Aging Services* published by the Center for Aging Services Technologies (CAST),[1,2] offers a vision for long-term care that includes using integrated information technology systems to support and enhance the health, safety and social connectedness of older people living in their own homes. The authors of the report identify several barriers to achieving this vision, but are confident that a combination of new knowledge, linked to effective collaboration among a variety of stakeholders, can overcome these obstacles to widespread technology adoption, so that older people will receive the support they need to lead healthy and independent lives.

Lack of awareness and usability challenges, both perceived and real, on the part of older consumers tops a list of barriers that stand in the way of information management related technology adoption in aging services. Equally troubling is a lack of consensus regarding the value of technology in "aging in place" care, the absence of adequate financial and other incentives to encourage investment in this technology, and critical gaps in connectivity and interoperability among existing technologies and information systems. To overcome these barriers, decisive action is needed to educate a variety of audiences about technologies that support independent aging and how they can best be designed, implemented and used. In addition, robust studies are needed to quantify the value of these technologies, and payers and other financial intermediaries must consider adopting incentive-rich financing models to pay for technology-based solutions and encourage their widespread and effective use. Efforts to develop a set of strategies that enable health information exchange by linking data from different care related systems must be accelerated to enhance efficiency of care, as well as the safety of seniors. Finally, technology providers must work together and with other stakeholders to create successful business models for development and deployment of Aging in Place technologies that enhance the health and independence of older consumers.

While the challenges are great, we believe success can be achieved, allowing older consumers, their caregivers, health care providers, policy makers, payers and industry experts to work together to ensure that older Americans can live more independently without sacrificing their health, safety, social connections or economic security.

[1] Alwan, M., D. Wiley, and J. Nobel. 2007. *State of Technology in Aging Services.* Washington, DC: Center for Aging Services Technologies.

[2] Alwan, M. and J. Nobel. 2008. *State of Technology in Aging Services According to Field Experts and Thought Leaders.* Washington, DC: Center for Aging Services Technologies.

Introduction

The number of older people over age 60 is growing worldwide. In the United States alone, 108 million people will reach this milestone within 15 years, at which time they will make up 45 percent of the country's adult population. A significant number of those older people will be struggling with loss of cognitive and physical function as well as chronic diseases that require ongoing care. If current trends continue, most of these older adults will also be living alone in their own homes and receiving care from a variety of health providers who will work closely with family caregivers and community-based service providers.

How will the long-term care system provide care to a growing number of seniors living in increasingly scattered locations? And more importantly, how can that system continue to provide quality care in the face of workforce shortages, rising care costs and decreasing resources? Current research shows that technology has the potential to play a critical role in launching a new model of geriatric care that allows older people to live independently for as long as possible, supports family caregivers in the important work they do and gives health care providers the tools they need to deliver high-quality care at a reasonable cost.

A Vision of Technology-Enabled Aging Services

Imagine homes of the future as places equipped with a variety of technological devices that work together to support their older occupants. Such homes would feature ***health and wellness technologies*** that allow caregivers and health care providers to monitor the occupants' ability to carry out activities of daily living. These technologies would also facilitate the collection of important health information that could help older people take proactive steps to maintain their own health and control their care; give informal caregivers an objective assessment of an older relative's ability to live independently; help professional caregivers coordinate, dispatch and track the delivery of needed care and services; and allow health care providers to identify early onset of disease, prescribe appropriate interventions and monitor the efficacy of those interventions.

At the center of this technology-enabled approach to health care, often referred to as "telehealth" or "telemedicine," would be an integrated system of electronic health records (EHRs). These e-records would serve as a repository of information about the care provided both through telemedicine initiatives and during an older person's more traditional encounters with health care professionals in various settings. An older consumer could choose to share this record with all caregivers and health care providers, thus ensuring that each member of the care team has access to accurate, up-to-date and comprehensive information about the consumer's medical history and current health status.

