Rethinking Traditional Healthcare Models: Integrating Telecare Technologies as Core Elements of Care Delivery

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The Session…

- A Brief Overview of the Forces Precipitating Change in American Healthcare
- Technology as a Transformational and Disintermediating Force
- Why Telecare?
- A Framework…
- Results To Date

“You never change things by fighting against the existing reality. To change something, build a new model that makes the old model obsolete.”

F. Buckminster Fuller
“The real voyage of discovery consists not of finding new lands but of seeing the territory with new eyes.”

- Marcel Proust
The Premise...

- Society is demanding for all goods and services but – especially for health care – that we...
  - ↓ Costs
  - ↑ Quality
  - ↑ Service

- The inherent incentives of the health care industry are disparate, inconsistent and dysfunctional – causing leaders significant challenges

- Society is moving inextricably towards an information democracy rather than professionally dominated theocracy
  - Focal point for health care change
  - Appropriate management of information required
  - Intellectual capital of medicine
  - Simultaneously empowering (consumers) and disempowering (physicians)
Why?
The Most Critical Question!
Reasons for the Change...

- Incentives
- Technology
- Communications
- Expectations
Traditional:
Acute and Ambulatory Care Focus…

AmbCare

Acute
Where To Focus?

10% OF AMERICANS RESPONSIBLE FOR 86% OF SPENDING

Figure 1. Distribution of health expenditures for the U.S. population by magnitude of expenditure and mean expenditures, 2010

Source: Center for Financing, Access, and Cost Trends, AHRQ, Household Component of the Medical Expenditure Panel Survey, 2010
The Alternative:
Comprehensive Coordinated CARE
So, What Is **Telecare?**

= the coordinated, real-time application and use of technology and analytics in the care delivery process

Telehealth = an over-arching description for the broad array of generic services, education and information using technology rather than face-to-face or hands-on interactions between an individual and a care provider – such as: remote doctor-patient consultations (telemedicine), remote monitoring of blood pressure, capture of ECG or vital sign data, and health education services.

Telemedicine = refers specifically to the provision of interactive healthcare services and education by licensed healthcare professionals through the use of telecommunications technology to and from a variety of locations.

Telecare = the active involvement and engagement of a care delivery team in the provision of services to individuals with acute and/or chronic illness through the appropriate and effective use of remote tele-management technologies including proactive, remote care management in various environments including the home, skilled nursing facilities and other non-traditional care units.
The Tele-Intersection

Telecare
- Interactive Call Center Support
- Sensor Tracking
- Ambient Assisted Living
- Onsite & Remote Assess
- Integrated Analytics
- Patient Navigator
- Remote Patient Monitors
- Guideline & Protocols Mgmt
- Triage & 911
- eVisits
- IVR

Telehealth
- Remote Lifestyle Monitors
- Alerts Mgmt
- Focused AV Education
- Call Center Support
- eVisits
Hospital Readmission Costing $26B Annually
- 13.6M Patients Over 65 Discharged from Hospital each year
- 2.7M (20%) are Readmitted within 30 days of leaving

Poor Discharge Planning / Care Coordination is at Fault
- Main cause of readmission, especially health attacks and pneumonia
- $17B preventable if patients received right care

The TeleCare Focus

Avg Medicare Cost per Patient per Admission

<table>
<thead>
<tr>
<th>Locations</th>
<th>Hospitals</th>
<th>Doctor’s Office Institutions</th>
<th>Home</th>
</tr>
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<tbody>
<tr>
<td>$20K</td>
<td>$10K</td>
<td>$9K</td>
<td>$1K</td>
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Source: AHRQ
Telecare **Drivers…**

**PATIENT & PROVIDER FACTORS**

**A PIPELINE FILLED WITH BABY BOOMERS**
Highly Complex, High Risk Patients Coming
Will Explode Medicare Costs Without Change

**US CLINICAL WORKFORCE SHORTAGE**
Fewer Doctors, Nurses, Clinicians
To Handle These Patients

**PATIENT FRUSTRATION**
The “Transference Effect” of Technology in Other Industries Coming to Healthcare
(Travelocity, Amazon, Open Table)
Telecare **Drivers**...

