TECHNOLOGY ESSENTIAL TO EFFECTIVE
Home Care Administration & Patient Care

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Over the past several years, home health care has been on the rise due, of course, to an aging population, but also because of the increased technological capacity to provide sophisticated medical treatment in a patient's home. These technological advancements are helping aging Americans receive care outside of traditional healthcare institutions, such as hospitals and nursing homes.

Baby boomers are becoming more sophisticated and direct about what they want in health care. As patients and their advocates become more familiar with the opportunities created by technology in industries outside of health care, expectations are building about what is possible in health care. Increasingly, patients want their health care providers to have “real-time” access to their personal health information; want to interact with their providers in more efficient ways, such as email or online scheduling; and don't want to waste their time or money to have tests duplicated, because their file was misplaced. The health care industry is beginning to hear this message more clearly.

In home care, for example, some early technology adopters report they originally implemented technology in order to have a more streamlined communication process, “real-time” patient and administrative data available at their fingertips, or for HIPAA compliance. They now find that some unintended benefits have accrued to them from what initially was a largely external demand for change. These agencies see themselves being ideally situated as the health care industry moves towards pay-for-performance (P4P) payment systems or implementation of electronic medical records (EMR), for instance. They already have the ability to run reports, track patients, and have metrics in place that help them to identify their strengths and weaknesses, and provide recommendations on what they need to do to improve – fundamental tasks associated with either P4P or EMRs.

Home Care Technology Continues to Change

While home health care technologies have existed since the 1980s, personal computers have thrust the businesses, generally, and health care, specifically, into a completely new era. Professionals and consumers alike are using computers with greater ease. Since health care technology has become much more user friendly, we all can expect to see a lot more it.

One of the basic tenets of home care is to help facilitate the health and well-being of patients in their homes. Four key types of home care technology - point of care, office automation, tele-health, and telephony - have been developed and evolved that support that goal.

Point-of-Care

Personal digital assistants or PDAs can offer lists of commonly prescribed drugs, while laptops and tablet computers record patient assessments, identify patient problems, create personalized care plans, document the care provided, and validate the outcomes. The use of these portable devices allow caregivers to spend more time providing patient care and less time performing the administrative tasks associated with the delivery of care. Point-of-care software is focused on decision support tools that allow clinicians to make the optimal patient assessment and determine the most appropriate course of action.

Office Automation

Automating “back office” functions, such as payroll, billing, reporting, has been a longtime pursuit by home care agencies. New and improved technologies are available to streamline these processes, reducing the need for double entry of timecards, for instance. Just like when companies moved from manual to computerized accounting systems, fewer staff were required to perform that particular task. For some home health agencies that are already operating on thin margins, reinvesting staff resources into direct patient care can have a positive impact on the agencies bottom-line. Moreover, utilizing technology to ease office administrative burdens reduces the volume of paperwork, allowing caregivers to spend more time caring for patients.

According to Ellen Sorenstem, Director of IT at the Home Health and Hospice in Nashua, New Hampshire, implementation of a new system allowed them to streamline their back office functions, eliminate unnecessary billing and medical records positions, and shift traditional data entry functions to more of an auditing function. More resources spent auditing allowed the agency to catch more billing errors at an earlier stage, thus, speeding up the billing and payment cycle, so that the number of days a bill is outstanding was diminished substantially.
Dottie Bezanson, RN, BSN, Manager of Clinical Information Services with VNA Services, Inc., says that her agency sees the automation afforded by the use of this technology as one of the many ways to improve patient care. Streamlining scheduling, for instance, prevents overloading a patient with too much information by scheduling multiple appointments with different caregivers on the same day. By building in greater system efficiencies, staff benefits as well from reduced stress and aggravation associated with the burden of paperwork.

**Telehealth**

Telehealth is another key component of improving access to patient care and improving patient outcomes. Telehealth includes a wide range of activities:

- Two-way interactive video in which a patient can electronically visit a clinician;
- Diagnostic images that are transmitted for review by a specialist;
- Clinical data that can be transmitted to the clinical care team allowing them to monitor a patient remotely;
- Access to secure medical records online;
- Access to conferences and online patient information via the Internet;
- Opportunities to engage patients in their own self-care through support groups and
- Supporting patients and providers communicate via secure email systems.

Outside of the home, telehealth plays another important role, supporting linkages between large tertiary care hospitals with outlying clinics and small rural hospitals. These collaborations allow for referrals to medical specialists, provide support during medical emergency or usual situations, and provide respite for providers who might be the only radiologist, midwife, or neurologist in the community.

These types of technologies have the advantage of providing a sense of security for clinicians and patients alike, particularly during those times when a patient is unable to see their clinician. When there is a problem, the patient’s information is always up-to-date, secure, and readily accessible by members of the patient’s care team.

