Telehealth in the PADRECC:

The Key to the Patient-Aligned Care Team?
A Randomized – Controlled Trial

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Parkinson's Disease Research, Education & Clinical Center

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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.

Casalino et al 2010

PACT & the Specialist

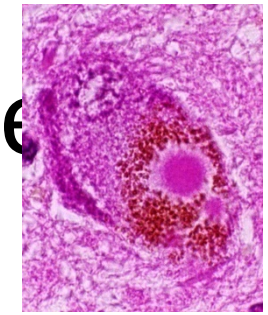
Percentage of Patients for Whom Physicians in a Specialist Practice Report Serving as Primary Care Physicians.*

Percentage of Patients for Whom Specialists Serve as Primary Care Physicians	Percentage of Practices, by Specialty			
	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


Seattle
Portland
Washington
Oregon
Montana
North Dakota
Minnesota
Idaho
Wyoming
South Dakota
Wisconsin
Michigan
Nebraska
Iowa
Illinois
Indiana
Ohio
Pennsylvania
New York
N.H.
Maine
Vt.
Mass.
R.I.
Conn.
Philadelphia
New Jersey
Delaware
Md.
Richmond
Virginia
West Virginia
San Francisco
Nevada
Utah
Colorado
Kansas
Missouri
Kentucky
California
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West Los Angeles
Arizona
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South Carolina
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Louisiana
Florida
Houston
Alaska
Hawaii
Puerto Rico
PADRECC Service Areas
Portland/Seattle
San Francisco
West Los Angeles
Houston
Richmond
Richmond/Philadelphia Overlap
Philadelphia
PADRECC
Consortium Centers

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.

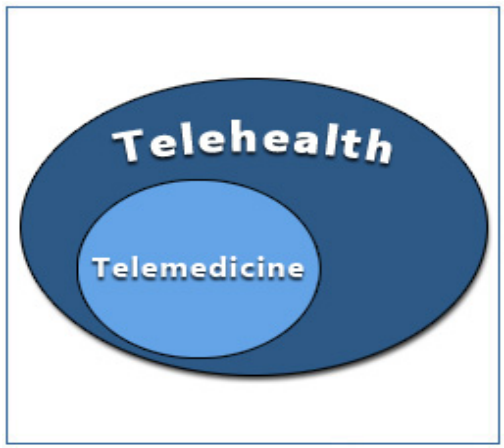
"VAMC Telehealth 101"

- 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®

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 *MyHealthyVe*t 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

