PREPARING FOR THE SILVER TSUNAMI

The Intersection of Healthcare and Technology

With more than 10,000 people a day turning 65 in the United States — equating to more than 2 billion seniors by 2050 — the healthcare industry needs to prepare to meet the demands of this older population. Patient care and technology are converging, and together they have the ability to improve the lives of seniors.

Healthcare technology has the potential to improve the quality of life and outcomes for seniors. This article shares the thoughts of industry experts on how technology solutions are impacting healthcare. Specifically, how data generated from new technology solutions can be used as part of a connected health strategy for all stakeholders, how life-sciences companies can use technology to improve the lives of consumers and caregivers, and what technology means for the future of healthcare.

This article summarizes a panel discussion of healthcare industry experts at the What's Next Boomer Business Summit in Washington, D.C., on March 23, 2016.

The Intersection of Technology and Healthcare

In 2014, 70% of the 50- to 65-year-old age bracket used the Internet, and 38% of those older than 65 went online. According to Blue Fountain Media, of these "wired" seniors:

- 94% use the Internet for email
- 77% shop online
- 71% are looking for health information
- 70% use the Internet to read news

"Different generations view technology differently," says Michel Nadeau, president, and founder of Tactio Health. "Pew Research Center's Social Media Update for 2014, which focused on different generations and their thoughts on mobile technology and its impact on their life, found that younger audiences feel mobile technology is a distraction and serves as a leash for their life. Older audiences feel mobile technology provides more freedom."

An example of how mobile technology can provide enhanced freedom and improve outcomes is found in a Tactio Health study conducted with residents of a senior home in Canada. Participants were provided activity-tracking bracelets and iPads to communicate with local pharmacists, who in turn, received automatic updates on activity levels from each individual's tracker. Participants were also able to communicate by text message with their pharmacists through an iPad app. Over the course of 12 months, participants were interacting with their pharmacists more intensively and with more consistency than before the study. Additionally, participants were found to be more active, as evidenced by greater use of pool and gym.

"Technology itself isn't going to improve outcomes and quality of life on its own," says Matthew Quinn, east coast managing director, healthcare and life sciences business, Intel. "We need to think about the human factors and how technology solves problems and fits into people's lives."

There are technologies — vital-sign trackers, activity trackers, blood pressure cuffs, glucometers — that exist and fit seamlessly into homes, remotely monitor patients, and provide feedback to healthcare practitioners (HCPs). The benefits of these technologies says Venkat Sathiyamoorthy, senior VP — connected health, Tunstall Americas, are that seniors are able to live where they choose and always have care available to them.

A recent program with diabetes patients provided

evidence to the effectiveness of remote monitoring. The initiative, conducted by Care Innovations, Intel, Tunstall, and the University of Mississippi, was designed to deliver comprehensive care at home through technology, and to capture and share patient health information with the healthcare team, as well as to provide patient support via telephone and text. In this study patients had improved outcomes because of the remote monitoring and earlier intervention. The home was outfitted with sensors that automatically collected and transmitted data to the patient's HCPs. The HCPs intervened when they saw trends that were outside of normal ranges.

"A key success factor to improve adoption and use of monitoring devices is education," Sathiyamoorthy says. "Simple instructions such as letting seniors know to check the power outlet when the device beeps and to press the call button to speak with a representative are key to ensuring patients are comfortable using the technology."

Another key to success in connected health adoption is providing easy access to the technologies that will help people live healthier and happier lives. "One of the major challenges with connected healthcare today is that people don't know where to find the technology," Tactio's Nadeau says. "Major retailers are beginning to carry connected devices, such as glucometers, scales, and blood pressure monitors, but often even the stores' associates don't know if these items are found in the pharmacy, electronics department, or elsewhere. There are opportunities for retailers to educate their associates on the devices, where they are found in the store, and how seniors can use them in their homes."

"There is a role for life-sciences companies to help integrate healthcare and new technology solutions to improve the quality of life and outcomes for seniors," says Vera Rulon, director of external medical communications, Pfizer. According to Rulon, life-sciences companies can provide solutions "beyond the pill" to help address healthier aging and improved healthcare during clinical trials through programs that address other aspects of care and behaviors to complement treatments. Programs could include apps that support treatment adherence through reminders, manage personal health information, and educational programs to support behavior change.

"Companies need to look at the whole patient and support overall health," Rulon says. "In preparing for the rapid growth in the senior demographic, a more holistic view of health, and the factors that impact health, is necessary to change the conversation and to define getting old in a different way."

