

Remote Patient Monitoring Technologies for Older Adults: Lessons Learned from the Trenches



April 26, 2011

Aging in America Annual Meeting

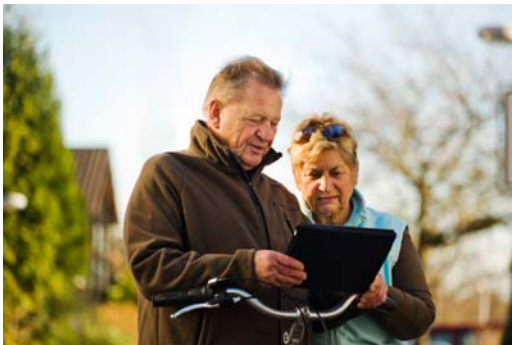
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Center for Technology and Aging

- **Established in 2009 with funding from The SCAN Foundation, located at the Public Health Institute**
- **Dedicated to advancing use of technologies that improve home and community based care for older adults**
 - Resulting in better care, better health, lower costs
- **Independent, non-profit resource center**
 - Presentations, Publications, Best Practices Repository, ADOPT Toolkit (Accelerating Diffusion of Proven Technologies)
- **Technology Diffusion Grants Programs**
 - Each grant cycle focuses on a technology or application
 - \$500,000 to \$700,000 per grant cycle
 - 12 months per grant cycle

Center for Technology and Aging: *Diffusion Grants Program*

- Medication Optimization
- Remote Patient Monitoring
- Post Acute Care Transitions (Tech4Impact)
- mHealth



Remote Patient Monitoring Diffusion Grants Program

- AltaMed Health Services and Stamford Hospital
- Catholic Healthcare West
- California Association for Health Services at Home
- Centura Health at Home
- HealthCare Partners Institute for Applied Research and Education
- New England Healthcare Institute
- Sharp HealthCare Foundation



Diffusion Grants Programs Lessons Learned

Technology is 10% of the Issue

90% of technology deployment and adoption is:

- Organizational leadership
- Organizational familiarity with change management
- Patient selection
- Staff and patient training in deployment
- Work flow processes
- Technology deployment strategy
- Communication and use of data



Centura Health CTA Grant Project

About Centura Health at Home

- Centura Health at Home is a non-profit, faith-based health care organization, that includes 5 Homecare agencies, 4 Hospice agencies, an 18 bed in-patient Hospice facility, 7 multi-level, senior living communities featuring assisted living, independent retirement living, skilled nursing care / nursing homes, memory care units, adult day care, senior day programs and respite care.
- CHAH remains the largest Homecare agency in Colorado as well as part of Centura Health which is the largest Healthcare system in Colorado.

About Our Project

- This project seeks to improve older adult quality of life and health- maintenance/independence, reduce the number of older adult preventable hospitalizations and ER visits, and enhance older adult life spans by utilizing telehealth remote patient monitoring technologies as an important interventional modality.
- Specific goals:
 1. Decrease the rate of recidivism for 30-day readmissions by 2% after year one at two hospitals within Centura Health
 2. Increase quality of life for project patients as measured through the Quality of Life Survey SF-36.
 3. Increase the number of telehealth patients by a minimum of 200 per year after year one.

Blending Telehealth and Risk Profiling

Tier I / Low Risk –

- Phone calling, self- monitoring w/ early intervention

Tier II /Moderate Risk –

- Phone calling, self-monitoring with prompting and tele-monitoring (24/7) with early interventions

Tier III / High Risk –

- Phone calling, self monitoring with prompting, tele-monitoring (24/7) with interactive video visits or in-home visits

Identified Barriers

RN/LPN shared practice

- LPN's unable to do a physical assessment due to legal scope of practice resulting in inefficiencies in care. This limitation required a need to transition our care model to providing services by RNs only

Patient Recruitment

- Competing hospital programs for Medicare patients, identifying patients for this program (12 clinical leaders attend planning session), buy-in for referring and providing care by field staff clinicians, understanding criteria, use of risk stratification.

