



EMBRACING NEW TECHNOLOGY: MOBILE HEALTH

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The aging U.S. population needs care, and the ranks of health care givers is not growing swiftly enough to meet the perceived demand for their services in coming years, according to the most recent *AARP Public Policy Report*. At the same time, technology is viewed as a tool to advance better health outcomes and better care, and to enhance the quality of life for older adults. To that end, technology companies are creating a wide range of products—from mobile apps to social networks to telehealth solutions—to address the needs of seniors who are aging in place, living in seniors housing communities, or in skilled nursing facilities, as well as for their caregivers and family members.

Older adults are embracing technology as never before. In January 2014, the Pew Research Center's Internet Project reported that most seniors ages 65 and above own cellphones (78% of seniors vs. 92% of all adults ages 18+) and a desktop or laptop computer (62% vs. 75%). Mobile technology ownership by seniors has lagged the general adult population, but it's growing. The same survey found 22% of seniors owned a smartphone (vs. 55% of all adults) and 25% owned a tablet (vs. 42% of all adults).

Using the internet is much more routine among seniors than a decade ago, and staying connected is a priority. Pew Research found that 59% of adults ages 65 and older use the internet in 2014, and once they go online, they make it a habit: 71% of seniors go online daily, and 82% go online at least once a week. The most important online activities to seniors are to communicate with family and friends, rather than shop or look for information.

“MOBILE TECHNOLOGY WILL
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Technology has changed healthcare providers' work habit. Smartphones, tablets and electronic health records are now standard equipment from acute-care settings to physicians' offices. Reading digital images, evaluating cardiac rhythms, checking for drug dosage information are just a few of the mobile technology uses that have become commonplace.

Older adult and caregiver norms of technologies are changing quickly. Mobile technology will play a key role in mitigating foreseeable healthcare costs. It provides a way for long-term care providers to reach the masses of older adults who are still living independently, but very much need connection and support in their homes so that they're not independent and isolated.

Mobile Health: Today

In the past five years, a flurry of technology start-ups have launched digital products and services targeting the needs of the aging population. The needs they aim to address generally fit into one of these areas:

- Community connection/socialization
- Fall prevention/personal emergency response
- Remote wellness/ADL sensor monitoring
- Medication reminders/dispensing
- Advanced assistive technology
- Care management
- Home telehealth
- Electronic health records

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Google Glass has huge potential for caregivers to capture data, interactions and observations, all hands-free, rather than having to use a kiosk in a hallway, a computer cart, or even a large smartphone or tablet.

 



 



Tapestry is a social networking platform for older adults that's easier to use than Facebook, but it incorporates Facebook so that family members and other caregivers can communicate with the older adult via Tapestry. Tapestry runs on PCs, tablets, smartphone, etc., and creates a sense of community on a senior living campus. At the same time, it reaches out into the community to create a virtual senior living campus.

Independa makes other social media and things like digital photo albums and reminders easier to use through television screens, tablets and smartphones. Other family members and circle of care givers use those mobile technologies to communicate with the older adult.

Gerijoy is an app directed at older adults with cognitive impairment. It works best on a tablet or large smartphone, and provides the user with a virtual puppy as a companion. Don't laugh: It's a very smart puppy that does a lot of talking, after the program receives a great deal of knowledge and relevant content about the user from that person's family and friends.

Jibo is a simple-to-use video conferencing application that can be used for telehealth check-ins and to video chat with friends and family.

Personal emergency response technology is expanding into new territories. For years these wearable units have tracked people in their homes, and within a short range outside the home, to detect falls and send help automatically. New products are emerging that take this to a new level. Companies such as AT&T are leveraging mobile devices that enable seniors to bring emergency response units with them everywhere they go.

One example is Lively, a digital technology company that introduced a personal emergency response watch that utilizes accelerometer technology. In the home environment, the device synchronizes with the user's own home wireless connection to conduct wellness activity monitoring. When the individual is away from the house, the emergency response watch synchronizes with a mobile phone to stay connected and functioning.

Caremerge is a care-management platform used in various living situations, from independent living to skilled nursing facilities. Its several apps work together, but give caregivers the freedom to customize the level of information and capabilities needed with various clients and patients.

