TELEHEALTH AND REMOTE PATIENT MONITORING (RPM)

Provider Case Studies 2013

LeadingAge™
center for *aging services technologies* CAST

TELEHEALTH AND REMOTE PATIENT MONITORING (RPM):

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LeadingAge Center for Aging Services Technologies:

The LeadingAge Center for Aging Services Technologies (CAST) is focused on accelerating the 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 6,000 not-for-profit organizations dedicated to expanding the world of possibilities for aging.

For more information, please visit LeadingAge.org/CAST

1   INTRODUCTION

The LeadingAge Center for Aging Services Technologies (CAST) is pleased to provide the following six case studies on the impacts and benefits of telehealth and remote patient monitoring (RPM). We hope they will demonstrate for providers the benefits of using telehealth and RPM products.

The case studies are designed to help long-term and post-acute care (LTPAC) providers understand the benefits that telehealth and RPM products can offer to their care settings.

This set of case studies is a companion to the 2013 CAST whitepaper entitled Telehealth and Remote Patient Monitoring for Long-Term and Post-Acute Care. The whitepaper includes a Telehealth and RPM Selection Matrix that compares 23 telehealth and RPM products from 16 vendors with respect to embodiments, different LTPAC settings, functionalities and features. Telehealth and RPM vendors that chose to participate in the self-review were offered an opportunity to nominate a provider to write a case study on its use of the vendor's telehealth and RPM product.

1.1   Case Study Guidelines

CAST provided guidance as well as a template for the case studies to help case study contributors. The template included the following required sections:

- Case Study Category (case studies may cover more than one category)
  Impacts and Benefits of Telehealth and Remote Patient Monitoring (RPM) in:
  - Health Outcomes (Blood Pressure, Blood Glucose, etc.)

- Staff Efficiencies
- Quality of Life/Satisfaction with Care
- Hospitalization and Hospital Readmissions
- Cost of Care and Return on investment (ROI) to:
  - Providers;
  - Payers; or
  - Consumers.

- Organization Name

- Organization Type (Housing with Services, Home Health/Home Care, Hospice, Adult Day Care/Senior Centers, Assisted Living Facilities, Acute Rehab Facilities, Long-term Acute Care Hospitals, Long-term Care Rehab Facilities, Skilled Nursing Facilities, Intermediate Care Facilities, Intellectual Disabilities/Mental Retardation/Developmental Disabilities (ID/MR/DD) Facilities, Continuing Care Retirement Communities (CCRC), Program of All-Inclusive Care for the Elderly (PACE))

- Other Partners (Payer/Health Plan, Physicians' Offices, Emergency Department, Hospital, Accountable Care Organizations (ACO), Pharmacies, Others)

- Organization Description

- Project Description

- Telehealth and RPM System Type (Store-and-Forward: Interactive Voice Response System (IVR), Store-and-Forward: Biometric RPM, Other Store-and-Forward Systems: Other than IVR & Biometrics (e.g. Imaging,

Consultation Notes, etc.), Real-Time Biometric RPM, Real-Time Interactive Two-Way Video Conferencing with Clinician)

- Telehealth and RPM System Embodiment (Single-User/Patient Home Base Unit, Single-User/Patient Mobile/Wearable Unit, Staff-Operated Multi-User Mobile Unit, Multi-User Unit/Kiosk)

- Business Model (Medicare Reimbursement, Medicaid Waiver Coverage, Private Health Insurance Coverage, Private Pay, Standard of Care, ACA-Related Opportunity (ACO, Hospital Readmission Reduction Program, Bundling of Payment, etc.))

- Implementation Approach

- Outcomes (Health Outcomes (Blood Pressure, Blood Glucose, etc.), Staff Efficiencies, Quality of Life/Satisfaction with Care, Hospitalization and Hospital Readmissions, Cost of Care and Return on investment (ROI) to Providers, Payers or the Consumer, etc.)

- Challenges and Pitfalls to Avoid

- Lessons Learned

- Advice to Share with Others

CAST received six completed case studies from nominated providers. We believe that LeadingAge members and other LTPAC providers will benefit from these case studies and learn from other providers who have already selected, implemented, and used telehealth and RPM products.

2   LESSONS LEARNED AND ADVICE DRAWN FROM THE CASE STUDIES

Readers can learn many lessons from the following case studies. Each participating provider took a slightly different approach to choosing and utilizing a telehealth or RPM system, and shared the factors that led to their success. They offer the following advice:

Leadership and Buy-In

- Engage leaders; their engagement is key to the success of a telehealth and RPM program. It takes leadership to change behavior – and persistence to change culture.

