

# 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)*

## 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.

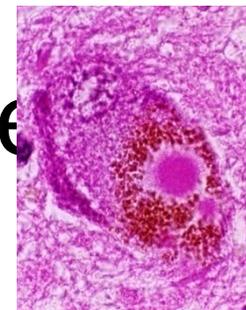
# PACT & the Specialist

Percentage of Patients for Whom Physicians in a Specialist Practice Report Serving as Primary Care Physicians.*				
Percentage of Patients for Whom Specialists Serve as Primary Care Physicians	Percentage of Practices, by Specialty			Total (N=372)
	Cardiology (N=207)	Endocrinology (N=58)	Pulmonology (N=107)	
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

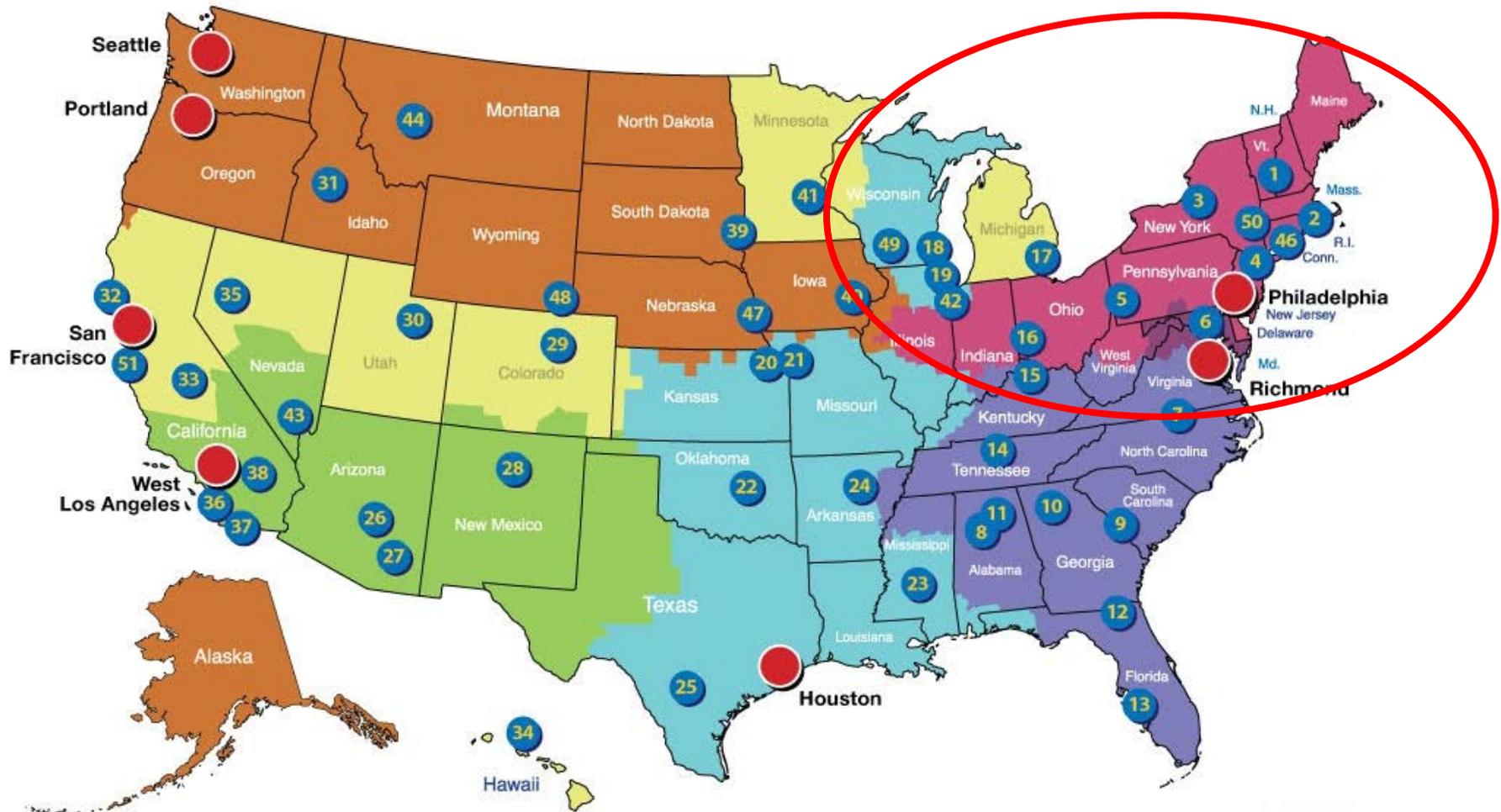
\* N denotes the number of practices in each category. Percentages are weighted to be nationally representative.