Telecare can replace...

- 15% of emergency room visits
  - TYPICAL COST: $752

- 37% of urgent care visits
  - TYPICAL COST: $129

- 15% of physician office visits
  - TYPICAL COST: $95

**FINANCIAL INCENTIVES**
- Hospital-to-Home Transition Reimbursement
- Remote Care Coordination Reimbursement

**SEARCH FOR EFFICIENCY AND EFFECTIVENESS**
- Providers Seeking Approaches to Reduce Operational Costs and Improve Efficiency

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**FINANCIAL PRESSURE**
Rapidly Changing Reimbursement Models
With Financial Penalties for Poor Outcomes

**RISK SHIFTING FROM PAYERS TO PROVIDERS**
More Accountability for Care Delivery Utilization and Outcomes

Telecare... Not An Option, But An Imperative!

Preventive care and care coordination are a necessity, especially as the overall population ages.

Managing High Risk / High Cost Individuals
The age 85+ segment is the fastest growing population segment. Further, adults age 65 and older engage in the highest level of healthcare spending among all age groups. Almost half of all healthcare spending was used to treat just 5% of the population.

Growing Incidence of Chronic Conditions
Individuals with multiple chronic diseases place the heaviest burden on the healthcare system. Approximately 82% of Medicare beneficiaries have one or more chronic conditions. In addition, 4 out of 5 major chronic conditions that account for hospitalization occur within the age 65+ population. Better management of the elderly and chronic conditions is critical.

Shortage of Skilled Clinicians to Treat the Elderly
At least 33 states have assessed that their current or future physician workforce needs will be underserved with elderly populations the most likely to be affected.

Home Care is Much Preferred & Considerably Lower Cost
Reducing the dependency on institutional care settings has many benefits, including cost savings. Homecare has the ability to play a tremendous role in reducing care spending by treating more people in a cost-effective manner at a fraction of the cost to other institutional care settings.

Connected 24x7 Health Monitoring Affords Better Quality & Compliance
Real-time, smart connected health & wireless devices are cost-effective vehicles for managing risky, costly patients on a prospective basis. Juniper Research estimates over the next 5 years, health monitoring will save up to $36 billion globally, with North America accounting for 3% of the savings. These solutions also ensure compliance – for instance, lack of medication adherence costs the U.S. healthcare system $290 billion annually.
The Old World
Volume-Based

The New World
Value-Based

Payment

Incentives

Focus

Role of the Provider

Information

The Old World

Volume-Based

The New World

Value-Based
Refining The **Focus**…

Changing The Focus To Capture The Greatest Value

**FOCUS FOR TODAY**
Areas of Greatest Need and Impact
- Ambulatory
- Post-Acute
- Transition
- Chronic Illness

**FOCUS FOR TOMORROW**
- Non-Hospital Chronic Illness
- Chronic Illness Prevention
- Social Interventions
- Self-Care Management
Telecare Adoption Trends…

GAINING TRACTION

*Telecare Is Moving From Early Adoption To Early Majority*

Source (Adoption Model): Bohlen, Beal and Rogers, Iowa State University
Shifting From Acute **To Chronic Care**…

**COMPLEX CHRONIC DISEASE A KEY AREA OF FOCUS**

- **$10B** FitnessWellness
  - Amateur Athletics
  - Consumer Fitness
  - Fitness/Exercise
  - Stress Management

- **$80B** PrimaryChronicDisease
  - Diabetes
  - Hypertension
  - Metabolic Syndrome

- **$350B** ComplexChronicDisease
  - Heart Failure
  - COPD
  - CAD
  - Cancer
  - Renal
  - MDD