Call Center Delay

- Organizational delay to transitioning call center to home care division

ReConnect Program Changes

- Change in leadership of the ReConnect program has resulted in decline in data capture and reporting.

Identified Facilitators...

Telehealth Integration

- Integration of field RNs (only) into telehealth program. Included: Technology Open House, development of new policy and procedure, establishment of necessary infrastructure, overcoming staff resistance.

Patient/Family Education

- Improved patient education and training of use of the technology, “in the moment” health coaching and feedback.

Porter Adventist Hospital CHF Program

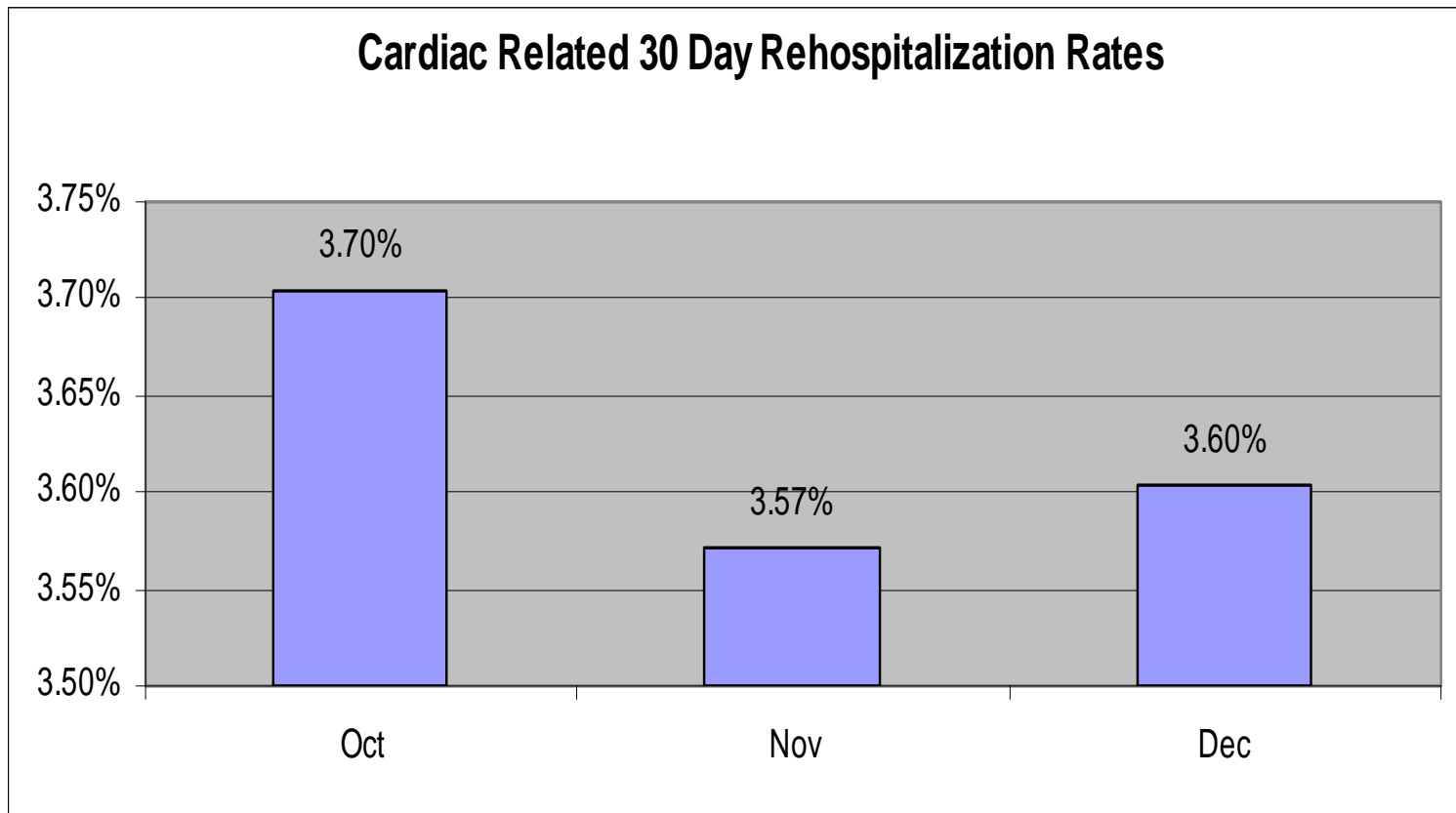
- Established a successful link to the PAH CHF program that includes telephonic monitoring via the call center.