# 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



### PADRECC Service Areas

- |  |   |
|--|---|
| <span style="display:inline-block; width:15px; height:10px; background-color:orange; border:1px solid black;"></span> Portland/Seattle | <span style="display:inline-block; width:15px; height:10px; background-color:purple; border:1px solid black;"></span> Richmond                          |
| <span style="display:inline-block; width:15px; height:10px; background-color:yellow; border:1px solid black;"></span> San Francisco    | <span style="display:inline-block; width:15px; height:10px; background-color:darkpurple; border:1px solid black;"></span> Richmond/Philadelphia Overlap |
| <span style="display:inline-block; width:15px; height:10px; background-color:green; border:1px solid black;"></span> West Los Angeles  | <span style="display:inline-block; width:15px; height:10px; background-color:pink; border:1px solid black;"></span> Philadelphia                        |
| <span style="display:inline-block; width:15px; height:10px; background-color:lightblue; border:1px solid black;"></span> Houston       |   |

**PADRECC**

**Consortium Centers**

Puerto Rico  
45

# Is PADRECC a PACT?

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

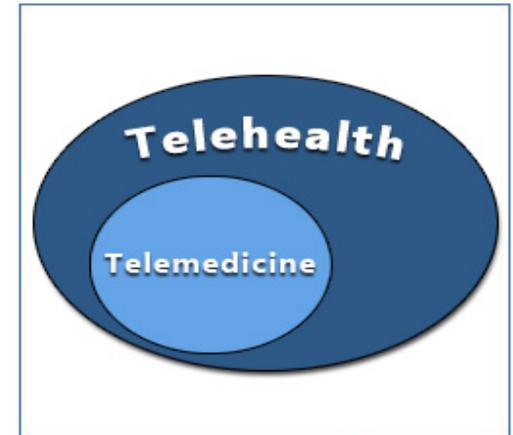
- 
- Provide each patient with an ongoing relationship with a personal physician who is trained to provide first-contact, continuous, and comprehensive care.
  - Provide care for acute and chronic conditions, preventive services, and end-of-life care, or arrange for other professionals to provide these 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.

# “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

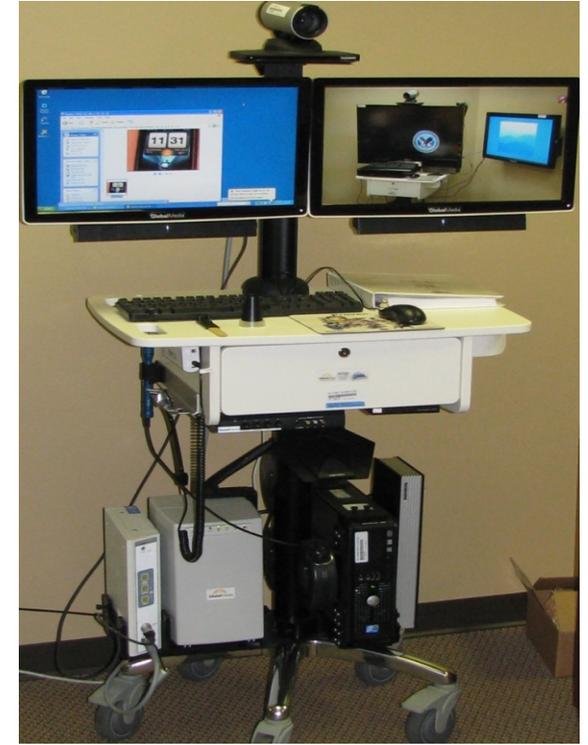
- **Telemedicine**: "the use of electronic information and communications technologies to provide and support health care when distance separates the participants."
- The terms "**Telehealth**" and "e-health" appeared later to include allied healthcare activities such as:
  - patient education;
  - continuing 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<sup>®</sup>



Viterion100  
TeleHealth Monitor



# 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<sup>®</sup> 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