Supplementing these health-related technologies would be a collection of ***safety technologies*** aimed at offering older people an enhanced sense of security, prolonged independence and improved quality of life. Some safety devices could help prevent falls by notifying caregivers or providing high-tech assistance with walking and balance. Others might detect when a person has fallen and send alerts to caregivers who could provide quick assistance. Still others might turn off stove burners left idle, monitor water temperature to prevent scalding or detect smoke or other home hazards. Institution-based safety systems might use a variety of techniques to ensure the safety of residents with dementia, including door-locking systems that prevent wandering and more controversial technologies that track wanderers using satellite or cellular communications.

Because successful aging also depends on the psychological health of an older person, technologies that provide ***social connectedness*** would be an important component of any home-based care system. These technologies might include computer-based products designed to assess cognitive decline or help older users enhance memory, entertainment systems that offer both physical and mental stimulation and highly complex systems that provide important reminders to older people with memory loss. In addition, cell phones, video telephones and communications software could be adapted for older people so they are easier to use and, therefore, more useful in reducing isolation among this population.

Barriers to Technology Adoption

While technology holds great promise for independent aging, several barriers stand in the way of its widespread adoption. Those barriers include lack of awareness of available technologies and problems using technology among older consumers, lack of financial incentives to use or invest in technology, lack of consensus on the value of specific technologies and inadequate technology infrastructures.

Negative experience and misconceptions. Older people remain either unaware of or resistant to new technologies that could enhance their health and support their independent aging. This lack of awareness can be attributed, in part, to a dearth of educational initiatives that could raise awareness of technology's potential benefits among this population. In addition, older consumers' who have had previous problems using technology have uncertainty about whether these technologies are right for them, and with misconceptions about their own need for this technology they are likely to be particularly resistant to trying new high-tech devices. For example, older consumers may be slow to accept safety enhancing technology because they don't believe they need assistance. Similarly, they may not demand EHRs because they mistakenly believe that their primary care physicians already have a comprehensive view of their health.

Lack of financial incentives. Older consumers living on fixed incomes will be understandably reluctant to purchase technologies that Medicare or other insurance programs do not cover. Equally important, physicians and long-term care providers will be hesitant to invest in organizational work flows and operational processes that make the most of aging services technologies unless they have financial or other incentives to do so.

Lack of consensus on value. Recent research helped to quantify the value that some technology can hold for older people and the aging-services field. However, many of these studies were conducted on a small scale, leaving researchers to question whether larger-scale studies would produce similar results and whether some technologies may lack the kind of scalability that would make them accessible and affordable to a larger population base. Without such evidence, stakeholders will be unable to reach consensus about the value of technology-enabled aging services. This consensus is necessary to spur investment in and adoption of these technologies.

Inadequate infrastructures. The inability of different information systems to communicate with one another has slowed progress in creating an integrated, nationwide health information technology system. Without this "interoperability," EHRs created by one physician's information system cannot be shared with or accessed by another physician using a different information system, a dilemma that clearly defeats one of the purposes of EHRs, which is to better coordinate care. Similarly, lack of connectivity among different home-based technologies and the data they generate, store, and analyze, reduces their effectiveness.

Recommended Actions

Several actions are recommended to advance the development and adoption of technologies that enhance the independence, health and quality of life of the growing older population. Those activities include the following:

1. ***Raise awareness of benefits of aging services technologies among many audiences.*** Educational efforts must be geared toward consumers, their formal and informal caregivers, long-term care providers, health care professionals, policy makers, industry leaders and major employers. Messages should be communicated by appropriate credible organizations like AARP, CAST, AAHSA, NAHC, VNAA and other professional organizations and consortiums through exhibits, demonstrations and awareness campaigns aimed at key audiences but perhaps most importantly towards seniors and their family caregivers.
2. ***Support research that proves the value of aging services technologies.*** As awareness of technology's potential grows, consumers and payers will want to see convincing evidence that

specific technologies increase independence, enhance the quality of care and lower health care costs. In order to provide that data, technology researchers must carry out adequately scaled demonstration projects and outcome-oriented pilot studies that incorporate health economics and policy perspectives. Independence from technology manufacturers and related for profit service companies should be emphasized to add to the credibility of research findings. In addition, it will be important to identify and draw attention to effective approaches that have already come to light through already available technology research and field-based practice.