- **$3500B** AcuteCare
  - Heart Failure
  - Trauma/Burn
  - MyocardialInfarction
  - PulmonaryFailure
  - Stroke
  - Surgery
  - CriticalCare

- **$0.30/day** HealthVitalityCAKE
- **$3/day** Home Care
- **$300/day** Hospital Care
- **$3000/day** Death
The Critical Need: **Mapping the Care Delivery Process**

**The Critical Point Of Integration...**
Advantages Of Telecare…

- **Timely access** to actionable information for better patient *care management*

- *Knowing* what is going on with a patient’s course of care, *in between visits* – when he or she is not physically with the clinician

- *Detecting* pre-acute conditions *before the patient clinically decompensates*

- *Not waiting* for the patient to show up in the ER before knowing that a patient *is trending in the wrong direction*
Requirements For Effective Telecare…

- **Robust infrastructure** supporting interoperable clinical information exchange
- **Remote data capture** of biometric, location and other information via bluetooth enabled capability
- **Patient engagement** technologies and services that support the individual as well as family members
- Real-time clinical call center support services with **patients assigned to specific nurses** and clinical support personnel
- Management of care delivery via **defined protocols** with active outreach “as needed”
- Use of **predictive analytics** to modify and enhance care delivery over time
What we need is a Comprehensive Coordinated CARE or…

c²CARE Framework
# Telecare Design Overview

## Patient Programs
- Intensive Care Management
  - Super-Utilizers (top 5%)
- Episode Care Management
  - Acute Care Stay
- Chronic Care Management
  - 10 Chronic Conditions
- Palliative/End of Life Management
- Provider/Patient Education
- Population Health
  - Care Gaps

## Patient Services
- **Online**, **Onsite**, **Remote**
- Behavioral Health Care
- Care Management – **Clinical**, **Social**, eVisits (Clinical Consults)
- Financial Counseling
- Home Assessment
- Medication Reconciliation
- Mobile Health Formulary
- Patient Assessments (Online, Onsite)
- Patient Education (Online, Onsite)
- Patient Empowered Care Decisions
  - Qualified Options Development
    - Patient Navigator
    - Remote Patient Monitoring
    - SNF Coordination
    - Technology Setup and Support

## Patient Process
### Patient Selection
- ADT Alerts in ER or Hospital
- Referral Based on Qualification Criteria
- Predefined Patient Registry
- Physician Authorized Referrals

### Intake Process
- Patient Assessments (Onsite, Remote)
- Patient Intake Decision
- Patient Program & Services Assignments

### Triggered Events & Protocol
- Patient Registry (Who has triggers? Which ones?)
- Triggers (Emergency, patient concerns, transitions)
- Notification (Who? How? When?)
- Associated Action (Remote Triage, 911, eVisit, etc.)
- Escalation (Who? How? When?)

### Patient Monitoring
- Ensure Actions - Referrals, transitions, emergencies
- Monitor Patient Progress/Care Pathways

## Technology Platform
- **Device Support**
- **Electronic Medical Record (EMR)**
- HIE (ADT Alerts, CCD, Quality data)

## Analytics
- Care Coordination Workflow
- Communications (encrypted texts)

## Shared Savings
- Contract Management (ACO, Bundles)
- Perf. Monitoring (providers, outcomes)
- Shared Savings Calculation, Baselines
- TPA – Gain Share Program/Distribution
- Patient Outcomes

## Program Management
- Provider Engagement
  - Care Advisory Board
  - Training/Patient Workflow
- Referrals, Escalation, contacts
  - Reporting/Regular updates

## Governance
- Decision making, issue resolution
- Utilization Management
- Patient Documentation
- ACO Quality Measures (33)/Patient Sat.
- What’s documented? Who? Shared? How?
What Is C²CARE?