# 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*

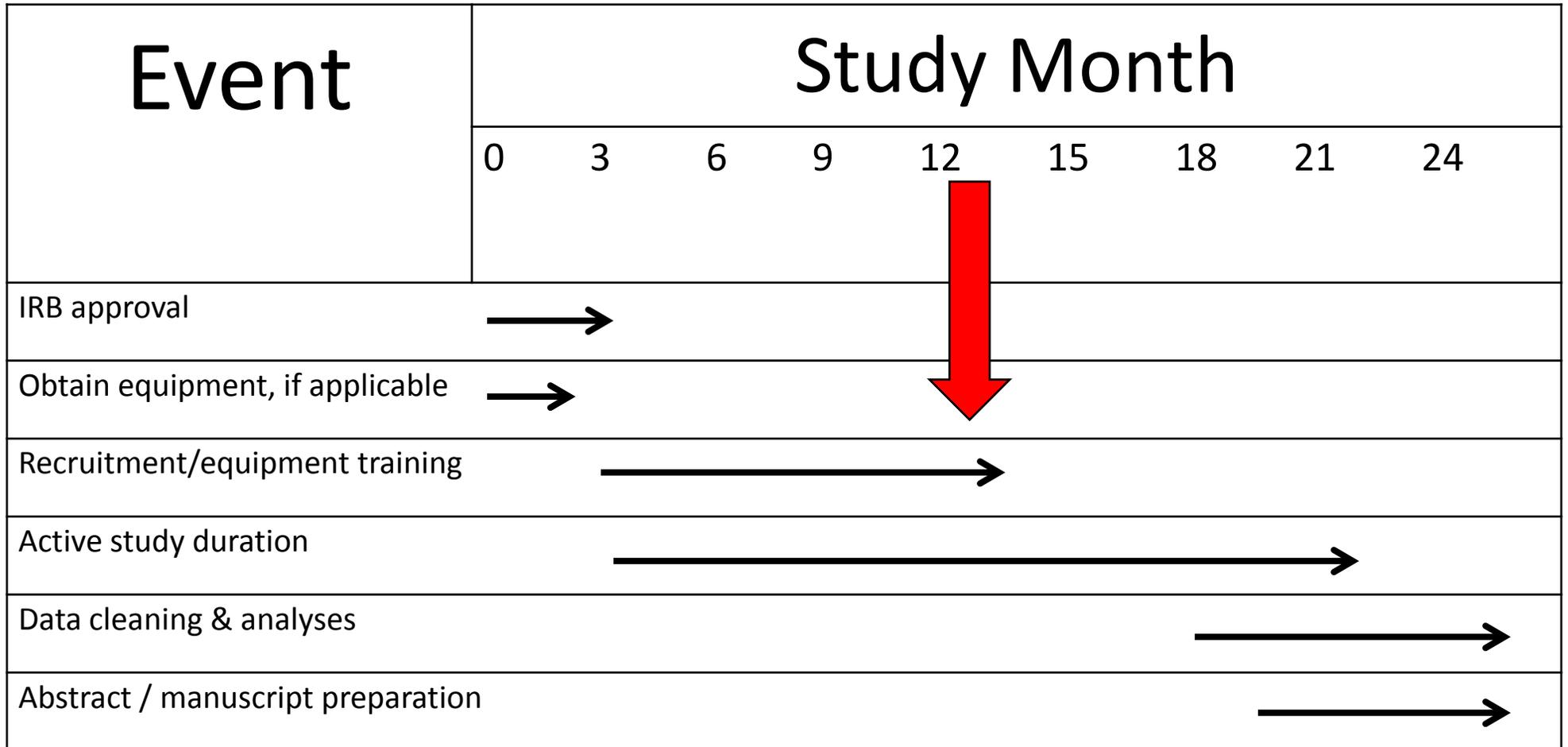
- Travel time & mileage
- Time off of work: patient &/or companion
- Meal costs
- Travel reimbursement from VAMC

# 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



# 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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Philadelphia PADRECC

215-823-5934



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# Improving Support for Chronic Illness Care: The CarePartner Approach

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VA Senior Research Career Scientist  
Director, VA Ann Arbor Program on Quality Improvement for  
Complex Chronic Conditions  
[jpiette@umich.edu](mailto:jpiette@umich.edu)

