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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.

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Senior Patient Engagement: Using Telehealth to Support Chronic Disease Self-Management

Categories

Prolonging Independence/ Aging in Place & Quality of Life / Satisfaction with Care

Organization Name

Pleasantville Senior Center, Clinton Street, Pleasantville, NY

Contributors

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Organization Types

Public: Village of Pleasantville, Department of Senior Citizen Programs & Services

Other Partners

Colette Phipps, Research Analyst for Westchester County Department of Senior Programs & Services and Executive Director of the Westchester County Livable Communities initiative was the lead and co-designer of the integrated program. Ms. Phipps led the multi-disciplinary research team in the monitoring and analysis of the 7-week pilot program.

Team members included Joni Ehrlich & Gen Lucenti of the Pleasantville Senior Center; Dr. Jean Coppola, Professor of Computer Science, Pace University; Deth Sao, Director of Development, Pace University; Dr. Steve Safier, President, Panasonic Health & Wellness Solutions, Jerry Kolosky, Senior Healthcare Advisor, Panasonic Health & Wellness Solutions; and Debra Cassil & Jennifer Schwartz of the Westchester County Department of Senior Programs & Services.

Pilot Study Stakeholders

Name	Title	Affiliation
Colette Phipps	Research Analyst	Westchester CDSPS
Steve Safier, PhD	President of HWS	Panasonic
Jean F. Coppola, PhD	Associate Professor	Pace University
Deth Sao	Director of Development	Pace University
Scott Morrison	Board Chair	United Way of Westchester
Jennifer Schwartz, LMSW	Program Facilitator	Westchester CDSPS
Joni W. Ehrlich, GCM, QDCP	Director Senior Programs	Village of Pleasantville
Debra Casill	Program Facilitator	Westchester CDSPS
Arun Bantval	VP Development	Panasonic
Jerry Kolosky	Liaison	Panasonic
Rashan M. Goodall	Project Manager	Panasonic
Sabrina Jarvis	Student Nurse	Pace University
Clinician	Senior Nurse	Village of Pleasantville

Organization Description

The Pleasantville Senior Citizen Programs & Services provides recreational and educational programs and support services to residents age 55 and older. These innovative programs and services are designed to enhance the quality of life of older adult residents by increasing their independence and maintaining their involvement in the life of the community. Information, referral and support services to Pleasantville senior citizens and their families are provided through the offices of the Director, Joni Ehrlich, GCM, QDCP.

Project Description

A pilot study was conducted at the Pleasantville Senior Center in Pleasantville, NY from 6/9/15 to 7/19/15, in which the Stanford Chronic Disease Management Program (CDMP) was coordinated with Panasonic Health & Wellness Solutions' Remote Patient Monitoring (RPM) technology set up in a mobile, portable configuration called, Panasonic On4Care Mobile. Panasonic's RPM solution was used for the gathering, storage, and analysis of relevant biometric and behavioral data, and to generate insight into the application of Telehealth technology to patient self-management of chronic conditions.

Telehealth / Remote Patient Monitoring System Type

Store-and-Forward: Biometric Remote Patient Monitoring (Blood Pressure and Weight Scales) delivered in a mobile configuration within a multi-user, structured social setting.

Panasonic On4Care is a comprehensive, Telehealth & RPM solution that promotes patient engagement, supports clinical decision-makings and enables communication among medical practitioners, patients and caregivers. Panasonic On4Care is device-agnostic, and directly accepts data input from Bluetooth-enabled medical devices. In summary, Panasonic On4Care is an intelligent, adaptive, healthcare platform that supports the challenge of providing care for the aging, and enables system-wide population health.