Where Are We Now?

- Longmont to Canon City
- Average daily census of over 100 patients
- Expanded diagnosis coverage
- 7 day/week RN monitoring
- No previous hospitalization required to participate
- Real time data transmission
- Field RN and Monitoring RN
- 30 day all-cause “preventable” readmission rate
 - 6.90% to 7.92%



Centura Health at Home Telehealth Patients



Who is involved?

- Patient/family/caregivers
- PCP
- Specialist
- Field RN
- Monitoring RN
- PT, OT, SLP, MSW
- Home Service Coordinators
- Comprehensive Home Care Case Management

Interventions

- All patients on Telehealth have 2 RN primes- Field Nurse and Monitoring Nurse.
- Cases are managed from an interdisciplinary perspective throughout the continuum.
- Telehealth algorithms are customized for each patient using a bank of 2000 different elements, based on their health history, current health status, and educational needs.
- Patients are monitored a minimum of daily for vital sign changes, as well as health status changes which are captured by the Telehealth algorithm questions.



Interventions

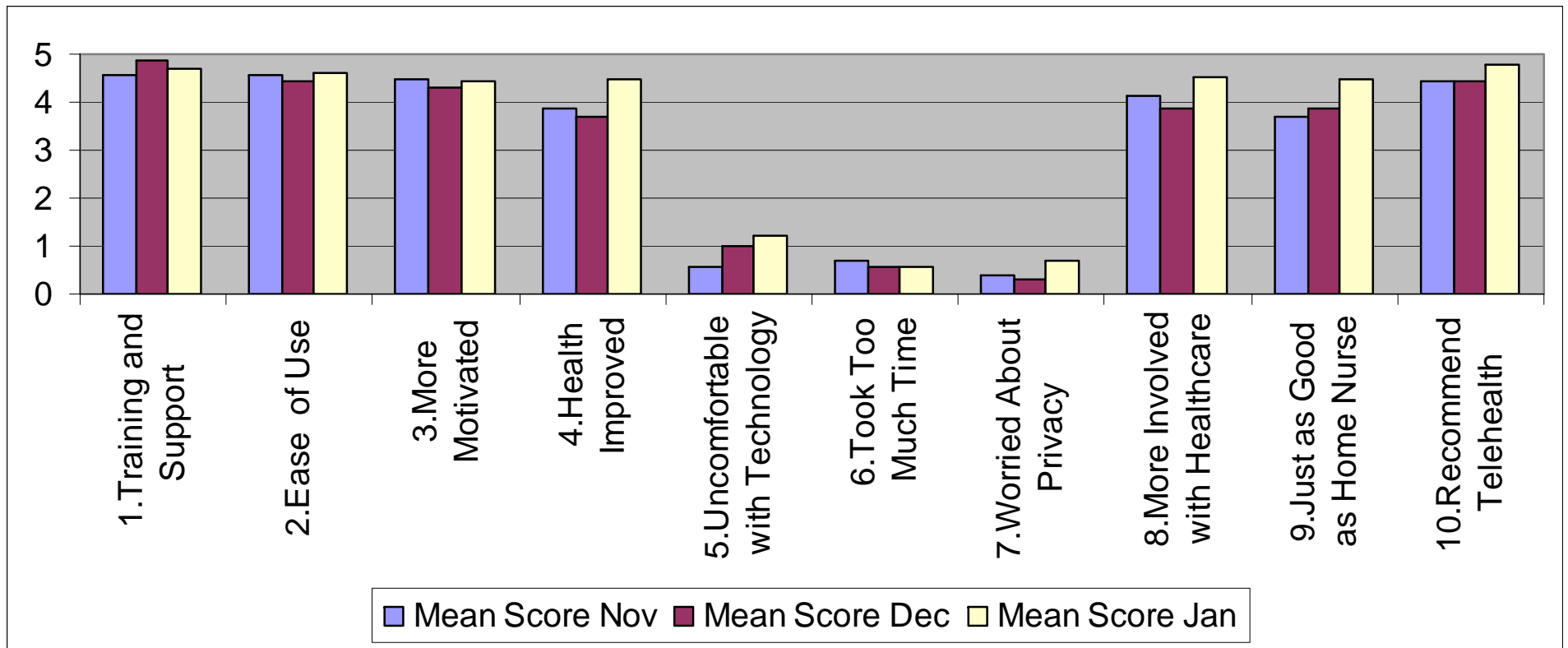
- Monitoring nurses are able to intervene very early in the exacerbation process reducing the chances of a trip to the ER, or a hospital admission.
- The daily monitoring also provides the opportunity for in the moment patient education by initiating a phone call to the patient when one or more of the captured elements is outside of an acceptable parameter. This empowers the patient to recognize the signs or symptoms in the future and act on those independently.
- Monitoring nurses make contact with the physician when patient health status designates