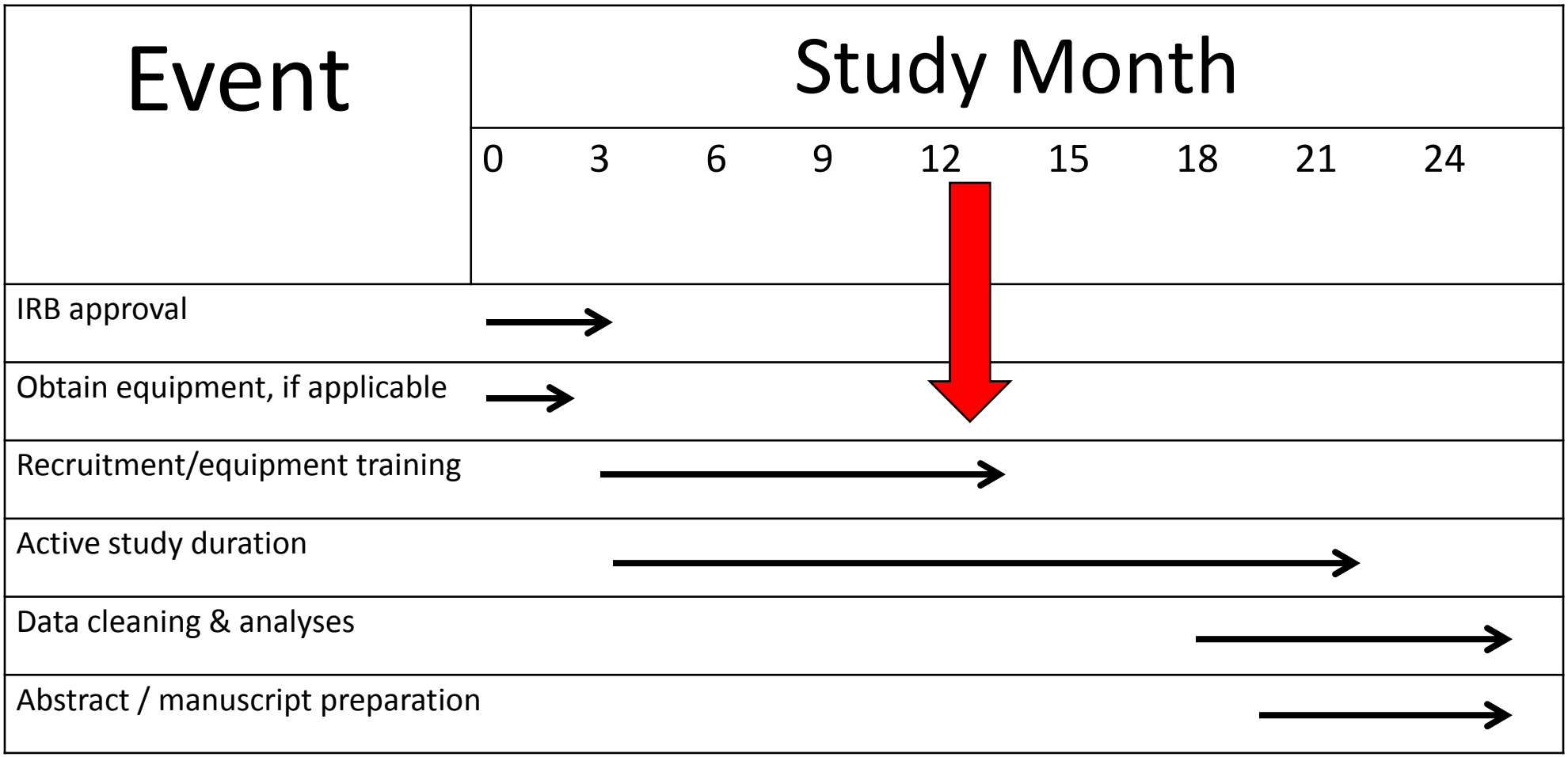
Secondary Outcomes
Patient Travel Costs

- 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


Event
Study Month
0
3
6
9
12
15
18
21
24
IRB approval
Obtain equipment, if applicable
Recruitment/equipment training
Active study duration
Data cleaning & analyses
Abstract / manuscript preparation

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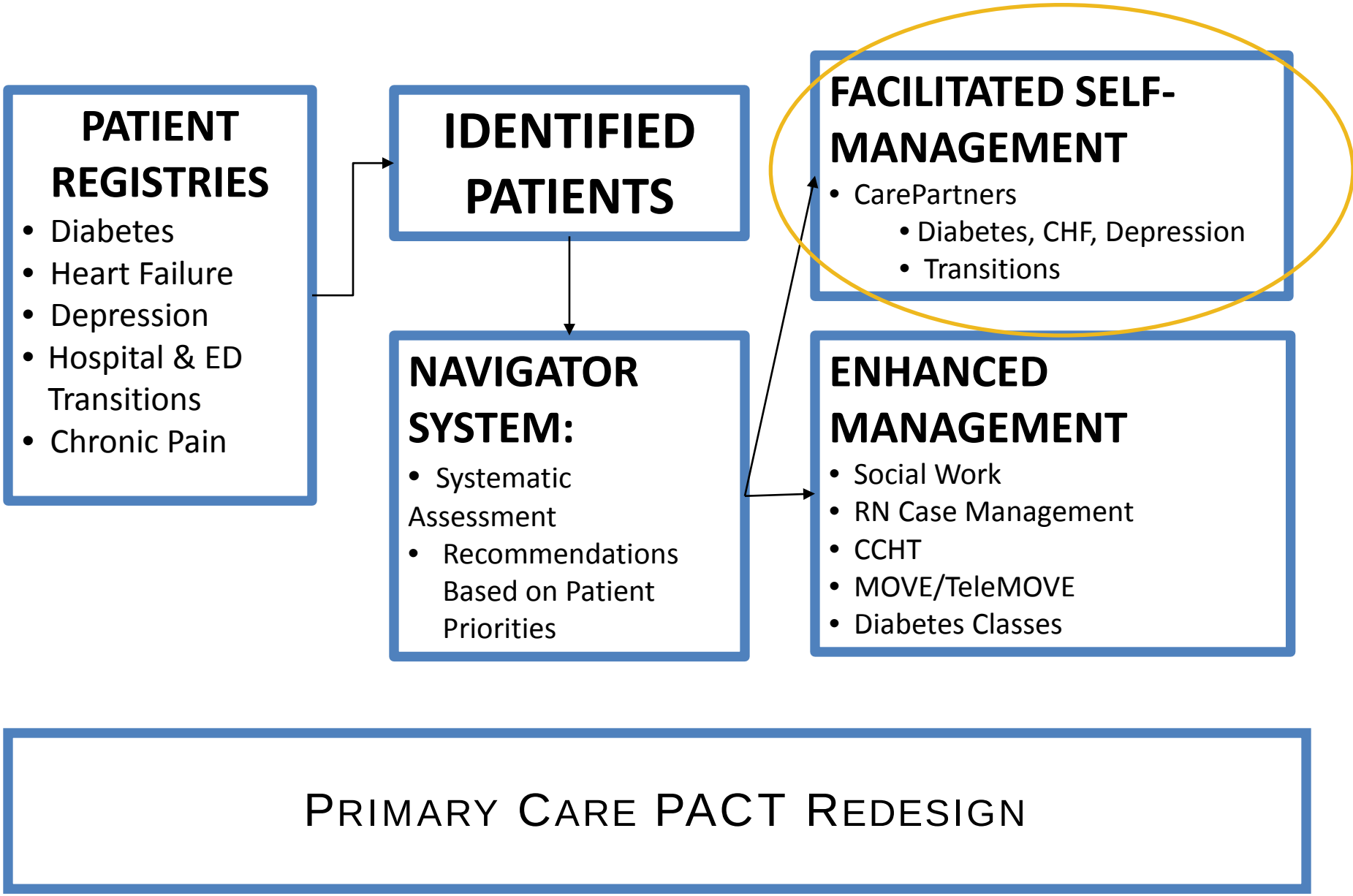
PR11SM Demo Lab
PACT Research Inspiring Innovation and Self Management

