

*A LeadingAge CAST Report*

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## PREPARING FOR THE FUTURE:

*Developing Technology-Enabled  
Long-Term Services and Supports  
for a New Population of Older Adults*

A Collection of 18 Case Studies from Pioneers in the Field  
November 2011

# PREPARING FOR THE FUTURE: Developing Technology-Enabled Long-Term Services and Supports for a New Population of Older Adults



A program of LeadingAge

2519 Connecticut Ave., NW  
Washington, DC 20008-1520  
Phone 202-508-9438  
Fax 202-783-2255  
Web site: [LeadingAge.org/CAST](http://LeadingAge.org/CAST)

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**Acknowledgement:** This report was written by Geralyn Graf Magan, an independent writer from Clarksville, Md.

## **LeadingAge Center for Aging Services Technologies:**

The LeadingAge Center for Aging Services Technologies (CAST) is focused on development, evaluation and adoption of emerging technologies that will transform the aging experience. As an international coalition of more than 400 technology companies, aging-services organizations, businesses, research universities and government representatives, CAST works under the auspices of LeadingAge, an association of 5,400 not-for-profit organizations dedicated to expanding the world of possibilities for aging.

For more information, please visit [LeadingAge.org/CAST](http://LeadingAge.org/CAST)

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## INTRODUCTION

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### CAST Case Study Initiative: A Synthesis of Findings

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At the October 2010 meeting of the LeadingAge CAST Commissioners, Chair Mark McClellan M.D., Ph.D. challenged CAST to take steps to educate aging services providers about innovative business and operational models and to provide members with the tools they need to successfully implement those models. As part of that effort, CAST launched two major initiatives during 2011:

**Scenario Planning:** An informal scenario planning process, completed in spring 2011, was designed to develop a vision for the future of long-term services and supports and to encourage LeadingAge members to begin preparing for the changes and challenges that may lie ahead. The planning process identified potential characteristics of the future operating environment and delineated categories of potential business models that could represent viable options for LeadingAge members. It also identified key enabling technologies for each category of potential business models and evaluated how changes in the characteristics of the operating environment would affect these potential business models.

**Case Studies:** Building on the finding of the scenario planning exercise, CAST interviewed leaders of 19 aging services organizations about their technology-enabled model or services. These providers were chosen because they are pioneers in the field of aging services technologies. They were the first among their peers to think strategically about how their business models might need to change

in order to meet the changing needs of a growing older population, changing consumer preferences and increasing cost and regulatory pressures. They were also among the first long-term and post-acute care providers to recognize that technology could help transform their service offerings in order to improve quality, meet consumer needs and preferences and save health care dollars.

In designing the case study initiative, CAST decided it wanted to do more than simply catalogue what pioneering organizations had accomplished using technology: We wanted to describe how these organizations began their transformative journeys and how they charted their course; the challenges they encountered and their keys to success; and the lessons they learned along the way. CAST shares these 18 stories as a way to give other organizations the inspiration and information they need to start incorporating these and similar proven approaches into their own operations.

#### Common Characteristics

The 19 organizations featured in this case study collection offer a full range of long-term services and supports in a variety of settings, including nursing homes, assisted living communities, independent housing, continuing care retirement communities (CCRCs), private homes and other community settings. They are located in urban, suburban and rural areas.

Generally, the organizations featured here incorporated technology-enabled services into broad strategic efforts that were designed to do nothing less than change the way they do business. Most organizations had a dual reason for creating that new business model: they sought to increase revenues in light of reimbursement challenges and, at the same time, they wanted to design programs that would appeal to aging baby boomers who will begin purchasing long-term services and supports in the coming decades.

Despite their forward-looking approach, however, a significant number of organizations are also working hard to broaden their current customer base by exploring new ways to reach older adults living in the wider community. Many providers are reaching this goal by deploying technology that enhances the quality of care provided by their home care agencies and that helps older adults better manage their chronic conditions. Others are creating new programs, like CCRCs at Home, which are specifically aimed at providing services to healthy, active older adults who want to age in place. A number of organizations are positioning themselves to participate in health reform initiatives such as Accountable Care Organizations (ACOs). Others are actively pursuing partnerships with hospitals that involve providing post-acute care that will help reduce rehospitalizations.

A number of organizations are even reaching beyond their own organizations in order to impact the field of long-term services and supports. Some of these organizations are conducting research to prove the efficacy of technology-enabled solutions. Others are providing financial support, technical assistance and customer feedback to help technology vendors develop and improve cutting-edge

technology products that can help older adults stay healthy and independent.

### Common Technologies

During the course of researching the case studies, CAST identified a wide variety of technologies that are currently being deployed by aging services providers around the country. It should be noted, however, that while technology is an integral part of many organizational initiatives, technology was never implemented for its own sake. Many technology solutions employed by case study participants were designed to help the organization carry out strategic initiatives and were tied to a specific and well-developed operation, service or support. Those solutions included:

- **Infrastructure technologies**, such as wireless networking technology for business and Internet access; handheld devices like iPads; area-wide networks to connect staff of multi-site organizations; and technologies designed to assist in process management.
- **Safety technologies** like personal emergency response systems (PERS), electronic call systems and fall detectors.
- **Health and wellness technologies**, including telehealth devices (both in-home devices and kiosks in public places), medication dispensers, remote monitoring sensor technology, tele-coaching and telemedicine for rural health care.
- **Documentation technologies**, such as electronic health records (EHRs), quality-of-life measurement tools, point-of-care systems and clinical care tracking software.

- **Social networking technologies**, including computer and Internet training programs for older adults; secure social networking technologies that connect residents with family, peers and their retirement community; a Virtual Senior Center, through which homebound older adults attend events at the local senior center from the comfort of their own homes; social gaming technologies; and cognitive brain fitness software.

### Themes and Drivers

Several themes emerged during CAST's conversations with participants in the case study project and analysis. Generally, these themes revolve around the importance of health reform in spurring organizations to chart a new course for the future; the central role that consumer preferences play in the development of new business models; a new appreciation for managers and frontline staff as technology champions and ambassadors that are keys to success for any technology deployment; and a sense of organizational responsibility for creating an evidence base that will help solidify confidence in and support for aging services technologies.

**Health reform looms large.** Many participants in the case study project are positioning themselves to play a role in initiatives authorized by the Affordable Care Act (ACA). In particular, organizations are establishing partnerships with hospitals to help reduce rehospitalization rates and are establishing programs and services to address the needs of older adults with chronic conditions. Technology plays a key role in helping organizations document their readmission rates and other quality indicators for hospital partners; monitor patients' chronic conditions and help them avoid health crises by interven-

ing early when health issues arise; ease care transitions through electronic record sharing systems, remote monitoring and telehealth; share health data with primary care physicians to improve care quality and reduce health care costs; and combine high-touch interventions with medication management to empower patients at high risk for rehospitalization.

**Consumers are in the spotlight.** Many organizations are recognizing that unless they place the consumer—and his or her preferences—at the heart of their strategic plans, those plans are unlikely to be successful as the baby boomers age. For most organizations, this customer-centered approach involves reaching beyond their bricks-and-mortar campuses and finding innovative ways to help consumers remain healthy and in their own homes and communities. Those innovative approaches include:

- **Offering non-traditional services:** Organizations are finding that many older adults are forced to give up their homes because they cannot manage ongoing maintenance tasks. These organizations have been able to find a valuable niche in the market by providing or facilitating non-traditional services like home repair, maintenance and renovation, in addition to other services and supports designed to promote aging-in-place.
- **Expanding outreach:** Organizations are expanding their customer research beyond traditional market surveys aimed at gauging consumer willingness to move to a planned bricks-and-mortar campus. Instead, these organizations are using focus groups and other information-

gathering strategies to connect with consumers who will never step onto their campuses. In the process, organizations are discovering what kind of life older consumers want to live and what kinds of services and supports will allow them to achieve their lifestyle goals.

- **Educating consumers:** Several organizations are taking deliberate steps to ensure that consumers who are not tech-savvy have a good first experience with technology. This can involve sponsoring traditional computer classes; showcasing technologies in an interactive environment so consumers can see how they work and how they might be deployed in the home; and providing one-on-one technical support and access to the latest technology products.

**Organizations have a new appreciation for the role of staff.** Frontline staff are often a key to the success of any technology initiative, since nurses and certified nursing assistants are the most frequent technology users and are instrumental in helping residents and clients adjust to technology deployments. Organizations are taking deliberate steps to involve these staff members in the decision-making process when technology initiatives are developed and to ensure that clinical and information technology (IT) staff collaborate on technology deployments. They are also spending considerable time and energy to train staff so they understand and can use a particular technology.

Staff training comes in many forms, including formal classes and training sessions as well as peer-to-peer support facilitated by “technology champions” who create excitement and foster staff enthusiasm

for a technology initiative. A growing number of organizations also view staff training as a way to ensure that older residents and clients accept new technology. Knowledgeable and enthusiastic staff members can help residents feel more comfortable with technology and can educate them about its benefits.

**Providers are taking responsibility for building a growing evidence base for the technology.** Aging services organizations are becoming an ideal “laboratory” to demonstrate the efficacy of a variety of technology initiatives and products. These organizations are demonstrating that telehealth and remote monitoring technologies can reduce unnecessary hospitalizations and post-hospitalization physician contacts, increase staff efficiency and reduce care costs. They are also providing compelling evidence that technology initiatives help promote person-centered care, offer more comprehensive feedback to families, allow staff to spend more time with residents and clients, and increase the organization’s market share.

### The Business Case

Most organizations struggle to calculate return on investment (ROI) for technology initiatives. Others deliberately avoid such calculations because their technology initiatives are so intertwined with organizational services and processes that it is difficult to separate one from the other. Despite difficulties calculating ROI, organizations still look to technology-enabled services as a source of either current or future revenues.

**Promising models:** Some organizations have been able to show a healthy return on investment for technology-enabled services. Potentially successful

models include the CCRC at Home, which provides a variety of services to community-dwelling older adults in return for a one-time membership fee and a monthly service fee. In addition, a number of organizations have established successful partnerships with hospitals to monitor recently discharged patients as a way to prevent readmissions. On a smaller scale, several organizations are deploying medication dispensing systems, remote monitoring or telehealth in return for a monthly subscription fee. These organizations suggest that the subscription model can be successful in the private pay market if the organization can keep consumer costs low, avoid keeping a large inventory of devices on hand, and make a compelling case that the devices address the specific challenges that consumers face.

Attempts to realize a return on investment for technology-enabled services are not without frustration, of course. Many organization leaders maintain that ROI would be much more predictable if public funding for technology-enabled services was adequate and more widely available.

**Planning for future ROI:** Non-reimbursable technologies are becoming the “standard of care” in the home care, assisted living or skilled nursing programs operated by some case study participants. Generally, these organizations believe that system-wide technology deployment helps them stand out in the local market and could help position them to participate in ACA-authorized initiatives, including ACOs. Case study participants aren’t necessarily making big profits on these system-wide technology deployments. They are either paying deployment costs out of their operating budgets or they are adding a fee for these devices to monthly rents as a way to recover costs.

**Indirect calculations:** Many organizations choose to calculate ROI in a more indirect way by crediting technology-enabled services with improving the organization as a whole and, therefore, improving its competitive edge in the marketplace. Organizations report that technology-enabled services have helped them become more efficient, increased quality of care for their clients, and helped those clients avoid higher and more expensive levels of care and, in the case of EHRs, provided important information about the organization’s operating practices.

**The right thing to do:** A number of organizations suggest that they pursue telehealth and other technology-enabled services because it is the right thing to do. Several organizations have decided to invest in emerging technologies as a way to move the field of aging services technologies forward and lay the foundation for future technology-enabled ROI. Others are using grant funds to conduct research that will demonstrate the efficacy of technology-enabled services in the hope that third-party payers will support these services as a way to lower overall health care costs.

### **Challenges Associated with Technology Deployment**

Participants in the CAST case study project identified a number of challenges that they have faced while implementing technology deployments.

Those challenges include:

**Lack of funding:** Most organizations find that developing and maintaining a state-of-the-art IT system comes with cost. Some organizations depend on grants to fund technology projects, but most initiatives must be supported from the organization’s capital budget. This means that technology in-



vestments must be continually weighed, sometimes against other organizational priorities.

**Lack of integration:** The inability of different technology products to work together has been the cause of frustration for many organizations. In particular, organizations are challenged by the need to juggle multiple electronic record systems that are designed for specific care settings but are unable to interface easily with one another or with the organization's primary billing software. Organizational leaders also complain about the inability of different monitoring technologies—including PERS, remote monitoring and telehealth—to work together in one technology platform. A few organizations have had early success working actively with vendors to integrate disparate systems. Many organizations report that vendors are “getting the message” that providers, like consumers, are looking for one device that will perform multiple functions in order to promote simplicity and efficiency.

**Internal silos:** Several organizations report that the process of implementing technology-enabled services helped them recognize that internal silos stood in the way of innovation. For example:

- Lack of collaboration between one organization's rehabilitation unit and its home-care unit made it more difficult to launch a robust initiative to provide post-rehabilitation care that would keep clients healthy and independent for as long as possible.
- One organization is finding that its success in allowing CCRC residents to age in place depends on its ability to break down the very traditional silos that separate its independent living, assisted

living and skilled nursing services. The organization may attempt to overcome this challenge by instituting a home health model across the continuum.

- Conflicts and confusion between IT and clinical staff at many organizations can make implementation of major technology initiatives more difficult. Organizations overcame this challenge by providing a mechanism through which these two groups could communicate and collaborate on technology-related decision making.

**A lackluster private-pay market:** Consumers view PERS as a technology that they find useful and can afford. However, a lack of consumer awareness about telehealth and remote monitoring is holding back the private-pay market for these devices. Organizations are spending a substantial amount of time educating residents and home-care clients about the benefits of these technologies but are not seeing substantial growth in the private-pay market. Consumers generally do not seem willing to pay for these technologies, but are extremely accepting of them when they are financed by third-party payers.

**Technophobia:** A general lack of comfort with technology among staff and consumers was identified by almost every organization as a challenge to technology deployments both on campus and in the community. While technophobia among residents is currently a troubling issue, many organizations expect this to become less of a challenge as they continue to educate today's consumers and prepare to welcome tech-savvy baby boomers. Organizations report that the greatest resistance to technology comes from home-care clinicians who question why their clients need a machine to monitor their

vital signs and wellbeing when they already have a clinician to perform these tasks. This type of resistance can have a negative impact on consumer acceptance of technology: residents and clients are unlikely to embrace technology if a staff person they trust is not embracing it.

**Lack of infrastructure:** Many organizations are challenged when they attempt to upgrade older buildings to support technology innovations. Wireless networking technology is virtually nonexistent in these buildings, but will become increasingly important in helping these sites share information with other practitioners and eventually institute more sophisticated methods of monitoring resident behavior and tracking health outcomes.

**Technology learning curve:** Organizations that are new to technology find themselves challenged to find objective, helpful information that can help guide them in choosing technology-enabled services that make sense for the organization, and vendors that will provide good value and technical support.

### Keys to Success

Despite the challenges associated with technology deployment, case study participants identified specific approaches and strategies that they believe contributed to the success of their technology-enabled services and supports. Those keys to success include:

**A culture of innovation:** Workplace cultures that actively encourage innovation have helped several organizations gain staff support for various technology initiatives. This culture makes staff more comfortable with innovation and more willing to give technology initiatives a try.

**Good champions:** Many organizations report that the success of technology innovations often depends on finding a champion on staff who believes strongly in the value of the specific technology, has taken the time to learn the technology well, and is willing to train fellow staff members and serve as a technology cheerleader.

**An involved board of directors:** In some cases, boards of directors drive technology innovation because they see it as a way to remain competitive in the marketplace, to prepare for the tech-savvy clientele of the future, and to ensure that the organization's services and supports are of the highest quality possible. One board was so committed to technology that it began recruiting board members who had the professional expertise to help the organization advance its technology agenda.

**The willingness to outsource:** One organization found that hiring outside vendors to install telehealth and remote monitoring units in private homes, monitor telehealth data and send alerts to clinicians eased the technology implementation process. Once these technologies become fully integrated into the work of staff and clinicians, the organization may bring the data analysis in-house.

**A forward-looking IT team:** One organization points to the structure of its IT team as the key to its success. The team is divided into two groups: an "emerging technologies" team identifies and explores strategic technology solutions that the organization might adopt in the future; an "operations team" keeps all the organization's current technology running smoothly. If one team had both tasks, the demanding nature of operations would keep team members from finding the time to think strategically.

***A take-charge approach:*** A dedicated project department manages each technology deployment at one organization and works proactively to address challenges that inevitably accompany implementation. This department gets staff teams involved in the early stages of implementation, creates enthusiasm about the launch, and educates staff about the technology before and after it is implemented. It also conducts root-cause analysis when employees push back against technology to ensure that the push-back isn't related to a problem with the technology.

***A willingness to clean up processes:*** The implementation of an electronic medical record (EMR) system, or similar technology initiative, gives an organization a golden opportunity to thoroughly examine its processes and the forms it uses to deliver or document the provision of services. For example, the implementation of an EMR system will necessitate the review of every paper form the organization uses. This review process should ensure that forms are standardized for all campuses and divisions and that forms collecting the same information are consolidated to avoid duplication. Similarly, processes should be rethought to streamline workflow and take advantage of the capabilities of the EMR and other electronic documentation systems.

### **Advice for Others**

As might be expected, case study participants had a good deal of advice to give to others seeking to follow in their footsteps. That advice fell into five general categories: thinking strategically, promoting innovation, preparing for a technology deployment, deploying technology and living with technology.

### ***Thinking Strategically***

***Look to the future, but start today.*** Start thinking about the kinds of services and supports consumers will be demanding in 10-20 years and the kind of technology necessary to provide those services efficiently and effectively. You cannot afford to wait for a better technology, for certainty and clarity on health reform initiatives, or for a robust private-pay market.

***Make systems change your goal.*** Don't be satisfied with creating "boutique" programs that serve only a small number of older consumers and often disappear when their short-term funding has been exhausted. Instead, become actively involved in efforts aimed at changing the entire health care system. This will require that you get involved when states and local stakeholders are creating health information exchanges and telehealth networks, instituting payment reforms and establishing ACOs.

***Use technology as a tool, not as an end in itself.*** Every technology initiative should be designed to improve the quality of a service or program and should fit into the organization's strategic vision.

### ***Promoting Innovation***

***Don't let size stand in your way.*** It's tempting to assume that only large, well-funded organizations can afford to be innovative. On the contrary, small organizations are probably better positioned to innovate because they are nimble enough to change quickly.

***Allow staff to fail.*** An organization that wants its staff members to think outside the box must be prepared to reward employees for failing, as long as those employees learn from their failure. When handled correctly, failure can produce an organization's next great idea.

### *Preparing for a Technology Deployment*

Hire employees who are comfortable with technology. Then encourage your staff members to associate with outside peers who share their interest in technology.

Build the technology infrastructure. Invest now in basic technologies that can be adapted to a variety of business models. These include a comprehensive electronic health record system, wireless connectivity that is available across the campus, and tablet and handheld computers, which promise to become a standard component of future service delivery.

Become an active product researcher. Don't wait for a vendor to bring you your next technology-enabled service. Be proactive. Identify a need that you want to address and search for vendors that can help you fulfill that need.

