

Aging and Technology: Landscapes and Attitudes Toward Adoption

Introduction

Blue Shield of California Foundation (BSCF) is continuing to explore the roles that health information technology might play in improving the health, safety and independence of an aging population. As technology touches more aspects of our lives, its potential to mitigate some of the healthcare burdens associated with aging is both timely and exciting. With possibilities ranging from clothing that measures and transmits biometric data, motion sensors that monitor personal safety at home, to Web-enabled virtual medical visits, there is no shortage of potential applications to serve the growing 65+ population over the next several decades.

In 2006, the Foundation convened a gathering of experts to identify challenges facing seniors living at home, specifically identifying those systems breakdowns, social barriers, and economic realities that might be mitigated by health information technology to improve the capacity of seniors to live independently. The key themes that emerged were social isolation, overburdened caregiver networks, fragmented care, and inadequate reimbursement for non-institutional care IT infrastructure. As these opportunities were articulated, so was the need for research to understand the following:

- Availability of relevant technological interventions on the horizon
- Early lessons learned from approaches outside of the United States
- Attitudes and opinions about technology and health among seniors and their caregivers regarding which values, beliefs and needs will influence their adoption (or rejection) of technology-assisted services

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At the same time, participants clearly expressed the need for very basic information vetted and supplied by a trusted, unbiased source, as well as continuing opportunities for facilitated discussions among stakeholders who are frequently isolated from one another.

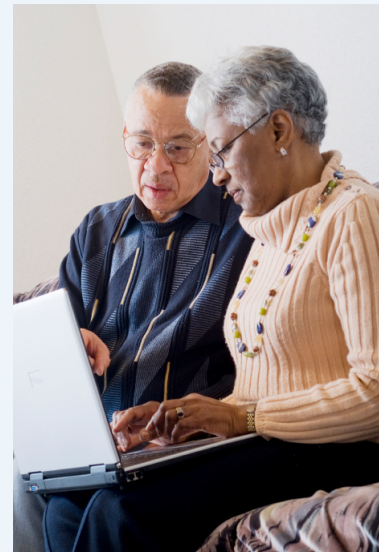
In response, BSCF commissioned nationally renowned organizations and individuals to conduct research and present their findings at the second gathering of home health and senior care experts in January 2008. The goal of this undertaking was to inform the field, as well as, explore opportunities for BCSF grantmaking activities in this area. The American Association of Homes and Services for the Aging (AAHSA)/Center for Aging Services Technology (CAST) conducted a scan of the current state of technology in aging services. Concurrently, the American Association of Retired Persons (AARP) research department performed a literature review and conducted research to uncover older adult and caregiver attitudes about using technology to remain in place. Lastly, Dr. Jeremy Nobel, of the Harvard School of Public Health, scanned the international literature and interviewed experts from selected countries to learn about global approaches for using technology to age in place.

The summary reports from these research efforts, and related publications can be found on the BSCF Web site at www.blueshieldcafoundation.org/programs/aging-technology.cfm

Landscape of technology to support aging in place

Defining and categorizing the domains where technology can yield compelling benefits for seniors' wellbeing provides a framework to track developments, understand entry points and strategies, clarify foundational requirements for operation, and identify target audiences and stakeholders. The AAHSA/CAST environmental scan identified three emerging domains that are by no means exclusive and will undoubtedly evolve over time:

- 1) Health and wellbeing: includes telehealth applications, remote sensing/reporting technologies, and software for self-directed applications for health promotion
- 2) Personal safety: includes systems and devices that mitigate health risks associated with aging (including personal emergency alarm



systems, GPS tracking devices, and movement monitoring sensors)

3) Social connectivity: includes tools that diminish the isolation that is commonly associated with declining mobility and sensory impairments that contribute to social isolation

Accompanying this organizing framework is an AHHSA/CAST compendium of current technologies entitled “State of Technology in Aging Services,” which brings to light the volume of ideas and product development currently in the marketplace.

Attitudes toward technology: Awareness lags behind interest

While most seniors and informal caregivers surveyed by AARP express great interest in using technology to improve personal safety, social connection and health/wellness, this stands in marked contrast to substantially lower levels of awareness about the existence of such technology. The implications of this gap need further examination to help define which characteristics of specific senior/caregiver population segments drive or block interest in and adoption of new technology. For example, are adult child caregivers living at a distance more likely to embrace technology than isolated spouses caring for an impaired partner? Translating interest into actual use requires well-defined points of introduction and answers to corresponding questions about installation, operation, training and maintenance of technology services. Further examination is also needed to determine which settings and resources will promote adoption or at least minimize barriers. For example, does introducing new technologies that provide a very specific patient or caregiver benefit related to an immediate transition in care capitalize on a “teachable” moment?

