Senior Tech: The Next Generation
Health Informatics Solutions for Older Adults Living in the Community

Consumer health informatics tools (e.g., telehealth, smart homes, mobile phone applications) have promise in addressing needs of community-dwelling older adults (Hanson, Takahashi, & Pecina, 2013). Unfortunately, gerontology specialists and technology developers of such tools are often challenged to gauge the future technological landscapes because they rapidly evolve and current literature rarely reflects the most current technology. To understand how new tools can benefit older adults’ health and well-being, gerontologists and developers should know what constitutes the next generation of older adult–supporting technologies and evidence supporting their use.

TOOLS FOR OLDER ADULTS
Technologies have been developed to support community-dwelling older adults with cognitive and/or physical limitations. Lively™ (access http://www.mylively.com) provides home sensors, a “safety watch” that tracks activity and provides medication reminders, and a web portal providing data summaries. Cyberdyne (access http://cyberdyne.jp/english) develops hybrid assistive limb “exoskeletons” to support individuals with impaired mobility by detecting and reacting to neural signals on the skin. The Acceptable Robotic Companions for Ageing Years (ACCOMPANY) robotic companion (access http://www.accompanyproject.eu), currently in development, is a robotic companion that assists older adults to independently engage in physical, cognitive, and social activities.

TOOLS FOR INFORMAL CAREGIVERS
Several new tools have been designed to support the needs of informal caregivers. One company, Seniorbility, has designed a remote safety and cognitive health assessment tool. Seniorbility staff remotely administer assessments of older adults’ cognitive abilities each day and e-mail informal caregivers a daily cognition and safety report (access https://www.youtube.com/watch?v=oe5zsJY3D8). Honor (access https://www.joinhonor.com) helps arrange care for older loved ones and monitor care visits via a mobile phone. Health Recovery Solutions (access http://www.healthrecoverysolutions.com) uses a tablet-based system to monitor and provide education to recently discharged older adults. Family members can also use the system interface to monitor and access the patient’s health information.
The tools mentioned above are only some examples of next-generation tools, each with potential benefits and downsides. Many tools provide passive monitoring and do not require older adults to learn to operate a system. Several systems allow older adults with mild cognitive or physical impairments the potential to stay in their homes longer because of remote monitoring and care. However, many of these tools may be too expensive. In addition, older adults’ information is often collected and made accessible only to informal caregivers and providers. This limits older adults’ ability to self-reflect on information collected about them and does not capture the rich information collected if older adults engage with the system.

Although the systems described above are or will be available, few have been thoroughly evaluated. After searching scientific literature and tools’ websites and contacting developers, there was little evidence available demonstrating that the tools had been tested among target populations using standardized measures. This lack of evidence significantly limits clinicians’ ability to recommend these technologies to clients.

EMERGING TOOLS

Next generation technologies include innovative approaches to engage, support, and empower community-dwelling older adults with a range of physical and cognitive abilities. This field is rapidly evolving, and it can be hard for practitioners to stay up to date on the latest developments. Some resources to use include the Aging in Place Technology Watch website (access http://www.ageinplacetech.com) and the LeadingAge Center for Aging Services Technologies (access http://www.leadingage.org/cast.aspx). Start-up programs, including the Aging2.0 GENerator (access http://www.aging2.com/generator), support development in this area. Due to the rapid pace of technological development and dissemination and lack of availability of evaluations from developers, research published in refereed journals may lag behind new and innovative advances in emerging tools. Therefore, clinicians should carefully balance endorsement of innovative solutions with needs for evidence of benefit and cost-effectiveness.

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