Telehealth in the PADRECC: 
The Key to the Patient-Aligned Care Team? 
A Randomized – Controlled Trial

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Outline

• PACT in specialty care
• PACT in PADRECC
• Telehealth in the VAMC
• Telehealth in the PADRECC
  – Study proposal and design
  – Future clinical, education, research directions
Patient – Aligned Care Team & Specialists

(Patient – Centered Medical Home)

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**Essential Functions of a Patient-Centered Medical Home.*

- Provide each patient with an ongoing relationship with a personal physician who is trained to provide first-contact, continuous, and comprehensive care.
- Provide care for acute and chronic conditions, preventive services, and end-of-life care, or arrange for other professionals to provide these services.
- Coordinate care across all elements of the health care system, with coordination facilitated by the use of registries and information technology.
- Provide enhanced access to care through systems such as open scheduling, expanded hours, and new options for communication between patients and the practice’s physicians and staff.

*Casalino et al 2010*
PACT & the Specialist

| Percentage of Patients for Whom Specialists Serve as Primary Care Physicians | Percentage of Practices, by Specialty |
|---|---|---|---|
| | Cardiology (N = 207) | Endocrinology (N = 58) | Pulmonology (N = 107) | Total (N = 372) |
| 0 | 49.6 | 41.0 | 39.3 | 46.5 |
| 1–5 | 21.3 | 26.0 | 29.1 | 23.5 |
| 6–10 | 17.7 | 5.8 | 8.0 | 14.6 |
| 11–20 | 4.6 | 3.3 | 7.0 | 5.1 |
| 21–35 | 2.2 | 5.0 | 6.0 | 3.3 |
| 36–50 | 4.0 | 9.6 | 8.0 | 5.3 |
| 51–66 | 0 | 0 | 1.9 | 0.5 |
| 67–90 | 0.1 | 6.6 | 0 | 0.5 |
| 91–100 | 0.5 | 2.7 | 0.8 | 0.7 |

* N denotes the number of practices in each category. Percentages are weighted to be nationally representative.

Casalino et al 2010
Background – Parkinson’s Disease

- Parkinson’s disease (PD) affects 385/100,000
- Prevalence increases with age: >70, 500/100,000
- Cardinal motor signs: bradykinesia, rigidity, resting tremor and postural instability → disability
- Numerous disabling, nonmotor signs/symptoms
- A population in need of extensive and often frequent subspecialty medical care; faced with numerous obstacles to access that care
Is PADRECC a PACT?

Essential Functions of a Patient-Centered Medical Home.*

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“VAMC Telehealth 101”

• **Origin**:Began in the VAMC in 1968
• **Oversight**: Office of Telehealth Services (OTS)
• **Mission**: "Provide the RIGHT CARE in the RIGHT PLACE at the RIGHT TIME!"
• **Three (3) general divisions**
  – Care Coordination Home Telehealth (CCHT)
  – Clinical Video Telehealth (CVT)
  – Care Coordination Store-and-Forward Telehealth (CCSF)
• **Largest program in the country**: 300,000 veterans annually; 140 VAMC and 500 CBOCs
Definition of Telehealth

- **Telemedicine**: "the use of electronic information and communications technologies to provide and support health care when distance separates the participants."

- The terms **Telehealth** and "e–health" appeared later to include allied healthcare activities such as:
  - patient education;
  - continuing medical education/grand rounds;
  - remote resident supervision;
  - medical training over distance;
  - health care administration via video–teleconferencing; and
  - connect patients to other patients over a distance.

- In recognition of the interdisciplinary nature of telemedicine, VA began using the broader, more inclusive term **Telehealth** in place of "telemedicine" in 2003. VA telemedicine is seen as a subset of VA telehealth.
VAMC Facility Telehealth Equipment

Web-cam

Primary Care & Specialty Carts
VAMC Home Telehealth Equipment

Intel Health Guide®
National VAMC Telehealth Goals

Virtual Care

- Census goals
  - 15% veterans FY 2012
  - 30% veterans FY 2013
  - 50% veterans FY 2014

- Secure Messaging via MyHealthyVet will be included in Virtual Care metric

- Enroll at least 1.5% of each PACT’s assigned panel in Home Telehealth
Telehealth in the PADRECC

• Telehealth in treating PD has not been studied in great detail; a few small studies looking at feasibility
• Given success demonstrated in general telehealth literature, want to apply this technology to PADRECC patient population.
• Useful clinical resource for PD: symptoms can be assessed by video, provides cost-effective accessible care → implementation

Dorsey et al 2010
Research Study

**Overall Goal**

- Compare using video telehealth in treating Parkinson’s disease to usual, in-person care

- Research design similar for 2 separate arms:
  1. Facility-to-facility telehealth (PVAMC CBOCs)
  2. Facility-to-home telehealth
Primary Aim

• Compare *patient satisfaction* between subjects enrolled in telehealth and those who are not.
Descriptive / Secondary Aim

• Compare clinical outcomes, healthcare utilization, and patient travel costs between subjects enrolled in telehealth and those who are not.
Hypotheses

• *Compared with usual care*, use of telehealth will be associated with increased patient satisfaction.