Where Are We Headed?

- Statewide (adding Mountain sites)
- 30 day preventable readmission rates at 5% or lower
- 24/7 monitoring
- Combining Call Center activities with Monitoring
- Incorporating the Coleman Model of coaching



Patient Satisfaction (n=20-35 monthly)



MEDI-CAL REMOTE PATIENT MONITORING (RPM) PROJECT

- Funded by Center for Technology and Aging and Public Health Institute
- Compare 50 patients with monitors to control group
- Monitor for 6 months
- Evaluate effectiveness at reducing utilization

RPM PROJECT, CONT.

- Usability and acceptability
- Improving patient functional status, quality of life, quality of care, patient and caregiver attitudes

INTEL HEALTH GUIDE PHS6000



TECHNOLOGY

- Intel Health Guide PHS6000
- Vital signs (blood pressure, weight, blood glucose, etc.)
- Patient education
- Real time video-conferencing

ADOPTION BARRIERS

- Finding agencies with enough eligible patients
- Working with DHCS in this environment
- Restructuring of vendor partner

ADOPTION FACILITATORS

- Interest in, and promise of, technology
- Agency loyalty
- Frequent planning calls

LESSONS LEARNED

- Challenges in Medi-Cal/Medicaid
- Agencies overextended
- Need for even more education/training

Reducing CHF Readmissions – Remote Patient Monitoring Program



Cardiocom - Patient Management Products

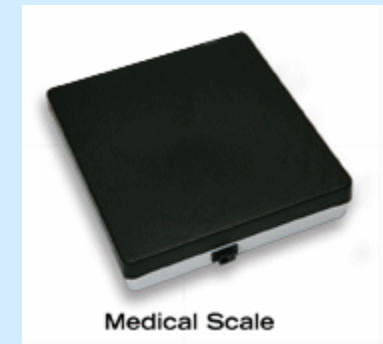
Telescale:

**Transmits data
using patient's
land line**



**Commander
Cellular with
Medical Scale:**

**Uses integrated
cellular modem
and uses GPRS
technology to
transmit data**



Reducing CHF Readmissions – Remote Patient Monitoring Program



Adoption Barriers:

- Balancing high demand for program resources with targeted patient selection
Remain focused on patients that this program can serve particularly when clinicians refer patients with that need more resources
- Our target patient population (under funded/served) does not always have a primary care or specialty physician
Established relationships with community clinic and ED on call panel physicians
- Patients without a telephone land line were initially excluded
Sought funding to support more expensive cellular technology to enroll these patients

Reducing CHF Readmissions – Remote Patient Monitoring Program



Adoption Facilitators:

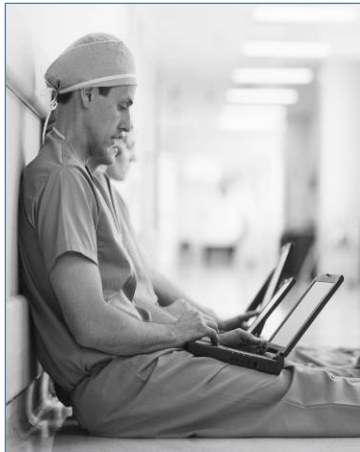
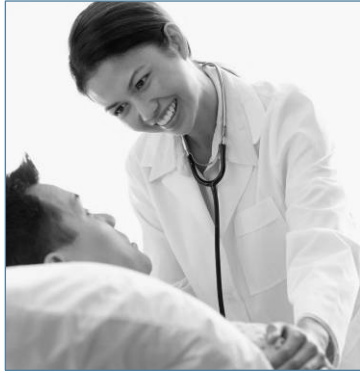
- Health Coach as program coordinator/facilitator
Patient establishes a relationship with someone whom they trust is helping them stay well managed at home
- Referral process from hospital staff
Physicians, nurses and case managers are knowledgeable about program and empowered to make referrals
- Home visit as key piece of the ‘transitions intervention’
Opportunity to address psychosocial issues as well as management of chronic disease and usage of the device

Reducing CHF Readmissions – Remote Patient Monitoring Program



Lessons Learned:

- Time invested in recruitment of staff resources is time well spent
Our model requires coordinator to do marketing, patient recruitment and patient care – not every RN wants to wear all of these hats
- Program can't help every patient
Patient selection criteria has to be very specific (inclusion and exclusion criteria) and strictly adhered to for effectiveness
- Cellular/mobile health products are required to meet needs to patients
Many patients do not have telephone land lines for wired devices and some patients need a device that they can take with them as they move from one caregiver to another



NEHI Home TeleHealth Demonstration

Presented by
Lisa Payne Simon, MPH

The national network for health innovation

April 26, 2011 ▪ San Francisco

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***The FAST Home Telehealth
Demonstration is a
collaboration of three
organizations...***