The Panasonic On4Care Platform:

- Remote Patient Monitoring
 - Biometrics (weight, blood pressure, glucose, body temperature, pulse)
 - Remote, customizable, interactive, logic-driven clinical dialogues
 - Customizable to cohort and individual care plan requirements
 - Support for multiple languages
 - Reminders to improve adherence with treatment and medication regimens
 - Ability to deliver context-sensitive, multimedia-enabled patient education materials to promote patient engagement and support self-management

- Telemedicine
 - Practitioner and patient consultation via real-time video
 - Support for Tele-diagnostic imaging

The On4Care Device Ecosystem:

- TV/Gateway
- Tablet
- Smart Apps (under development)
- Multi-user Kiosk
- Laptop (Mobile Healthcare Workstation / eHealth Portal)
- Clinical Portal providing Clinical Alerts / Trend Analysis & Reporting

Panasonic On4Care systems components connect to a care hub in which providers can make triage decisions based upon objective and subjective data triggers, monitor care plans, and manage voice, video and text-based communications, including remote Telehealth consultations. Within this hub, or “Clinical Call Center,” data analytics are used to identify high risk cohorts, rationalize technology deployments on a cost / benefit basis, link clinical outcomes to quality-based reimbursement metrics, monitor service utilization and support informed, efficient transitions of care.

The Panasonic On4Care Platform is a secure, HIPAA-compliant network that interoperates with legacy Electronic Medical Records (EMR), Health Information Management (HIM) and Health Information Exchange (HIE) systems.

Describe System Embodiment

Panasonic On4Care Mobile enables medical professionals to efficiently and securely capture, view and analyze patient biometric and subjective data at the point-of-care, which eliminates the error-prone clinical documentation, and promotes engagement in clinical interactions. Individual and aggregate data is secure, with access provided only to health care providers with the legal authority to view Protected Health Information (PHI) and specific, defined patient records.

Business Model

Social Services: Innovative Remote Monitoring Pilot Study, co-ordinating location-optimized RPM technology; evidence-based, guided patient self-management protocols; managed social services; and qualified clinical oversight.

Implementation Approach

Each week, during the RPM segment of the CDMP sessions, Panasonic On4Care was used to electronically capture patient vital sign data - including blood pressure, pulse and weight - and record that information in a secure, HIPAA-compliant database for clinical analysis and follow-up by qualified supervising nurses.

Patients

22 seniors from local communities; all participating on a voluntary basis.

Staff

Facilitators: The study included two CDMP facilitators who provide guidance to participants during interactions with the clinical and technical staff.

Nurses: A Registered Nurse from Pleasantville Senior Center and a volunteer nurse from Pace University provided clinical support and offered insight and suggestions to optimize the program methodology, user interface, and biometric data capture process. The nurses also provided feedback on the user experience and other human factors, including key drivers of patient engagement.

Materials

Logbook: Each nurse maintained a logbook in which biometric information was recorded. This represented a baseline method of capture and storage of biometric data for comparison with the Panasonic On4Care Mobile RPM methodology.

Laptops: Two laptops were used to deliver Panasonic On4Care Mobile services, including the capture and aggregation of biometric data via Bluetooth-enabled devices. The laptops also provided secure access to historic biometric charting, enabling efficient assessment of participant and cohort progress.

Questionnaire: A questionnaire was designed to gauge participant engagement with the program and to monitor individual progress. The questionnaire contained 13 primary questions and 12 subset questions.

Biometric Devices: Blood Pressure monitors and weight scales were provided to facilitate biometric data gather-

ing. Each device set was paired with a tablet, and clearly labeled for simple identification.

Procedure

The inaugural workshop featured a formal introduction between the participants and the multi-stakeholder committee. The focus of the workshop was to provide a briefing on the pilot objectives and methods, to discuss how Remote Patient Monitoring can be used to support health self-management, and to promote informed engagement from the participants.

The physical layout included a private, enclosed area for patient interactions with nurses during the capture of biometric data. Questionnaires were delivered at the end of specific CDMP sessions. Upon the conclusion of the study, all participants engaged in a guided forum in which impressions and insights were exchanged and evaluated for potential integration into product development process.

Advantages to the Approach

- Builds on a recognized best-practice methodology in chronic disease self management
- Uses technology to monitor and evaluate biometric data and subjective information
- Utilizes senior centers and social services organizations to provide access to advanced healthcare technologies to older adults in a comfortable setting
- Engages seniors in the user experience and technology development process.

Outcomes

A number of objective and subjective issues regarding the use of telehealth technology within multi-user senior settings were encountered during the study, including participants' reactions to new technologies, environmental variables, and key human factors.