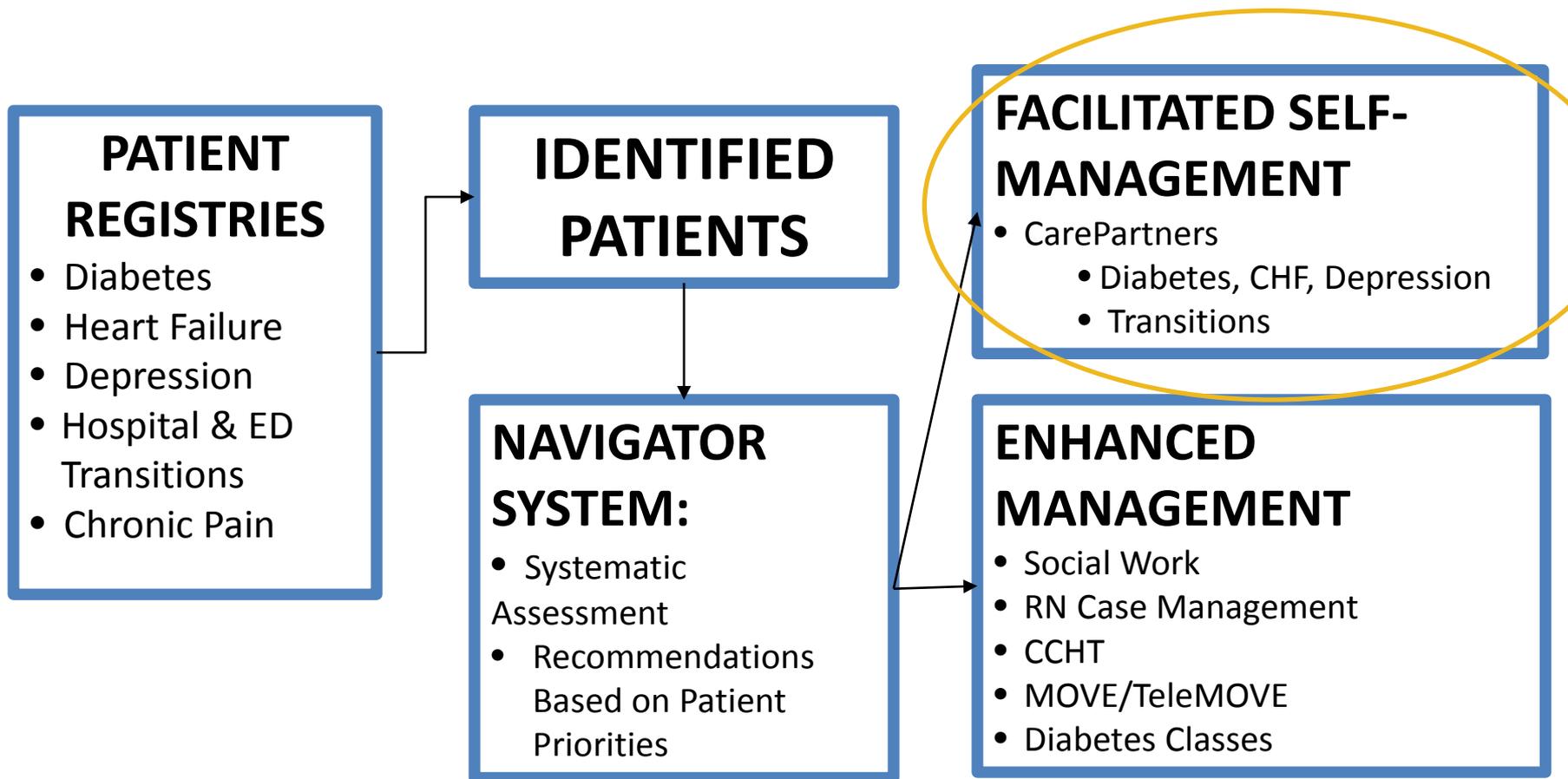


# What is QUICCC?

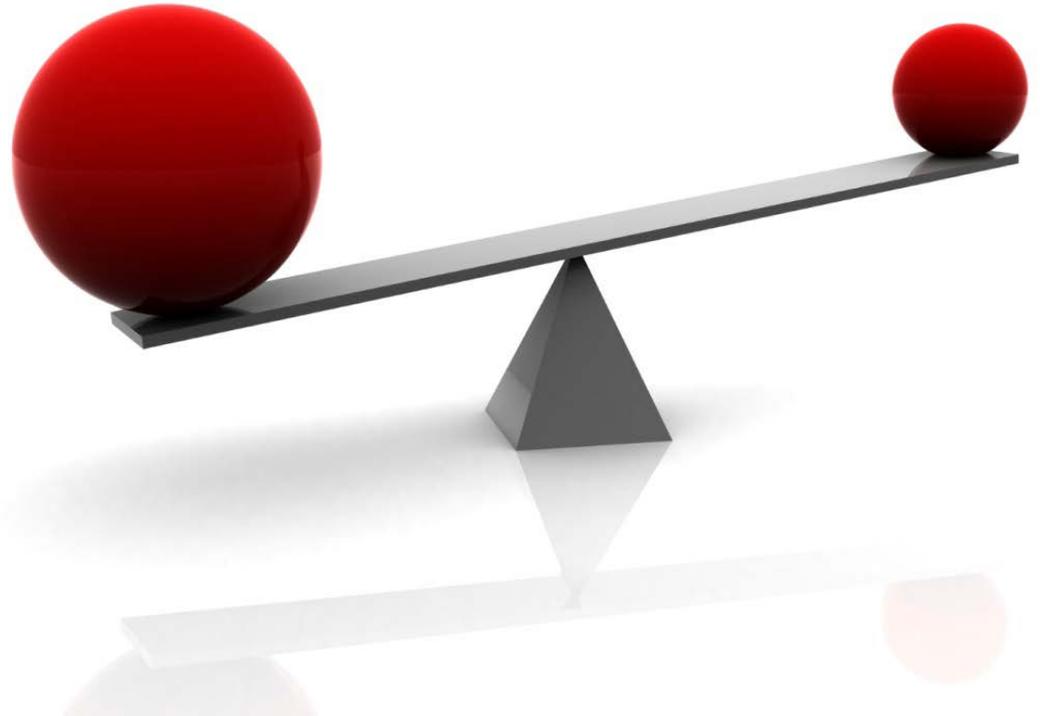
QUICCC is a research group supported by the Ann Arbor HSR&D, the University of Michigan Health System, and outside grants

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



Many patients need  
more help than  
clinicians can ever  
realistically provide  
during standard  
encounters.