MASSACHUSETTS
TECHNOLOGY
COLLABORATIVE

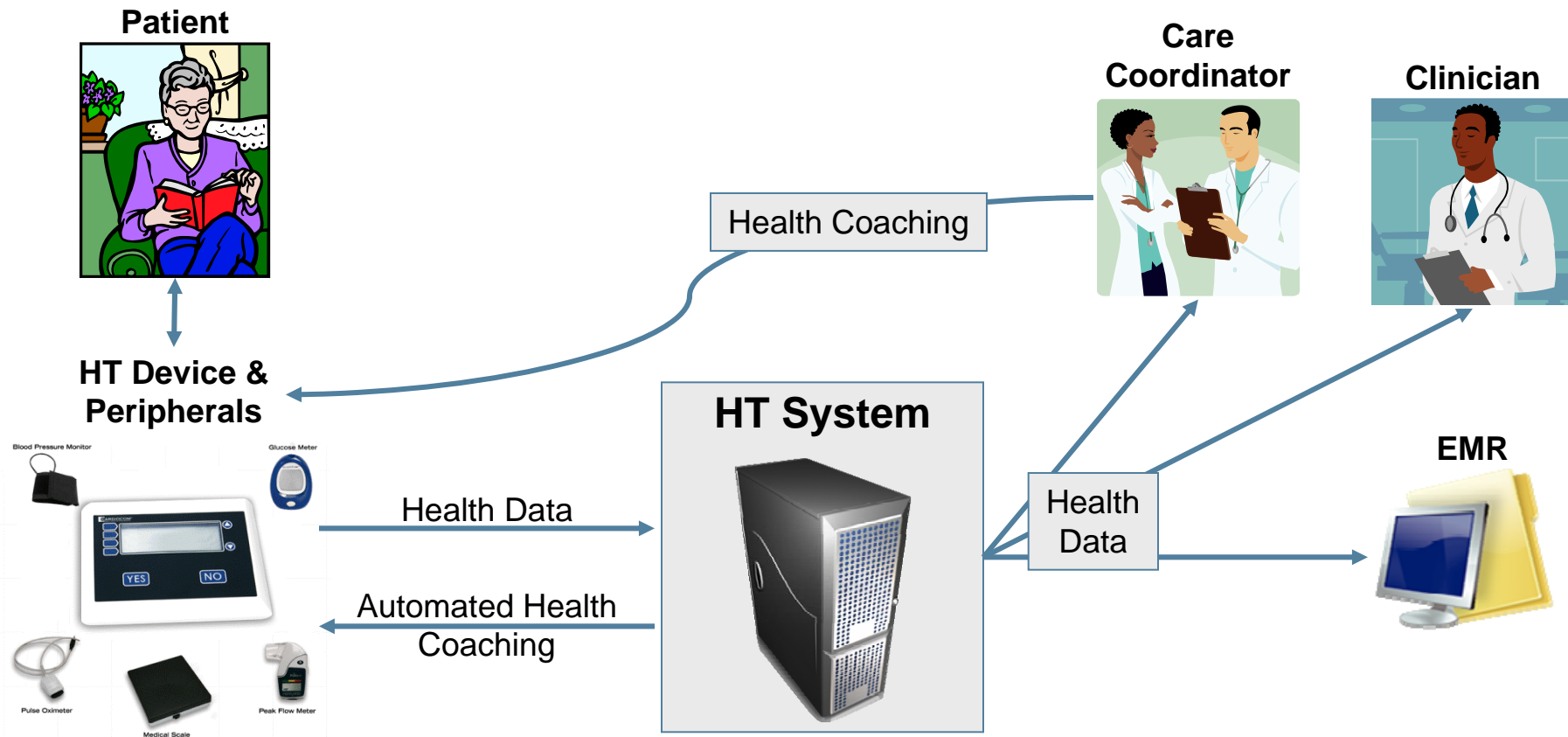


Atrius Health
FOUNDATION

Home Telehealth in Action



- Patients to transmit health data (physiologic and symptomatic) from their home to clinicians via HT System
- Patients receive automated health coaching from the HT system or from their providers based on the clinical data they transmit

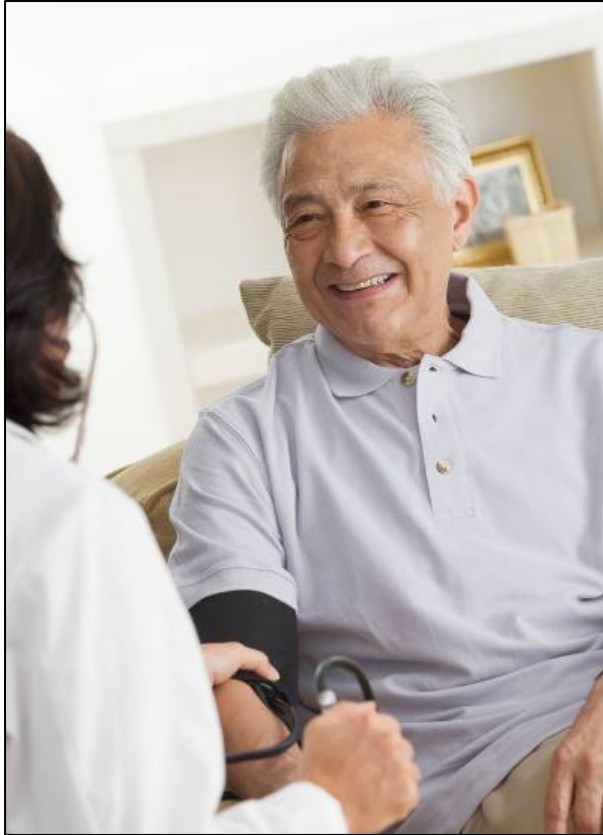


Philips Remote Patient Monitoring



- Simple, accurate wireless measurement devices
- Robust clinical decision support on secure web-based application
- Validated risk assessment tools to assess risk of readmission
- Customizable health assessment surveys and patient education
- Rental model to minimize capital outflow (or rent to own)





Heart failure patients who receive home telehealth (HT) monitoring and management as a component of follow-up care to hospitalizations have, on average:

- Lower rates of re-hospitalization and emergency department visits for heart failure than similar patients whose follow-up care does not include HT.
- Lower total health care charges (including usual charges for the telehealth system) than similar patients whose follow-up care does not include HT.