- Engage staff; their engagement, buy-in and support are critical to a program's success.

- Choose a telehealth system that is simple, reliable, easy to use, easy to maintain and affordable to providers and patients to warrant buy-in and sustained use. Ensure the telehealth solution can easily integrate into the patient's daily activities.

Enrollment

- Understand the patient population and plan the program based on the organization's unique needs and goals.

- Establish selection/inclusion criteria around specific conditions in which telehealth has shown efficacy.

- Focus on high-risk, high-cost patient populations, at least initially.

- Ensure all patients who qualify for telehealth are assigned at the time of intake, rather than later in the care episode.

- Ask a trusted clinician to provide an introduction to telehealth. Patient telehealth program enrollment is most effective when introduced by a trusted clinician.

- Streamline the hospital and skilled nursing discharge planning process to incorporate enrollment into a telehealth program.

Education and Training

- Work with the telehealth partner to develop a communication strategy regarding the benefits of the telehealth program for internal stakeholders and referral sources.

- Provide traditional clinical call center nurses with additional disease management education. Effective nurse communication training is vital to patient enrollment and engagement.

- Ensure that case managers and field staff understand the value of telehealth, including what is in it for them: reducing readmissions for their patients and better clinical care.

- Empower the patient with the knowledge of his or her own health readings. Patients want to be informed, active participants in their care program.

- Offer real-time education to patients during a teachable moment. This increases self-management.

- Make sure the patient's primary care physician is educated about the program, so they can reinforce its value when the patient visits them in the office.

Process Redesign and Improvement

- Telehealth clearly impacts the efficacy of health care delivery at every point in the care continuum, providing the opportunity to reduce readmissions and improve the quality of patient care coordination. In nursing facilities, telehealth can transform the way nurses do their work and enable continuous improvement in quality and outcomes while containing costs. Consider how telehealth will change care processes and workflows, and redesign processes to take advantage of telehealth data in driving efficiencies and ongoing process improvements.

- When selecting a telehealth solution, take the integration of telehealth data into the electronic health record (EHR), which is not straightforward, into account. Partner with a vendor who not only implements interoperability standards, but is willing to work with others, like the EHR vendor.

- Work with the telehealth partner to establish a clinical program design that will have maximum clinical and financial impact.

- Telehealth technology is an enabling tool, not an end unto itself; focus on patient services versus telehealth equipment. Improving wound care or chronic disease management is a quality initiative, not an information technology initiative.

- The connection between the clinical staff and the patient is critical to the success of the telehealth program. Integrate visits to the home into the clinical program to reinforce the importance of using the telehealth equipment to the patient.

- Share clinical outcome data with all applicable practitioners across the full care continuum. Analyze the data, along with the financial data, to validate system cost savings, and report regularly to the physician group and senior leadership.

- Establish physician pro re nata (PRN), as needed, orders for telehealth patients to maximize efficiency of monitoring.

- If managing the telehealth inventory, make sure to apply an organized approach to inventory management including signing the equipment in and out. Make sure the telehealth system allows inventory to easily move between patients. Ask telehealth partners for a process to effectively manage the equipment.

Financial Data Matter

- Understand your return on investment (ROI), collect and analyze the data that will demonstrate ROI.

- Develop business partner relationships.

- Partnership/collaboration with the organization's chief financial officer is important to collect and analyze financial data.

Planning and Looking Ahead

- Plan to expand the program to a larger number of patients. Take into account the possibility of linking projects into partnerships with payers, hospitals, Patient-Centered Medical Homes and accountable care organizations (ACO).

- As health care organizations work to form integrated delivery networks or become ACOs in order to leverage a more streamlined health care model, the system-wide embrace of telehealth solutions as a communication bridge for the patient discharge process, can (quite literally) be the missing link.

The case studies presented here represent great examples of using telehealth and RPM products. Each case study demonstrates how using telehealth and RPM has impacted each organization, and in turn the care they provide. Building upon the experience of these organizations can help other providers write their own success stories and case studies.