**Telephony**

Telephony, at its most basic level, is the use of the telephone to transmit information. Consumers already utilize this technology every time they use the automated calling features to access their credit card or bank balance. While the term telephony has changed over the years, today it is common for health care oriented telephony services to include an integrated database that allows home care agencies to manage a mobile workforce, including capturing staff time and attendance, and tracking expenditures and services performed. Telephony has a further advantage in its role at reducing fraud and abuse, as providers can log into the system by placing a call from the patients’ home telephone when they arrive and when they leave. The advantages are obvious – real time data collection supports more accurate and less costly recordkeeping.

While home care technology has made considerable strides since the 1980s when it was first introduced as a means of reducing the costs associated with disease management, several hurdles continue to create real or perceived barriers to implementation of technology.
The Changing Attitudes and Increasing Demands of Baby Boomers

As other industries make technological advances, the public's expectations of the standard of care may be evolving, such that they may soon expect their health care providers to have “real-time” access to their health information. One recent example, involves a wrongful death lawsuit in which the plaintiff claimed that the hospital was negligent for not having a telehealth system in place. The case has not gone to trial so no precedent has been set, yet it is likely a harbinger of changing attitudes and expectations.

In a recent study conducted by the Center for Aging Services Technologies (CAST), some “baby boomers” are willing to finance the technology themselves to ensure healthier living as they age. The 2005 study included 76 participants ranging in age from 50-65, living in five different states, revealed that an overwhelming 90 percent of the participants indicated that they would be willing to pay $50 each month for electronic monitoring devices, such as medication reminders. Approximately half of the study participants said they were willing to pay up to $100 each month, and most participants said that they were extremely interested in owning a device that maintained their medical records and provided them with control of such records. The study reaffirmed previous market studies in which baby boomers want to maintain personal and financial independence, stay healthy, and not become a burden on their children. This is likely to be a driving factor in the purchasing decisions of this bulging and soon to be retiring demographic. Participants were eager to have access to reliable information and choices about available health care options.
Based upon the study's results, CAST issued a report recommending the following:

- Develop a national public/private partnership to promote technology initiatives in elder care to help aging patients maintain their independence and improve efficiency in the delivery of health care.
- Explore ways to redirect budgeted research dollars to encourage more rapid development of new technology applications.
- Develop electronic medical records as an expanded vision of the delivery of health care.
- Explore the potential of new technologies to assist with prevention and wellness in ways that will improve quality of life and quality of care while reducing national healthcare expenditures.

Technological Innovation

Health care associations, nonprofits, and the technology industry have recognized the importance of efficient and effective technology in the delivery of home health care. CAST, for example, maintains a database of partnership opportunities and encourages technology developers, service providers, and research to post collaboration opportunities on its website. The Alzheimer's Association formed a consortium to prompt the development of technologies for the delivery of home care to patients suffering with dementia.

Last December, universities and manufacturers gathered in Washington, DC, at one of the largest home care technology exhibitions to date. The technologies ranged from: a personal assistant robot helps the elderly monitor daily activities like taking medicine, eating meals, and going to the bathroom; embedded sensors in chairs and beds to measure a patient's vital signs, assess a patient's health status, or determine whether they got out of bed that day; Avatar technology embedded into a medicine cabinet to remind patients of recent medications and potential interactions; and memory-assisted caller ID system for Alzheimer's patients that shows the patient a picture of the caller and offers details of the last conversation with the caller.

Clearly, the technology is changing, as are the types of applications envisioned. For example, a MIT doctoral student developed a prototype of "memory glasses" that provide a proactive context-appropriate reminder system to assist patients with memory and recognition. The system is designed to deliver reminders to wearers in timely, situation-appropriate ways, without requiring input from the wearer other than the initial reminder request. Researchers believe that the glasses could potentially help patients with amnesia, agnosia, or dementia. Some even predict that there will be a market for unimpaired individuals who could benefit from memory and logistical aids, such as busy executives, politicians, or those in the retail/service industry.

Hurdles that Stymie the Use of Home Care Technologies

While home care technology has made considerable strides since the 1980s when it was first introduced as a means of reducing the costs associated with disease management, several hurdles continue to create real or perceived barriers to implementation of the technology. Which barriers, such as reimbursement, training, resistance, and capital investment, are the most important, depends on whom you ask.
The Need for User Oriented Training, Retraining, and Support

The proper and timely education of agency staff on the value and use of the technology is crucial to the effective and efficient implementation of any new system. The training has to be geared towards the users and not those doing the teaching - “Do this then do that” is not an effective teaching strategy. While much of the burden for training staff will fall to the agencies for the near future, training for nursing, medical, and allied health students must occur in school as well. Fortunately, some schools are beginning to address this need.