Mobile Health: Practical Usage

Boston-based Partners Health System is using mobile technology to improve patient outcomes as it strives to meet its population health management goals. The broad aim is to create a patient-centered medical home and an integrated care management program across the continuum of care. Partners is comprised of two

major academic health centers, as well as community health centers, skilled nursing and acute inpatient rehabilitation facilities. Its home health agency, Partners HealthCare at Home, logs about 4,000 patient visits per day.

“TELEHEALTH ALLOWS CARE PROVIDERS TO GIVE PATIENTS THE HEALTHCARE INTERVENTIONS THEY NEED WHERE THE PATIENT WANTS TO HAVE IT AND WHEN THEY WANT TO HAVE IT.”

The biggest issues facing the patient population at home are falls, medication error and cardiovascular disease. Mobile health technology helps to reduce some of the cost and prevent some of these issues by allowing medical professionals more access to the patients. For example, remote patient monitoring has had a large impact on decreasing hospitalization rates for patients with heart failure and cardiovascular disease, and has decreased use of the emergency department by patients with hard to control diabetes.

Telehealth allows care providers to give patients the healthcare interventions they need where the patient wants to have it and when they want to have it. This technology allows care providers to reach more people with better care, and to share information more easily among different providers. The result is better informed decision-making and better patient engagement. Patients can focus more attention on how to manage their symptoms better and more proactively.

Its personal emergency response system has nearly 4,000 subscribers. On average, Partners estimates the system prevents between 700 and 800 falls per year. At \$1,700 or more to treat each patient, that's some savings. Its remote monitoring system has nearly 3,000 patients being treated for congestive heart failure (CHF). Partners estimates it's seen a 67% decrease in hospital readmissions among its CHF patients identified as high risk.

To prevent adverse drug events, the system uses a number of different medication dispensers as a way to provide a range of costs for the senior population. The dispensers increase medication adherence, which is beneficial when viewed as a trickle-down effect.

Finally, a mobile observation unit was introduced in 2013, which combines remote technology with hands-on care in a patient's home. It can be deployed in response to calls from a primary care physician's office or the emergency room to check on patients whose medical status has changed for some reason.

Other trials involve using Google Glass for visits with patients who have chronic wounds, or to aid a clinician perform a minor procedure in the home, under the watchful eye of their vascular surgeon back at the hospital. Video prescription consultations increase adherence and build better communication with the care plan.

Mobile Health: Looking Ahead

In 2015, the average cost of assisted living is predicted to be \$51,000 per person, which puts it out of the affordability range for most people. Currently, about 900,000 people in the United States are in assisted living, and the average move-in age is now in the mid-80s. Due to lengthening life expectancies, many seniors are deferring move-in because they cannot afford the cost.

As people live longer, a large portion of the population will live alone. Today, 46% of women ages 75 and older live alone at home. It is very unlikely this population will move into assisted living facilities.

One of the larger issues to address is making technology affordable. The price of many devices, certainly of robotic devices, is still at a point that prevents broad deployment in the home. Currently there's a large disconnect between the

“AS PEOPLE START TO LIVE LONGER, THERE'S GOING TO BE A LARGE POPULATION OF PEOPLE LIVING ALONE.”

wearable fitness and the mobile health technologies and the personal emergency response technologies. Ten percent of the personal emergency response market today are mobile products, such as Fitbit, that track the wearer's activity, but also track inactivity.

The future of the mobile market is aimed at games/fitness, wearable tracking, tablets, web cameras, smartphones, chronic disease management, caregiving, smart homes, mobility aids, fall prevention, mobile personal emergency response systems, and care safety technology. These technologies are designed for all people, whether they're in any one of these chronic disease categories or they're technologies being used by older adults to help keep them safe or whether they're car safety technologies or fall prevention and fall detection technologies; the goal is to have these technologies to migrate towards being software that is configurable for all ages.

Continuing innovation is needed to allow the growing number of seniors to age in place at home while balancing the care they need at a cost they can afford. There have been many technology breakthroughs in the last few years and these will continue at a rapid pace as more seniors realize the benefit and to embrace technology.

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