Get to know the patient, their needs; then build a care system around them

- Clinical
  - Social and Behavioral
  - Basic Needs
  - Coordinated Care Management
  - Care Decision Making

Alignment

- Patient Outcomes
- Shared Savings

A Framework for Comprehensive Coordinated CARE (c²CARE)

- Patient Education
- 24x7 Remote MD Services
- Home Assess
- Intake Assess
- Social Services
- Finance Counseling
- Meds Reconciliation
- Discharge Planning
- In-Home Nursing Service

Program Management and Coordination
Care Delivery Information (CDI) Exchange Platform
Interactive Voice Recognition
Remote Patient Monitoring
Interactive Clinical Support Services
What is the $c^2$CARE Framework?

The model provides an approach for supporting the transformation of the care delivery process with mobile services that use…

INDIVIDUALLY focused

INFORMATION to radically

IMPROVE healthcare with

INNOVATIVE and

INTELLIGENT

INTERVENTIONS
What are the elements of the $C^2$CARE Framework?

- **Continuity** – the provision of services over time by professional CARE coordinators who serve as extensions of the traditional care delivery providers.

- **Adherence** – the use of client approved guidelines and protocols provide a foundation of care delivery that integrates with ongoing workflow of the CARE delivery organization.

- **Results** – monitored, measureable outcomes in the care delivery process result in enhanced services, greater satisfaction, increased quality and reduced costs in the CARE delivery process.

- **Effectiveness** – the ability to successfully and continuously produce intended outcomes in the CARE delivery process.
Nearly 2,000 studies in last six years describing results from the application of various technologies supporting remote care

Several hundred specific each to Diabetes, COPD, Heart Failure, Psychiatric applications, and tele-rehabilitation

But, <10% well-crafted RCT studies

Wide range of interventions have been reviewed
- Televideo to supplement in-person encounters
- On-line disease literacy applications
- Inclusion of store-and-forward biometric monitoring devices into clinical workflows
- Interactive text messaging applications
- Interactive Voice Response applications to solicit self-reported symptoms and behavior data
Telecare

Literature Results...

Majority *positive*:

- Decreased mortality
- Improved biometrics (reduced risk)
- Improved QOL and satisfaction
- Reduced utilization (admissions, ER use, SNF use, other unplanned care)
- Reduced readmissions
- Reduced lengths-of-stay
- Reduced costs
- Productivity increases (mostly increased touches)
- Improved disease literacy
- Equivalent efficacy as face-to-face care
- Improved quality metrics (HEDIS, STARs)
Telecare Results

Some Deficiencies…

- Not enough ask about productivity
- Most results relatively short term (median duration of 6 months or less)
- Very few studies on cost-effectiveness
- Formal studies under optimal conditions shed little light on real-world practice
- Scant information provided on the craft of telecare management
Telecare Case Study #1

Post-Acute Application


- Geisinger Health System
- Threading IVR into transition of care best practices
- Leveraging automation to extend RN reach
- 19.5% reduction in all-cause 30-day readmissions
- 44% reduced probability of any readmission (p<0.05)
- ROI’s north of 6:1
Telecare Case Study #2

COPD Application


- Veterans Health Administration database of COPD patients enrolled in Care Coordination Home Telehealth program.

- N=1,133 COPD patients enrolled between 2005 and 2009.

- Of 369 patients who had at least one exacerbation per year in the year prior to enrollment, 71.5% had a reduction in numbers of ED visits and exacerbations requiring hospitalizations after enrollment in the program.

- Average number of hospital admissions, ED visits, and total exacerbations were all reduced (p<0.01)
Telecare Case Study #3A

Diabetes Application: Acute Intervention


- 103 Diabetics assigned to intervention or control
- Messaging device used for interactive consults between MDs, pharmacists and patients
- Pharmacists used data to adjust meds / relay information to care managers for execution
- Intervention group:
  - Significantly better HbA1c at 3 & 6 months (p<.001)
  - Higher percentage reached goals (p=.001)
  - More time spent with care managers overall (p<.001)
  - More Rx changes made (p<.0001)
Telecare Case Study #3B