Plan for large-scale deployments. Any organization is capable of putting a few telehealth or remote monitoring units into the field and using them well. But large-scale deployments require that the organization take a thoughtful look at whether it will rent or purchase units, how large an inventory it will keep, how it will manage distribution, installation and support of the units, what data it will collect and who will carry out the tasks necessary to ensure success.

### *Deploying Technology*

Pilot test before you buy. Try out a new technology at a location where staff members have expressed a desire for that technology. Then, solicit employee feedback on whether the technology works, whether it makes their jobs easier, and if the technology addresses the problem it was intended to solve. If not, end the pilot and move on.

Get staff members involved. Give them ownership of the project through participation in interdisciplinary project teams.

Be flexible on training. Recognize that one training approach may not work with every type of technology or every group of users. Trainers need to take a careful look at the technology and should then experiment with different ways to get users comfortable with that technology. If one method doesn't work, try another.

Welcome pushback from staff and residents. It gives you an opportunity to work through issues, raise questions with vendors, and help people feel more comfortable with the technology solution you are trying to deploy.

Provide good customer support. Make sure your IT department is there to help staff members who need assistance. Continue to train existing staff to maintain usage standards and compliance. Train new employees well so they can hit the ground running. Offer opportunities for ongoing peer-to-peer support.

### *Living with Technology*

Don't neglect face-to-face interaction. Despite the usefulness of remote monitoring and telehealth, in-person interaction with residents and clients will always be the most important service that aging services providers offer. Don't use technology to minimize or negate good, old-fashioned, hands-on care, social work and personal contact with clients.

Don't turn your back on low-tech assistive devices. Understand that not everyone needs a high-tech device. Sometimes clients just need a grab bar, a magnifying glass or an amplified telephone to maintain their independence and quality of life.

*Don't turn into a technology vendor.* There is no need to spend a great deal of money building up a large inventory of technology products. First, every customer will require a different, customized solution. And second, technology products can generally be ordered and delivered quickly to the customer, in many cases overnight.

### Dissemination Strategies

CAST and its commissioners are energized by the progress that many providers have made in using technology to help transform the way they do business. But we also recognize the need to increase technology awareness among LeadingAge members who are still unfamiliar either with the breadth and potential of cutting-edge technology solutions, or with plausible operational models enabled by these technologies. Some members may be overwhelmed by the challenges involved in deploying those solutions. To promote member awareness, CAST plans a three-pronged approach to disseminating its case study collection and the lessons it holds. It will:

1. Provide opportunities for pioneering LeadingAge members to offer coaching and encouragement to other members seeking to start or expand their technology-enabled services.
2. Foster collaborative efforts between CAST and LeadingAge-affiliated state associations to disseminate information about technology-enabled services to their members as well as state policy makers and to help individual members adopt new technology-enabled business models.
3. Help case study participants tweak their own business models by conferring with one another to discuss common challenges and strategies for overcoming those challenges, or by meeting with experts in the field to gain additional insights and ideas.

### From Possibilities to Impact

In 2006, CAST released an eight-minute video called “Imagine – the Future of Aging,” which introduced viewers to an affable older gentleman named Ernesto. In spite of increased frailty and declining health, Ernesto maintained his independence and dignity by using a collection of home-based technologies, many of which were in the very early stages of development when the video was released. Taken together, those “dream” technologies allowed Ernesto to communicate with and be supported by a network of family members, caregivers, doctors, nurses and providers; increased his ability for self-care through devices like medication dispensing systems; and gave him access to coordinated care that was facilitated by remote monitoring and his EHR.

Five year later, many of the technologies that CAST imagined in 2006 have now come to market and are having a very real impact on quality of care and quality of life among older adults. As evidenced by this collection of 18 case studies, these technologies are also helping to transform the way many aging services organizations approach their work.

Clearly, the state of aging services technologies is no longer something we have to “imagine.” CAST believes that it is now time to change our discussion about these solutions from one that focuses on “possibilities” to one that documents the real-life

impact of technology-enabled services and supports. Each year, CAST has more stories to tell about how providers of long-term and post-acute care are transforming the way older adults receive the services and supports they need and want. And we're getting closer and closer to building sustainable, technology-enabled business models to support that transformation.

CAST hopes that this collection of case studies will convince readers that we are well on our

way to making Ernesto's story a reality for older adults around the country. We encourage readers to explore ways to learn more from these pioneering providers and to contact CAST for support in adapting the innovations in this collection of case studies to their own organizations. We also encourage you to stay tuned for more learning opportunities and tools stemming from this foundational work, and for news about technology and the future of aging services.

## ACTS Retirement-Life Communities West Point, Pennsylvania

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*Contributor:*

**Peter J. Kress**

*Vice President and Chief Information Officer*

### The Organization

The story of [ACTS Retirement-Life Communities](#) began in the early 1970s when a suburban Philadelphia pastor and members of a nondenominational church sought to offer retired church members a new and better way of living. Their idea was to create a community that offered a fulfilling and meaningful independent living lifestyle but also ensured that a quality skilled health care environment would be available if it was ever needed.

Using their own resources and talents, this group of visionaries built the first part of what today is known as Fort Washington Estates, which opened in Fort Washington, Pa. in 1972. Over more than three decades, ACTS has evolved into the largest not-for-profit owner, operator and developer of continuing care retirement communities (CCRCs) in the United States. ACTS life care communities provide independent living residences for people age 62 and older and offer guaranteed access to assisted living and skilled nursing care services, usually on the same campus.

Currently, ACTS operates 23 not-for-profit life care retirement communities that are home to more than 8,300 seniors in eight states: Pennsylvania, Delaware, Maryland, North Carolina, South Carolina, Georgia, Alabama and Florida.

### Technology-Enabled Model or Service

ACTS has implemented and explored several types of technology-enabled services, including:

**Point-of-care documentation:** In the early 2000s, ACTS became an early adopter of point-of-care technology developed by Resource Systems, Inc., now part of CERNER. This technology helps nursing assistants and other caregivers track the care they provide to residents in the organization's nursing units.

**Electronic health records (EHRs):** During the mid-2000s, ACTS expanded its clinical documentation system to include nursing notes, progress notes and incident reporting. These expansions were designed to prepare the organization for its planned EHR implementation. However, the organization's EHR investment plans were put on hold during the recent economic crisis.

**Handheld and tablet devices:** Currently, ACTS is carefully watching the emergence of handheld and tablet devices that have the potential to place technology in the hands of each one of its 6,000 employees at a relatively low cost. The organization has provided about 30 Apple iPad 2 devices to senior management as part of a tablet pilot project.

**Monitoring technology:** ACTS has made a strong commitment to embed monitoring technologies into a subset of its assisted living environment and to test the extent to which these sensor-laden solutions contribute to resident wellbeing, satisfaction and ability to age in place.

**Infrastructure changes:** ACTS is laying the foundation for future technology deployments by building up its technology infrastructure. For example,

the organization has worked with Verizon to bring fiber optics connection to eight of its campuses. It has also deployed wireless hotspots in its core public areas, including lobbies and cafes, across all of its campuses. ACTS is developing a plan to expand to campus-wide wireless. In addition to hosting a variety of resident-centered amenities, this wireless infrastructure is expected to increase connectivity across all ACTS campuses in order to support health and wellness programming and help the organization remain competitive.

### **Implementation Approach**

The latest plans for technology deployment at ACTS are designed to support the organization's key strategic initiatives. For example, ACTS decided several years ago to place a new emphasis on offering top-notch hospitality services to its residents while helping those residents to maintain health and wellness and to age in place. Through this effort, which has been branded as the "ACTS Signature Experience," the organization enhanced its wellness programming while expanding its existing home health companion services to ensure that residents living in independent and assisted living will move across the continuum of care more slowly and exercise more choice during that process.

To enhance the ACTS Signature Experience, the organization also made a commitment to utilize state-of-the-art technology as a way to monitor resident wellness and ability to age in place and to integrate up-to-date technologies into each of its living environments. While the economy has slowed progress on these initiatives, the organization is preparing its first test of monitoring technologies in assisted living with the goal of slowing residents' movement to skilled care.

ACTS is also working hard to help its residents use and feel more comfortable with technology. During Resident Technology Days, residents have the opportunity to explore social networking and try out mobile devices such as handheld and tablet computers. Over the long term, ACTS plans to introduce its residents to a whole range of technologies that they can use to experience next-generation television, video conferencing, remote monitoring and personal emergency response. ACTS is also exploring the possibility of making the iPad a "master remote control" for its communities. Residents could eventually be using that tablet computer to control the apartment environment, communicate with management and make requests for service. The organization's long-range plans call for delivering concierge and monitoring services either on a fee-for-service basis or as part of a bundled package.

### **Outcomes**

Like other organizations, ACTS' point-of-care technologies improved the quality of the organization's documentation and yielded higher reimbursement revenues due to ACTS' ability to better document the care it provided to higher acuity residents. The organization's purchase of point-of-care hardware with touch screens and more human-style interfaces helped improve staff members' comfort with technology.

### **Business Case**

Organizations like ACTS are currently emerging from the survivalist mode that they adopted, by necessity, during the recent economic crisis. ACTS remains confident that residential-based CCRCs emphasizing wellness and hospitality will continue to enjoy a strong market share. Technology that



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helps ACTS take steps toward new business models, and those that can be scaled rapidly, are expected to play a role in enhancing the organization's market position.

ACTS will not formally measure return on investment (ROI) for every technology deployment. For example, there are some technology investments—including a wireless infrastructure and an EHR—which must be pursued even if there is no short-term ROI. Aging services organizations won't survive in the future without an EHR, wireless connectivity and a core set of programs supporting wellness and hospitality. Instead of basing technology investment decisions on ROI, organizations should conduct a value analysis that helps them determine how fast they can deploy these technologies, the level of risk the organization can absorb, and how well that organization can adjust to change.

### Keys to Success

**Break down internal silos:** ACTS' success in helping residents age in place will depend on its ability to break down the silos that separate its independent living, assisted living and skilled nursing service delivery. The organization is now becoming highly proactive in exploring whether it can redefine its core service model, which currently focuses on delivering services and supports within particular levels of care. ACTS would like to move to a model in which delivery of services and supports is independent of location and uses a home health model across the continuum.

### Advice to Others

**Build the technology infrastructure.** Organizations should invest now in basic technologies that can be adapted to a variety of business models. For example, a comprehensive EHR system is no longer optional for organizations. In addition, wireless connectivity that is available across the campus for use by both staff and residents is a “must have” and can now be achieved for a relatively affordable price. Finally, organizations should begin experimenting with tablet and handheld computers, which promise to become a standard component of future service delivery.

## Billings Clinic Billings, Montana

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*Contributor:*

**Nicholas Wolter, MD**

*Chief Executive Officer, Billings Clinic*

## Dahl Memorial Healthcare Association Ekalaka, Montana

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*Contributor:*

**Nadine Elmore**

*Chief Executive Officer,*

*Dahl Memorial Healthcare Association*

### The Organizations

[Billings Clinic](#) is a not-for-profit health care organization that serves patients in Montana, Wyoming and the western Dakotas. The clinic's main campus consists of a 272-bed hospital with a Level II Trauma Center and a 90-bed Assisted Living and Rehabilitation Center. Its service area stretches over a 121,000 square miles and includes 572,000 residents living in 40 counties. Billings Clinic is also home to the [Eastern Montana Telemedicine Network](#) (EMTN), a consortium of not-for-profit medical and mental health facilities that uses technology to link health care providers and their patients throughout Montana, Wyoming and North Dakota.

[Dahl Memorial Healthcare Association](#) is a critical access hospital located in Ekalaka, a town of 410 residents in eastern Montana. The facility combines a 23-bed nursing home, a clinic where a physician

assistant provides health care services, and a hospital with 24-hour emergency services.

### Technology-Enabled Model or Service

Most of the telemedicine-related services provided by Billings Clinic are facilitated by the Eastern Montana Telemedicine Network (EMTN). The network began as a cooperative effort between Billings Clinic and five rural healthcare facilities in eastern Montana to research the potential of interactive videoconferencing in improving access to medical specialty and mental health services. Today EMTN has 36 partners in 26 communities throughout eastern and central Montana, northern Wyoming and western North Dakota. Operational since September 1993, EMTN continues to pursue its original goal to utilize two-way interactive video conferencing technology to deliver specialist medical and mental health services, continuing medical education and administrative services.

Over the past four years, Dahl Memorial Healthcare Association has received two grants aimed at helping it incorporate telemedicine into the care it provides through its nursing home, in-patient hospital, clinic and emergency room. The first grant explored the feasibility of creating a telemedicine network to connect critical access hospitals with remote pharmacists who would provide pharmacy consulting services. The second grant, awarded in 2011 by the federal Health Resources and Services Administration and the Montana Health Network, will test the feasibility of using telemedicine to provide primary health care.

## Implementation Approach

**Support from Billings Clinic:** Billings Clinic has been very active in helping a number of rural clinics and critical access hospitals adopt more advanced technology, including both financial and clinical information systems and telemedicine-enabled care delivery. A number of these facilities have formal management service contracts with Billings Clinic that gives them access to the clinic's financial and clinical information systems, including electronic health records. The EMTN facilitates telemedicine visits between physicians who are based at Billings Clinic and patients of the rural health facilities.

**Dahl Memorial Telemedicine Grants:** Findings from Dahl Memorial's first grant suggested that using telemedicine for pharmacy consulting services was not feasible. Researchers concluded that while facilities like Dahl Memorial could use telemedicine equipment to create new relationships with remote pharmacists, those relationships threatened to undermine the longstanding partnerships that these facilities had with their local retail pharmacists. Despite these findings, however, the grant brought many benefits to Dahl Memorial by allowing it to purchase telemedicine equipment that the facility still uses to link its patients with specialists at Billings Clinic.

Generally, video conferencing equipment and medical peripherals such as electronic stethoscopes allow Billings Clinic specialists to conduct remote exams with Dahl Memorial patients. Over 20 specialty services are offered through Billings Clinic, including cardiology, oncology and diabetes education. The remote visits benefit patients who cannot afford the time or the expense of in-person visits with their specialists. Those visits would require a four-hour car trip to Billings and possibly an over-

night stay at a hotel.

Telemedicine-enabled physician visits take place in a dedicated room at Dahl Memorial. An on-site nurse assists in a physician-directed patient examination by taking vital signs, relaying his or her findings to the physician, and assisting with communication between the patient and provider. The telemedicine equipment also allows local residents to participate in behavior management support groups conducted by Billings Clinic, which is 260 miles away, and Holy Rosary Health Care in Mile City, which is 115 miles from Ekalaka.

The current telemedicine grant will help Dahl Memorial Healthcare Association determine if it can use telemedicine to address some of the challenges associated with providing primary care in isolated areas. One of those challenges involves recruiting health care providers to work in a remote area known for brutal winters that bring with them piercing winds and temperatures of -20F. Like many critical access hospitals, Dahl Memorial has only one health care provider on staff: a physician assistant. That provider is supervised by the facility's medical director, who is based in Baker, MT, about 36 miles from Ekalaka. When its provider takes a vacation or experiences an illness or family emergency, Dahl Memorial is responsible for finding a temporary replacement.

Dahl Memorial struggled with such a problem in 2011 when its provider was called away from the facility for several months. The organization was able to find replacement providers for all but four days of its provider's leave time. On those days, however, the hospital was forced to shut down its clinic, suspend in-patient hospital admissions and severely curtail the services available through its emergency room. With telemedicine in place, the facility could

have scheduled remote clinic visits. In addition, its emergency room nurses could have held telemedicine sessions with an off-site health care provider.

Billings Clinic and the Glendive Medical Center will lend their clinical expertise to the federally supported telemedicine project and EMTN will provide technical support to help Dahl and two partners design and implement a new model of primary care delivered through telemedicine technology. The grant will also allow Dahl Memorial to purchase more sophisticated telemedicine equipment that will enable the remote physician to examine the patient directly rather than depending on an onsite nurse to verbally communicate her observations.

During the grant period, Dahl Memorial's health care provider will be assigned a "buddy" health provider at another facility who will be called upon when remote care is needed. The two buddy providers will work together prior to the telemedicine launch. That way, Dahl Memorial's health provider can gain assurances that his buddy provider is a good fit for the facility and will provide quality care to the patients. Once that trust is established, the Dahl Memorial health provider can reassure the patients about the quality of care provided by the buddy.

## Challenges

**Identifying barriers:** In addition to establishing procedures for the buddy telemedicine program, partners in the federal grant will also be exploring potential barriers to telemedicine primary care, including credentialing issues, liability concerns and patient hesitance to use the new system. Dahl Memorial anticipates some resistance to telemedi-

cine from its older patients, although it expects that patients younger than 50 will be more comfortable with the new technology. During its first telemedicine grant, the facility found that older patients are far more likely to drive, or have a relative drive, the 260 miles to Billings in order to have a face-to-face doctor visit. Younger patients are more likely to appreciate the fact that they don't have to drive four hours to see a clinician.

## Business Case for Telemedicine

The business case for telemedicine is improving with each passing year due to several factors, including enhanced Medicaid reimbursement and more sophisticated equipment that has elevated the quality, convenience and efficiency of telemedicine-enabled doctor visits. Clinicians are now able to seamlessly integrate telemedicine into their practices, often moving from a face-to-face office visit to a telemedicine visit in a matter of minutes. In the early days of telemedicine, the physician had to travel to a special studio in order to conduct remote patient visits. Telemedicine has also advanced patient-centered care by helping consumers avoid the expenses, burdens and risks associated with traveling long distances for health care.

## Advice for Others

**Don't neglect face-to-face interaction.** Despite its commitment to telemedicine, Billings Clinic physicians still travel to rural locations to conduct about 70 outreach clinics each month. Leaders of the Billings Clinic believe that in-person patient visits will always be an important part of rural health care and will never be abandoned. Likewise, the leaders of Dahl Memorial Healthcare Association view telemedicine as an option that will only be used when

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face-to-face visits are either impossible or impractical. Both organizations believe that finding the right combination of in-person and remote health care interactions will improve care coordination and communication.

**Don't do it alone.** Current economic conditions make it extremely difficult for rural health care providers to do it alone, especially when it comes to implementing expensive health information technology systems. Look for a willing hospital partner that shares your values and both of you can benefit from working together to improve rural health care.

## Cathedral Square Corporation Burlington, Vermont

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*Contributor:*

**Nancy Eldridge**

*Executive Director*

### The Organization

[Cathedral Square Corporation](#) (CSC) is a nonprofit organization in Burlington, Vt. that owns and manages 24 affordable housing communities for seniors and individuals with special needs. Founded as a ministry of the Cathedral Church of St. Paul, CSC opened its first building in downtown Burlington in 1979.

Over the years, CSC has worked hard to raise awareness about the important role that affordable housing communities can play in helping their residents age in place. The organization developed the [Support And Services at Home](#) (SASH) model, through which an interdisciplinary team of health professionals and service providers works at a housing site to help residents remain independent. The team is comprised of a full-time SASH coordinator and a wellness nurse, both of whom are employed or subcontracted by the housing development, as well as nurses, caseworkers, mental health professionals and service providers from community-based organizations.

When residents join the SASH program, they receive various assessments to gauge their cognition, mental health status and ability to live independently. Using these assessments and information gathered during resident interviews, the SASH team works with each resident to develop an Individual

Healthy Aging Plan designed to help that resident meet his or her health and wellness goals. The team also develops a Community Healthy Aging Plan that addresses health issues affecting the entire congregate setting.