An indepth look at the attitudes of older adults and caregivers toward the use of technology can be found in The AARP report, “Healthy @ Home,” and accompanying literature review, “Older Adults’ and Family Caregivers’ Perceptions and Use of Technology to Maintain Independence.”

Selecting a target audience

The opportunities to support seniors living independently span a wide range of possibilities, including communal living models, intergenerational home design, assisted living, “hospital at home” models (for certain acute episodes), and home hospice for end-of-life care. In every interpretation,

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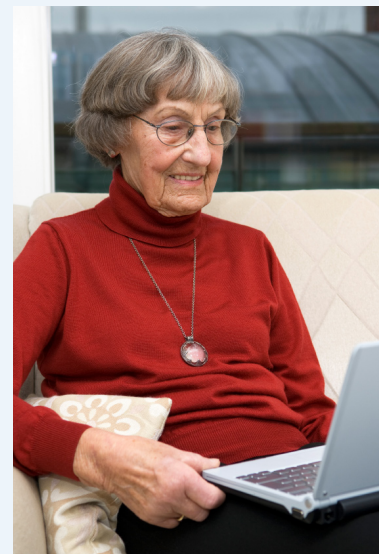
technology will serve to link people and information, whether it is for the purpose of basic social connection or to monitor chronic disease status by a distant clinician. The number of people connected through multiple data points, inter-system connections or interfaces, algorithms, and feedback loops can quickly create complexity for multiple users. Experts argue that the aging and technology "space" needs pilot results to inject momentum. Additionally, a key issue is matching technology with the right target population.

Cost, reimbursement, and policy

While it is true that the majority of in-home care arrangements are privately-funded or organized on an entirely uncompensated basis, most seniors surveyed indicate high levels of concern about having enough money to support themselves and, more specifically, worry about the cost of installing and operating new technological devices and services. So, the question is, who will pay for these new technologies? Given current reimbursement policies – private and public – that provide inadequate coverage for home-based care, the question of funding is critical. In the face of vast budget deficits and a national debt that threatens even basic coverage in Medicare, movement to add new services will be an uphill struggle requiring compelling evidence of cost savings on a large scale. Of the many advocates for healthcare reform, who, if anyone, is considering a role for aging services technologies as a strategy for mitigating the impact of an aging population on the healthcare system?

Tapping technology's potential

The AAHSA/CAST analysis of thought leader opinions in "State of Technology in Aging Services According to Field Experts and Thought Leaders" and technology compendium, "State of Technology in Aging Services" present a developing market illustrated by wide variability of configurations, numerous potential interfaces, multiple target users, and diverse and intriguing outputs. While existing technologies are beginning to gain traction in the senior consumer market by targeting specific needs (such as a cell phone that accommodates declines in vision, hearing and joint mobility), there are still few tested products that define the marketplace. Until there are signals that new technologies to support aging in place will be reimbursed, the investment in research and development may be limited to consumer products targeting baby boomers with financial resources.



In the absence of disruptive breakthroughs, movement is likely to occur through growth of novel applications of existing technologies (such as clinician visits with seniors at home using telehealth services) or the expansion of health information networks such as Regional Health Information Organizations (RHIO's) to capture home healthcare data from primary care physicians, clinics and nursing care providers. At the same time, developments in medical informatics and telecommunications will define the environment for emerging aging services technologies.

Next steps

Over the next year and beyond, BSCF is committed to continued exploration of aging and technology, as well as to identifying and pursuing contributions that will accelerate testing and deployment of promising applications. The Foundation will:

- Continue to bring together groups of diverse stakeholders (adding health plans, policymakers and business leaders) to broaden awareness, discussion and collaboration
- Build on existing research to deliver more detailed examination of senior and caregiver expectations
- Further understanding of the landscape regarding technology assisted aging in place, specific to the state of California
- Identify and disseminate case studies of successes among early adopters that can be applied in a range of settings to encourage the replication of emerging best practices
- Further assess international trends
- Invest in promising applications such as telehealth that use rigorous evaluation methodologies to help build the case for researchers, policymakers and payers to invest in and reimburse for technology that supports aging in place
- Continue monitoring the market for promising developments

Additionally, a communications strategy will be constructed to raise awareness across academic, industry and consumer mass media channels. As Blue Shield of California Foundation continues to convene diverse groups of stakeholders to raise awareness, encourage

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collaboration, and spark connections, attention will be given to closing critical knowledge gaps in the practical application and evaluation of aging services technology.

With state budget deficits and a national debt threatening basic coverage in MediCare and Medi-Cal, technology-enabled, “substitutive” healthcare services, and the promise of lower costs, will continue to fuel interest in this area. Compelling evidence of cost savings will be necessary to inform and change reimbursement policies. Despite the absence of coherent policy and funding, aging services technology is the leading approach on the horizon to mitigate the impact of an aging population on the healthcare system.

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For more information, please visit:

www.blueshieldcafoundation.org/programs/aging-technology.cfm

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