• *Compared with usual care*, use of telehealth will be associated with similar clinical outcomes, decreased patient travel costs, and different patterns of healthcare utilization, with telehealth users having a lower degree of *unplanned encounters* with their providers.
Methods

• **Study Design**: Randomized Controlled Trial

• **Study Sites**: Philadelphia VAMC, local VA outpatient centers & patient homes

• **Source Population**: Current PADRECC patients

• **Exposure**: *Clinical Video Telehealth* (CVT) at outpatient centers of the Philadelphia VAMC or patient’s home
Exposure: Telehealth in the PADRECC

• Patient at home or local facility (CBOC)
• Similar to in-person visits
  – Duration and elements of visit unchanged
    • Exam: modified; TCTs facilitate
    • Other providers available (psychiatry, social work, nursing staff)

Control: Continued in-person visits
Study Population

• **Inclusion criteria:**
  – Dx of PD (ICD9=332.0)
  – Reside closer to another VA facility with telehealth technology, than the Philadelphia clinic
    
    or
    
    – Internet connection (allowing Healthguide® installation)

• **Exclusion criteria:**
  – Patients requiring in-person visits (deep brain stimulation devices or botulinum toxin injections)
Data Collection

• Questionnaires and electronic chart review
• Baseline / demographic
  – Age, sex, race
  – Disease characteristics:
    • Duration of disease; time since diagnosis
    • Presenting signs
    • Baseline PD clinical scores
• Outcomes: 6 month & 12 month visits
  – Patient satisfaction
  – Clinical outcomes
  – Patient travel costs
  – Healthcare utilization
Primary Outcome – Patient Satisfaction

• Patient Assessment of Communication of Telehealth (PACT) Questionnaire
• PADRECC Clinical Survey

Agha et al 2009
Secondary Outcomes

**Clinical**

- Disease stage: UPDRS (Unified Parkinson’s disease Rating Scale); Hoehn & Yahr stage
- Quality of Life: PDQ-8 Questionnaire
- Geriatric Depression Scale
Secondary Outcomes

*Patient Travel Costs*

- Travel time & mileage
- Time off of work: patient &/or companion
- Meal costs
- Travel reimbursement from VAMC
Secondary Outcomes

**Healthcare Utilization**

- Patient-initiated appointment cancellations
- Unplanned clinical services related to PD
  - Hospital admissions
  - ED visits
  - Non-routine provider visits
  - Provider phone calls
- Routine PD visits
## Timeline

<table>
<thead>
<tr>
<th>Event</th>
<th>Study Month</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 3 6 9 12 15 18 21 24</td>
</tr>
<tr>
<td>IRB approval</td>
<td></td>
</tr>
<tr>
<td>Obtain equipment, if applicable</td>
<td></td>
</tr>
<tr>
<td>Recruitment/equipment training</td>
<td></td>
</tr>
<tr>
<td>Active study duration</td>
<td></td>
</tr>
<tr>
<td>Data cleaning &amp; analyses</td>
<td></td>
</tr>
<tr>
<td>Abstract / manuscript preparation</td>
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</table>
Limitations

• Recruitment / retention
  – Limited by geography, equipment and PD census
  – Drop-out (death, NH placement, home-bound)
  – Study may be underpowered; effect size not known

• Bias:
  – Recall
  – Selection / volunteer
  – Outcome: not blinded to intervention

• Confounding:
  – RCT will address many unmeasured
  – Possible measured: disease stage/duration, age, depression

• Generalizability:
  – Patient population
  – Cost analysis is not complete; travel costs contribute to patient satisfaction
Current Study Enrollment

• Home telehealth: 32
• Facility-to-facility: 47

• Goal for each arm = 50 (25 telehealth; 25 control)
Future Directions

• Data will guide development of future telehealth programs in treating PD
  – Expanding use in multi-disciplinary fields
  – Use in educational and other non-clinical venues
  – Use in conducting research (clinical trials)

• Provide pilot data for broader, national PD telehealth clinical trials
Summary

• Encourage providers to consider telehealth; particularly as it relates to PACT model
Acknowledgements

• CEPACT (Center for the Evaluation of the Patient – Aligned Care Team)
  – Rachel Werner, MD, PhD: Director and PI
  – Michele Lempa, Dr. PH: Administrative Director
  – Steve Marcus, PhD: Biostatistician

• PADRECC colleagues & patients
The End – Thank you!