Using funds from the Vermont legislature, the Vermont Health Foundation and the MacArthur Foundation—as well as its own funds—CSC developed and piloted SASH at one of its apartment buildings from August 2009 to August 2010. Since July 2011, SASH has been integrated into the Blueprint for Health, Vermont's new health reform initiative. Organized around a medical home model, the initiative involves the creation of interdisciplinary community health teams that provide coordinated care and support patients' primary care physicians. A Medicare-funded SASH program will extend the capacity of those community health teams in 112 housing developments throughout the state.

### Technology-Enabled Model or Service

CSC is currently exploring several technology-enabled services with the help of its full-time SASH Health Information Technology (HIT) Coordinator, who has significant experience in telemedicine and other methods of linking with seniors in their homes. CSC plans to deploy an electronic emergency call system in individual apartments. In addition, it would like to launch a low-cost Cyber-Seniors initiative that will bring local high school students to CSC buildings to teach residents how to use computers and to help them communicate with distant family and friends using the Skype communications platform. The organization's most ambitious technology initiative, however, involves its efforts to connect SASH sites to Vermont's Health Information Exchange (HIE).

## HIE Implementation Approach

The SASH pilot study convinced CSC and its partners that having accurate and up-to-date information about the health status of each SASH participant would help the teams respond quickly and appropriately to emergencies or intervene early before a subtle health change becomes a major health crisis. As SASH looks to the future, it recognizes that the efficiency of information sharing will be maximized by access to the state's HIE.

The State of Vermont has already made a formal commitment to connect each SASH site to the HIE, and an active SASH HIT Work Group has been formed with the state's contractor to develop the SASH module. This reflects Vermont's full commitment to what state officials call "systemness." While SASH works to be fully integrated into the HIE, it has created a database of its health assessment data using Microsoft's Access software. This database is modeled on a database that will be used by the community health teams that will be established under the state's Blueprint for Health initiative. When those community health teams and the SASH sites are connected to the state's HIE, the databases created by SASH and the teams should be interoperable.

Interoperability will allow SASH to enrich the community health team database with additional information about individual SASH participants, including their nutritional status and history of falls. Interoperability will also allow SASH sites to access the community health teams' clinical tracking system and the electronic health record system that the state's hospitals are now implementing. Finally, SASH participants will gain access to a personal health record that will be provided to all of the state's health care consumers as part of Ver-

mont's health reform initiative.

SASH is particularly interested in using the HIE to gain access to aggregated data about its participants' health and functional status so it can develop community-wide programs aimed at changing disturbing trends. The aggregated data will also allow SASH to identify demographic factors that could possibly influence variability in health outcomes from one SASH site to another. In particular, the SASH teams are interested in collecting accurate data on the number of prescription drugs being taken by residents of SASH sites and the number of SASH participants who have chronic diseases, have experienced multiple falls or have been transported to the emergency room as a result of a fall.

## Outcomes

During its one-year testing stage, SASH interventions helped reduce hospital admissions by 19 percent among housing residents at the test site. In addition, not one SASH participant who was discharged from nursing homes during the test period experienced a readmission. In addition, falls have been reduced by 22 percent, residents at moderate nutritional risk fell by 19 percent, and the percentage of physically inactive residents was reduced by 10 percent.

SASH has also proven that it represents a wise use of resources. The State of Vermont recently projected that its health reform initiative, combined with SASH, will save Medicare \$40 million by reducing older consumers' use of inpatient hospital and physician services, hospital outpatient and emergency room services, pharmacies and nursing home days.

These outcomes have helped to cement SASH's credibility with sometimes skeptical housing

providers, who have signed up to participate in its statewide rollout in mid-2011. In addition, service providers who work at the SASH test site now endorse the program because SASH has demonstrated that it can help them carry out their missions more effectively.

Having CSC and SASH involved in discussions of Vermont's health care reform initiative has also helped health care providers see housing providers in a new light. Until recently, it was not generally accepted that housing providers like CSC play a role in coordinating a resident's services and supports, or have access to residents' health information. Now, a growing number of state policy makers, health providers and community-based service providers understand the benefits they can reap by sharing information with SASH sites and receiving information from those sites.

### Challenges

**Outdated infrastructure:** Like many owners of older housing communities, SASH sites face a challenge as they attempt to upgrade their buildings to support technology innovations. Wireless technology is virtually nonexistent in these buildings, but will become increasingly important in helping these sites share information with other practitioners and eventually institute more sophisticated methods of monitoring resident behavior and tracking health outcomes. CSC hopes to be included in the state's broadband initiative. If it is successful, all housing sites would be "community anchors" earmarked for broadband.

**User-friendliness:** The technology used on the front lines to input assessment data must be user friendly while not diminishing the quality of the

interaction between the assessor and the participant. In the most rural areas of Vermont, this may require a greater number of laptops or tablets due to the geographic dispersion of SASH sites.

### The Business Case

When the State of Vermont's Blueprint for Health applied to the Centers for Medicare and Medicaid Services (CMS) in August 2010 for the Multi-Payer Advanced Primary Care Practice (MAPCP) Medicare Demonstration program, it projected that SASH would help the initiative achieve a cumulative savings in Medicare expenditures. That business case helped SASH obtain \$10.2 million in Medicare funds—which represents a capitated amount of \$700 per participant per year—to roll out its team-based model to 112 housing sites beginning in July 2011. One stipulation of Medicare funding was that SASH enroll Medicare beneficiaries regardless of age, income or residential setting.

An aggressive and effective rollout of SASH also required an Implementation Grant. The state has provided funding for that purpose through the Medicaid Global Commitment. CSC is currently seeking additional funds from other sources so it can add dollars to Medicare's per-participant cap.

CSC is currently developing information materials and participant selection criteria for serving consumers living in communities that surround SASH sites.

### Advice for Others

**Make systems change your goal.** Housing providers need to view themselves as valuable community resources. These providers should not be satisfied with creating "boutique" programs that serve



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only a small number of older consumers and often disappear when their short-term funding has been exhausted. Instead, housing communities need to become actively involved in efforts aimed at changing the entire health care system.

**Get a seat at the table.** The ability of housing providers to participate in systems change will depend on their willingness to get involved when states and local stakeholders are creating health information exchanges and telehealth networks, instituting payment reforms, and establishing Accountable Care Organizations. It is essential for housing providers to become educated about their states' plans in these areas and seek ways to become involved in the process.

**Sell yourself to your HIE.** The burden is on housing providers to convince state officials that they have valuable information about older residents that could help improve the care provided by local health providers, particularly emergency room physicians.

**Look to the future.** Like all providers of long-term services and supports, housing providers need to start thinking about the kinds of services and supports consumers will be demanding in 10-20 years and the kind of technology necessary to provide those services efficiently and effectively. Providers need to begin taking steps today to upgrade their buildings so that they are ready to support that technology.

## Ecumen Shoreview, Minnesota

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*Contributor:*

### Larry Jorgensen

*Chief Information Officer*

#### The Organization

The roots of the [Ecumen](#) organization date back to 1862 when the Lutheran Church began providing foster care in Minnesota. The organization began serving seniors at the beginning of the 20th Century as the Board of Christian Service and later as the Board of Social Ministry. The Ecumen name, adopted in 2004, comes from the Greek word for “home” and underscores the organization’s mission to create a home for older adults wherever they choose to live.

Ecumen operates a variety of senior housing options and services throughout Minnesota, Wisconsin, North Dakota and Idaho. The organization’s 70 sites include 55 independent living and/or assisted living communities and 17 health care centers that employ 4,000 workers and serve more than 10,000 people. A new [Ecumen at Home](#) initiative offers a variety of in-home services designed to help older consumers in the Minneapolis and St. Paul area remain independent in their own homes. Services range from home cleaning, grocery shopping and errand services to home care and aging-in-place technologies.

#### Technology-Enabled Model or Service

Since 2003, Ecumen has expanded its reach beyond its bricks-and-mortar campuses in an effort

to establish a market niche among older consumers living in their own homes. The organization’s mission to empower older people and help them remain independent led to the adoption of a variety of technology products and services:

**Remote monitoring:** QuietCare or Healthsense is available as a standard of care for residents of all Ecumen assisted living apartments. The cost of these devices is built into the monthly rent.

**Ecumen at Home:** In addition to other services, the Ecumen at Home program offers a variety of technologies on a fee-for-service basis to older people living in their own homes. These include the Be-Close Wireless Monitoring system; the elder-friendly Jitterbug® cell phone; the MedSmart medication reminder and dispensing system from American Medical Alert Corp.; Dakim BrainFitness Software; the Presto Printing Mailbox, which receives emails and photos without a computer; and the VoiceCare Emergency Response system.

**Social Networking:** Ecumen Connects is a web-based communications portal that the organization is deploying in all of its communities. The portal has a social networking component that allows residents to create a secure online network of family and friends. It also offers recreational activities, such as movies, audio books and virtual tours of cities around the world. A customized local interface allows each Ecumen campus to create its own content for Ecumen Connects. That content could include an activities calendar and other local news of interest to residents.

#### Ecumen Connects Implementation Approach

Ecumen discovered the Connects portal while searching for social networking technology that

could help residents communicate with their families and with one another. Staying socially connected can be a challenge for a subset of Ecumen residents and the organization's leadership saw Ecumen Connects as a way to improve quality of life among these residents.

The organization pays a monthly fee for its use of the Connects portal. Residents can access Ecumen Connects on their home computers or on computers located in the common areas of their communities. In addition, many of the campuses are developing group activities that involve watching the movies, taking the virtual tours or playing the games that are part of the Connects program.

Ecumen Connects also serves as a marketing tool for individual campuses, which can share the portal's web address with prospective residents interested in accessing the community's calendar of events or connecting with current residents through its social networking component. Ecumen is exploring the possibility of launching a version of Ecumen Connects for participants in the Ecumen at Home program. The community-based program will include an additional component that families can use to facilitate the coordination of informal caregiving tasks.

## Challenges

**Fitting championing tasks into an already-busy schedule:** Deploying the Ecumen Connects program across 70 communities presents a challenge for the organization, especially because success at the local level will depend on the ability of already-busy staff members to take ownership of the program and build it into a robust communications platform. So far, 22 Ecumen communities have

launched the program. The organization facilitated these launches by identifying early adopters, supporting their efforts to get the program off the ground, and then making sure other communities heard about these early successes. Success among early adopters has helped spread enthusiasm about the program to other Ecumen communities.

**Introducing a new generation to social networking:** Ecumen residents have been relatively slow to adopt the social networking component of Ecumen Connects. A handful of residents at each site are using the platform to create and communicate with their online social networks. However, a sizable portion of older residents is still uncomfortable with computers and hesitant to become early adopters. Hand-on training of residents, and group activities that make use of the system's entertainment components, are helping to convince residents that the program is worth exploring. Ecumen expects that future residents, who will be younger and more comfortable with technology, will expect to have social networking platforms like Ecumen Connects in their communities.

## Business Case

Ecumen adopted the Connects platform because it fit the organization's vision and values, not because it is expected to provide a return on investment. The organization's leadership team weighed the cost of the program, which is not expensive, against its potential to improve residents' quality of life, and decided to offer the program free of charge.

In contrast, Ecumen is definitely looking for a return on its investment from the Ecumen at Home program and the sale of technology devices to participants in that program. The organization worked

hard to find the right combination of technology and services that would attract private-pay customers. The key to success, it feels, is offering products that are easy to use and viewed by consumers as useful tools that can help solve specific problems associated with aging-in-place. Most important, products need to be reasonably priced.

Price was a major factor in Ecumen's decision to offer the BeClose monitoring system in the Ecumen At Home Program, rather than the QuietCare units the organization deploys on campus. In addition, Ecumen determined that families did not need the sophisticated level of reporting available with QuietCare.

Ecumen at Home members can purchase the BeClose hardware for \$299 and pay \$49 a month for the monitoring service. Other products offered through Ecumen at Home are also priced competitively. The Presto Printing Mailbox, for example, sells for \$99 with a \$14.99 monthly fee while Ecumen at Home members can purchase the Jitterbug phone for \$89.99 and a \$14.99 monthly fee.

### Keys to Success

**An innovation culture:** A workplace culture that actively encourages innovation has helped Ecumen gain staff support for various technology initiatives. The fact that Ecumen employees are expected to continually explore new ways of doing things makes them more comfortable with change and better able to implement new ideas. Ecumen has operationalized its innovation culture through two internal, computer-based networks: the "Innovation Station," where employees share details about successful innovations they have implemented so their counterparts at other Ecumen communities

can learn from those successes; and the "Idea Box," which encourages staff to share early-stage ideas so their colleagues can offer their pre-implementation feedback.

**Strong champions:** The Ecumen Connects portal has a strong champion in the organization's corporate office who has promoted the program's implementation by visiting individual Ecumen communities and creating excitement about the program among local staff. Being a champion also involves recruiting other champions at each of the Ecumen sites. These local champions agree to learn the program and teach others to use it, create local content, and organize activities around various program components.

### Advice to Others

**Become an active product researcher.** When it first started adopting technology, Ecumen depended on vendors to pitch products and services in which the organization might be interested in deploying. In recent years, however, Ecumen has become more proactive about identifying a need that it wants to address and then searching for vendors that can help it fulfill that need. Without that proactive approach, Ecumen might never have learned about the Connects program.

**Pilot test before you buy.** Ecumen pilots technology at sites where staff members have expressed a desire for the technology. It then solicits employee feedback on whether the technology works, whether it makes their jobs easier, and if the technology addresses the problem it was intended to solve. If Ecumen feels the technology is not achieving its intended goal, it ends the pilot and moves on.

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**Face resistance head on.** Every organization will encounter natural resistance to any change that impacts the way employees do their jobs. Ecumen deals with that resistance by getting staff members involved in the adoption process and giving them ownership of the project through participation in interdisciplinary project teams. The organization makes a special effort to show staff members that they are being heard and that any help they need to use the new system will be made available.

## **Eskaton Carmichael, California**

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### *Contributors:*

#### **Todd Murch**

*President and CEO*

#### **Sheri Peifer**

*Vice President, Research and Strategic Planning*

### **The Organization**

[Eskaton's](#) primary mission is to enhance the quality of life of seniors through innovative health, housing and social services. Each year, the organization offers a full spectrum of aging services to 14,000 older adults throughout northern California. Its campuses provide a variety of housing and service options, including independent living, assisted living, memory care, hospice, respite care, rehabilitation and skilled nursing, and affordable apartments. In addition, Eskaton provides case management, telephone reassurance, companionship and transportation services, home health care and adult day services to older people living in the community. Its Senior Connection program sponsors a variety of free educational classes for older adults and caregivers and serves as a free and independent resource for information on available services for older adults and caregivers.

### **Technology-Enabled Model or Service**

Eskaton's interest in deploying technology-enabled services was sparked in 2005 when Sheri Peifer, the organization's Vice President, Research and Strategic Planning, became a CAST commissioner.

Eskaton's association with CAST allowed the organization's senior staff to learn about technology tools that could advance the organization's service models. It also gave Eskaton staff the opportunity to network with major technology vendors and to collaborate and share information with peer aging services providers.

As a result of this interaction, technology rose to a new level of importance in the organization and led the board of directors to authorize investments in technology-related research and development. Those investments helped Eskaton deploy electronic health records (EHR) and a sensor-equipped remote monitoring system, and to build a national demonstration home featuring universal design, supportive technologies and "green" living features.

### **Implementation Approaches and Outcomes**

**Electronic Health Records:** In 2007, Eskaton began the process to implement a complete EHR in its skilled nursing communities and licensed home health agency. The organization is currently implementing electronic medication administration records and care plans as the vendor works to complete the final components of a full EHR. Point-of-care kiosks complement the EHR system in Eskaton nursing communities by allowing frontline staff to quickly and accurately document the care they provide.

Eskaton's EHR system required the buy-in of a host of internal stakeholders, from frontline caregivers to top-level managers. Its health information managers, business office managers and registered nurses all participated in the original EHR planning team because they understood the current processes and how they would be affected by an EHR

implementation. The organization listened carefully when those staff members made suggestions. For example, Eskaton decided to purchase point-of-care kiosks when staff indicated that carrying handheld devices while providing hands-on care would be cumbersome.

**Remote Monitoring:** Eskaton has deployed approximately 350 QuietCare sensor-equipped passive monitoring systems in its independent, assisted living and memory support apartments. The organization has quantitative and qualitative evidence that this passive monitoring system is helping staff identify emerging resident health concerns in a timely manner and provide early interventions before those issues become serious enough to require hospitalization. In addition, the system is being credited with detecting early signs of dementia in residents, and in helping families better understand the health and cognitive status of their relatives.

**National Demonstration Home:** Eskaton built its national demonstration home to shine a spotlight on universal design and aging-in-place technology and to dispel the common misconception that age-friendly design must look institutional. The well-appointed home incorporates 100 universal design elements featured in Eskaton's Livable Design Program, a certification program for single-family homes that meet Eskaton-developed universal design guidelines. The home also features green design; social connectivity, cognitive fitness, healthy living and reminder technologies; and smart lighting and appliances. More than 2,800 consumers and professionals have toured the home with the help of docents who explain its features.

The dining room of the National Demonstration Home contains three touchscreen computers where visitors complete a survey after touring the home.

Survey results have provided valuable insights into consumers' attitudes toward aging-in-place, including their willingness to pay \$10,000-\$25,000 more for a dwelling that incorporates universal design features. Eskaton worked with 19 partners, including technology vendors, to design, build and equip its demonstration home. During this process, the organization's staff educated vendors about the aging process and encouraged them to work together to integrate their varied technology platforms into the home. Feedback from Eskaton spurred some vendors to modify products to increase their user-friendliness.

**Eskaton Technical Services (ETS):** Eskaton knew that many of the older adults entering its communities would need assistance with the latest technology products. The ETS program was created specifically to provide residents with training, technical support and access to the latest technology products. These offerings, coupled with free, building-wide Wi-Fi, enable residents to expand their knowledge of and accessibility to new technologies, including Skype, email and Internet searching.

## Challenges

**Outdated infrastructure:** Some of Eskaton's initial technology-related challenges revolved around basic infrastructure issues. For example, the organization owns many older buildings that were not adequately equipped to support wireless monitoring devices and point-of-care kiosks. In some cases, older buildings had to be carefully assessed and rewired before technology solutions could be implemented.

**Incompatible technology components:** Eskaton's long-range plan is to ensure that every individual who comes in contact with any of the organization's programs and services will have an EHR that can be accessed by appropriate clinicians and team members throughout the organization. The organization has already been frustrated by its inability to find an EHR system that is flexible enough to meet this goal and, at the same time, comply with federal regulations. Eskaton currently has two separate EHR systems deployed in its skilled nursing communities and its licensed home health care division. It deployed a third electronic data collection platform (not an EHR) in its assisted living/memory care apartments and is currently seeking a fully compatible EHR system for all levels of living and services provided throughout Eskaton, including independent living services.

**Licensing survey teams:** Eskaton encountered an unexpected challenge during the first year after it began working towards an EHR in its skilled nursing communities. The state evaluators who arrived for the organization's annual survey were not familiar with the new EHR system and required that Eskaton share paper, not electronic, records with the survey team. Much of the challenge was the fact that part of the record was electronic and part was still paper. This frustrated the surveyors and required more work by the staff to provide the appropriate documentation. Ultimately, Eskaton staff provided laptops to the survey team when they arrived for subsequent visits and trained team members on how to access and understand the organization's EHR and remaining paper-based records.