Diabetes Application – Chronic LT Mgmt

Remote Monitoring of High-Risk Patients: Telehealth Protocols for Chronic Care Management profiles a successful eight-year initiative by New York City Health and Hospitals Corporation’s (NYCHHC) House Calls Telehealth Program

Health Information Network -

- An innovative hybrid of technology and human touchpoints, over a two-year period
- 76% of 769 monitored patients experienced improved A1Cs almost every three months
- All A1Cs over 13.1 were reduced to 10.2 – on average
- 91% of individuals with A1Cs between 11 and 13 experienced an improvement
Telecare Case Study #4

CHF Application


- Geisinger Medicare Advantage Plan
- N=541 CHF members tracked for 70 months (24 months on monitoring)
- Telehealth scales and IVR
- Results
  - Hospitalization rate on RPM = 23% lower
  - 90-day readmission rate on RPM = 38% lower
  - 11.5% additional cost savings (3.3 to 1 ROI) – on top of the pre-existing program
Telecare Case Study #5

TelePsych Application


- 121 homebound individuals (scoring 15+ on Hamilton Rating Scale for Depression) compared Tele-problem solving therapy (PST) with In-Person PST and telephone support calls
  - In-Person PST = 6 sessions vs. Tele-PST = 2-6 sessions via Skype video call
  - HAMD scores of Tele-PST and In-Person PST participants at 12-week follow-up = significantly lower than telephone support call participants + treatment effects maintained at 24-week follow-up
  - No difference in HAMD scores for Tele- and In Person PST participants
Telecare Common Themes

Commonalities of Successful Programs

- The technology per se can never be the focus. Programs require putting accurate/meaningful information in front of the clinician – a synthesis of data.
- Information gathering technologies will change with great frequency, information types far less
- Remote care delivery must be embedded into the care management workflow
- Data informs and improves disease literacy
- Real- or near-real-time data can drive physician and patient behavior with positive interventions
- Disciplined candidate selection criteria yields better results
Telecare **Common Themes**

*It’s the People and Process...Then the Technology*

- Successful programs combined technology with human interaction

- Very low-cost programs that rely on technology alone, are not always effective

- People and Process costs more than equipment

- The key is striking the right balance:
  - Human touch to make the program effective
  - Technology to make it efficient
Telecare Summary Results...

Outcomes in the literature show results across multiple care delivery environments IF the requirements for \((e)^2\text{CARE}\) are met...

- Decrease costs >35%
- ROIs exceeding 3:1
- Reduce all-cause 30-day readmissions
- Enhance care delivery efficiency
- Improve biometrics + reduce risks
- Reduce hospital ALOS
- Reduce required in-home nurse visits >50%
- Increase patient compliance >80%

...use of a Comprehensive Coordinated Care Framework transforms care delivery through the appropriate application of technology...
The Obvious Solution… Telecare

IMPROVE QUALITY OF CARE
Identify issues, resolve them on timely basis
Better care management with real time information

REDUCE COST OF CARE
Avoid unnecessary services and complications
Avoid inappropriate ER visits, hospital admissions, re-admissions

ENHANCE PATIENT SATISFACTION
Help patients manage their chronic conditions
Provide a safe environment for “care” in the comfort of the home
What Three Things To Do Right Away?

• Leverage the capabilities of your organization to simultaneously impact avoidable costs and improve outcomes.
  – Develop a “telecare” team
  – Focus on “process” and “people” – not technology
  – Expand your vision to include post-acute, transition and chronic care

• Ensure EMR use is effective in driving improved patient outcomes

• Define value and track patient outcomes
  – “Patient-centricity”
  – “Patient empowerment”
  – Education
  – Team capability
  – Partner selection and management
津波
Discussion

Your Feedback?
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Check Out My Book:  
**Toto’s Reflections: The Leadership Lessons from The Wizard of Oz**

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...inspiring creative change for transforming healthcare to benefit the human condition