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References


Improving Support for Chronic Illness Care: The CarePartner Approach

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Director, VA Ann Arbor Program on Quality Improvement for Complex Chronic Conditions
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PR11SM Demo Lab
PACT Research Inspiring Innovation and Self Management
What is QUICCC?

QUICCC is a research group supported by the Ann Arbor HSR&D, the University of Michigan Health System, and outside grants.

QUICCC’s purpose is to develop and evaluate new services that improve care for chronically ill patients in ‘real-world’ settings.
PR11SM DEMO LAB INNOVATION

PATIENT REGISTRIES
- Diabetes
- Heart Failure
- Depression
- Hospital & ED Transitions
- Chronic Pain

IDENTIFIED PATIENTS

NAVIGATOR SYSTEM:
- Systematic Assessment
- Recommendations Based on Patient Priorities

FACILITATED SELF-MANAGEMENT
- CarePartners
  - Diabetes, CHF, Depression
  - Transitions

ENHANCED MANAGEMENT
- Social Work
- RN Case Management
- CCHT
- MOVE/TeleMOVE
- Diabetes Classes

PRIMARY CARE PACT REDESIGN
Many patients need more help than clinicians can ever realistically provide during standard encounters.


Communication Targets for New Services

Other Patients

Care Managers

Primary Providers

Pharmacy
mHealth
Diabetes Self-Management Care via Cell Phone: A Systematic Review

Santosh Krishna, Ph.D., Ed.S.¹ and Suzanne Austin Boren, Ph.D., M.H.A.²,³,⁴

Jin Wei*
*Healthcare Innovations, Emory University, Atlanta, Georgia

Abstract

Background: The objective of this review was to identify effective behavior change interventions for individuals with diabetes and/or obesity.

Methods:

Behavior Change Interventions Delivered by Mobile Telephone Short-Message Service

Brianna S. Fjeldsoe, BA, Alison L. Marshall, PhD, Yvette D. Miller, PhD

Context: The expansion and adoption of new methods of communication provide new opportunities for delivering health behavior change interventions. This paper reviews the current research examining mobile telephone short-message service (SMS) for delivering health behavior change interventions via text messages. This service has wide population reach, can be individually tailored, and allows instant delivery with asynchronous receipt, suggesting potential as a delivery channel for health behavior interventions.

Evidence acquisition: An electronic database search was conducted for studies published between January 1990 and March 2008. Studies were included in the review if they (1) evaluated an intervention delivered primarily via SMS, (2) assessed change in health behavior using pre-post assessment, and (3) were published in English in a peer-reviewed scientific journal.

Evidence synthesis: Of 33 studies identified, 14 met the inclusion criteria. Four of the 14 studies reviewed targeted preventive health behaviors (e.g., smoking cessation), and ten focused on clinical care (e.g., diabetes self-management). Positive behavior change outcomes were observed in 13 of the 14 reviewed studies. Intervention initiation (researcher or participant), SMS dialogue initiation, tailoring of SMS content, and interactivity were found to be important features of SMS-delivered interventions. Methodologic issues with current SMS research were also identified.

Conclusions: This review suggests that SMS-delivered interventions have positive short-term behavioral outcomes. Further research is required to evaluate interventions for preventive health behaviors that incorporate features found to affect behavioral outcomes and participant acceptance. The quality of studies in this emerging field of research needs to improve to allow the full potential of this medium to be explored.

Feasibility and validation of a computer-automated Columbia-Suicide severity rating scale using interactive voice response technology


a Healthcare Technology Systems, Inc., 7617 Mineral Point Road, Ste. 300, Madison, WI 53717, USA
b University of Wisconsin—Madison, Madison, WI, USA
c GlaxoSmithKline, Inc., Research Triangle Park, NC, USA
Why Focus on “Informal Caregivers”? 