7 Reducing Hospitalizations and Hospital Days through Telehealth

7.1 Provider: Vidant Health

Contributor: Bonnie Britton, MSN, RN, ATAF, Vidant telehealth program administrator

7.2 Vendor: Ideal Life

Impacts and Benefits of Telehealth and Remote Patient Monitoring (RPM) in:

- Health Outcomes (Blood Pressure, Blood Glucose, etc.)
- Quality of Life/Satisfaction with Care
- Hospitalization and Hospital Readmissions
- Cost of Care and Return on investment (ROI) to:
  - Providers
  - Payers
  - Consumers

Organization Type

Vidant Health is an integrated health system with a tertiary care center, eight rural hospitals, 70+ primary care provider clinics, home health, and hospice.

Other Partners

Vidant Health used Ideal Life to provide in-home monitoring equipment (phone, Internet or cell transmitting portable open database (POD) station, and wireless peripheral sensors for blood pressure (BP), pulse, oxygen saturation, scale, and finger stick blood sugar (FSBS) and its Employee Health Wellness Kiosk Program).

Organization Description

Vidant Health is one of the largest health care systems in North Carolina. It is the parent company of Vidant Medical Center, the tertiary services hub that operates or manages eight diverse community hospitals throughout the region and a number of subsidiary corporations including physician practices, outpatient services, wellness services, critical care transport, home health, hospice, and more. Vidant Health serves 29 counties and more than 1.4 million people through an extensive regional network. The system's combined operations include more than $1.5 billion in net revenues, more than 12,000 employees and more than 1,400 licensed beds.

Project Description

Vidant Health implemented a post-hospital discharge telehealth program to increase patient access to care, lower hospitalizations and bed days, enhance patient and provider communication and engage high-risk, high-cost, low-engagement cardiovascular disease and pulmonary disease patients. A Patient Activation Measurement Tool is used to identify low-engaged patients. Ideal Life's

telehealth equipment was installed and medication reconciliation was completed in the patient's home. Daily, patients collected their blood pressure, pulse, weight and oxygen saturation level, which were encrypted and sent to a secure cloud server. Data were reviewed by a nurse and actions or interventions were taken as needed.

Telehealth and RPM System Type

Vidant Health used Ideal Life's real-time biometric RPM system.

Telehealth and RPM System Embodiment

The systems chosen were single-user/patient home base units and a multi-user unit/kiosk for employee wellness.

Business Model

Vidant Health's business model is to reduce unnecessary hospital readmissions, emergency room visits and lower hospital bed days to lower costs, maximize reimbursement, and avoid Medicare re-admission penalties. During the business plan development, initial assessment identified Medicare, self-insured and uninsured cardiovascular disease (CVD) and pulmonary disease patients as the initial patient population. After the first six months of implementation, the program began accepting any CVD and/or pulmonary patients regardless of payer. During the first year, 56% of patients who completed monitoring were Medicare, 14% Medicaid, and 11% self-pay. Vidant Health is currently analyzing year one data to include hospital bed days, charges, costs and reimbursement.

Implementation Approach

During the first year of the telehealth program, Vidant Health enrolled 1,323 cardiovascular and pulmonary disease patients. One hundred twenty-six patients declined participation in the program. Fifty-six percent of the participating patients were African American females. Patient ages ranged from 19 to 101 years of age with thirty-two percent of patients between the ages of 18-59, which was significantly higher than expected. Fifty-four percent had a primary diagnosis of hypertension and thirty-three percent had a primary diagnosis of heart failure.

CVD and pulmonary disease hospitalized patients were identified through Vidant Health's electronic health records (EHR). Once identified, the patient completed a 13-question Patient Activation Measurement (PAM) tool. The answers were recorded in Vidant Health's EHR and patient engagement scores (0-100) and patient engagement levels (I-IV) were determined. If the CVD and/or pulmonary patient was a PAM Level I or II, the patient was approached by a telehealth nurse technician (TNT) in the hospital. The patient and family were informed of the program and consent to participate was obtained. Following patient approval, the TNT contacted the patient's doctor or care manager for an electronic referral to the telehealth program. Upon hospital discharge, the TNT scheduled a time to come to the patient's home to install the equipment, conduct a home safety assessment, train and validate the competency of the patient in the use of the equipment, and collect the patient's medications and compare medications at home to the hospital discharge medication list. If there was a discrepancy, the TNT contacted the telehealth nurse who followed up with the patient's primary care physician to perform medication reconciliation.

On a daily basis, the patient self-collected his or her data (BP, pulse, oxygen, weight, FSBS) which were

encrypted and transmitted to a secure cloud server. Daily, the telehealth nurses reviewed the patient data and contacted all patients who had abnormal parameters. The telehealth nurse conducted an assessment, evaluated medication and nutrition compliance and provided patient education. If the telehealth nurse believed the patient may have needed a medical intervention, the telehealth nurse contacted the patient's doctor via the EHR. Patients were monitored for a three-month period and evaluated for discharge from the program or a three month extension.