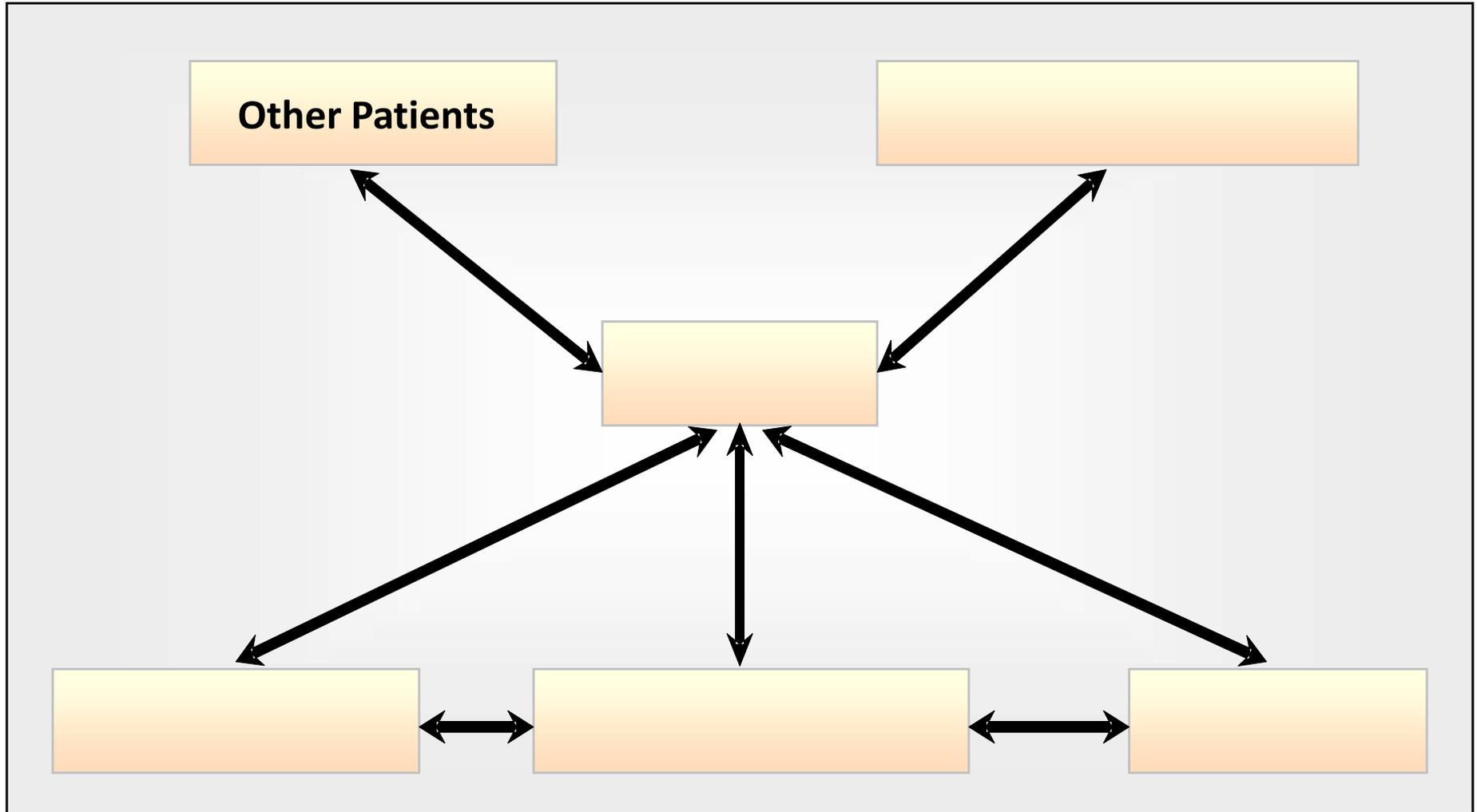


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Rubenstein LV et al. Improving care for depression: there's no free lunch. *Annals of Internal Medicine* 2006;145:544-546.

Dobscha SK et al. Depression decision support in primary care: a cluster randomized trial. *Annals of Internal Medicine* 2006;145:477+.

# Communication Targets for New Services





**mHealth**

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

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

A review  
message  
interv

Jin Wei\*

\*Healthcare In

#### Summary

We reviewed  
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## Abstract

### Background:

The objective of this  
with diabetes and/or  
and/or obesity.

### Methods:

#### Review and Special Articles

## 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.

(Am J Prev Med 2009;36(2):165-173) © 2009 American Journal of Preventive Medicine

## Health A Systematic Re

Santosh Krishna, Ph.D., Ed.S.,<sup>1</sup> Suzanne Austin Boren, M.H.A.,<sup>2-4</sup> and E. Andrew Balas, M.D., Ph.D.<sup>5</sup>

<sup>1</sup>School of Public Health, Saint Louis University, St. Louis, Missouri

<sup>2</sup>Health Services Research and Development Program, Truman Memorial Veterans' Hospital, Columbia, Missouri

<sup>3</sup>Health Management & Informatics, School of Medicine, Columbia, Missouri

<sup>4</sup>Center for Health Care Quality, School of Medicine, Columbia, Missouri

<sup>5</sup>College of Health Sciences, Old Dominion University, Norfolk, Virginia

# An Examination of 26,168 Hamilton Depression Rating Scale Scores Administered via Interactive Voice Response Across 17 Randomized Clinical Trials

*Heidi K. Moore, PhD,\* James C. Mundt, PhD,\* Jack G. Modell, MD,† Heidi E. Rodrigues, BS,‡¶  
David J. DeBroda, MD,§ James J. Jefferson, MD,\* and John H. Greist, MD\**