## The Business Case

The Eskaton Foundation paid for installation of QuietCare in two assisted living/memory support communities. Once installed, the monitoring service became part of Eskaton's standard of care and is available at no additional cost to all residents. Eskaton made this decision because it views passive monitoring as a natural evolution of the traditional emergency call system.

Eskaton continues to be challenged to develop a business model around technology-enabled services that makes those services affordable to a broad range of consumers and throughout all of Eskaton's housing and services. With multiple demands for capital expenditures and operational costs that must be managed and maintained, especially during the pressures of this "new normal" economy, Eskaton proactively monitors both tangible returns on investment and intangible returns, such as anecdotal feedback from families and residents about their Eskaton experience and increased wellbeing.

## Key to Success

**An active board of directors:** In 2004, Eskaton's board of directors switched to a policy governance model that freed its members to make strategic decisions aimed at ensuring that Eskaton will continue offering services that future consumers will find appealing and relevant. To advance its strategic planning work, the board places a high priority on educating its members about current trends in the field, and it has been vocal about its desire for Eskaton to be an innovator in the field of aging services. As a result, Eskaton's strategic plan integrates technology into each of the organization's four strategic directions.



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## Advice to Others

**Provide good customer support.** Before any technology deployment takes place, an Eskaton information technology training team learns all it can about the system, educates staff on how to use the tool, and provides excellent customer service to staff people who need assistance after the launch. They also continue to train new employees, as well as existing staff, to maintain usage standards and compliance. This gives the communities the ability to have new employees hit the ground running while, at the same time, providing a strong base upon which they can continue to build.

**Identify community champions.** Eskaton assesses and identifies at least two champions at each community to embrace the technology tool that will be integrated. These persons are leaders in their communities and are able to communicate positively and provide solutions to challenges that may arise.

**Offer opportunities for ongoing peer-to-peer support.** Monthly meetings are held among peers who are using various technologies, whether it is EHRs, passive monitoring systems or resident social networking portals. Taking part in ongoing communications and sharing best practice information helps each peer contribute to improving Eskaton's processes and experience.

## Evangelical Homes of Michigan Southeast Michigan

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### *Contributors:*

#### **Denise Rabidoux**

*President and Chief Executive Officer*

#### **Steve Hopkins**

*Vice President, Wellness and Home Based Solutions*

### **The Organization**

Since 1879, [Evangelical Homes of Michigan](#) (EHM) has been committed to creating exceptional services and innovative solutions for older adults living in Southeast Michigan. The organization has seven campuses or offices located in Detroit, Saline, Ann Arbor, Farmington and Sterling Heights.

EHM offers an array of products and services for older adults who call Southeast Michigan their home. These services and products include independent housing and housing with services, skilled nursing and short-term rehabilitation, hospice care, memory support services, adult day programming, respite care, home-delivered meals, intergenerational child care and latchkey programs, traditional home care services, certified home health care services and geriatric care management. The organization also offers home-based wellness and technology solutions that include home repairs, home maintenance and adaptation services. Additionally, EHM offers housing and home care for clients of limited resources through its affordable housing program and its community share services.

EHM has gone through significant changes in the past five years after making three strategic deci-

sions based on extensive research about not only its current customer but the customer of the future. The governance and leadership of the organization have redefined a core value that involves intentional learning about the older adult who will live in Michigan in the future. Those decisions have transformed EHM from an organization serving 600 patients and residents on its bricks-and-mortar campuses, and in primarily nursing homes, to an organization that serves over 2,000 consumers, half of whom receive a wide variety of services and supports in their own homes and in the neighborhoods where they raised their children and visited with friends.

The most rapid transformation and change for EHM has occurred since 2006. One of its first strategic decisions, following years of study and research, involved the launch of an organization-wide health and wellness initiative that uses the services of personal trainers, lifestyle coaches, nutritional counselors, massage therapists and professionals to help EHM residents and non-residents stay independent and healthy for a lifetime. The second strategic decision, which involved the purchase of two separate home care agencies, permanently transformed how EHM serves older adults on its campuses and in the wider community. Suddenly, the organization was living its vision to become the primary resource for older adult services in Southeast Michigan by offering ongoing support and education to older adults who lived in the expanded communities surrounding its centers and campuses.

In 2010, a third strategic decision launched EHM's two newest subsidiaries—LifeChoices™ and LifeChoice Solutions™—which use technology and a full menu of other services to help consumers remain at home while receiving the support they need to stay independent.

## Technology-Enabled Model or Service

EHM's new emphasis on helping consumers stay healthy, happy and well, no matter where they live, is supported by two technology-enabled service programs:

- LifeChoices™ is the organization's continuing care at home program. It provides members who pay a one-time member fee and a monthly service fee with an inclusive package of services and supports designed to keep them independent and cared for over a lifetime, all in the comfort of their own home. To date, LifeChoices™ is one of only 10 retirement community without walls products across the country.
- LifeChoice Solutions™ provides an a la carte menu of support products that promote wellness, safety and independence through the use of the latest technologies and lifestyle coaches.

## Implementation Approach

Every participant in the LifeChoices™ programs is assigned a lifestyle coach or advocate. The coach could be a care manager, social worker, dietician, personal trainer or other trained professional. While lifestyle coaches represent a variety of disciplines, they share one important trait: an ability to focus on health and wellbeing rather than clinical care. The ability to engage, encourage, teach and coach is the core competence for the advocates who work in these subsidiaries. Although EHM uses registered nurses as lifestyle coaches, it is important that the nurse seek innovative solutions to promote wellness and independence, not care and dependence.

Coaches get to know their customer well and follow the consumer's lead in deploying whatever solutions will help that consumer remain healthy, enriched and independent. This may involve managing a home modification like a bathroom renovation; hiring a handyman to take care of burdensome maintenance chores; delivering daily meals or catering dinner parties; or introducing a variety of technology solutions that can keep track of vital signs, send an alert to caregivers when a problem arises, or allow a person with a hearing impairment to know when visitors arrive. Currently EHM utilizes over 20 technology solutions tested through a road-mapping process.

LifeChoice™ members also have access to Care Innovations™ Connect, a new product that

EHM was an early adopter with Care Innovations™. The device helps older people stay in touch with EHM's lifestyle coaches, family member care providers and friends while providing them with a variety of other tools aimed at reducing isolation and promoting health and wellbeing. EHM lifestyle coaches use Care Innovations™ Connect to manage wellness surveys completed by clients/members; receive updates and alerts that help identify members who need assistance; and send news and information about events that might interest them.

## Challenges

**Delivering on promises:** When an organization decides to put the customer in the driver's seat, it must take deliberate steps to deliver on its promises. This can be challenging for organizations that are used to setting the care agenda. It requires that the organization devote time and energy to understanding the customer, creating programs that the customer

has requested, and establishing the right process to make sure the program works well.

### **Business Case**

An executive director and a team of lifestyle coaches now serve 140 customers in the LifeChoices™ and LifeChoice Solutions™ subsidiaries. In addition, EHM staff members who work for other divisions understand that, in addition to working in the campus environment, they are also responsible for community-based work. For example, the EHM maintenance staff deploys technology devices in the homes of members/customers. The organization's nutritional counselors serve as the program's registered dietitians, and its skilled health care clinicians conduct home visits with LifeChoices™ customers. Lifestyle coaches leave their campus work environments to visit with clients in their homes.

The LifeChoices™ one-time membership fee is based on the customer's age and ranges from \$35,000 to \$50,000. Monthly fees average \$400. According to the LifeChoices™ model, the program will break even if it can count 25 customers among its members. EHM projects that the typical LifeChoices™ member will participate in the program about nine years before requiring ongoing health care and 12 years before they require skilled nursing care. EHM is at risk for the payment of that care in this model.

Currently, the sales cycle for LifeChoices™ is about six-to-eight months. The most successful sales strategy involves inviting 10-15 individuals to an educational meeting. Most prospects are people who have helped a family member navigate the current long-term care system and are looking for other options for themselves and/or loved ones.

### **Keys to Success**

**Staff Buy-in:** EHM staff like having the opportunity to deliver services in a variety of settings and have embraced the mission of the two subsidiaries to offer consumers customized solutions that help them stay at home. Staff members hear consistent messages from EHM's management about the importance of designing services and supports with future consumers in mind. Brand identity and creating a culture of trust are key to the company's fast-paced transformation.

**Staff Ambassadors:** Staff buy-in on technology solutions is facilitated by an EHM commitment to launch every new technology in the homes of employees and their family members. Technology partners must agree to provide free equipment that can be tested by EHM staff. Employees are considered to be an important referral base for the two new products, whether they are talking about technology with customers in the organization's rehabilitation unit or with friends at the grocery store.

### **Advice for Others**

**Don't turn into a technology vendor.** While EHM had to make some capital expenditure to launch LifeChoices™ and LifeChoice Solutions™, it did not spend a great deal of money building up a large inventory of technology products. There are two reasons for this. First, technology products can generally be ordered and delivered quickly, in many cases overnight. Second, the organization wanted to be a "solutions and service provider," not a technology vendor. EHM maintains that since every customer is different, every customer will require a different, customized solution, rather than a device that the organization is looking to move off the shelf.



## **The Evangelical Lutheran Good Samaritan Society Sioux Falls, South Dakota**

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### *Contributors:*

#### **Bill Anderson**

*Vice President, Quality, Innovation,  
Change Engineering and Design Systems*

#### **Rusty Williams**

*Vice President, Information Services/Technology  
Systems and Chief Information Officer*

#### **Jacci Nickell**

*Vice President, Development  
and Operation Delivery Systems*

#### **Kim Johansen**

*Director, Rehabilitation/Skilled Care*

#### **Amie Downs**

*Senior Project Manager*

### **The Organization**

The [Evangelical Lutheran Good Samaritan Society](#) began its 90-year history in 1922 in a six-room rented house in rural North Dakota. Today the organization is the nation's largest not-for-profit provider of senior care and services, serving more than 27,000 people in 240 locations nationwide. Over the years, the Good Samaritan Society has broadened its service offerings considerably. While it initially focused solely on offering traditional skilled nursing care, the organization now provides senior living apartments, home health, assisted living, hospice care, inpatient and outpatient therapy

and specialized units for people with Alzheimer's disease and related dementias.

In 2011, the Good Samaritan Society set an unofficial goal to touch one million lives in the next five years. The organization estimates that it now touches perhaps only up to 20 percent of that target. To touch a million lives, however, the Good Samaritan Society must move out of its existing environments and find new ways to engage with consumers, particularly those who will never set foot on one of the organization's campuses.

### **Technology-Enabled Model or Service**

The Good Samaritan Society expects technology-enabled services to help it meet its goal to engage with a broader population of consumers. The organization is currently working on several projects to make this possible:

#### **LivingWell@Home:** [The LivingWell@Home](#)

program, established in June 2010, provides health-monitoring technology to older adults living in the place they call home. One month after the program began, the Good Samaritan Society received an \$8.1 million grant, which it matched with \$3 million of its own funds, to assess the efficacy of three technology solutions: the WellAWARE remote monitoring system, the Philips Lifeline personal emergency response system and the Honeywell HomMed telehealth system.

**Electronic Medical Records (EMR):** The Good Samaritan Society is in the process of implementing the PointClickCare EMR system.

**Center for Innovation:** By the end of 2011, the Good Samaritan Society will launch its new Center for Innovation. The center will focus exclusively on

helping the organization work with its own employees and a variety of industry and academic partners to design innovative processes, products and services that will help older adults maintain their health, wellbeing, independence, and quality of life.

### Implementation Approaches

**LivingWell@Home:** The LivingWell@Home research is being conducted in collaboration with the University of Minnesota’s School of Public Health. The research team is working with Good Samaritan Society staff to enroll 1,600 older volunteers who will help them test the ability of the WellAWARE, Philips and Honeywell technologies to facilitate healthy aging-in-place. Researchers will also assess the impact of these technologies on health care costs, health service utilization, health outcomes, quality of life and client satisfaction. Participants will include older adults who enroll in the study after being discharged from inpatient hospitals and nursing homes, dual-eligible Medicare and Medicaid clients who receive Medicaid waiver benefits in a community setting, and residents of Good Samaritan Society assisted living communities.

**Electronic Health Records:** A good deal of pre-planning has been involved in the Good Samaritan Society’s EMR implementation process.

For example:

- The organization implemented an interim point-of-care system called Hands On, which requires certified nurse assistants (CNAs) to use handheld computers. In addition to improving the quality and accuracy of the organization’s care documentation, the interim system has helped CNAs become much more comfortable with technology and has prepared

them for the documentation tasks that the new EMR system will require.

- Good Samaritan Society staff members have spent months setting the stage for EMR implementation by streamlining the organization’s business and clinical processes and standardizing the forms it uses to document those processes. Before the streamlining effort began, the Good Samaritan Society used 460 such forms; today it has less than 100.
- The organization designated one of its centers as a “living laboratory” where the EMR system went live in May 2011. In addition to learning how to access and update residents’ electronic records, staff members at the 94-bed facility are helping the EMR implementation team identify and resolve the system’s operational glitches. Two additional pilots—one involving two centers and another involving five centers—will be launched in late 2011 and early 2012 in preparation for a rollout of the EMR to all 174 Good Samaritan Society centers.

**Center for Innovation:** When it becomes operational in late 2011, the Center for Innovation will focus on three platforms and will use small-scale, grassroots prototypes and experiments; mid-scale, human-centered design experiments; and larger-scale, disruptive innovations focusing on partnerships and a connect model. The platforms that the Center for Innovation will address with these prototype and experiment efforts include:

- **Independence:** The Center for Innovation will focus on work that addresses the specific variables leading to transitions from

independent to congregate living and how technology and new programs and services can hold those transitions at bay.

- **Wellbeing, safety and security:** A critical part of transforming senior care and services is pushing ahead the timeline for engaging with Good Samaritan’s products and services. The Center for Innovation will focus its products’ and services’ development to engage seniors earlier and highlight wellbeing, safety and security as priorities.
- **Health:** The Center for Innovation will address how the Good Samaritan Society can keep the people, families and communities it serves healthier and for a longer period of time. By focusing on senior and family health, the organization assesses that it will transform not only the base of people for whom it provides services, but also significantly decrease the acuity level of the people that it engages later in the traditional senior continuum.

## Business Case

**Creating an Evidence Base:** The LivingWell@Home research is designed to provide critical evidence that technology-enabled services can help older adults optimize their health and independence. Armed with this evidence, the Good Samaritan Society and other aging services providers will be able to make a strong case that public and private third-party payers should support these technologies as a way to improve health care quality and reduce costs. In addition, evidence from the LivingWell@Home research will allow the Good Samaritan Society to promote itself as a valuable partner that can help Accountable Care Organizations and medical homes use technology-enabled services

to reduce rehospitalization rates and increase care coordination and efficiency.

**Putting risk in perspective:** Launching a center that seeks to develop cutting-edge products and services might appear to be too risky a venture for an aging services organization. However, the Good Samaritan Society is taking a two-pronged approach to addressing that risk and putting it in perspective.

First, the Center for Innovation plans to initiate many small-scale initiatives—referred to as “small bets”—rather than investing in one or two large-scale projects. The Center for Innovation will only pursue initiatives that demonstrate quickly that they can provide a good value to Good Samaritan Society customers and can be scaled across the organization.

In addition, the organization points out that its investment in the Center for Innovation required a lower up-front capital investment and carries far less risk than planning, building and staffing a new care center. Like that bricks-and-mortar investment, however, the Center for Innovation should show a return on investment (ROI) in five to seven years, according to current projections. If the Center for Innovation succeeds in developing and testing a successful product or service, its ROI could surpass the ROI that a bricks-and-mortar investment is likely to yield.

## Keys to Success

**An Innovation Culture:** The Good Samaritan Society’s intentional focus on innovation began when the organization made a financial investment in the company that developed the WellAWARE passive monitoring technology. Since then, the Good



Samaritan Society has pursued a variety of initiatives aimed at testing new approaches to delivering services and supports. For example, LivingWell@Home is currently breaking new ground by helping WellAWARE and Philips integrate their technology platforms so they can be deployed together. With the Philips call center monitoring both systems, older consumers can be reassured that a fall will be detected even if they forget to wear their Philips Lifeline pendant.

**Staff involvement:** Giving staff members a meaningful role in technology deployment is a good way to ensure that those deployments will go smoothly. For example, the Good Samaritan Society has become very intentional about collecting negative feedback from staff members participating in its EMR living laboratory. Encouraging negative feedback during the pilot stage will help the technology implementation team resolve problems before the organization-wide EMR rollout takes place.

### Advice to Others

**Don't let size stand in your way.** It's tempting to assume that only large, well-funded organizations can afford to be innovative. On the contrary, the Good Samaritan Society is finding that small organizations are probably better positioned to innovate because they are nimble enough to change quickly. The organization hopes to overcome the challenges associated with its large size by basing Center for Innovation projects within its smaller care centers where rapid prototyping work can take place more easily.

**Allow staff to fail.** An organization that wants its staff members to think outside the box must be prepared to reward employees for failing, as long

as those employees learn from their failure. When handled correctly, failure can produce an organization's next great idea.

**Don't rush into an EMR implementation.** Because implementing an EMR is a major endeavor, the EMR decision-making process deserves adequate time. Before choosing an EMR system or vendor, make sure you understand what your organization will need from the EMR. Then, select a system that meets those needs. In addition, an organization should take time to analyze clinical workflows and identify opportunities to improve those workflows.

**Clear the decks.** Before EMR implementation begins, make sure that staff members involved in the process can focus their full attention on their EMR-related tasks. This may mean postponing other projects until after EMR implementation is complete.

## Front Porch Burbank, California

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*Contributor:*

### **Kari Olson**

*Chief Information Officer, Front Porch;  
President, the Front Porch Center  
for Technology Innovation and Wellbeing*

### **The Organization**

Founded in 1999, [Front Porch](#) is one of the largest not-for-profit providers of retirement living communities, affordable housing and skilled nursing centers in Southern California. Front Porch active adult and full service retirement communities offer a full range of options from independent living to continuing care, along with specialized programs like memory support. With innovative communities and programs that meet the changing needs of people as they age, Front Porch communities represent a leading-edge approach to wellness in aging. Front Porch is comprised of 10 full-service retirement communities in California and three adult living communities: one in Louisiana, one in Florida and one in Nuevo Vallarta, Mexico. Of these, seven are continuing care retirement communities (CCRC). More than 20 affordable housing communities are managed by Front Porch's affiliate, CARING Housing Ministries.

The Front Porch [Center for Technology Innovation and Wellbeing](#) (CTIW) is a center of excellence within the Front Porch family of companies that strives to harness technology solutions that support and enhance wellbeing in older adults. The center works collaboratively with Front Porch residents and staff—as well as researchers, academic insti-

tutions and other care providers—to identify the needs of older adults that can be met with the help of technology solutions. Based on these findings, the CTIW works with business partners to identify existing technology solutions or develop new solutions that can then be applied to the living environments of older adults.

### **Technology-enabled Models and Services**

**Dakim BrainFitness:** One of Front Porch's first technology-related ventures was its ongoing collaboration with Dakim Inc., the developer of a brain fitness software program designed to engage the minds of aging adults as a way to prevent or delay the onset of dementia. Front Porch was an original investor in Dakim, served as a beta tester for the original Dakim computer program, and was the first aging services organization to deploy the program in its communities. Today, Front Porch has installed more Dakim software systems than any aging services provider nationwide.