What is QUICCC?

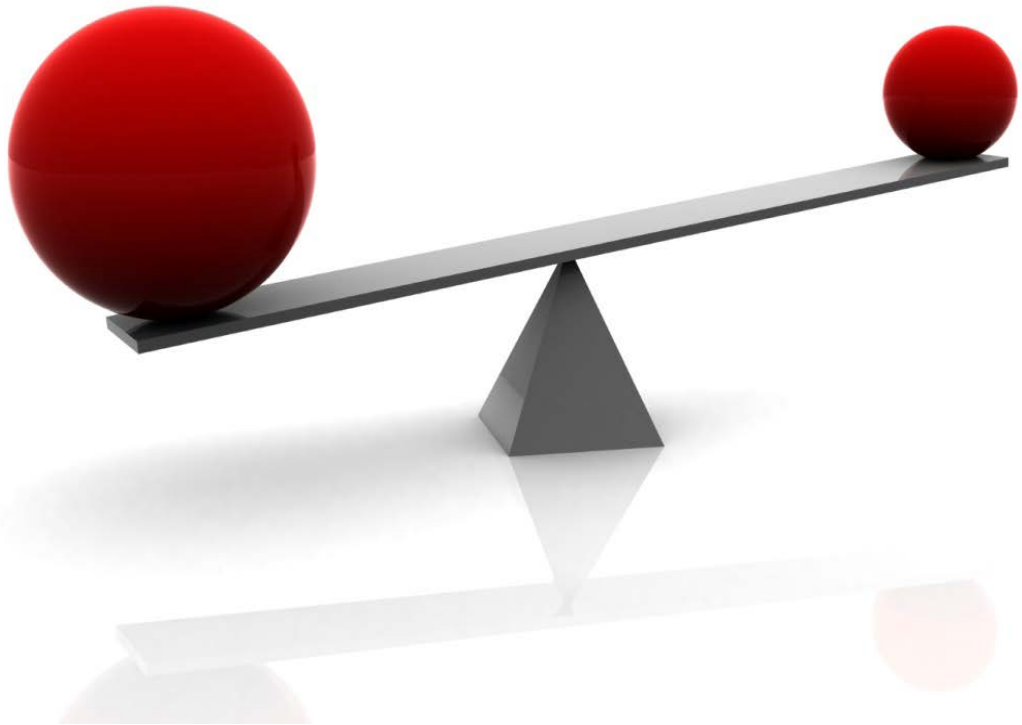
QUICCC is a research group supported by the Ann Arbor HSR&D, the University of Michigan Health System, and outside grants