Feasibility and validation of a computer-automated Columbia-Suicide severity rating scale using interactive voice response technology<sup>☆</sup>

James C. Mundt<sup>a</sup>, John H. Greist<sup>a,b,\*</sup>, Alan J. Gelenberg<sup>a,b</sup>, David J. Katzelnick<sup>a,b</sup>,  
James W. Jefferson<sup>a,b</sup>, Jack G. Modell<sup>c</sup>

<sup>a</sup>Healthcare Technology Systems, Inc., 7617 Mineral Point Road, Ste. 300, Madison, WI 53717, USA

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<sup>c</sup>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

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Martire LM, Lustig AP, Schulz R, Miller GE, Helgeson VS. Is it beneficial to involve a family member? A meta-analysis of psychosocial interventions for chronic illness. *Health Psychology* 2004;23(6): 599-611.

## 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<sup>\*,†</sup>, ANN MARIE ROSLAND<sup>\*,†</sup>, MARIA SILVEIRA<sup>\*,†</sup>,  
MOHAMMED KABETO<sup>\*,†</sup> and KENNETH M. LANGA<sup>\*,†</sup>

*\*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*

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# 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

Home

Resources

Contact Us



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.



# Website



CarePartners



Hello, admin! | Sign Out

Home	Patient	Care Partner	Care Manager	Physician	Reports	Utilities
------	---------	--------------	--------------	-----------	---------	-----------

- Home
- Patient
- Care Partner
- Care Manager
- Physician Information
- Reports
- Utilities

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](mailto: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.



QUICCC

QUALITY IMPROVEMENT FOR COMPLEX CHRONIC CONDITIONS



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Blue Shield  
of Michigan



A nonprofit corporation and independent licensee  
of the Blue Cross and Blue Shield Association

# Materials for Patients and their CarePartners





**A facsimile from**  
**The CarePartner Program**

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

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

Comments: URGENT: Please see attached information.

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  $\geq 7$  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**

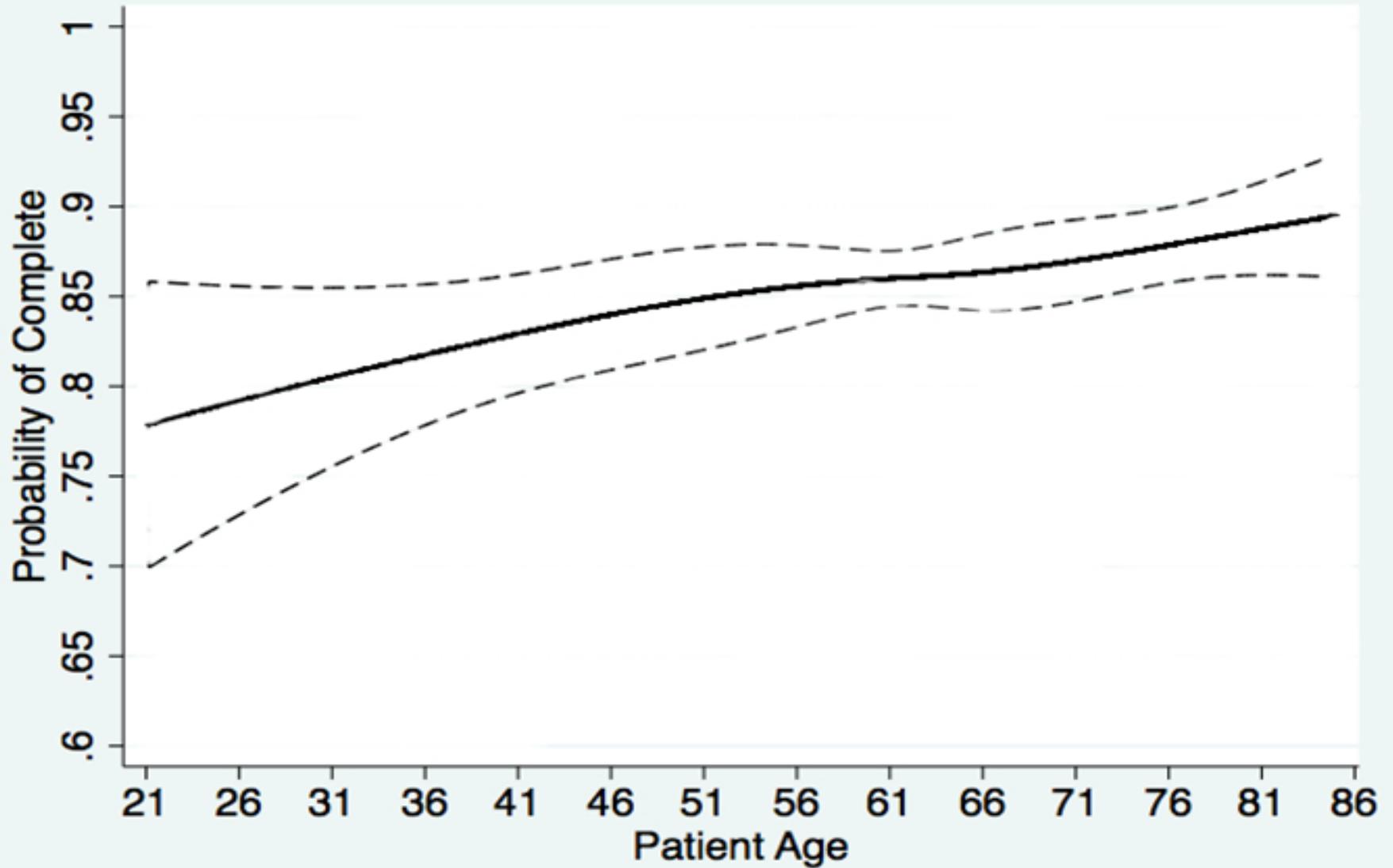
	<b>Total</b>	<b>HF</b>	<b>Dep</b>	<b>Diabetes</b>	<b>Cancer</b>
<b>N (patients)</b>	1,271	393	692	134	52
<b>Mean Age (SD)</b>	60.3 (13.4)	68.0 (10.7)	56.9 (13.5)	54.3 (11.9)	61.2 (6.9)
<b>White (%)</b>	71.7	76.3	64.5	88.8	88.5
<b>Female (%)</b>	33.0	0.1	48.1	59.0	9.6
<b>≤ High school (%)</b>	41.4	49.6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