In 2001, the University of Kansas began integrating clinical IT into its curriculum, teaching its nursing students to review and analyze large volumes of data from a case study. Of course, not all of the students are comfortable with the technology. Judith J. Warren, PhD, RN, nursing director at the U-Kansas’ Center for Healthcare Informatics describes in the April 2006 issue of Health Leaders the response of some students, who say, “[I] didn’t come into nursing to deal with technology.” Warren responds, “I ask them if they have been in a hospital lately. If they don’t like wires and technology, they are in the wrong field.”

It is critical that agencies conduct follow-up training and education in order to fine tune or reinforce the learning, or help staff unlearn any bad habits they may have developed. Patty Klinefelter with Valley Home Health in Winchester, Virginia, also believes it’s imperative to have at least one person on the agency staff that is 100 percent committed to the technology, and is willing to spend the time to upgrade the system, train the staff, and generally, advocate for its use.

Bezanson, for example, pairs a new clinician with an experienced field user so that the new clinician is able to realize the usefulness of the technology and avoid the developing “bad habits.” VNA Services, Inc. also hosts voluntary roundtable discussions, which are attended by 75 percent of the staff. It provides an opportunity to share stories, frustrations, and helpful tips with other users. Many major technology vendors host regional and state meetings for their users to troubleshoot problems and network. Participants say they find these meetings helpful.

Resistance Is It Real? Is It Bad?

Overcoming resistance to technology is often cited as a barrier to technology adoption. While resistance is real, as a barrier to implementing technology it might be overstated. Frankly, resistance can be valuable, but more often than not resistance becomes a convenient, all encompassing, yet ill-defined term. Agencies who inquire into the resistance might find that the person doing the resisting has a better solution to the challenge at hand, or the resistance is different from the one they envisioned. For example, at VNA Services, Inc. in Connecticut, a major hurdle was convincing its clinicians to embrace the new point-of-care technology. Some clinicians feared that the laptop would act as a barrier to personalized care for their patients. Facilitating a conversation with other agencies who have already implemented the technologies may have helped to allay those fears.

Staff may assume that technology adoption, for instance, will mean layoffs, so they engage in resistant behavior. The resistance might be related to fear and anxiety that an impending change produces – what if I lose my job, what if my friend loses her job, what will the change mean to me? As a favorite saying goes, in the absence of information, people make up stories. The foregoing stories might be examples of resistance, but it might also be the lack of a well-developed communications strategy.

As humans, people are motivated to act, in part, out of their own vested interest. On some level, people want to know what is in it for them or what does it mean to them, which makes the case for answering that question as a part of any communications strategy. Figuring out how to acknowledge, reward or incentivize training, and making the necessary changes, foster a collaborative environment that can serve everyone in the end. Agencies adopting any new system or technology need to communicate clearly the rationale for system change and its likely outcomes.

For some agencies, like the Home Health and Hospice in Nashua, N.H., the transition from paper files to computers was seamless. Their patients expected clinicians to make home visits with a computer and began questioning those clinicians who arrived without one. Klinefelter believes by requiring all staff to use point-of-care technologies, she was able to minimize the amount of time it took to make the transition to a technology-enabled agency to a mere six months.

Finally, a barrier that is often cited is the cost of the capital outlays required for implementing the technology. As with any transition to a new system, there are costs to be incurred. The question is not if the outlay will be made, but rather when. Agencies that wait too long to implement these new technologies simply will not be competitive over the long term. Companies that moved from typewriters to computers saw vast differences in the quality and quantity of their output. Technology in home care is and will be no different.

Unexpected Benefits and the Future of Home Care Technology

Agencies that have implemented various home care technologies anticipated certain benefits, such as increasing the coordination of care and allowing agencies to serve their patients in a timelier, more cost-effective way. However, many did not anticipate the additional benefits that the technology has provided, such as streamlined staff, reduced medical errors, and decreased billing errors.
The agencies that have adopted technology now find themselves in a prime position as the health care industry moves forward on pay-for-performance. As payers in the health care industry look for ways to measure health outcomes, these agencies are able to run “real-time” reports to manage costs and staff time as well as enabling them to manage the health of their clients. Both Bezanson and Sorenstem say they hope that collectively the technology can create better connections between hospitals and agencies so that a patient’s hospital records, including lab results and other clinical documentation will be transferred seamlessly with the patient as they began home care, and vice versa. This continuation of care would allow both hospitals and home health agencies to serve the patients better and would create a more integrated health system.

Conclusion

With the number of seniors in America increasing and the public expecting “real-time” results with respect to their health care, the comprehensive utilization of home care technology has become not just a luxury, but rather a necessity. While various hurdles do still exist, providers, patients, the public, industry, and government are becoming increasingly supportive of advancements in home care technology. With proactive efforts on the part of home care agencies to overcome these hurdles, the widespread implementation of home care technology will be a reality in the near future.

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