3. ***Design and market technology with older consumers in mind.*** Designers of technology devices must work closely with older adults throughout the design process in order to learn how their preferences, attitudes and capabilities relate to technology adoption and how products and services can be designed to promote their widespread and long-term use. After products are developed, manufacturers should rely on trusted referral channels to creatively market technology to older consumers. Finally, older people and their caregivers will be less likely to abandon technology if they receive hands-on and other types of introductory and on-going training as well as responsive and easy to access technical support that is suitable for this age group.

4. ***Develop the infrastructure necessary to make broad-based technology initiatives effective.*** Technology-enhanced care systems consist of many different technologies that must communicate with one another. Bringing these technologies together – that is, making them interoperable – is critical if providers and other stakeholders will be able to exchange health information efficiently and effectively. Reaching this interoperability goal will involve many activities, including standardizing communication protocols, developing standards for EHRs and other clinical information technology applications; revisiting existing laws, including the Human Insurance Portability and Accountability Act, to make sure they permit electronic access and sharing of information; and improving interconnectivity between all types of technologies that will be found in the home of the future.

5. ***Provide incentives for various stakeholders to invest in technology.*** Public and private payers could encourage providers and physicians to integrate technology into their care systems by developing new financing models that use a combination of prospective payments and pay-for-performance mechanisms. The Veterans' Affairs Health System, which features an effective EHR system, the Program for All-Inclusive Care for the Elderly (PACE) which combines social and medical care, and Medicare Advantage and Special Needs Health Plans with global capitation, all provide workable incentive models currently. These approaches could be even further enhanced

and additional reimbursement models could be developed to assist an even greater proportion of seniors.

6. ***Encourage collaboration and ingenuity among technology providers.*** No individual organization can single-handedly fully integrate technology into the field of aging services. Instead, leading technology innovators must agree to collaborate on the development of successful business models from which all stakeholders can benefit. As a first step in this collaborative process, industry leaders could convene meetings among government agencies, technology companies, consumers, physicians, payers, informal caregivers and industry consortia to define the challenges facing the industry and develop recommendations to address those challenges. Finally, business schools should be encouraged to include these topics in their curriculums and perhaps even establish competitions where students are challenged to create innovative business and operational models, as well as "roadmaps" for implementing those models.

Conclusion

The upcoming dramatic surge in the aging population, the desire of those seniors to remain at home as long as possible, and the shrinking long-term care workforce should provide the U.S. with the necessary mandate to promote Aging in Place technologies. Now is the time to create awareness of these technologies and demonstrate their value. Moreover, it is time to develop successful business models for technology development, advance interconnectivity between different and disparate information technology systems, and improve the acceptance and usability of the technology by end-users. A critical driver of success will be a reform of the country's inefficient and misaligned health care reimbursement system related to Aging in Place technologies that provides meager incentive for innovation in this arena. While the challenges are great, success can be achieved. It is urgent for all stakeholders to work together to maximize technology's potential to help older Americans receive the support and care they need, when they need it, in a place they call home.

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About Blue Shield of California Foundation:

blue shield of california foundation

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Blue Shield of California Foundation is committed to making health care effective, safe and accessible for all Californians, particularly underserved people, and to ending domestic violence.

Goals:

- Universal health coverage for all Californians
- Health care that is effective, safe, affordable and accessible
- Domestic violence prevention

About CAST

The Center for Aging Services Technologies (CAST) is leading the charge to expedite the development, evaluation and adoption of emerging technologies that will transform the aging experience.

CAST four focus areas:

1. Driving a global vision of how technologies can improve the quality of life for seniors while reducing health care costs;
2. Accelerating technology research and development through pilot evaluations with seniors;
3. Advocating to remove barriers to the rapid commercialization of proven solutions; and
4. Promoting dialogue about standards to ensure interoperability and widespread access to aging-services technologies.

CAST is now an international coalition of more than 400 technology companies, aging-services organizations, businesses, research universities and government representatives working together under the auspices of the American Association of Homes and Services for the Aging (www.aahsa.org). The members of AAHSA help millions of individuals and their families every day through mission-driven, not-for-profit organizations dedicated to providing the services that people need, when they need them, in the place they call home.

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