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*.

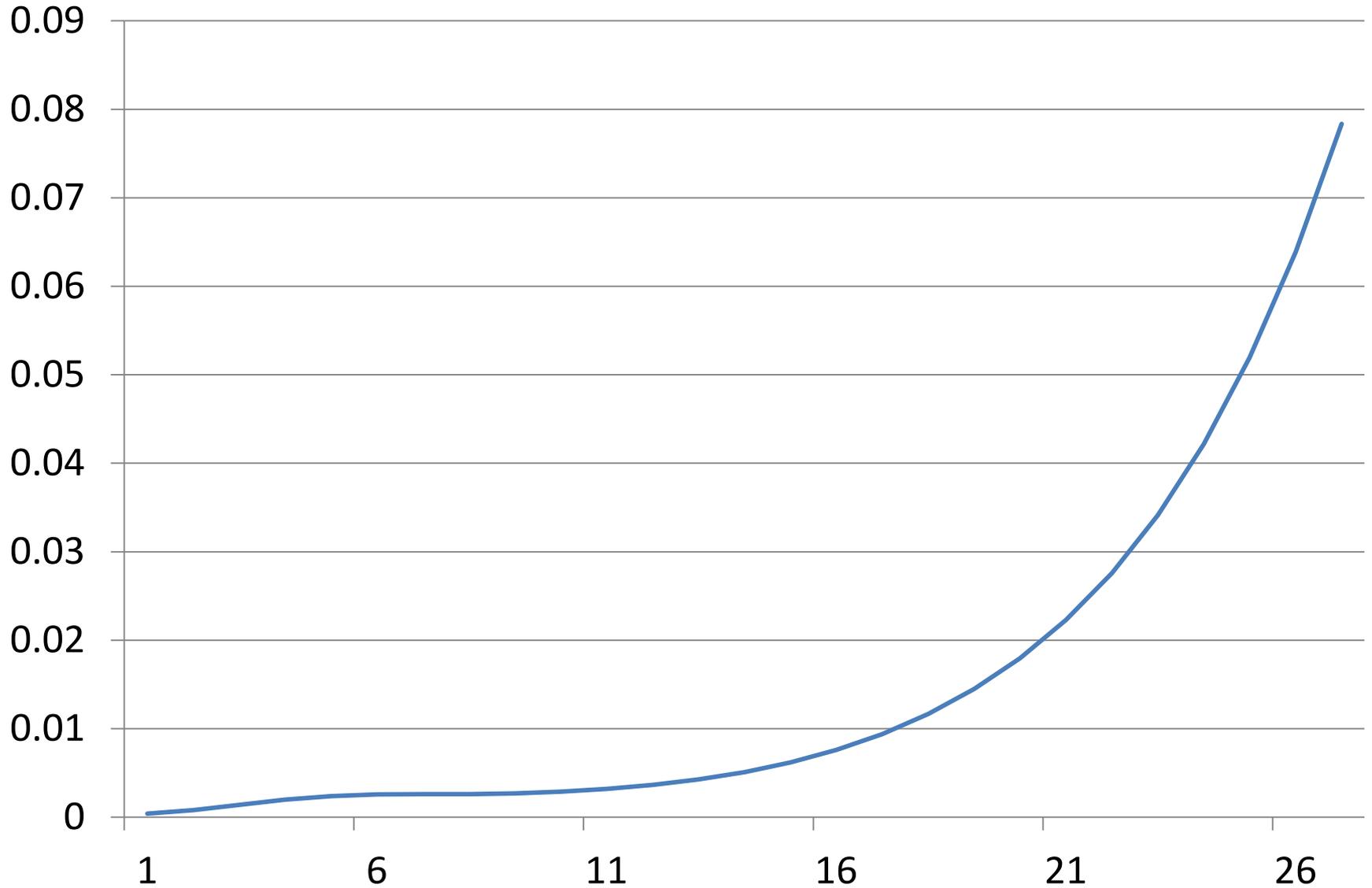
**Table 2. Call Completion**

	<b>Total</b>	<b>HF</b>	<b>Dep</b>	<b>Diabetes</b>	<b>Cancer</b>
<b>N (patients)</b>	1,271	393	692	134	52
<b>N (call weeks)</b>	28,962	15,519	7,815	5,166	462