Rulon's company, Pfizer, is an example of a major life-sciences company committed to changing the conversation. Pfizer's Get Old program, launched in 2012, is intended to change the conversation among people of all ages to challenge stereotypes and perceptions around aging. The messaging within the campaign challenges Americans to embrace aging not as an end, but as a beginning and a time to fulfill old dreams and make new ones a reality. "We hope people understand that each stage of life is an opportunity to experience new firsts," Rulon says. "And, as our longevity increases, it is more important than ever to stay healthy and live well."

The Role of Apps in Improving Quality of Life for Seniors

According to AARP, approximately 44% of older consumers download at least one app per month. "Apps will be the next game changer," Tunstall's Sathiyamoorthy says. "Apps provide an easy way for seniors to interact with family members via FaceTime and Skype for example. As seniors get more comfortable with this mode of communication they will use apps for other things as well."

> "Connected healthcare helps people live healthier and happier lives."

"Apps also make it easier to access and exchange information between patients and HCPs," Tactio's Nadeau says. "In the end, technology makes it easier for patients to self-manage their conditions." Intel's Quinn says technology is not foreign to aging adults, especially those who are managing the health of aging parents. As Baby Boomers age they will gain more familiarity with technology and they will have input on the technology they want to use. Technology will redefine itself from these experiences."

Technology's ability to provide an easy way to connect, addresses another major issue found with seniors—a feeling of isolation. According to a study by Shelia R. Cotten, Ph,D., of Michigan State University and her colleagues, spending time online has the potential to ward off depression among retirees, particularly among those who live alone. The authors report that Internet use reduced the probability of a depressed state by 33% among their study sample.

"The Internet can provide seniors with the ability to connect with family and friends, participate in virtual tours of museums, or experience nature walks or hikes," Pfizer's Rulon says. "The social aspect and human connection of technology solutions are very important and contribute to well-being," Sathiyamoorthy says. "At Tunstall, we receive more than 5,000 calls a day, and 90% of these calls are not emergencies. Most of our calls are patients calling in

to speak with one of our customer care representatives because they live alone. Oftentimes our customers just need social interaction."

The Role of Data and Analytics in Understanding Outcomes

According to IBM, every day 2.5 quintillion bytes of data are created. These data come from everywhere, including sensors used to gather climate information, posts to social media sites, digital pictures and videos, purchase transaction records, and cell phone GPS signals. The trend of big data growth presents enormous challenges, and at the same time, incredible business opportunities, including the ways data are structured and used.

"It is critical to manage data so the information is useful for caregivers, patients, and HCPs," Intel's Quinn says. He offers two examples of how healthcare data are used by different audiences. "The first is the Boomer audience who are monitoring senior parents; this audience wants to ensure senior parents are safe and their health is steady," Quinn explains. "The second audience are HCPs and or their staffs. This audience is interested in data that signal a change for the worse in a patients' health. For both audiences it is imperative that we maximize the signal, minimize the noise, and provide data in an analyzed fashion that allows patients and HCPs to gain insights from the information being provided."

Quinn adds interoperability between devices remains a challenge. "At Intel, we are working with a major health system in the northeast U.S. to provide a plug-and-play open framework for devices, which will help capture data so the information can be more easily used."

An additional hurdle is the need to integrate data capture and analysis into daily workflows. "Including HCPs and patients in the development of connected health tools is a great way to ensure these devices and platforms integrate easily into daily work processes," Rulon says.

"Data from connected health devices can be used in clinical trials as long as the information is collected and reported in an accurate manner," Pfizer's Rulon says. "Understanding how a treatment is used in the real world can provide valuable insights into the design of future clinical trials and enhance understanding of how to better support people using those products once approved."

Tunstall's Sathiyamoorthy adds that it is important to remember that with so many data points, data are just data until the information is converted to inform decision making. "Data can signal risk, it can help manage risk, and prevent

> Social and human connections are very important and contribute to well-being.

larger problems," he says. "For example, in our home monitoring programs for seniors we have found a way to use data to create predictive analyses based on subscribers routine daily activities such as wake up time and breakfast."

A strong example of how data and analytics are changing health outcomes is with telemedicine and remote patient monitoring. There is research that demonstrates telemedicine is effective in improving outcomes. However, telemedicine is still expensive and was designed to target the highest-risk patients that cost the healthcare system the most. But, this is changing as technologies continue to evolve.