• Research suggests that informal caregivers can improve chronic illness outcomes

• Family already are involved in many patients’ care

• Many physicians want more family involvement

• Informal caregivers often lack the support they need to be effective

RESEARCH PAPER

The case for involving adult children outside of the household in the self-management support of older adults with chronic illnesses

JOHN D. PIETTE*,†, ANN MARIE ROSLAND*,†, MARIA SILVEIRA*,†, MOHAMMED KABETO*,† and KENNETH M. LANGA*,†

*VA Center for Clinical Management Research, 300 North Ingalls, Ann Arbor, MI
†Department of Internal Medicine, University of Michigan, Ann Arbor, MI

Received 4 August 2009, Accepted 12 August 2009
CarePartner Program Goals

- Use a simple IT tool to enhance clinicians’ ability to monitor patients’ status via automated telephone assessments with feedback to the clinical team

- Provide patients with additional tailored feedback and education based on their self-management needs

- Provide structured feedback and education to patients’ active and potential ‘informal caregivers’ e.g., adult children living outside of their household

- Keep clinician workload to a minimum
The CarePartner Program was created so that people in contact with someone living with a chronic illness can better support that person in managing their self-care, and can help fill in some of the gaps in services available through the patient’s healthcare system. The CarePartner program links people with chronic illnesses with an informal caregiver living outside of their home. That helper is called the patient’s “CarePartner” – they may be a family member or friend living in the same town or could even be someone like an adult child living at a distance.
Welcome to the Care Partners Program Administrative Web Site. Make a selection from the menu on the left or above to begin. If you have questions about the use of this web site please send an email to shlim@umich.edu or call the CarePartners toll-free message system at 1-888-579-GOAL(4625) and leave a message. We will get back to you as soon as possible.
Materials for Patients and their CarePartners

Patient

CarePartner

In-Home Caregiver
To: [Clinic_Name]

ATTN: [PCP_First_Name] [PCP_Last_Name] [PCP_Degree]

Fax number: [Clinic_Fax_Number]

Date: [Date] [Time]

Regarding: Patient Participating in the CarePartner Program

A facsimile from

The CarePartner Program

Sarah Lim, MPH
Research Associate
Phone 1-800-568-1050

Patient Name: [Patient first name] [Patient last name]
Patient phone: [Patient phone number]
Date of most recent patient call: [Month] [Day], [Year]
Time of most recent patient call: [Time] AM/PM

[Patient first name] [Patient last name] is participating in the CarePartner Program. As a participant in this program, the patient responds to automated assessment calls monitoring symptoms of worsening depression and self-management problems. When enrolling in the program, patients nominate a person living outside of their household to serve as their “CarePartner” (often an adult child or close friend), and that person receives e-mail alerts based on the patient’s assessment reports.

During the most recent automated assessment call, [Patient first name] [Patient last name] indicated the following:

☐ [HE/SHE RARELY OR NEVER TAKES MEDICATIONS EXACTLY AS PRESCRIBED]
☐ [HE/SHE HAS SIDE EFFECTS THAT BOTHER HIM/HER SO MUCH THAT HE/SHE IS TAKING LESS OF THE MEDICATION THAN PRESCRIBED]
☐ [HE/SHE HAS A PHQ SCORE THAT HAS GOTTEN WORSE BY ≥7 POINTS]
☐ [HE/SHE HAS GONE OVER PHQ=15 POINTS IN THE LAST CALL]
☐ [HE/SHE HAS REPORTED A SUICIDE ACTION PLAN]
☐ [HE/SHE REPORTED THAT HE/SHE IS LIKELY TO HARM HIMSELF/HERSelf OR END HIS/HER LIFE OVER THE NEXT FEW DAYS]
☐ [HE/SHE REPORTED THAT IN THE LAST WEEK, HE/SHE STAYED IN BED ALL OR MOST OF THE DAY BECAUSE OF HIS/HER DEPRESSION]
☐ [HIS/HER DEPRESSION ASSESSMENT CALL FREQUENCY HAS CHANGED TO [monthly or back to weekly]]

These issues may indicate that your patient has become more unstable from the psychiatric point of view. We suggest that you contact [Patient first name] [Patient last name] to further discuss these issues if he/she has not already contacted you. The patient’s CarePartner, [CarePartner first name] [CarePartner last name], has also been made aware of these issues, and may be contacted at [CarePartner phone number] if you are unable to reach the patient.
User-Requested Features

• Automated message to the PCP when patients enroll

• Alerts to CarePartners when patients miss a call

• The CarePartner can call in to get their updates

• If patient reports an urgent health problem, the system will call the CarePartner and let them know

• Clinics can tailor their own desired fax alert menu
CarePartner Programs Have Been Implemented for Patients with a Variety of Conditions

• VA Patients with CHF (ORH and HSR&D)
• VA Patients Undergoing Cancer Chemotherapy (HSRD)
• VA Patients with Chronic Pain (HSRD)
• VA and Non-VA Patients with Diabetes (ORH, PACT, NIH)
• VA and Non-VA Patients in Transitional Care (PACT, AHRQ, NIH)
• VA and Non-VA Patients with Depression (PACT, UMHS, PGIP, NIH)
• Non-VA Patients with Decompensated Cirrhosis (UMHS)
### Table 1. Participant Demographics