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



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



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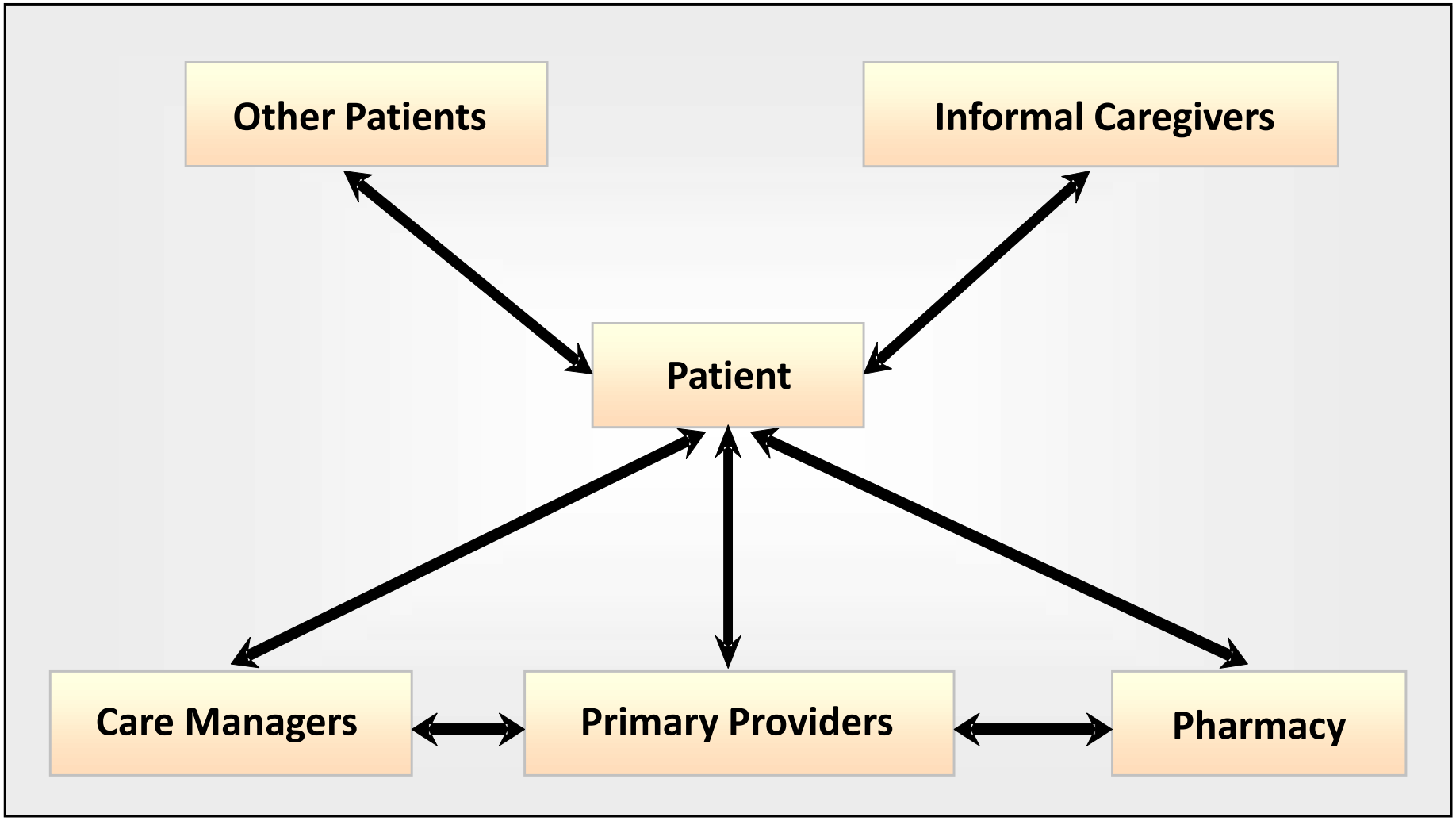
Communication Targets for New Services



mHealth

RESEARCH

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]

Abstract

Background:

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

Methods:

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Jin Wei*

*Healthcare In

Summary
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Santosh Krishna, Ph.D., Ed.S.,[1] Suzanne Austin Bore
M.H.A.,[2–4] and E. Andrew Balas, M.D., Ph.D.[5]

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Virginia.

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)

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. DeBrota, 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☆

James C. Mundt [a], John H. Greist [a,b,*], Alan J. Gelenberg [a,b], David J. Katzelnick [a,b], James W. Jefferson [a,b], Jack G. Modell [c]

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[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

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.