HT Demonstration Project Goals:

- Identify appropriate **target populations**
- Test **best practices**
- Quantify the **clinical benefits** of HT
- Quantify the **financial benefits** of HT for Massachusetts
- Assess **ROI** for all stakeholders
- **Disseminate findings** to private and public policymakers

- **IRB review process**
- **Some staff resistance encountered**
 - Limited experience conducting research in practice sites
 - Previous experience not successful introducing/using RPM
- **Opt out strategy would have been better**
- **Need strong PI presence and clinical leadership**
- **Need strategies for effective patient outreach and engagement**
- **Frail elderly study population (participants age 80+)**

- Effective program planning
- Atrius Health Clinical Advisory Committee
- FAST technology selection process
- Enhancements to HT Demonstration Project operations
 - Recruited new PI and two co-PIs to provide clinical leadership
 - Seventh practice site added for recruitment
 - Developed new patient outreach and engagement strategies
 - In-home patient visit to support technology adoption
- External Project Advisory Committee

Lessons Learned



- Start up at large integrated delivery system takes time
- Physician leadership/strong PI presence is key to engaging physicians (and patients) in the study
- Well managed CHF patient population at Atrius Health
- Demonstration of ROI and use of HT among frail elders with CHF will be key to broader adoption



Finally...lessons learned – LEARNED!

Planning: Review all those so-called lessons learned and incorporate them into your plans

- Short grant periods require MORE advance planning – in DETAIL
 - Who will do what by when? Don't hire for a short project – hire their replacements
- You must have CHAMPIONS at all levels
 - Natural leaders who energize others – we're all working too hard but respond to vision
- Read Rogers on readiness for change/innovations
- Choice fosters commitment – involve stakeholders in planning (especially those who hold monkey-wrenches!)
 - Make sure to DISARM THE ENEMY – anticipate the problems

Plan some more...

Don't plan in a vacuum

- Large organizations may have competing initiatives
- Consider licensing and scope of practice issues
- Can you really control project partners?

Reimbursement policy change requires ROI

- Dose effect – find the lowest effective dose of expensive personnel
- Targeting/risk stratification
 - Which patients NEED and will benefit from the technology?
 - Which patients NEED and will benefit from home visits and human interaction

Someone won't want to do this...

Staff resistance: People on the front lines can sink an effort by passive resistance. **PLAN ON IT – PLAN FOR IT!**

- Whoever consents patients must be enthusiastic and have total buy-in.
- Authority of project manager and top leadership can help, but *this is where the buck starts.*
- Look at **internal perverse incentives**. People can justify poor performance on issues like patient choice.
- **Stories** can be effective – caring people need to know change will make a difference for their patients/clients
- **Techno-fun** can overcome resistance - hands-on practice & play

Want policy change? Produce credible evidence.

- **Measurement** is crucial to policy change - especially reimbursement
- Standard measures – validated instruments
- Logic for return on investment needs to be strong – real dollars of cost, real dollars of savings. If the logic is too “research-y” people may not believe it.
- Comparison group is important.
 - Pre-post is especially problematic when measuring effect of post-hospital care (by definition, getting better can improve satisfaction...) or deteriorating health in end-stage illness.
- Don't underestimate the persuasiveness of stories, though – especially for politicians.

IRB...as popular as HIPAA

- Plan to take about 3 months. Many committees meet only quarterly
- Requires that all elements be submitted
 - **Research plan and justification** – why would you expect this to make a difference?
 - **Consent scripts and letters** – sometimes opt out is OK
 - **Instruments** finalized and translated
 - **Measures** from claims data and other records clear – plan for maintaining confidentiality (de-identify data, etc.)
 - **Benefits** must outweigh **costs** - Both the intervention and the measurement
 - Risks include privacy, **burden of answering questions**, as well as direct treatment risks, if any.
 - Benefits include individual direct benefits and societal benefits/knowledge gained.

Questions?

www.techandaging.org

Slides will be available under the Resources Tab