Operational Issues

Blood Pressure Monitoring Accuracy

Some participants indicated that blood pressure readings were higher than expected. Analysis by participating nurses identified and resolved root causes, including:

- High temperature and humidity within the facility
- Excessive movement by participants prior to readings
- Measurement sequencing (e.g. weight prior to BP can

affect mental state)

- Emotional state of certain participants due to unfamiliar nurse
- Preference for traditional blood pressure cuff.

Questionnaire Length

Questionnaire was perceived as too lengthy by some participants.

Retention

As the workshop progressed, a number of participants dropped out of the program. However, while the historic retention of CDMP is approximately 40%, a 70% retention rate was obtained for the pilot study.

Participant Feedback

Upon the pilot's conclusion, all participants engaged in a feedback session to exchange ideas around patient engagement, process optimization, set & setting and relevance of RPM and Telehealth technologies on health self-management.

During this session, a number of the seniors expressed interest in further education in how to use contemporary technologies - such as smartphones, personal computers and health monitoring devices - to better manage personal health and wellness.

Patient Feedback

- Several participants expressed strong interest in better understanding the linkage between Remote Patient Monitoring and health self-management
 - In general, the group emphasized a desire to have these connections carefully explained and regularly reinforced
- The session indicated that "seniors" is not a monolithic cohort; despite common stereotypes, many are tech savvy
- The group emphasized key values around designing an optimal senior user experience, including transparency, candor, practicality, ease-of-use and reliability

Facilitator Feedback

Senior Nurse

- Initially expressed discomfort with biometric devices
 - At first, preferred familiar, traditional methods & tools; however, as the study progressed, the

senior nurse became comfortable with use of the new devices

- Extremely positive reaction to digital data records
 - Access to historical data; trend analysis; efficiency vs. paper medical records.

Student Nurse

- Positive reaction to RPM technology; preferred Bluetooth devices vs. traditional tools
- Preferred PC touch screen interface to “outmoded” mouse input
- Impressed with Panasonic On4Care health trend graphing & reporting capabilities.

Analysis

Subsequent to the pilot, Panasonic analyzed biometric and survey outcomes against a number of conditional hypotheses with the objective of identifying potential areas of further study

Preliminary Results

- Subjects initially reporting generally good health had more positive feelings about the use of technology than those initially reporting poor health
- A significant majority of patients using remote technology to monitor blood pressure believe RPM technology can help maintain a healthy diet
- In general, the participants indicated that they either Agree or Strongly Agree that remote monitoring can help with the maintenance of good health.

Challenges and Pitfalls to Avoid

- Ad hoc and formal feedback from participants indicated the need to deliver clear, structured, pre-program education and ongoing reinforcement to both the mechanics and intent of the program
- Concise, jargon-free collateral material must be distributed to participants to guide formal activities and reinforce program objectives
- The voluntary nature of participation in programs must be formally documented, communicated, and reinforced.

Lessons Learned

Innovative applications of contemporary technologies can enable the delivery of appropriate, effective care into settings of lowest possible acuity, facilitate prevention

rather than intervention and provide tools that support chronic care self-management.

Technology overlays to proven clinical and social pathways - such as those within multi-user settings, including senior centers – represent the starting point for innovative modes of care delivery.

Alignment of stakeholder interests, including patients, social services organizations, clinical institutions and technology vendors, is critical to the success of a patient-centric virtual community of care.

Optimization of the user experience for all user classes in the care ecosystem can help ensure the rapid adoption and ongoing utilization of Telehealth technology.

Advice to Share with Others

Remote Patient Monitoring, currently in the spotlight due to CMS hospital readmission avoidance penalties, provides a foundation for technology-enabled chronic care management and multi-setting, sub-acute eldercare

The deployment of innovative healthcare information technologies must occur in an incremental, adaptive fashion, with each stage building on the prior in a manner that maps to the appetite for uptake by human, regulatory, technical, and economic systems.

The integration of user-friendly remote patient monitoring technologies with proven, guided patient self-management protocols, such as the Stanford Chronic Disease Management Program, suggest powerful new models of care delivery.