"Telemedicine is changing to a bring-your-own-device or BYOD model," Tactio's Nadeau says. "The transition to BYOD allows HCPs to focus programs and support toward rising-risk patients, who can benefit from prevention programs and programs to help them manage chronic conditions. Also, the BYOD model offers flexible care with off-the-shelf-equipment, such as glucometers and blood pressure cuffs that can be purchased from local retailers. There aren't any documented outcomes yet from BYOD programs, but most HCPs feel these programs are impactful."

Use of Healthcare Technology by Life-Sciences Companies

In a July 2014 McKinsey & Company article on healthcare's digital future, analysts say now that patients around the world have grown more comfortable using digital networks and services, even for complex and sensitive issues such as healthcare, the time has come for healthcare systems, payers, and providers to go "all in" on their digital strategies.

Tactio's Nadeau agrees, and believes that roles within the healthcare ecosystem are being redefined and successful programs with healthcare technology will include physicians, pharmacists, and life-sciences companies. "Life-sciences companies need to understand how healthcare technology programs can help them in the future," he says, "And, they need to be committed to the programs over the long term."

A key challenge to overcome, is that in the United States monitoring data from remote devices or wearables is not reimbursed by payers. According to Intel's Quinn, the Department of Health and Human Services has committed to paying for delivering preventive care and quality care programs by 2017. Quinn believes that as these types of services are reimbursed it will expedite the uptake of these services by HCPs. "Additionally, as reimbursement is provided, we need to look at how to better engage HCPs

to share data and collaborate with other HCPs through healthcare technology tools," he says.

Ownership of the data generated through connected healthcare tools is another key question to resolve, according to Quinn. He noted questions to be answered such as: "Do patients have the final decision to determine what happens with their data and what rights and responsibilities do technology or life-sciences companies have in connection with data collected?"

According to Pfizer's Rulon, a key factor for success is to ensure the technology or digital program has a holistic view of the patient and his or her experience. She recommends that when designing programs that include healthcare technology solutions, the program:

- Fills a real need—for example, for people with hemophilia there is an app that helps them track injection site locations
- Listens to patient needs— for example, Quitter's Circle, a collaborative effort between the American Lung Association and Pfizer, an app that allows smokers to build a support system to help them quit smoking
- Commits to the patient— making a commitment to maintain and improve technology over time in support of patients and their caregivers

Rulon cites Project Catalyst, which is a partnership between AARP, United Health, Pfizer, Medstar Health, and the Robert Wood Johnson Foundation, as a great example of a program that is designed to fill a need. "This program tests how seniors use mobile health apps and devices," she explains. "The goal is to conduct research of new and emerging technologies with 50+ consumers and their caregivers and help inform developers about how their products improve quality of life of Americans as they age."

Another example of an innovative digital program provided by Pfizer is the Get Healthy Stay Healthy platform. This platform serves as a resource of reliable, practical, and actionable health information to help consumers' live healthier lives. Get Healthy Stay Healthy includes articles, links, videos, and tools.

"Technology is evolving quickly and continuing innovation will enable better care and experiences for patients," Venkat Sathiyamoorthy says.

The rapid advances in healthcare technology can improve quality of life and outcomes for seniors. These advances span the continuum of care from tracking our activities of daily living; to sensors in our homes that remotely monitor our health and share vital information with HCPs, family, and friends; to insights into genomics that guide care and treatment decisions. ■

This panel discussion was sponsored by Tunstall Americas. For more information, contact Venkat Sathiyamoorthy at venkats@tunstall.com.

What Technology Means for the Future of Healthcare

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It is an exciting time and patients are strongly in the driver seat. Patients have the power to drive life- sciences and technology companies to provide products and services they want.

Michel Nadeau
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Genomics and artificial intelligence are two transformational changes that will impact the future. Genomics will change healthcare by leading the charge to precision medicine. Artificial intelligence has the ability to connect individuals to central sources of intelligence.

Matthew Quinn
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Technologies for managing and monitoring our health will become a part of the fabric of our lives. As more powerful computing is available, the ability to gain insights from data will continue to drive the adoption of these technologies.

Vera Rulon
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Technology will bring "healthcare everywhere" through sensors, wearables, and other technologies. In the future, clinical trials may be done remotely and healthcare will be integrated in our daily routines. Ultimately, patients will take more control of their health.

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Telehealth is an example of technology that can evolve to encompass greater things. In the future, it will be possible to have a single platform for preventive healthcare management that HCPs can review on a real-time basis to proactively address potential health issues.