Outcomes

Patient outcome data were pulled for the three months prior to being enrolled in the telehealth program, during the three months of telehealth program and again for the three months post-discharge from the telehealth program. During the first year, hospitalizations were decreased by a total of 550 admissions (820 during the three months before implementation of the telehealth program, and 270 during the three months of the telehealth program) for patients enrolled in the telehealth program. This was a 67% reduction in hospitalizations as a result of the use of telehealth. Also, the number of patients hospitalized decreased by 341 during the telehealth program (512 patients prior to telehealth use and 171 patient during the telehealth program), as figure 1 below shows.

Hospital bed days during the telehealth program decreased by 2,596 as compared to before enrollment in the telehealth program, as illustrated in figure 2 below.

Hospital costs, charges, readmission and reimbursement analysis will be completed at the end of Vidant Health's fiscal year.
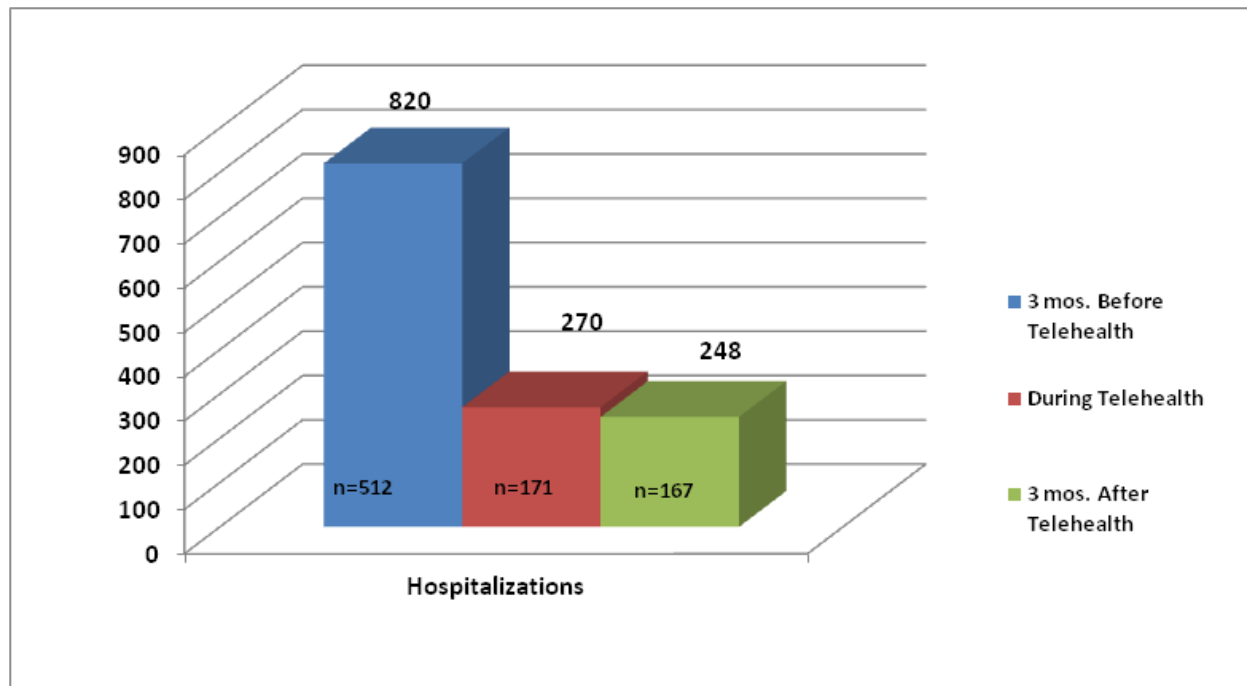