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>HF</th>
<th>Dep</th>
<th>Diabetes</th>
<th>Cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>N (patients)</td>
<td>1,271</td>
<td>393</td>
<td>692</td>
<td>134</td>
<td>52</td>
</tr>
<tr>
<td>Mean Age (SD)</td>
<td>60.3 (13.4)</td>
<td>68.0 (10.7)</td>
<td>56.9 (13.5)</td>
<td>54.3 (11.9)</td>
<td>61.2 (6.9)</td>
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<tr>
<td>White (%)</td>
<td>71.7</td>
<td>76.3</td>
<td>64.5</td>
<td>88.8</td>
<td>88.5</td>
</tr>
<tr>
<td>Female (%)</td>
<td>33.0</td>
<td>0.1</td>
<td>48.1</td>
<td>59.0</td>
<td>9.6</td>
</tr>
<tr>
<td>≤ High school (%)</td>
<td>41.4</td>
<td>49.6</td>
<td>30.5</td>
<td>76.1</td>
<td>34.6</td>
</tr>
<tr>
<td>Income ≤ $30,000 (%)</td>
<td>48.3</td>
<td>71.3</td>
<td>38.3</td>
<td>28.4</td>
<td>59.6</td>
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<tr>
<td>VA (%)</td>
<td>60.2</td>
<td>100.0</td>
<td>41.2</td>
<td>26.1</td>
<td>100.0</td>
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<tr>
<td>Fair/Poor Health (%)</td>
<td>40.9</td>
<td>49.2</td>
<td>34.8</td>
<td>57.1</td>
<td>48.1</td>
</tr>
<tr>
<td>CarePartner (%)</td>
<td>76.7</td>
<td>100.0</td>
<td>63.3</td>
<td>73.9</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Piette JD, Rosland Am, Marinec NS, Striplin D, Bernstein SJ, Silveira MJ. Engagement in automated patient monitoring and self-management support calls: experience with a thousand chronically-ill patients. Medical Care, *in press.*
Table 2. Call Completion

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
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<td>1,271</td>
<td>393</td>
<td>692</td>
<td>134</td>
<td>52</td>
</tr>
<tr>
<td>N (call weeks)</td>
<td>28,962</td>
<td>15,519</td>
<td>7,815</td>
<td>5,166</td>
<td>462</td>
</tr>
<tr>
<td>Median Follow-up (Q-Q)</td>
<td>16 (11,34)</td>
<td>50 (32,52)</td>
<td>15 (13,21)</td>
<td>7 (7,12)</td>
<td>10 (10,10)</td>
</tr>
<tr>
<td>N of Completed Assessments</td>
<td>24,053</td>
<td>13,907</td>
<td>5,544</td>
<td>4,188</td>
<td>414</td>
</tr>
<tr>
<td>% of Assessments Completed</td>
<td>83.1</td>
<td>89.6</td>
<td>70.9</td>
<td>81.1</td>
<td>89.6</td>
</tr>
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</table>
Probability of Call Completion by Patient Age
Probability of a Suicide Alert by Most Recent IVR-Reported PHQ-9
Predicting PHQ-9 = 15+

Area under ROC curve = 0.9390
Patient Satisfaction

• 90% would recommend the program to a friend

• 90% satisfied with the amount of help they received from the program

• 84% said the program helped them to deal more effectively with their condition

• 79% would return to the program
CarePartner Satisfaction

• 69% of Care Partners said they talk with the patient more frequently in general and discuss self-management more frequently

• 98% would recommend the program to a friend

• 85% said the information in the weekly updates helped them to provide assistance more effectively

• 80% said that most or almost all of their needs were met in assisting the patient with their depression
Patient Feedback

• “The program made me acknowledge the consequences of not taking meds.”

• “A few times I was really down, and got a call from a nurse, which was very comforting and reassuring.”

• “One time I accidentally pressed the wrong number, and my doctor's office called that night - it was reassuring to have that system in place. It would be very hard to avoid even when I isolate myself.”

• “I had been dealing with this for so long that I almost wasn’t paying attention. I don't think I would have gone back to therapy to address these things without the phone calls making me see how much I needed it.”
Effects on Doctor/Patient Relationships

– 62% agree that “Since being in the program, I feel better able to ask questions when I visit my doctor”

– 64% agree that “Since being in the program, I have a better understanding of the importance of follow-up visits with my primary care provider”

– 76% agree that “Since being in the program, I understand better when I should contact my provider about a problem I may be having with medications or self-care”