**Center for Technology Innovation and Wellbeing (CTIW):** Through its relationship with Dakim, Front Porch recognized that it could play an important role in testing and adopting early-stage technology. It also discovered that the organization's residents and staff members were eager and able to provide valuable insights on how technology solutions could best serve older consumers. To facilitate this engagement by Front Porch, its staff and residents, the organization launched the CTIW, a 501(C)(3) founded on the belief that technology innovation plays a vital role in enhancing each individual's ability to "live life my way." The center keeps abreast of the latest technology innovations in the field of aging services, seeks opportunities to conduct pilots of those technology solutions, evaluates

the results, and then facilitates the diffusion and rapid adoption of the solutions both throughout the Front Porch family and industry-wide.

The CTIW has recently been awarded two grants for large-scale pilots to be conducted over the next two years. “Minding our Meds: Demonstrating Senior Medication Adherence with Cell Phone Texting Reminders” is a one-year project supported by a grant from the SCAN Foundation, the Public Health Institute and the Center for Technology and Aging. The second grant is a Broadband Adoption Model eHealth Communities Award from University of California Davis and the California Telehealth Network. CTIW will use this grant to build a model eHealth community for Aging focused on helping California communities become best-practice examples in the use and integration of technology to improve health and health care for local residents. This two-year project will incorporate the use of distance learning on health topics through video conferencing, telehealth consultations, remote patient monitoring, and mobile computer labs devoted to increasing resident access to online health resources and improving overall digital literacy.

**Walnut Village:** Walnut Village, an Anaheim-based community that Front Porch recently redeveloped, has become a model for how technology can be integrated into living environments for older people. The community features the latest “smart home” technologies, including a high-speed wireless communications infrastructure that supports the layering of multiple technologies to accommodate the changing needs of residents who are aging-in-place.

**Enterprise-wide Wifi:** Front Porch is in the process of deploying 802.11n wifi clouds at every retirement living campus. This wifi access supports both business users and residents. For example, the new

access will allow business users to utilize wireless devices including phones, laptops, tablets and other point of service/care devices. Residents will have access to the Internet both in the home and throughout the community, in most cases both indoors and out.

### Implementation Approaches

Front Porch created one technology platform at Walnut Village that brings into every home and apartment a variety of sensor-enabled solutions. The sensor-laden system allows staff to conduct state-mandated, daily resident checks by monitoring the level of activity in each apartment. It also serves as a security system that alerts staff when movement is detected in the apartments of residents who are away from home. In addition, the integrated platform includes a personal emergency response system component that can be activated from anywhere in the community, bed monitors and fall detectors that are deployed in assisted living, and a wandering alert system for residents receiving memory support and nurse call for the skilled nursing facility.

Multi-layered and fully integrated technology is a hallmark of Walnut Village. For example, a pendant issued to every resident provides keyless access to any door in the community and also will allow residents to carry out point-of-sale transactions in the dining room, bistro or store. Best of all, most of the community’s technology goes unnoticed by residents. For example, sensors deployed throughout the community are smaller than the common doorbell and blend easily into the background.

## Challenges

**Integration:** Integrated technology may be the hallmark of Walnut Village, but that integration was not easily achieved. Front Porch staff had to work very hard to create one technology platform that would carry out a variety of sensor-enabled functions. The organization recognizes that vendors are starting to get the message that aging services providers don't want to use five separate computer systems to run five distinct technology solutions. Front Porch is cautiously optimistic that it will eventually become easier for providers to purchase one technology platform that will support a variety of interchangeable technology solution modules.

**System overload:** While today's aging services providers may encounter challenges when trying to engage residents and clients with new technology, the time is fast approaching when the same providers may find that their technology systems are inadequate to meet growing demand. Front Porch has already experienced this system overload. Heavy Internet use among residents caused the LUMA active adult living community in Nuevo Vallarta, Mexico to exceed its Internet bandwidth capacity within a month after opening.

## Business Case

The return on Front Porch's technology investment comes from using each of its technology platforms in multiple ways. For example, Front Porch's commitment to install wireless technology in each of its communities, a project that will be completed in 2012, will enhance resident services at the organization's retirement communities. But, equally important, the wireless upgrade will also help make the organization's business operations more efficient by

facilitating long-distance communication between Front Porch communities and the organization's headquarters.

The Dakim BrainFitness touch screen computer systems are available in all Front Porch communities at no cost to residents. The organization believes that the presence of these units in community common areas is an important service to residents and may drive the decision of some prospective residents to move to a Front Porch community.

## Keys to Success

**Two technology teams:** The structure of Front Porch's information technology (IT) department has helped the organization keep its eye on current challenges while charting a course toward the future. The technology division is divided into two distinct teams. An "emerging technologies" team identifies and explores strategic technology solutions that the organization might adopt as it strives to meet the needs of residents or make its business operations more efficient. An "operations team" works to keep all the organization's current technology running smoothly. That team trains Front Porch staff on new technology and solves problems associated with technology deployment. The organization's chief information officer is certain that if her organization had only one team to address emerging technologies and operations, the demanding nature of operations would keep team members from finding the time to think strategically.

## Advice for Others

**Define your needs.** Don't depend on vendors to tell you what technology you should adopt. Instead,

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take a proactive approach to identifying specific organizational needs that technology might help you solve. Start your first technology project by identifying just one need. Then search out technology vendors that will help you meet that need. If your first technology initiative isn't perceived as filling a specific need, it will not be successful, you will be discouraged, and that early failure may impact your ability to implement future technology initiatives.

**Make technology fun.** Front Porch does its best to make resident-centered technologies as entertaining and unobtrusive as possible. For example, the organization has fielded 10 teams in the National Senior League, which sponsors tournaments using the Nintendo Wii entertainment system. Front Porch promotes Wii bowling as a way to help seniors become more comfortable with technology. The organization knew it had succeeded in reaching this goal when it noticed that residents were taking the Wii technology for granted and focusing, instead, on the social interaction that the technology facilitated. In a similar fashion, Front Porch was attracted to the Dakim BrainFitness software because of its ability to entertain residents while putting them through the paces of rigorous cognitive exercises. The Dakim program must be used consistently in order to yield benefits, and its entertaining features keep residents engaged over time.

**Be flexible on training.** Training is the key to success in any technology initiative. However, organizations need to recognize that one training approach may not work with every type of technology or every group of users. Trainers need to take a careful look at the technology and should then experiment with different ways to get users comfortable with that technology. If one method doesn't work, try another. Make sure staff is well-versed

and completely comfortable with any technology that residents will be using. If staff members don't understand and feel comfortable with the new technology, residents are unlikely to accept it.

**Welcome pushback.** Don't view pushback from staff or residents as a reason to stop a technology deployment. Instead, look at negative feedback as a healthy sign that people are listening, are trying the technology and are invested in making it work. Pushback gives you an opportunity to work through issues, raise questions with vendors, answer questions and help people feel more comfortable with the technology solution you are trying to deploy.

## Jewish Home Lifecare New York, New York

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### *Contributors:*

#### **Bridget Gallagher**

*Senior Vice President, Community Services*

#### **Regina Melly**

*Vice President of Business Development*

### **The Organization**

[Jewish Home Lifecare](#) (JHL) provides health care services and assistance for elders and those who care for them on campuses in the Bronx, Manhattan and Westchester County, NY. It also serves elders in their homes throughout the New York metropolitan area. The organization operates three large nursing homes featuring both long-term and sub-acute beds. Its Community Service Division is comprised of two home care agencies, three medical day centers and one social day center program. JHL operates three Section 202 housing communities, one independent housing community and a transportation company. It also has partnerships with four Naturally Occurring Retirement Communities (NORCs) in Manhattan and the Bronx, where it provides a part-time registered nurse who offers tenants health education and screening, arranges for outside speakers to discuss a variety of health topics, organizes health fairs and provides referrals.

### **Technology-Enabled Model or Service**

JHL uses technology in all of its service lines and in all components of its Community Service Division. It is currently in the process of rolling out technology-enabled services in its sub-acute unit. Current

technology-enabled services include:

- **Electronic Health Records:** JHL's Community Service Division manages an electronic health records (EHR) system for its home care clients. This system offers clinicians working in the division increased autonomy and efficiency. Nurses now make more home visits per day than before the system was launched, primarily because they are not required to travel back to the organization's headquarters to complete paperwork or retrieve client files.
- **Non-Video Telehealth:** This telehealth solution, part of JHL's HealthMonitor Service, uses a simple interactive device to help elders manage daily medication and transmit basic health information under the guidance of a JHL telehealth nurse.
- **Medication Dispensers:** About 50 medication dispensers are in use among JHL home care clients and another 25 are being used by clients of the organization's adult day centers. Dispensers are available for a monthly subscription fee.

### **HealthMonitor Implementation Approach**

At least three days a week, clients of JHL's Community Service Division use a telehealth device called HealthMonitor to collect and send their vital signs to a telehealth nurse at the organization's Manhattan headquarters. The device also conducts a daily dialogue with clients that poses questions about the client's general health status (including medication compliance, falls, pain or feelings of depression) and asks questions that are tailored to an individual's particular health concern, such as congestive heart failure (CHF) or diabetes.

A full-time telehealth nurse monitors both the vital sign data and the answers to dialogue questions. When data and client feedback indicate that the individual has a health concern requiring action, the nurse sends an alert to the client's home care clinician. The clinician then follows up to help resolve the health issue before the client requires hospitalization.

Home care clients collect and send their information to the telehealth nurse using the tabletop telehealth device that is installed in their homes. Clients who attend JHL's medical day center programs, and residents of JHL-affiliated NORCs, use a kiosk to participate in the HealthMonitor program. When day-center clients or NORC tenants swipe their individual identification cards at the kiosk, the device greets them by name, asks them a set of questions and takes such vital signs as blood pressure, weight and pulse, depending on their condition.

### HealthMonitor Outcomes

**Reduced hospitalization rates:** During pilot testing, JHL's telehealth program was shown to reduce hospitalization rates among home care clients with CHF from 16 percent to five percent. The organization was able to maintain these low rehospitalization rates after the pilot ended and the organization made the deployment of telehealth units a standard practice for all home care clients with CHF.

**Better care through increased efficiency:** Home care nurses are now able to maximize their home visit time with clients who have telehealth because they know, prior to the visit, about areas of concern and the client's need for education. This prior knowledge makes face-to-face visits much more interactive and focused than they were prior to the introduction of telehealth.

In the same way, the telehealth kiosks are helping nurses reach out to clients whose reported data and dialogues indicate that they need assistance. This is particularly important in the day centers, where three nurses oversee the care of 100 clients. While the telehealth kiosk allows nurses to focus on clients who need attention, it also helps all clients feel that they are getting a higher level of service from JHL. The telehealth kiosks are also expanding JHL's presence in the four NORCs where the organization provides part-time nurses. Even when their part-time nurse is not on site, NORC tenants can use the kiosk to measure their vital signs and send their data and dialogue answers to the JHL telehealth nurse. Interventions can then be implemented if a health concern is detected.

**Increased market share:** The telehealth program has given JHL an edge in the local market because it fulfills the desire of clients for peace of mind and a real-time connection with the organization and its clinicians.

### Challenges

**A lackluster private-pay market:** A lack of consumer awareness about telehealth is holding back the private-pay telehealth market for the HealthMonitor Program. JHL staff members spend considerable time educating clients before they purchase a telehealth subscription. However, once clients try the devices, they tend to continue using them for an extended period.

**Staff resistance:** While clients have been very receptive to the HealthMonitor service, clinicians were initially resistant to the new technology. Generally these staff members questioned why their clients needed a machine to monitor their vital signs and well-being when they already had a clinician

to perform these tasks. Faced with this push-back, JHL conducted an extensive campaign to educate clinicians about how the telehealth initiative would help them better serve their clients.

### **Business Case**

JHL began rolling out the HealthMonitor service in 2002 with help from two outside grants. During the first grant, the organization deployed 25 non-video telehealth units to home care clients with CHF. Using a larger, subsequent grant from the New York State Department of Health, the organization conducted an expanded rollout of the same unit to a combination of clients with CHF and diabetes.

Concluding that the clinical outcomes from the pilots justified the cost, JHL then decided to use its own funds to equip home care clients with the HealthMonitor devices. Since that time, New York State authorized Medicaid reimbursement for telehealth. Today, 422 HealthMonitor units are being deployed across the continuum with the help of Medicaid reimbursement. An additional 17 clients pay for their telehealth units. JHL also has 125 clients using its telehealth kiosks at adult day centers, NORC sites and in the organization's sub-acute units.

JHL installed telehealth kiosks in its sub-acute units as a way to help patients learn how to control their condition and avoid a readmission. When CHF patients are discharged from the sub-acute unit to their own homes, JHL is hoping they will take a private-pay telehealth unit with them and continue to actively manage their condition. JHL also believes that the presence of these kiosks gives its sub-acute units a competitive edge in the marketplace, especially among hospitals that are interested in helping

newly discharged patients avoid a rehospitalization.

JHL is actively working to position itself as a partner that can help local hospitals reduce their rehospitalization rates through telehealth. In Aug. 2011, the organization completed a pilot program with 75 CHF patients who had been discharged from the New York University (NYU) Medical Center. When these patients returned home, they took a HealthMonitor unit with them and received in-home instruction on how to use the unit from the JHL telehealth nurse who would be monitoring them. By the end of the pilot, the rehospitalization rate for pilot participants was 17 percent, compared with a 24-percent rehospitalization rate for all NYU CHF patients. Based on the results of that pilot, JHL is working with NYU to establish this program for all of the medical center's at-risk CHF discharges. JHL is confident that hospitals will be more willing to pay for the cost of its telehealth service than to pay the cost of a hospital readmission. This will be particularly true after Oct. 2012 when the government begins to penalize hospitals for unnecessary readmissions that occur within 30 days of discharge.

### **Keys to Success**

**Telehealth experience and data:** JHL's 10 years of experience with telehealth is helping it convince hospitals to participate in the HealthMonitor Service. Hard data associated with the organization's telehealth programs, including its success in reducing rehospitalization rates, gives JHL instant credibility with potential hospital partners. That data has also helped the organization convince its own clinicians that telehealth provides tangible benefits to their clients.



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**Support from organizational leaders:** Key staff and board members immediately saw the potential of the telehealth technology, were supportive of its deployment, and helped staff acquire financial support for the initiative. JHL CEO Audrey Wiener helped the Community Services Division obtain the grant for its first telehealth pilot. After viewing a demonstration of a telehealth unit, an influential board member helped the division obtain funding for its second pilot.

### **Advice for Others**

**Narrow your focus and conduct a pilot.** When deploying a telehealth unit for the first time, target your program to a specific patient population and identify a specific outcome you want to achieve. Then conduct a pilot program with at least 25 clients for at least six months. Expand the program only if you have outcomes data to support your investment. Pilots can also help you test out vendors and equipment to see if they are a good fit for the organization.

**Don't buy a fancier telehealth unit than you need.** Most JHL home care clients lack high-speed Internet access and must transmit their telehealth data using a telephone line. For this reason, the organization chose a non-video telehealth unit that was more compatible with telephone-line transmission.

**Don't ask too much of clients.** Initially, JHL asked its home care clients to use the HealthMonitor service seven days a week. Clients pushed back against this requirement because they found it onerous. Now the organization asks clients to use its telehealth service at least three times a week.

## Lutheran Homes of Michigan Frankenmuth, Michigan

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*Contributor:*

**David Gehm**

*CEO and President*

### The Organization

[Lutheran Homes of Michigan](#) (LHM) is a Recognized Service Organization of the Lutheran Church-Missouri Synod and has a history of service to seniors that dates back to 1893. The organization is one of the largest nonprofit providers of residential senior services in Michigan. Its campuses feature a total of 800 residential living units, including market-rate condominiums, affordable apartments and townhouses. The organization also offers assisted living, skilled care and memory care and serves about 1,000 people a year through its hospice and home care programs.

In 2009, LHM received 80 percent of its revenues from services that it provided to residents of its bricks-and-mortar campuses. Twenty percent of the organization's revenues came from home and community-based services (HCBS). LHM is currently working to change its revenue blend so that, by 2016, it will receive half of its revenues from campus-based services and half from HCBS. To reach that goal, the organization is exploring ways to use technology in new and different ways to serve people in their own homes.

### Technology-Enabled Model or Service

**Aging Enriched Network:** To support the strategy to increase its offering of home and community-

based services, LHM established the [Aging Enriched Network](#), a one-stop information and referral service for seniors, their caregivers and their families. The network provides more than 20 categories of services that LHM has determined older adults need to stay independent. LHM provides some of these network services, including home health care, transportation, and in-home safety and telehealth technologies. A pre-screened group of affiliated businesses, volunteer organizations and individuals provides other complementary services, including transportation, home repair and modification, light housekeeping, meals, financial and legal services, housing, mental health services, social activities and medical equipment.

Aging Enriched Resource Centers, where consumers can meet face-to-face with a nurse or other health care professional, are located on LHM campuses and in some local churches. In addition, technology powers a call-in center with keyword recognition software and interactive Internet tools on the front-end that family caregivers can use to access the Aging Enriched Network. The software analyzes the requests and provides the relevant information and referrals that callers need to keep their loved ones safe, healthy and independent at home.

**Telehealth:** LHM is currently deploying both telehealth and remote monitoring units in the private residences of its home care clients. The organization views technology as an important tool in its ongoing quest to prevent rehospitalizations through better management of care transitions from hospital to nursing home and nursing home to home. LHM is currently positioning itself in this market by scaling its telehealth program and creating internal processes through which it routinely follows up

with patients after discharge from its rehabilitation program and tracks rehospitalizations among those patients. That tracking system is helping the organization to identify specific transition issues facing its clients and to create solutions that address those issues.

### Implementation Approaches and Outcomes

**Call Center:** When caregivers call the Aging Enriched Network, an LHM staff person uses a new triage software to address the caller's concerns and offer appropriate referrals. Callers' questions and concerns are entered into the software program, which then provides follow-up questions that the staff person can ask to probe more deeply into a particular issue. Using this information, the software then suggests appropriate interventions that can be carried out either by LHM or by the businesses affiliated with the program. Within 24 hours of each referral, and at 7 and 30 days, LHM calls the caregiver to make sure that the service was delivered and that it was satisfactory and documents referral, utilization and satisfaction with the software.

**Telehealth:** Since early 2011, LHM has been participating in a shared electronic health referral and record exchange program initiated by a local hospital. Through the program, LHM receives referrals by email for patients who are being discharged from the hospital to either home care or sub-acute care. The referral, which is sent simultaneously to several providers in the region, is accompanied by information about the patient that providers can use to assess their capacity to accept the referral.

The new referral system has spurred LHM to make several changes in the way it does business. To remain competitive, LHM is now responding to

referrals in 15-20 minutes, instead of the traditional two-to-three hours. In addition, the organization has expanded its telehealth program significantly because the referral program is open only to home care agencies that offer telehealth monitoring to patients with congestive heart failure (CHF). LHM has deployed 35-40 telehealth units to Medicare beneficiaries since the hospital referral program began. Prior to Jan. 2011, the organization had about three-to-five telehealth units deployed in the community at any one time.

In a small study of its telehealth program, LHM compared rehospitalization rates among 18 clients with CHF who were discharged from the hospital with a telehealth device and 15 clients with CHF who left the hospital without such a unit. Of the 15 clients who were not monitored, 12 experienced either a readmission or an unexpected revisit to a physician. Only one or two members of the telehealth group experienced a readmission or revisit.