Figure 1. Number of Hospitalizations and Patients Hospitalized Before, During and After Enrollment in the Telehealth Program (n = 695 patients total).
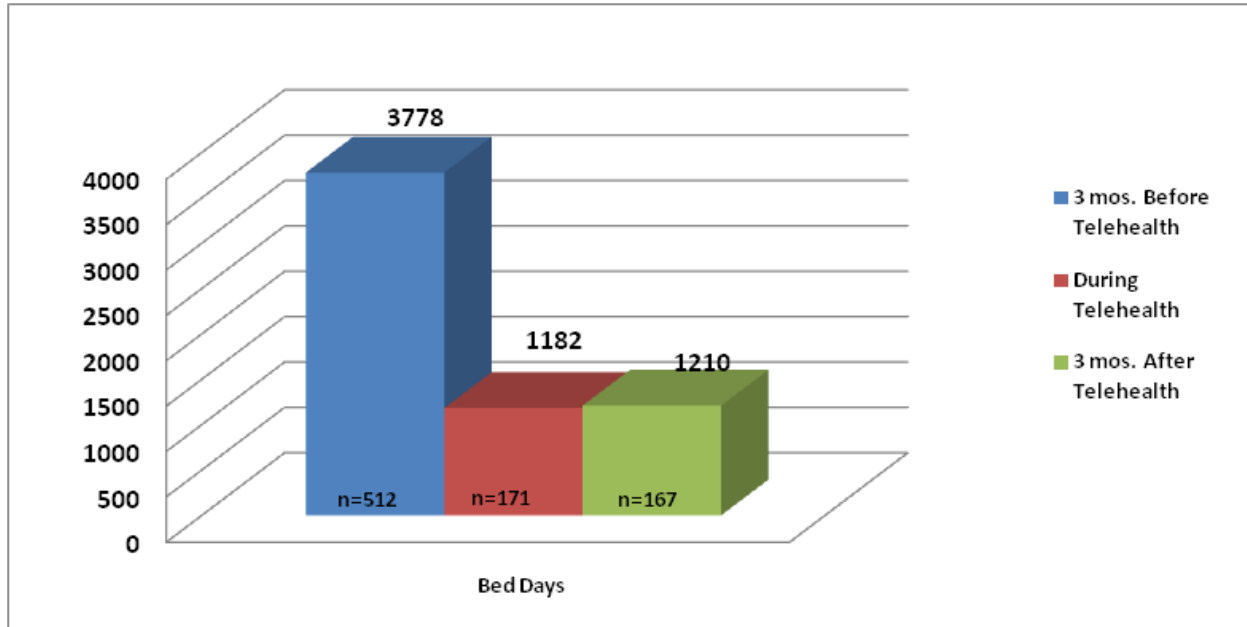
Figure 2. Number of Hospital Bed Days Before, During and After Enrollment in the Telehealth Program
(n = 695 patients total).

Financial Benefits - Total Health Care

- Hospitalization costs to payers were 68% lower as a result of the telehealth program
- More effective and efficient care
- Improved access to care at the most appropriate level
- Increased patient satisfaction

Patient Satisfaction

As illustrated in Figure 3 below, patients were extremely satisfied with the telehealth services and equipment. Patient satisfaction was assessed at the mid-point of the telehealth program.
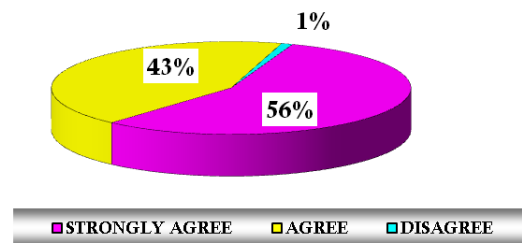

Figure 3. Patient Satisfaction with the Telehealth Program

Take Home Points

Conducting in-home medication reconciliation and providing RPM services resulted in:

- Early identification and treatment of disease exacerbation

- Reduced hospitalizations

- Reduced bed days

- Reduced emergency room visits

- Reduced health care costs

- Actively engaged patients

Challenges and Pitfalls to Avoid

- The greatest challenge for telehealth implementation is having a clear vision, business plan and model with quantifiable return on investment (ROI).

- Hospitalist and primary care provider buy-in.

- The buy-in from the provider organization's chief financial officer, which is related to the ROI mentioned above.

- Integrating the telehealth data with the organization's EHR.

Lessons Learned

- Understand the patient population and plan the program based on the organization's unique needs and goals.

- It is much more difficult to integrate EHRs with telehealth vendor software than initially believed.

Advice to Share with Others

- If one has seen a single telehealth program, one has seen a single telehealth program. One needs to design his or her own telehealth program based on the desired organizational goals, population, competencies, and partnerships.

- Focus on patient services versus telehealth equipment.

- Partnership/collaboration with the organization's chief financial officer is important to collect and analyze financial data.

- Collect and analyze the data that will demonstrate ROI.

- Focus on high-risk, high-cost patient populations.