<b>Median Follow-up (Q-Q)</b>	16 (11,34)	50 (32,52)	15 (13,21)	7 (7,12)	10(10,10)
<b>N of Completed Assessments</b>	24,053	13,907	5,544	4,188	414
<b>% of Assessments Completed</b>	83.1	89.6	70.9	81.1	89.6

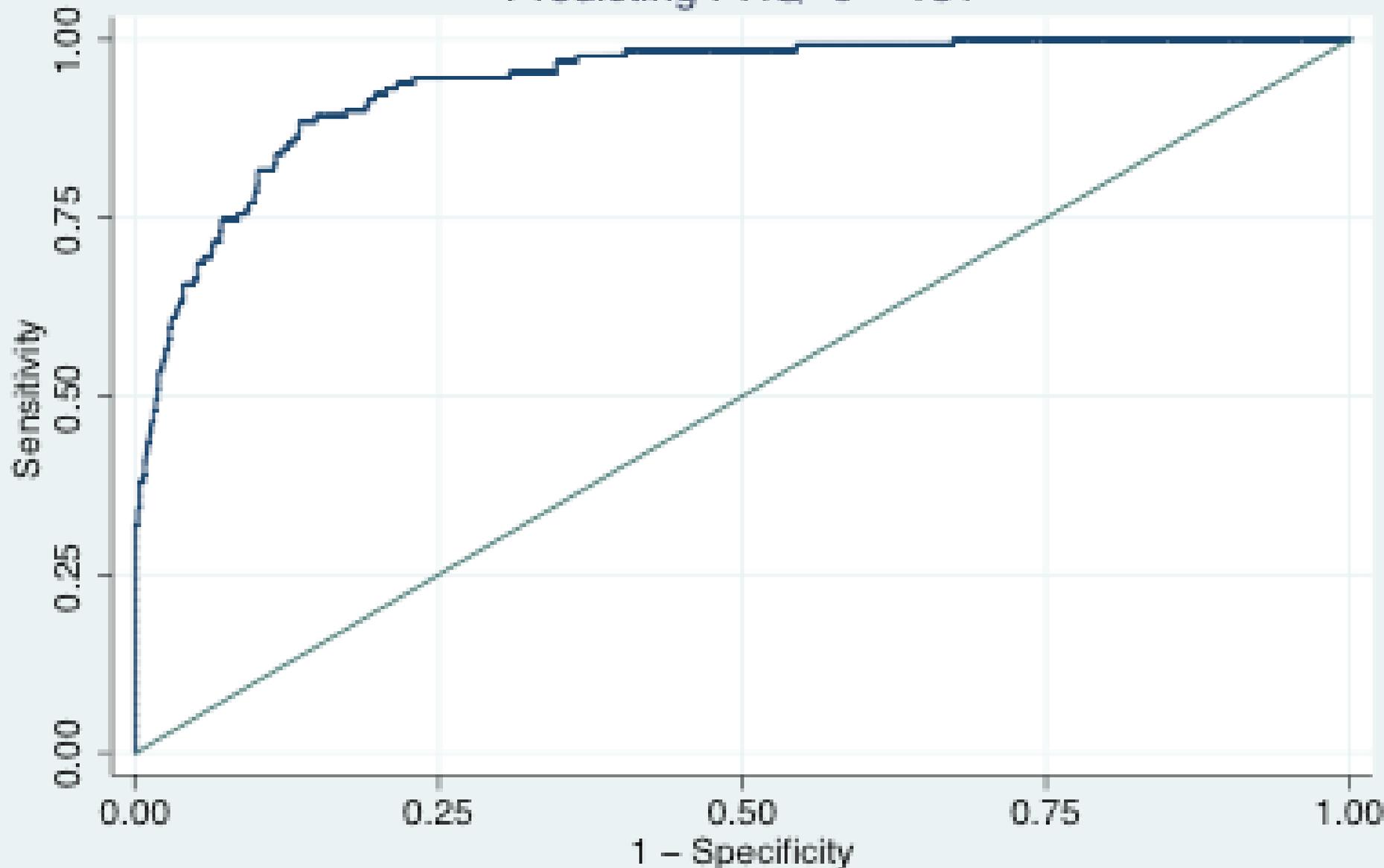
# Probability of Call Completion by Patient Age



# 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”