**Remote monitoring:** LHM began exploring remote monitoring several years ago, but that program has not grown at the same rate as the organization's telehealth initiative. The organization recently chose a new remote monitoring product, which has an easy-to-use interface and social media components that allow communication between clients, caregivers and family members. The organization has also completed operational plans for distributing, installing and maintaining the remote monitoring system in private homes and reviewing sensor-transmitted data. Plans call for scaling the remote monitoring program to serve a larger number of clients.

## Challenges

**Breaking down silos:** A new emphasis on preventing rehospitalizations, and a rapid deployment of telehealth units during 2011, led LHM to recognize that operational silos within the organization made care coordination difficult. The organization has been actively working to break down those silos by integrating its rehabilitation and post-rehabilitation care with the goal of keeping clients healthy and independent for as long as possible.

**Inflexible technology:** The decision to deploy remote monitoring units in off-campus locations created challenges for LHM, especially when the organization's first remote monitoring systems proved to be less robust than expected. Making service calls to remote locations in order to repair faulty units presented challenges that the organization does not usually encounter with campus-based technologies. In addition, installing sensors in environments that LHM does not control has created some challenges. Ceiling fans, pets and unexpected visitors have interfered with the collection of accurate monitoring data, especially from motion sensors. To overcome these challenges, LHM has learned to be much more thorough in assessing a home environment before sensor installation.

## Business Case

In seeking to rebalance its revenue streams, LHM decided that its home care model needed a complete makeover. As part of that makeover, LHM's private duty home care agency became the Personal Services Division and no longer offers a standard menu of services that it will deliver to home-based clients. Instead, staff members are trained and encouraged to find ways to provide whatever service a client requests or needs.

Establishing the Aging Enriched Network required a modest investment from LHM, mostly to develop the program's software. However, because the network represents a service delivery model that is new to consumers, LHM has made a significant investment in marketing the network. Consumers, who can join the network for free, use either their own funds or private long-term care insurance to pay for the services they receive. LHM found that an appreciable proportion of the users of this service have long-term care insurance.

Return on investment (ROI) is hard to calculate for LHM's telehealth program, especially in light of a lackluster private-pay market and the fact that telehealth is not a reimbursable expense under Michigan's Medicaid program. The organization is hoping that reimbursement policies will eventually encourage technological innovation by offering incentives to organizations that prevent rehospitalizations. In addition, LHM anticipates that a healthy ROI could eventually come from increased efficiencies associated with telehealth. These efficiencies include the fact that telehealth monitoring will allow LHM staff to care for more clients and will facilitate a more robust preventive care and early intervention program that will help reduce medical crises, as well as the costly emergency home health visits associated with those crises.

For now, LHM is willing to enter a market segment that does not have a guaranteed ROI. The organization views telehealth as an expected standard of practice that will help position LHM for future success.

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## Keys to Success

**Outsourcing:** An outside vendor monitors LHM's telehealth data and sends alerts to the LHM clinical supervisor when data indicate the need for medical intervention. Outsourcing is more costly than conducting an in-house data review. However, LHM decided that outsourcing was a good way to ensure that no alert would fall through the cracks while the organization's clinical staff learned the telehealth system and incorporated it into their workflow. Once telehealth becomes fully integrated into the work of clinicians, the organization may bring the data analysis in-house.

LHM also contracted with a Durable Medical Equipment (DME) company to install its remote monitoring system in the homes of clients. LHM didn't have the capacity to carry out those installations with current staff. It chose the DME company because that company already had experience installing technology in private homes.

**Board trust:** In Jan. 2011, the LHM board made a formal commitment to telehealth because it recognized that this technology could help the organization carry out its mission to reduce re-hospitalization rates. However, the board has not micromanaged the technology deployment. Rather, it is supportive of the health-reform related goals that LHM is pursuing and trusts that the organization's management will use the best tools available to reach those goals.

## Advice to Others

**Be thoughtful about how you will support and scale remote monitoring systems.** Any organization is capable of putting a few telehealth or remote monitoring units into the field and using them well.

The challenge comes when the organization sets its sights on scaling its technology programs in order to deploy several hundred units at a time. Such large-scale deployments require that the organization take a thoughtful look at whether it will rent or purchase units, how large an inventory it will keep, how it will manage distribution of the units, what data it will collect and who will carry out the tasks necessary to ensure success. LHM conducted a thorough planning process to answer these questions. In the end, it decided to lease its telehealth units; to keep a small inventory on hand since units could be shipped overnight from the manufacturer; and to outsource installation and data review.

## Lutheran Homes of South Carolina Irmo, South Carolina

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### *Contributors:*

#### **Thomas E. Brown, Jr.**

*President and CEO*

#### **Mike Witte**

*Director of Information Systems*

### **The Organization**

[Lutheran Homes of South Carolina](#) (LHSC) provides independent living, assisted living, skilled nursing care, memory support and hospice care in five continuing care retirement communities that employ 1,100 staff members. LHSC has earned a reputation for taking innovative steps to improve quality of care in its communities. In partnership with Lutheran Services for the Aging of North Carolina, the organization received a grant from the Duke Endowment in 2004 to adapt the WellSpring Model to its nursing facilities. Through the model, interdisciplinary staff teams create and implement interventions to improve the quality of care for nursing home residents. LHSC also received grant support to implement a comprehensive wellness program—called BeWell Wellness—in each of its communities.

LHSC's BeWell Home Services provides a host of non-medical services to older people living in their own homes. BeWell offerings include concierge services like massage therapy, transportation, respite or events planning; personal care and companion services; life care management services like assessment and care planning; and minor home maintenance/ repair.

### **Technology-Enabled Model or Service**

Technology initiatives at Lutheran Homes of South Carolina are grounded in the organization's strategic goals and priorities related to improving the quality of care and services for our residents. Current technology initiatives include:

- **Electronic Health Records (EHRs):** LHSC is currently updating its general ledger and accounts-payable software. The organization chose Keane as its vendor, and the goal is to develop an EHR system that would integrate more easily with existing software. While funding has not been obtained for an EHR, the organization hopes to include medical record, physician order and medication administration components.
- **Vitals:** LHSC currently uses two systems—Collage and REPS—to assess active life style, independent and assisted living residents and plan wellness initiatives; and for lead management, marketing and referral management. Vitals will replace these systems in October 2011.
- **Cerner HomeWorks and RoadNotes:** These products support clinical, billing, financial and administrative functions in the LHSC hospice program. HomeWorks is an office-based solution while RoadNotes is a point-of-care system that shares information with HomeWorks' database.
- **MyInnerView:** This web-based data entry program measures a common set of key performance measures, including clinical indicators, workforce performance metrics and satisfaction of employees, residents and family

members. LHSC uses MyInnerView for staff and resident satisfaction surveys and to report quality indicators, including falls, for skilled nursing and assisted living residents.

- **CareTracker:** CareTracker is used in LHSC's skilled nursing facilities to help caregivers perform required resident documentation on touch screen devices placed in strategic locations. As the information is entered, the CareTracker analysis tools scan for changes in resident conditions and send alerts when the conditions change beyond certain thresholds.
- **Volgistics:** This software helps LHSC staff recruit, track and coordinate volunteers.
- **Keane MDS and MDS Director:** These software solutions assist with documenting care plans and service delivery and billing for services provided for skilled nursing residents.
- **AV Powell's Fast:** This system helps the organization track amortization of entrance fees.
- **Procura:** Procura supports the operation of BeWell Home Services. The system maintains information regarding clients and BeWell caregivers, schedules visits and supports billing.

### EHR Implementation Approach

While LHSC intends to establish an EHR, there is currently no specific plan in place for achieving this goal. Members of LHSC's clinical, management and information technology (IT) staff plan to visit other aging services providers that have implemented the Keane EHR so they will understand better the benefits of the system and the challenges they may

face during implementation. In addition, LHSC is already developing plans for how it will educate staff about the EHR system, which is expected to impact more employees than any other LHSC technology deployment. When funding and a specific product are identified, the organization intends to roll out the system in skilled nursing facilities while other LHSC divisions—including assisted living and hospice—will continue running separate EHR systems.

### Challenges

Lack of interoperability. LHSC utilizes a wide variety of care tracking software that is designed for specific care sectors like hospice or assisted living. The organization has been challenged by the fact that these software programs run parallel to one another and are not interoperable. For example, the organization uses the Procura system to help it run BeWell Home Services. While Procura gets high marks from LHSC staff for its ability to keep track of direct caregivers, clients, schedules and service provision, the program's major drawback is that it does not communicate with the Keane software that LHSC uses for billing.

**Linkage with hospitals and physicians:** As the new health care legislation is implemented, new health care delivery systems will be developed. EHRs will be a necessary facilitating component of these systems. Additional resources have been and will be made available to hospitals and physicians for IT infrastructure purchases. Long-term care providers are an important partner in the health care system and interfacing with hospitals and physicians will become necessary if the goals of quality improvement and cost containment are to be achieved. Yet, there is no source of financial support to help long-

term care providers implement needed technology solutions.

**Finding—and keeping—champions:** LHSC always tries to identify staff members to serve as champions for particular technology initiatives. These staff members become the in-house experts on a software program and are valuable resources when it comes time to train new employees to use the program or answer questions about its implementation. Identifying this champion can be challenging, but the bigger challenge often comes if over-dependence on one champion puts a technology initiative in jeopardy when that champion leaves the organization.

**Funding IT purchases:** Development and maintenance of a state-of-the-art IT system in support of all of the organization's product lines is an expensive proposition. Although LHSC will occasionally receive grants to fund its technology projects, most of these initiatives are part of the organization's capital budget. This means that Lutheran Homes of South Carolina must weigh each technology purchase against other organizational priorities. During some fiscal years, for example, a new software program may find itself competing against a new roof for a place in the budget. LHSC's top-level managers are strong technology supporters, but the organization's technology expansion is often limited by insufficient funds.

### Keys to Success

**Planning for the future:** LHSC continually evaluates and updates its strategic goals and priorities to identify areas where IT investments can strengthen the organization. In addition to investments in EHRs, future priorities might include integrating social media into the organization's marketing

plans, improving work processes to become more efficient, and staying in touch with consumer demands for additional in-home supportive services.

**In-house trainers:** When LHSC instituted an EHR system for its hospice program, it experienced considerable resistance from nurses, and responded to that resistance by hiring an additional employee who spent several years training current and new staff members to use the system. The in-house trainer position was eventually eliminated when it proved to be too costly, but it was considered a good use of funds during the system's critical startup phase.

**Know your business:** Management and clinical staff members play an important role in technology-related decision making at Lutheran Homes of South Carolina. For example, LHSC relies heavily on these staff to stay informed about new technology in the aging services field and to bring information about that technology to the organization. The IT staff's major role is to ensure that the organization has the infrastructure necessary to host the initiatives that clinical staffers identify as valuable. In addition, clinical staff members are heavily involved in evaluating particular products and checking the references of potential vendors.

### Advice for Others

**Provide good customer service.** The IT department at Lutheran Homes of South Carolina conducts periodic surveys to gauge how satisfied LHSC employees are with its services. The department believes that technology deployment issues must be faced directly and addressed quickly and that good customer service can make all the difference between success and failure.



**Join networks.** It's important that an organization's staff members associate with outside peers who share their interest in technology. LHSC's IT staff members belong to technology associations, including LeadingAge CAST and the Lutheran Information Technology Network, which provide them with valuable education and networking opportunities. LHSC also participates in Health South Carolina, the planning group for the state's health information exchange.

**Be willing to "make do."** LHSC has invested considerable time and money in choosing data systems that track the care it provides. Sometimes, however, the organization has an immediate data need that can't be addressed by existing systems. In these cases, LHSC has learned to settle for imperfect solutions in the interest of demonstrating accountability and documenting the value and effectiveness of LHSC's rehabilitation services. For example, LHSC recently created a standalone database to track readmission rates, changes in FIMS scores, and discharge status for patients discharged from its post-acute beds. The database isn't perfect: updating it requires double entry. But LHSC's leaders believe that the ability to report readmission rates to local hospitals is well worth any extra work that maintaining the database entails. The readmission data, which shines a spotlight on LHSC's qualifications as a preferred post-acute care provider, was not previously available.

**Make sure technology fits care processes.** In 2010, LHSC conducted in-house trials of the QuietCare and WellAWARE remote monitoring systems but decided not to implement either system at that time due to questions about how remote monitoring fits into the organization's care delivery system. Upon further review of the technology, LHSC will be

implementing QuietCare in one of its assisted living facilities beginning in October 2011.

**Hire employees who are comfortable with technology.** That way you're likely to get the most out of every component of your technology systems.

**Hold employees accountable for technology implementation.** Once an organization decides to move ahead with a technology-enabled service, staff members must understand that they will be held accountable for implementing that new initiative. To reinforce this accountability, the organization's CEO inserted an implementation-related performance measure in one administrator's annual evaluation when his facility was slow to implement a new resident assessment process.

## **Mather LifeWays Evanston, Illinois**

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### *Contributors:*

#### **Kathryn Brod**

*Vice President of Senior Living Strategic Initiatives*

#### **Linda Hollinger-Smith, Ph.D., R.N., F.A.A.N.**

*Vice President, Mather LifeWays Institute on Aging*

#### **Perry Edelman, Ph.D.**

*Director of Wellness Research,  
Mather LifeWays Institute on Aging*

### **The Organization**

Founded in 1941 by entrepreneur and humanitarian Alonzo Mather, [Mather LifeWays](#) is dedicated to providing a continuum of living and care; making neighborhoods better places for older adults to live; and identifying, implementing, and sharing progressive practices for wellness, workforce issues, memory care support and caregiver empowerment.

The organization operates three continuing care retirement communities: The Mather in Evanston, Ill., Spendido in Tucson, Ariz. and Mather Place of Wilmette in Wilmette, Ill. It also provides skilled nursing care at Mather Pavilion in Evanston, Ill. Mather LifeWays' Community Initiatives programs, including the successful Mather's More Than a Café model, allow Mather LifeWays to act as a point of contact for older adults who seek access to community resources. Mather Institute on Aging plays a leading role in enhancing the lives of older adults in today's society through numerous collaborative and

applied research and education projects targeting healthy aging, workforce development, caregiver support and senior living trends.

### **Technology-Enabled Model or Service**

Dr. Perry Edelman and his colleagues at the Mather LifeWays Institute on Aging have been working for seven years on a multi-phase project to assess the quality of life of people with dementia. During the course of that project, they developed a measure, called "[Observing Quality of Life in Dementia](#)" or OQOLD, which enables professional caregivers to assess the quality of life of persons with dementia based on their observations during a variety of activities.

Using Mather LifeWays resources, as well as a grant from the Alzheimer's Association, Edelman tested the reliability, validity, usability and usefulness of the OQOLD tool at 18 sites in the Chicago area, including skilled nursing facilities, adult day programs and assisted living communities. Two floors of Mather Pavilion, the organization's skilled nursing community, are participating in the current study.

To use the OQOLD scale, staff members who facilitate activities in a particular care setting record OQOLD scores as well as other information<sup>1</sup> after observing individuals during an activity. Quality-of-life scores, which range from a low of -3 to a high of +3, are based on the person's level of engagement and/or emotional reaction during the activity. To assess emotional reaction, staff members may rely on facial expressions, changes in body language or other pleasure/displeasure cues that

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<sup>1</sup> This information includes the number of participants, staff members, visitors, pets; type of activity; primary and secondary impact of the activity in terms of six dimensions of wellness.

are unique to that person. Therefore, staff members who know participants well conduct the OQOLD assessment.

Because staff observers may include CNAs, activity staff and others, the OQOLD “cheat sheet” provides multiple ways of conceptualizing quality of life, including numerical scores, smiley/sad faces, definitions and examples. Each participant receives three scores for the observed activity: one score for the overall experience, a second score for the person’s worst experience during the activity and a third score for the person’s best experience during the activity. Up to five people at a time can be observed during an activity.

Initially, each staff member was asked to immediately record each participant’s OQOLD scores on a laptop or desktop computer. This process soon proved unworkable since most staff members were not free to leave the activity area to work on a computer in another room. In most cases, staff members wrote the OQOLD scores on a form and then later transferred the scores to a computer.

Mather LifeWays researchers were dissatisfied with the paper-to-computer process because it disrupted workflows and took too much time and effort to complete. As an alternative, they began exploring a technology-based recording system that they hoped would improve staff participation in and attitudes toward the project.

### Implementation Approach

With funding from the National Institute on Aging (NIA), the Mather LifeWays Institute on Aging worked with Benten Technologies, an information technology firm based in Chantilly, Va., to develop software that would enable staff to enter OQOLD

scores on a handheld device. After experimenting with several devices, the team chose the iPod Touch. Staff at the five research sites in the Chicago area, two sites in Florida and three sites in Arizona carry the iPod Touch with them and can easily pull the device from a pocket to record their observations. This ease-of-use has been particularly helpful in activity-rich adult day settings, where staff must move quickly from one scheduled activity to the next.

Using the iPod Touch as a hardware platform, Benten Technologies designed an application that enables staff members to enter data by selecting from a series of menus with drop-down responses. Staff can use a text feature to record comments or note special situations. Data are wirelessly transferred from the iPod Touch to a website where the scores are organized into a variety of reports that staff can download and use to maximize both the quality of care provided and the quality of life of participants with dementia.

Because observations in participants’ rooms and common bathrooms were excluded to protect the privacy of participants, activities of daily living (ADLs) and instrumental activities of daily living (IADLs) were not included in study observations. However, it is expected that this tool will be used by staff to improve dementia care related to ADLs and IADLs.

### Outcomes

**Person-centered care:** Using the OQOLD measure, staff members in various settings have been able to identify the impact that specific activities have on individuals with dementia. This enables staff to match individuals with activities that yield high

quality-of-life scores for them, test out the effectiveness of new activities and match participants with new activities as their dementia symptoms change over time.

**Feedback for families:** The technology-enabled OQOLD measure provides organizations with a mechanism to keep families informed, through hard data rather than verbal opinions, about the engagement level of their relatives. Family members who have difficulty communicating with a relative with dementia are reassured when staff members can share data illustrating that the relative has had activities tailored to their personal interests, and is earning high quality-of-life scores during their preferred activities.

**Staff improvement:** The OQOLD measure enables program managers to better match the skills of staff members to the requirements of specific activities, resulting in the greatest benefits for people with dementia. In addition, the tool helps to focus the attention of staff members on the impact that they can have on an individual's quality of life. In several instances, staff OQOLD observations have prompted additional training about how to turn simple activities—like personal grooming—into engaging opportunities to improve an individual's quality of life. Also, relying on frontline staff members to complete the OQOLD scale—and equipping them with the technology they need to do this job well—sends a strong message that the organization values the knowledge and observational skills of its caregivers.

## Challenges

**Staff comfort with technology:** Initially, some staff members at the research sites were hesitant

about the technology-enabled OQOLD measure because they had never used an iPod Touch or a smartphone. However, the simplicity of the interface helped staff overcome this discomfort. Mather LifeWays researchers worked with staff at Benten Technologies to develop the most user-friendly interface possible.

**Inadequate technology infrastructure:** In order for the iPod Touch system to work, wireless Internet access must be available in the areas where OQOLD observations are being made. Providing this access on multiple floors or in multiple rooms was difficult in some settings. Benten staff worked with site information technology staff to resolve these issues.

