

Connected Health Article

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Innovations in connected health help our senior population live better lives.

Life expectancy around the world is increasing with breakthroughs in science, medicine and technology helping reduce mortality from diseases and improving health outcomes. Global life expectancy for both sexes increased from 65.3 years in 1990 to 71.5 years in 2013¹. But increasing life expectancy brings a pressing challenge to the forefront – aging populations that will require greater care with fewer caregivers and healthcare providers. The number of Americans ages 65 and older is projected to more than double from 46 million in 2016 to over 98 million by 2060, and the 65-and-older age group's share of the total population will increase to nearly 24 percent from 15 percent². However, there will be a large shortage of medical professionals and family members who can provide much needed care for these older adults.

Connected Health Technologies powered by the Internet of Things (IoT) may become essential to mass-deliver personalized care and help older adults live fulfilling and independent lives. Remote monitoring systems, connected health wearables, Mobile Personal Emergency Response Systems (MPERS) and personal healthcare companions are all examples of technologies that can greatly help older demographics. AT&T is working with many

health device manufacturers and technology providers to connect these solutions to the Internet of Things and deliver the care that this population crucially needs.

Remote monitoring systems: Remote monitoring systems use digital technologies to collect health data from individuals in one location and securely transmit that data electronically to health care providers and caregivers in a different location for evaluation and decision making. These systems can help management of chronic diseases, lower costs associated with emergencies and help patients achieve their health objectives.

Astute Inc.'s Astute CTR-01, an AT&T LTE connected cellular health hub is for use in patient's homes, assisted care facilities and hospitals. The gateway hub can connect to BLE and WIFI enabled medical devices and convert to LTE and LTE-M. The Astute hub has a small & compact design and can send health data from devices to applications including Electronic Medical Record (EMR) systems and nurse and patient online portals which can be accessed and viewed remotely via a tablet or computer. It is pre-integrated with many of the industry's most popular clinical grade medical sensors, including

¹ <http://www.healthdata.org/news-release/life-expectancy-increases-globally-death-toll-falls-major-diseases>

² <https://www.prb.org/aging-unitedstates-fact-sheet/>

blood pressure meters, glucometers, medication adherence monitors, pulse oximeters, weight scales and more. The solution helps increase compliance with a home care plan – from 20% compliance without monitoring to 70-80% with remote monitoring and can be effective in monitoring conditions like diabetes, heart disease and obesity³.

Another remote monitoring provider, [Health Recovery Solutions](#) - HRS provides medical centers with advanced patient monitoring devices, focusing on managing their highest-risk elderly patients through changing patient behavior to reduce readmissions. Patients are provided an AT&T 4G Internet-ready tablet that is preloaded with HRS software. Patients are able to use informational videos and teach back quizzes to educate themselves on their condition, which includes dietary information, symptom identification, and more. After discharge from the hospital, patients have access to integrated wireless monitoring devices (including blood pressure monitors, pedometers, digital scales, and pulse oximeters) in addition to their tablets. Patients also receive daily reminders to enter data such as medication compliance, blood pressure, weight, physical activities, and other symptoms. Patient data are then recorded and transmitted back to care teams via the AT&T network. In a multi-disciplinary study⁴, where the average patient age was 71 years, patients utilizing an HRS tablet had an 8% readmission rate compared with a 28% readmission rate for patients who did not receive a tablet.

The average medication adherence percentage was 84.38%; average adherence to recording weight was 89.82%; and adherence to daily exercise was 77.09%. The results showed that elderly patients could easily utilize technology for their own well-being⁵.

MPERS and connected wearables: About 20 percent of Americans under the age of 65 use wearables to track fitness but surprisingly, a similar percentage (17 percent) of seniors over 65 are using wearables too⁶.

Each year, millions of older people fall. In fact, more than one out of four older people fall each year due to illness or loss of balance, but less than half tell their doctor⁷. Mobile Personal Emergency Response Systems (MPERS), allow users to call for help in an emergency such as a fall by pushing a button worn on a belt clip or necklace or attached to a wall. [Life Alert](#), [Freeus](#), and [Numera](#) are examples of providers that use AT&T's LTE Network to connect various MPERS devices. When a button on the MPERS device is pressed after a fall or a health emergency, expert monitoring specialists are alerted who can then dispatch the necessary emergency management personnel and contact loved ones. MPERS offer great peace of mind to caregivers, increase autonomy for seniors and reduce hospital readmission rates.

More than 5 million Americans are living with Alzheimer's. By 2050, this number could reach 16 million⁸. [Clairvoyant Networks](#) chose AT&T to provide connectivity to its new line of caregiver

³ <https://d3v6gwebjc7bm7.cloudfront.net/event/16/01/02/7/rt/1/documents/resourceList1521639657577/gsmapresentationslides1521639686313.pdf>

⁴ <http://www.ajmc.com/journals/ajac/2014/2014-1-vol2-n2/study-health-recovery-solutions-uses-tablets-to-reduce-cardiac-readmissions>

⁵ Ibid.

⁶ <https://www.forbes.com/sites/brucejapsen/2016/07/11/wearable-fitness-devices-attract-more-than-young-healthy/#49c036b657df>

⁷ <https://www.cdc.gov/homeandrecreationalafety/falls/adultfalls.html>

⁸ <https://www.alz.org/facts/overview.asp>

solutions, [Theora Care](#). The Theora Care products offer peace-of-mind to family and professional caregivers allowing them to locate and connect with loved ones and helping those experiencing cognitive issues to live independently longer. A wristwatch-style smart wearable device with a smartphone application provides a 2-way communications system between wearer and caregiver. The solution provides caregiver alerts when the wearer strays from “safe zones” that are set up in the app. People with conditions such as Alzheimer’s, Dementia, Autism Spectrum Disorder and Parkinson’s disease can thus live with more independence. With six out of 10 persons living with dementia or Alzheimer’s wandering⁹, Theora Care enables family and professional caregivers to not only locate a wandering loved one quicker, but also to directly communicate with them until the caregiver, or outside help can arrive.

Personal Healthcare Companions: Keeping patients engaged in their treatments and helping them overcome social isolation from chronic diseases are key aspects of healthcare. This is why [Catalia Health](#) developed the Mabu Robot. Mabu was designed to help patients with the myriad challenges of chronic disease management, particularly elderly patients.

The robotic care management platform learns about each patient’s personality, interests, and treatment challenges over time. This enables Mabu to create conversations that are tailored to each patient and that resonate with their unique personality and circumstances. Unlike apps that are usually used for only a short period of time, patients continue to use the Mabu personal healthcare companion. This allows Mabu to have conversations with patients every day to assist with the management of their treatment while gathering data about their progress.

Thanks to advances in technology, connected health IoT devices can be life-changing especially for seniors. The work AT&T is doing with our customers and other industry leaders as we help bring innovations to market that allow older adults to live their lives to the fullest potential truly demonstrate the power of IoT for Good.

⁹ <https://www.alz.org/help-support/caregiving/stages-behaviors/wandering>