**Difficulty choosing the right tool:** At the beginning of the OQOLD technology project, a less expensive, but bulkier handheld computer was chosen to record quality-of-life scores. This device was later abandoned because it did not fit comfortably in a staff member's pocket and there was concern that it could fall to the floor when the staff person bent down to work with individuals. Although the smaller iPod Touch solved this problem, it did require some adjustment from staff members who initially had trouble tapping the smaller, touch-screen keyboard.

## The Business Case

Benten Technologies and Mather LifeWays view the iPod Touch and its accompanying website as a platform that can be expanded to include other data collection capabilities. In addition to the OQOLD data, for example, staff can now use the iPod Touch software to access information about a resident's medications and allergy histories, as well as the tele-

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phone numbers of family members. Benten plans to add additional applications to the iPod Touch platform, including software that facilitates staff scheduling and tracks falls among nursing home residents.

Initial discussions with Benten have focused on the feasibility of offering a mOQOLD service that would be available on mobile devices like the iPod, iPhone or Android smartphone and include web-based technology. Purchasers of the mOQOLD subscription would receive access to the OQOLD assessment method developed by Mather LifeWays through mobile devices and would be entitled to any upgrades that Benten made to the mOQOLD software. They could also receive future software modules that Benten might add to its mOQOLD platform. Mather and Benten will be discussing how they might share revenues from the sale of the mOQOLD subscription service.

## **MJHS**

### **New York, New York**

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#### *Contributors:*

#### **Eli S. Feldman**

*President and CEO*

#### **Jay Gormley**

*Vice President, Planning and Research*

#### **The Organization**

[MJHS](#) is a charitable, not-for-profit organization with more than a century of experience providing health care services to the community. It was founded in 1907 by four courageous Brooklyn Ladies who believed in the values of compassion, dignity and respect for every culture. Since then, MJHS has grown into one of the most expansive health systems in the New York metropolitan area. The participating programs and agencies of MJHS provide home care, pioneering hospice and palliative care, state-of-the-art rehabilitation and nursing care, adult day health care, senior housing and affordable health plans to more than 40,000 individuals and their families in the region.

#### **Technology-Enabled Model or Service**

MJHS has deployed a variety of technology-enabled services and models, including electronic medical records (EMR) and telehealth. It also has made a number of investments in technology ventures.

#### **Implementation Approaches and Outcomes**

**Electronic Medical Records:** After conducting a strategic review of its operations about 10 years ago, MJHS decided to convert all of its paper medical records into an integrated EMR system. EMR adoption began with MJHS Home Care in 2006 and was fully implemented in 2008. EMR adoption in the skilled nursing setting started up in 2008 and was completed in 2010. Deployment across MJHS' home care activities was challenging due to the structure of that multifaceted, multi-layered business line, which includes several home care corporations and a number of joint ventures.

The EMR has helped to make MJHS's home care agencies much more efficient. Aggregated data from its EMRs helped MJHS redraw its service area in order to better group care delivery so that clinicians could work closer to their homes with clients who lived in well-defined geographic areas. These changes helped clinicians reduce the time they spent traveling and reduced the organization's expenditure on gasoline and parking fees.

The EMR system has also provided MJHS with access to better information about the referrals being made when residents are discharged by its centers for rehabilitation and nursing care. Prior to the EMR adoption, only 30 percent of clients discharged to home care by one MJHS nursing home were being referred to a MJHS home care agency. Armed with these statistics, MJHS evaluated the demographic make-up of both its nursing home and home care populations and made adjustments to the availability of home care services and to how the organization represented itself to various demographic groups. Now the same nursing facility refers 85 percent of its discharged clients to MJHS-operated home care agencies.

In the future, MJHS' investment in home care EMR will allow the system to provide both internal and external referral sources with information regarding rehospitalizations, payer mix and clinical outcomes. MJHS believes that the ability to provide customized data about outcomes to partners and payers will be a key success factor in a future environment that will most certainly include payment bundling, capitation, health homes and Accountable Care Organizations (ACO).

MJHS's skilled nursing facilities and its home care agencies use two different EMR systems that are not directly interoperable. The nursing facilities use EMR software from SigmaCare while the home care division uses an Allscripts EMR system. The organization is currently testing its ability to use the Brooklyn Health Information Exchange (BHIX) to achieve internal interoperability, however. If MJHS is successful, its nursing facilities would be able to send data to the BHIX network and then use BHIX to send the data back to the MJHS home care division.

MJHS made a strategic decision to use BHIX to facilitate its internal interoperability. Instead of investing its information technology dollars in efforts to combine its two EMR systems, the organization decided that it would reap more long-term benefits if it supported BHIX financially so the network would eventually allow MJHS to share electronic data with local hospitals, emergency rooms and physicians. MJHS has also been instrumental, along with over 50 other New York City-based LeadingAge members and local associations (including the Continuing Care Leadership Coalition) in creating the Continuum of Care Improvement Through Information New York (CCITI NY). CCITI NY is a local health technology adoption agency focused on improving information

exchange between hospitals and skilled nursing facilities through regional health information organizations like BHIX.

**Telehealth:** Through a partnership with the State University of New York (SUNY) Downstate Medical Center in Brooklyn, MJHS offers intensive follow-up services to kidney transplant patients after their discharge from the hospital. At the core of the MJHS service package is MedMinder, an electronic pill box called Maya that provides medication reminders and a variety of alerts when doses are missed. The device helps transplant patients remain compliant with medications, which is a critical factor in ensuring their long-term health.

Because patients in the SUNY Downstate program tend to have difficulty complying with medication and healthy behavior regimens, MJHS staff members combine the high-tech MedMinder with high-touch interventions that include checking on patients regularly to remind them about medical appointments and provide education about healthy behaviors and nutrition. This combination of high-tech and high-touch approaches has helped MJHS and SUNY Downstate reduce mortality rates among transplant patients by a statistically significant percentage. MJHS recently expanded its post-discharge outreach program to include patients on SUNY Downstate's transplant waiting list. The initial seven-percent mortality rate among waitlist patients has dropped to zero since MJHS began providing telehealth services.

### Keys to Success

**Culture of Innovation:** MJHS is proud of its innovation culture and credits that culture with much of its success. Over the years, the organization has not been afraid to redefine its business model in

order to put MJHS in a better market position. For example, while services to the elderly is still a major focus of the MJHS mission, the organization also operates one of the largest pediatric hospice programs in New York and is now exploring ways to serve the growing population of people under age 65 who have multiple chronic diseases.

The MJHS philosophy is that in order to win, an organization cannot be risk averse and should be strategic with investments. This philosophy allows staff to make mistakes in the creation of new businesses or the exploration of new technologies for the sake of testing a new service that could add value to the organization. It also allows the organization to take calculated risks, including its move into the field of Medicare and Medicaid managed care, which now accounts for 52 percent of MJHS revenues.

**Proactive technology deployments:** A dedicated project management department manages each technology deployment at MJHS and works proactively to address challenges that inevitably accompany implementation. This department gets staff teams involved in the early stages of implementation, creates enthusiasm about the launch, and educates staff about the technology before and after it is implemented. It also conducts root-cause analysis when employees push back against technology to ensure that the push-back isn't related to a problem with the technology.

### The Business Case

MJHS has used a number of vehicles to finance its technology deployments. For example, it made a capital investment to finance its EMR program but received grant funds to connect itself with the Brooklyn Health Information Exchange. The organization views its spending on technology as a

worthwhile investment aimed at reducing the cost of labor and improving the outcomes of individuals. In addition, MJHS offers technology-enabled services that it believes are unique and will differentiate it from competitors.

MJHS also has a long tradition of investing in the development of new aging services technologies. In the late 1990s, the organization helped to establish the Israel Center for Assistive Technology and Aging (GeronTech), a joint venture with the Association for the Planning & Development of Services for the Aged in Israel. GeronTech supplies seed money to help launch emerging technologies that might otherwise not be developed. MJHS is currently in the process of launching two distinct programs that are focused on technology development: the MJHS Research and Development Endowment, and the MJHS Venture Fund. These two programs will invest in start-up technology companies focusing on medical and assistive technologies that help aging service providers deliver better care to the elderly and chronically ill.

### Advice to Others

**Learn about technology.** Attend a LeadingAge conference and visit the CAST website. Don't be afraid to explore various technology options and invite staff to help determine if they will integrate with your existing or planned service lines and make your business more efficient. Work with staff and your board of directors to set aside capital for technology investment.

**Find a technology champion.** Every organization needs champions—both at the grassroots and middle-management level—who will support and encourage adoption of a particular technology.



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**Use technology as a tool, not as an end in itself.**

Every technology initiative should be designed to improve the quality of a service or program, and should fit into the organization's strategic vision. Technology should not replace what organizations are doing or what they plan to do. Instead, it should make that business more cost-effective and efficient. When developed in this way, technology can become an asset that the organization can bring to the table when collaborating with community stakeholders through medical homes or ACOs.

## MorseLife

### West Palm Beach, Florida

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#### *Contributors:*

#### **Keith Myers**

*President and CEO*

#### **Alan Sadowsky, Ph.D.**

*Senior Vice President for Home and Community-Based Services*

#### **The Organization**

More than 27 years ago, the founders of [MorseLife](#) set out to provide comprehensive care and service—in the spirit of Jewish traditions and values—to older adults facing the challenges of aging. Throughout the years, this promise has remained the cornerstone of MorseLife’s ongoing mission to enhance and honor senior living.

Today, MorseLife is a non-sectarian, charitable organization that cares for seniors in various settings, including its long-term care facility, short-term rehabilitation center, independent and assisted living residence, and through home and community-based services (HCBS) that enable seniors to age in place. The organization also conducts research designed to develop best practices in the care of current and future seniors.

The programs conducted on MorseLife’s 37-acre campus serve between 400 and 500 individuals on any given day. Thanks to an expanding HCBS program, MorseLife serves four times as many people in the community surrounding the campus.

#### **Technology-Enabled Service or Model**

MorseLife employs a variety of technology in its provision of services and supports, including:

- **Remote monitoring technology:** MorseLife completed research on remote wireless technology more than two years ago and confirmed that this technology can help mitigate acute-care episodes. Using grant funds from a donor, the MorseLife Home and Community Based Services is in the process of purchasing Cybernet Medical’s MedStar devices. This remote monitoring technology will be used to help frail older adults manage their advanced chronic conditions.
- **Therapeutic recreation technologies:** The organization uses “It’s Never 2 Late” to help residents learn about campus events, interact with their peers and stay in touch with family members.
- **Cognitive rehabilitation technology:** MorseLife makes the Dakim BrainFitness software available to residents.
- **A paperless employment application process:** This system features background screening and competency testing.
- **Wireless networking technology:** This technology was installed throughout the MorseLife campus in preparation for the deployment of an electronic health record (EHR) system.
- **Care documentation software:** CareTracker helps certified nursing assistants track activities of daily living in skilled nursing.

Casamba tracks rehospitalization rates among older adults discharged from the MorseLife rehabilitation center.

### Implementation Approach

**Affordable Care Act:** When the Affordable Care Act (ACA) became law in 2009, MorseLife immediately understood that the historic health reform legislation would have an impact on providers of long-term services and support systems. The organization worked with Artower Associates, a group of advisors formerly associated with Dixon Hughes, to improve its understanding of the law's components. This education process led to a summer retreat in 2010, during which the MorseLife's 45-member management council recommended a collection of strategic initiatives that the organization should pursue in order to participate fully in health reform initiatives.

MorseLife has worked hard to develop relationships with hospitals and physician groups and to position itself as a useful partner that can help reduce local hospital readmission rates. To complement this effort, the organization developed new clinical pathways for patients with chronic obstructive pulmonary disease, congestive heart failure, hip and knee replacements, and stroke. MorseLife is also taking steps to track critical outcomes and readmission data that can help the organization promote itself as a potential collaborator in any Accountable Care Organization (ACO) that is established as part of health reform.

**EHR:** Instead of relying on vendors to sell their EHR systems to MorseLife, the organization decided to articulate the benefits and features it wanted its future EHR system to provide. With those requirements defined, MorseLife then is-

sued a Request for Proposals that helped it narrow its search to a few EHR vendors. MorseLife vetted those vendors by providing them with a number of real-life scenarios and asking them to demonstrate how their EHR software would address the issues raised in the scenario.

### Business Case

MorseLife spent over \$350,000 on information technology in 2010, a figure that represents one third of its capital budget. This included wiring the campus for Internet, purchasing CareTracker and Casamba, and providing smart phones for management staff.

### Key to Success

**Technology-enabled home and community-based services:** MorseLife has 280 skilled nursing beds and 144 independent and assisted living apartments on its West Palm Beach campus. Unwilling to limit its services to residents of these on-campus accommodations, the organization made a strategic decision to expand and strengthen its home and community-based services (HCBS) as a way to create new initiatives and increase revenues. Putting a sophisticated information technology platform in place was a key to making the HCBS initiative a success.

**Organizational expansion:** MorseLife has been working hard to expand its organizational capacity so that it remains competitive and is able to participate as much as possible in health-reform initiatives. In that effort, the organization acquired a comprehensive outpatient rehabilitation facility/staffing company. It is also actively exploring the possibility of establishing a Program of All-inclu-

sive Care for the Elderly (PACE), and has embarked on a membership initiative. Other expansion efforts include active exploration of a second campus and re-configuring its current campus. In addition, the organization has established MorseLife All, a smart phone application that delivers educational curricula and program services to organization staff. Finally, MorseLife added a community-based organization that resembles a Naturally Occurring Retirement Community, as well as the Stroke of Hope, a post-acute care program for “victors” of stroke.

### **Advice to Others**

Do Not “Wait and See.” Organizations may be tempted to wait and see what happens to health care reform, and may assume that the ACA will be repealed or substantially amended. MorseLife operates under quite a different assumption. It believes that no matter what happens to the ACA, several key health-reform principles will never disappear:

- Reductions to Medicare and Medicaid.
- Bundling of services.
- A national movement away from institutional care and toward home and community-based services.
- A similar movement away from paying for services and toward paying for quality.

Health information technology will play a critical role in helping providers of long-term services and supports succeed within the context of these health-reform principles.

## Presbyterian SeniorCare Verona, Pennsylvania

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*Contributor:*

### Ransom Towsley

*Senior Director for Community-based Services*

#### The Organization

Founded in 1928, [Presbyterian SeniorCare](#) (PSC) is the largest provider of care and services to older adults in southwestern Pennsylvania. The organization operates three continuing care retirement communities (CCRC) and provides adult day services, assisted living, personal care, hospice and palliative care, independent and supportive housing, nursing care and rehabilitation services. Its world-renowned Woodside Place offers care for people with Alzheimer's disease and other dementias while its SeniorCare Network affiliate manages or owns more than 45 affordable apartment communities in nine counties. SeniorCare at Home, which debuted in Nov. 2010, provides non-medical, private-duty care that focuses on in-home assistance with activities of daily living.

PSC also operates western Pennsylvania's first "CCRC without Walls." Longwood at Home provides six levels of coverage for healthy adults age 60 and over who pay a one-time membership fee and a monthly maintenance fee. Members have access to a professional care coordinator, health and wellness seminars, social events and a variety of care and service options that include biannual home inspections, transportation, in-home services, a personal emergency response system, adult day services, assisted living, nursing care and referral services.

#### Technology-Enabled Model or Service

PSC is preparing to extend its services into the homes of older people living in the community. Preliminary plans call for integrating a variety of technology devices into the organization's non-medical home care agency and into an adult day health program that the organization is now expanding. A shared transportation service would link these two programs with the organization's Longwood at Home program.

Eventually, PSC hopes to expand its use of technology by:

- Deploying non-medical technology solutions through its private-duty home care agency. Specifically, PSC is looking at passive monitoring systems, fall detectors, personal emergency response systems and a wandering-prevention tool that is enabled by GPS technology.
- Expanding the scope of its adult day health program by equipping client homes with remote monitoring technology systems.
- Using in-home technology as a tool to better integrate its HCBS services into the process of nursing home discharges to a Medicare Home Health Agency (HHA) and long-term HCBS services. For clients jointly served by the HHA and nonmedical company, PSC can share passive monitoring data and in-home observations with the HHA, either electronically or on paper, for better client care.

## Challenges

**Technology learning curve:** PSC's new senior director for community-based services has been working hard to educate himself and his staff about the field of aging services technologies, and to identify and select technology solutions that are appropriate for PSC clients living in their own homes. In particular, the organization has had difficulty:

**Finding accurate and comprehensive information about technology solutions.** PSC has found vendor-supplied information to be inconsistent in its quality and transparency. During its technology search, the organization has relied heavily on information supplied by CAST and the Aging-in-place Technology Watch.

**Finding a good product at the price the organization can afford.** Price has been a major factor in PSC's decision-making process because the organization believes that consumers are generally reluctant to pay for home-based technology.

**Discerning how specific technology initiatives will fit into the organization's culture.** PSC is also struggling to find innovative strategies for educating consumers about the value of technology-enabled services.

## Business Case

PSC is exploring a variety of remote monitoring systems, including WellAWARE, QuietCare, BeClose, Healthsense, GrandCare and various PERS, medication management systems, fall detectors and GPS locators. No single company has the exact solution to meet the needs of PSC clients. Additionally, the organization has had difficulty calculating a return on investment (ROI) for these technologies.

PSC does not perceive much value-add to the organization with a remote monitoring business model in which third-party vendors install remote monitoring systems, perform "backroom" monitoring and data collection functions, and collect the fees that consumers pay for the service. It is difficult to calculate a hard ROI to PSC as a pass-through referral source. The organization is exploring several alternative strategies that could help it make a business case for remote monitoring.

For example, some companies do offer a reseller or revenue-sharing arrangement under which a hard financial ROI is easier to determine versus the soft ROI of cost savings through better care management. This is important in a fee-for-service business like nonmedical home care. Additional ROI could be generated by development of new services that bundle nicely with use of a passive monitoring system, such as non-emergent, nonmedical first response. Finally, the organization could calculate a soft long-term ROI under a financially capitated system, such as Longwood at Home, by deploying remote monitoring systems to help Longwood at Home members stay healthy and independent so they can avoid higher and more expensive levels of care.

## Providence Life Services Tinley Park, Illinois

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*Contributor:*

### Carl Goodfriend

*Chief Information Officer of Providence Life Services  
and ProviNET Solutions*

### The Organization

[Providence Life Services](#) (PLS) operates retirement and assisted living communities, skilled nursing and rehabilitation services, respite and memory care on 12 campuses in Michigan and Illinois. In addition, the organization's home and community-based services program, called Providence At Home, offers a full spectrum of in-home services, including home health care, chronic disease management, private duty home care, palliative care and hospice care.

In 2002, PLS formed a technology division called [ProviNET Solutions](#). ProviNET considers itself to be technology collaborator in the long-term care provider network and has succeeded in creating an integrated system for the next generation of health care. The company offers consulting in software and hardware as well as support and training to PLS and to a wide range of other organizations. With 60 employees, ProviNET Solutions is a wholly owned subsidiary of Providence Management, a for-profit subsidiary of PLS.

### Technology-Enabled Model of Service

PLS has researched and pilot-tested a number of telehealth units over the years. In recent years, it has focused its energies on launching an electronic

medical record (EMR) system for its nursing homes as well as integrating other component applications that are routinely used within their facilities.

### Implementation Approaches

**Electronic Medical Records:** PLS is about halfway through a three-year process to implement an EMR from HealthMEDX to support physician order entry, nurse notes, documentation by certified nursing assistants (CNAs) and e-prescribing. On the long-term care side, the organization is implementing one EMR component at a time and expects to implement the last component—e-prescribing—in about a year, once the new standards from the National Council for Prescription Drug Programs can be tested. On the home and community-based service side, PLS has completed its EMR implementation.

**Telehealth:** On its campuses, PLS has had some success deploying several telehealth systems, including GrandCare and It's Never too Late, which feature social networking components. In addition, the organization has deployed about 200 personal emergency response systems (PERS) through its home and community-based service programs. American Medical Alert Corp. (AMAC) is the organization's primary PERS vendor. PLS is considering a pilot with the Intel Health Guide and a home-based monitoring and alert system called SARA (Situational Awareness and Response Assistant), which is distributed by Status Solutions.

**Outside Consulting:** ProviNET Solutions focuses much of its attention on helping providers of long-term care services and supports with their implementation, support and planning for efficient use of an EMR. Many of these providers know that they

need an EMR but are not prepared for the installation and don't know where to turn for help. ProviNET helps these providers create an infrastructure to support their EMR software, including Wi-Fi, high bandwidth, and point-of-care devices to document activities of daily living, as well as solutions to integrate clinical and billing software.

### Challenges

**Lack of integration:** Integrating different software packages so they work together has been the biggest challenge facing all providers, including PLS. ProviNET has assisted in integrating a variety of software solutions with an EMR and other medical record components at its core. As part of this collaborative effort, ProviNET has developed a network of providers, software vendors, telehealth companies and other information technology (IT) and solutions companies that collaborate and share ideas. This has resulted in easier, more efficient and less costly software integration. Since the advent of the new Health Level 7 (HL-7) standards, which require that technology speak the same language, integration is becoming even more prevalent.

**A weak private-pay market:** PLS researched telehealth devices, including GrandCare, WellAWARE and Elite Care. However, it has deployed relatively few of these devices in the field due to a lackluster private-pay market and difficulty finding an affordable solution with a message that appeals to potential clients.

**Staff communication:** Conflicts and confusion between information technology (IT) and clinical staff is inevitable when an organization implements technology projects like an EMR. There is often a communication breakdown between these two groups because neither understands the processes

followed by the other. To facilitate communication between clinical and IT staff during its EMR launch, PLS created an EMR committee that includes IT staff, nurses, CNAs, directors of nursing and administrators. The committee meets regularly, in part to keep clinical staff members updated about the EMR implementation process so they can create excitement about the system among their peers.

### Business Case

PLS does not focus on calculating a return on investment for technology. It does rely on technology-enabled services to help make the organization more efficient and specifically looks for areas to eliminate any duplicate data entry by integrating as many existing systems as possible. However, it recognizes that the existence of an EMR or other technology does not guarantee greater efficiency unless the organization uses the EMR implementation period to standardize their procedures and processes. PLS staff members spent a great deal of time carrying out this standardizing process prior to implementation of the organization's EMR.

### Keys to Success

**Revisit all processes:** The implementation of an EMR system gives an organization a golden opportunity to thoroughly examine its processes and the forms it uses to document the provision of services. Staff members need to review every paper form the organization uses to make sure those forms are standardized for all campuses and divisions. In addition, forms that collect the same information should be consolidated to avoid duplication. PLS is currently carrying out this process as part of its effort to convert paper forms to electronic forms or assessments that are part of its HealthMEDX clini-



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cal system.

**Analyze the infrastructure:** The launch of a major technology initiative also represents a good opportunity for an organization to analyze its entire technology infrastructure, including servers, data circuits, workstations, and related software applications. During this analysis, staff at all levels of the organization should be invited to offer their input on what they like and don't like about particular software and hardware products. In addition, IT staff should examine whether the organization has the infrastructure necessary to support the technology it wants to implement. The typical clinical software vendor is so focused on its own products that it does not have the expertise to help organizations decide on the best hardware or infrastructure solutions.

### Advice to Others

**Consider looking into the cloud.** Look into outsourcing a hosted “software as a service” (SAAS) model. SAAS allows providers to pay a relatively reasonable monthly subscription fee in return for web access to software. New models of remote computing are emerging that allow an organization to pay an outside company to host either its clinical, accounting and payroll software or desktop applications like Microsoft Office. These arrangements make business computing an operational, rather than a capital expense, and allow organizations to spread their technology costs over the course of a year, rather than paying an upfront lump sum to equip computer workstations or acquire software licenses. Look for vendors who realize that their product is only one component of your technology strategy. Ensure that vendors who provide clinical, EMR, life safety (nurse call or wander management)

or analytical software (eHealthDataSolutions) are willing to communicate with other systems. In other words, look for vendors who are interested in helping you by collaborating with you and your other vendors.

## Selfhelp Community Services Inc. New York, New York

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### *Contributors:*

#### **Stuart C. Kaplan**

*CEO*

#### **Leo M. Asen**

*Vice President, Senior Communities*

### **The Organization**

In 1936, a group of German émigrés joined forces to help European Jewish refugees fleeing from Nazi persecution establish themselves in America. The founders of [Selfhelp Community Services](#) believed that with basic support, new arrivals would be able to use their skills, experiences and strengths to build independent, dignified and productive lives. These themes of independence and empowerment have been a hallmark of Selfhelp for the past 75 years.

Today, Selfhelp remains dedicated to serving Holocaust survivors and has expanded its community to enable the elderly and other at-risk populations to live in their own homes, independently and with dignity. Selfhelp manages six housing complexes serving more than 1,000 low and moderate-income seniors; and five senior centers that provide programs to enrich the lives of over 6,000 older New Yorkers. It offers residents of four Naturally Occurring Retirement Communities extensive on-site care services. The organization also manages a Medicaid-supported Licensed Home Care Services Agency and a Medicare-Certified Home Health Agency. Selfhelp provides geriatric case management services through its Senior Source initiative.

### **Technology-Enabled Model or Service**

In 2005, the Selfhelp board of trustees began thinking seriously about how to position its organization for the future. One result of that discussion was a board decision to include technology in Selfhelp's mission statement, which pledges that the organization "lead in applying new methods and technologies to address changing needs of its community." In implementing this mission, Selfhelp has created a corporate culture that incorporates technology into each of the organization's initiatives and planning activities. Recent technology initiatives include remote monitoring, cognitive exercise, telehealth both in home and in congregate facilities, computer learning and a virtual senior center.

### **Implementation Approach**

**Monitoring technology:** Selfhelp's remote monitoring program has served more than 100 seniors since it began in 2005. At any given time, the organization has remote sensor monitoring systems deployed in the homes of 30 home care clients who have chronic conditions, a history of falling or difficulty managing medications. A client typically learns about the monitoring systems from Selfhelp social workers who are trained to explain the technology and how it can benefit clients.

**Telehealth:** Telehealth devices equipped with electronic blood pressure cuffs, glucose meters, medication reminders and weight scales help Selfhelp keep track of clients' health status on a daily basis. Collected data is transmitted by telephone lines to registered nurses at Selfhelp who review it daily and alert home health clinicians when an intervention is necessary. Clients typically begin using the telehealth service after an assessment by nurses in Selfhelp's home health agency. Selfhelp has recently

installed two telehealth kiosk devices within two residential properties and is planning a third implementation within a senior center.

**Computer learning centers:** Each Selfhelp senior center features a computer learning center where older people can use technology to socialize with peers, communicate with family members or develop new skills that can help them find volunteer work or post-retirement employment. In addition, senior center clients can use the Nintendo Wii gaming system for exercise and socialization. The Dakim BrainFitness system is also available to senior center clients and participants in Selfhelp's Alzheimer's Resource Program.

**Virtual Senior Center:** In March 2010, Selfhelp entered into a partnership with the Microsoft Corporation, the New York City Department for the Aging and the city's Department of Information Technology and Telecommunications to develop a [Virtual Senior Center](#) that links homebound seniors to Selfhelp's Benjamin Rosenthal Senior Center in Flushing, Queens.

With the help of Microsoft, the home of each Virtual Senior Center participant was equipped with a desktop computer, a touch-screen monitor, a small video camera, a microphone and broadband Internet service. In addition, video cameras and monitors were strategically placed around the senior center. Using a technology platform developed by It's Never 2 Late, homebound seniors can now interact with classmates and instructors at the center and take part in activities such as armchair yoga, painting classes, current events discussions, museum tours and tai chi.

### *Virtual Senior Center Outcomes*

**Enhanced interaction:** In addition to helping its participants engage in senior center activities, the Selfhelp Virtual Senior Center program has increased the contact between participants and their Selfhelp case workers. Prior to the program's launch, clients received a face-to-face visit from their case workers twice each year. Now, thanks to web cameras, clients and case workers talk much more often. In addition, Selfhelp is beginning to see a reduction in the amount of money it spends to send case workers to clients' homes. Using a grant from the UJA Federation of New York, the organization is currently evaluating the effectiveness of conducting case management electronically.

### **Challenges**

Overcoming technophobia: Fear of technology, particularly among staff members, has affected every technology-enabled service implemented by Selfhelp. The organization has put significant energy into overcoming this technophobia through staff education because it believes that clients will be more likely to accept technology if staff members accept it.

### **Business Case**

Selfhelp uses private donations and grant funds to support its implementation of innovative projects and services that aren't covered by government reimbursement. For example, technology has been included in the organization's fundraising agenda since the Selfhelp board incorporated technology into the organization's mission. In addition, grant funds have helped Selfhelp mitigate its financial risk when developing and testing new technology-en-

abled services like the Virtual Senior Center, which was supported by the Microsoft Corporation.

Looking to the future, Selfhelp is developing a business plan for scaling the Virtual Senior Center initiative so it can reach more homebound older people. Initially, the organization will seek additional grant funds to support the program. Over the long-term, Selfhelp envisions a membership model through which Virtual Senior Center participants would pay a monthly fee in return for use of a personal computer, web camera and appropriate software that could connect them to their local Selfhelp senior center. The organization is also exploring additional revenue-generating opportunities, which might be brokered through technology vendors once the Virtual Senior Center connectivity tools are installed in clients' homes.

Selfhelp uses a sliding scale fee system to provide telehealth and remote monitoring devices to its client. This business model has been challenging to implement because elders who receive services from Selfhelp generally have modest incomes and often hesitate before spending money on a monitoring unit. Despite this challenge, however, Selfhelp remains committed to providing technology-enabled services. It believes that implementation of the Affordable Care Act will spur more widespread recognition that remote monitoring and telehealth are important tools that can help community partners improve the quality of health care while reducing costs.

### Advice to Others

**Focus on your broad objectives.** It's easy for organizations to get frustrated when launching a technology-enabled service and it's tempting for

managers and staff to blame the technology for this frustration. Focusing on the organization's broad objectives—and viewing technology as a tool to reach those objectives—will help the organization work through the frustration.

**Recruit technology champions.** Once Selfhelp incorporated technology into its mission statement, it began to actively recruit new board members who had technology backgrounds. With these new members on board, the organization established a technology committee that is led by a technology champion. The organization has also worked hard to identify staff members who are supportive of and familiar with technology. It calls on these staff members to convince others to give technology a try.

**Take time to understand the needs of the client, rather than imposing your preferences.** Selfhelp learned this lesson a few years back when, without consulting with clients, it started offering a pharmacy-based service that provided home delivery of medications and personal care products ordered over the Internet. Senior staff thought the program was a great idea, but few Selfhelp clients used the service because they actually liked walking to the pharmacy and viewed it as a way to get out of the house, exercise and socialize with their pharmacist.

**Build technology into your physical infrastructure.** Selfhelp is currently building a 92-unit “smart” housing community that will support a host of technology-enabled services, including high-speed internet, remote monitoring and communications technologies.

**Don't turn your back on low-tech assistive devices.** Understand that not everyone needs a high-tech device. Sometimes clients just need a grab bar, a

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magnifying glass or a telephone sound amplifier to maintain their independence and quality of life.

**Continue hi-touch care.** Importantly, don't use technology to minimize or negate good, old-fashioned social work and personal contact with clients.

## **Volunteers of America Eden Prairie, Minnesota**

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*Contributor:*

### **Wayne Olson**

*Senior Vice President of Operations*

### **The Organization**

The 115-year-old [Volunteers of America](#) (VOA) is a major provider of professional long-term nursing care for seniors and others coping with illness or injury. The organization's 25 facilities offer a continuum of services for older people and people with disabilities that includes skilled nursing, assisted living, home health, rehabilitation and memory care. VOA manages seven senior housing communities in three states and sponsors an Aging with Options initiative that helps older people maintain independence and self-sufficiency while living at home. The initiative provides:

- Community Engagement Programs that are delivered in partnership with community partners and volunteers, and provide access to services that meet various independent-living needs.
- Home and Community-Based Services programs that include hands-on health care or assistance with activities of daily living.
- A Program of All-inclusive Care for the Elderly (PACE), which provides and coordinates services and supports for clients who live in the community but need a nursing home-level of care.

### **Technology-Enabled Model or Service**

VOA began exploring technology-enabled services in 2004 when researchers at the University of Virginia (UVA) approached the organization seeking feedback on the design of a remote monitoring system that they were developing. An initial demonstration of what would later be known as "WellAWARE" was followed by brainstorming sessions during which VOA's leadership team offered suggestions for possible tweaks to the technology. VOA staff also educated UVA researchers about the field of aging services and how remote monitoring might be deployed in senior care facilities.

WellAWARE uses wireless sensors and analytic software to measure key wellness indicators, such as sleep quality, activity levels, bathroom visits and other physiological information. After learning an individual's typical daily habits, the system can detect subtle changes in those habits. When those changes become trends, the system alerts professional caregivers so they can address potential, emergent health conditions more quickly.

Using funds from an outside investor, the UVA researchers implemented two pilot studies to test their monitoring system at facilities managed by VOA in Minnesota and the Evangelical Lutheran Good Samaritan Society in South Dakota. Pleased with the results of those pilots, both VOA and the Good Samaritan Society decided to invest in WellAWARE. Each organization now owns 25 percent of the company. VOA's investment in WellAWARE was made through a limited liability corporation that has also invested in "It's Never Too Late," a Colorado-based company that integrates hardware, software, media, ergonomic and adaptive components to create easy-to-use computer systems.

## Implementation Approach

Remote monitoring with WellAWARE is becoming the new standard of care at VOA. The organization is implementing the technology throughout its Senior Care Division, including PACE, Section 202 housing and assisted living sites. In 2011, VOA began deploying WellAWARE in skilled care settings and expects that the technology will be fully deployed in all of its 14 nursing homes by the end of 2012.

VOA follows a two-tiered process to review data collected by the WellAWARE system. First, staff members at a particular setting review the data collected at that facility to identify any recent changes in the baseline behavior patterns that have been recorded for each resident. In a second review, a part-time staff member working at VOA's Eden Prairie offices examines the WellAWARE data to identify any long-term patterns that local staff may have missed.

## Outcomes

**Enhanced quality of care:** The first pilot study conducted by UVA tested the efficacy of the WellAWARE technology and sought to determine if researchers working in Virginia could collect data on 15 older people living in Minnesota and deliver that data to their caregivers. Within the first week of the 90-day pilot, nurses at the VOA test site reported that they were successfully using the WellAWARE technology to identify urinary tract infections at early stages and then offering timely interventions to help residents avoid serious illness.

WellAWARE sleep monitors have also provided VOA nursing home supervisors with critical information about which residents need to be repositioned

by certified nurse assistants (CNAs) during the night and which residents are repositioning themselves and do not require assistance. Staff used this data to determine that a third of residents on one skilled nursing unit were being awakened unnecessarily. As a result of this discovery, residents who were shown to be repositioning themselves were allowed to sleep through the night without interruption, which increased their quality of life significantly.

**Reduced care costs:** During WellAWARE's second pilot study, UVA researchers measured the frequency of doctor visits, laboratory tests, emergency room visits and hospital day stays for a group of monitored residents and for a control group of residents who did not have sensors in their apartments. The results showed a significant reduction in health care use by monitored residents. For example, the total cost of care for the monitored group was calculated at \$17,407 or \$828 per monitored individual. Total care costs for the non-monitored group were calculated to be \$67,753 for the control group, or \$3,236 per individual. When monitoring costs were included in the calculation, the total cost for monitored individuals rose to \$21,187, but was still significantly lower than the non-monitored group.

**Greater staff efficiency:** VOA reports anecdotal evidence that remote monitoring has helped care staff reduce by 40 percent the number of telephone calls they make to doctors' offices. Phone consultations with physicians about the care of non-monitored residents often required multiple calls over several days because physicians often requested that residents be observed for a few days before a diagnosis could be made. When consulting with physicians about monitored residents, however, VOA staff could provide, during one call, all the information a

physician needed to make a diagnosis and prescribe treatment.

**Enhanced staff morale:** By collecting data during the nighttime hours, the WellAWARE technology has placed new emphasis on what happens in nursing and assisted living settings when residents are asleep. CNAs on the night shift have welcomed the new data about resident sleep patterns and feel a renewed sense that they are respected members of the facility's care team and that they make a significant difference in the quality of life of residents.

### Challenges

**Lackluster private-pay market:** While the vast majority of VOA's assisted living residents seemed interested in the WellAWARE system, few were willing to pay \$60 each month to have a system of their own. Faced with this hesitance, VOA decided to include the WellAWARE system in the standard of care for its assisted living communities. Residents and their families quickly became fans of WellAWARE, especially when they understood the type of data that could be collected and how that data could help improve VOA services and resident outcomes.

**Distrust of technology:** A handful of residents were unwilling to have VOA install the WellAWARE system in their assisted living apartments. These residents either distrusted the safety of wireless technology or incorrectly assumed that the system's motion sensors would limit their activities. The organization did not deploy the remote monitoring system in the apartments of current residents who objected to the installation. However, WellAWARE will not be optional for new assisted living residents.

**Multi-state deployment:** The fact that VOA manages assisted living communities in multiple states has made deployment of the units more challenging and time consuming. Staff members from the organization's Eden Prairie office must be transported to VOA facilities in other parts of Minnesota and in other states in order to oversee installation, train staff and meet with families. In addition, the organization has had to review and modify resident agreements in each state to reflect the addition of WellAWARE to the standard of care.

### Business Case

VOA raised the rent for assisted living apartments by \$70 per month to cover the cost of the WellAWARE units. This fee covers the cost of a basic WellAWARE system and two sets of sensors, which track residents' use of the bed and the bathroom. Residents may purchase two additional sensors – a motion detector and a fall detector – for an additional \$40-\$50 per month.

The rent increases were designed to cover the costs involved in deploying the WellAWARE units, but not to yield a profit for the organization. Instead, VOA ties its return on investment to the fact that monitored residents have been able to remain in assisted living for longer because early intervention kept them from developing more serious health conditions that might have prompted a move for them and a vacancy for the organization.

### Keys to Success

**Extensive training:** Members of VOA's staff meet with residents and their families whenever the WellAWARE system is rolled out at a new assisted living community. During those meetings, staff



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members explain the purpose of the units and why they are being deployed. During separate meetings, VOA trainers teach the community's staff how to operate the units and how to analyze resident data in order to identify emerging health issues and make appropriate interventions. VOA also tries to identify technology champions within each community who can get other staff excited about the remote monitoring technology and teach new staff how to use the WellAWARE system.



2519 Connecticut Avenue, NW  
Washington, DC 20008-1520

[LeadingAge.org/CAST](http://LeadingAge.org/CAST)

Phone 202-508-9438

Fax 202-783-2255