Chronic Illness (2010) 6, 34–45

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[*,†]

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CarePartner Program Goals

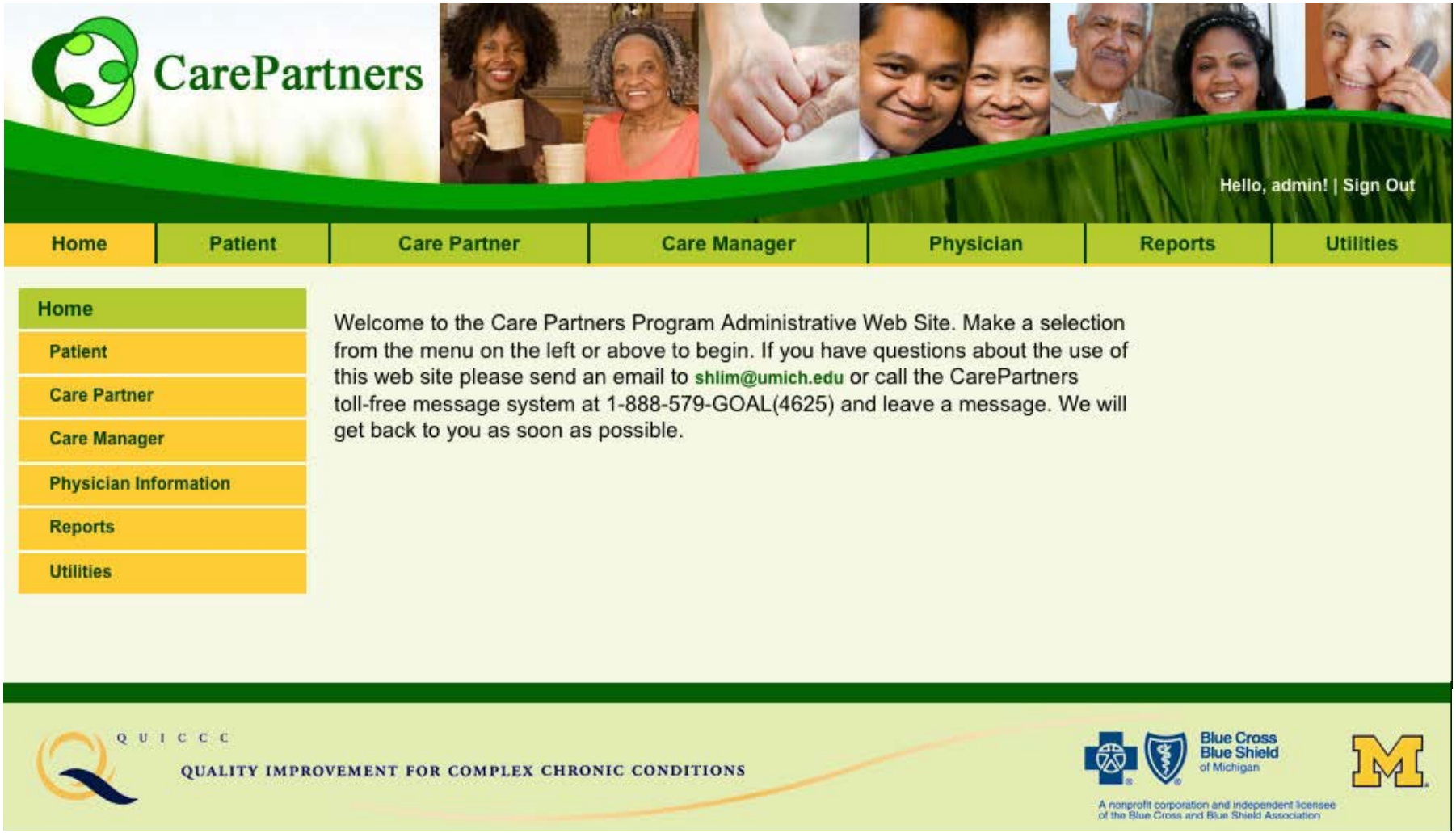
- Use a simple IT tool to enhance clinicians' ability to monitor patients' status via automated telephone assessments with feedback to the clinical team
- Provide patients with additional tailored feedback and education based on their self-management needs
- Provide structured feedback and education to patients' active and potential 'informal caregivers' e.g., adult children living outside of their household
- Keep clinician workload to a minimum

CarePartners

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

Materials for Patients and their CarePartners

To: [Clinic_Name]

ATTN:

[PCP_First_Name]
[PCP_Last_Name],
[PCP_Degree}

Fax number:
[Clinic_Fax_Number]

Date: [Date] [Time]

A facsimile from

The CarePartner Program

Sarah Lim, MPH

Research Associate

Phone 1-800-568-1050

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 ≥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

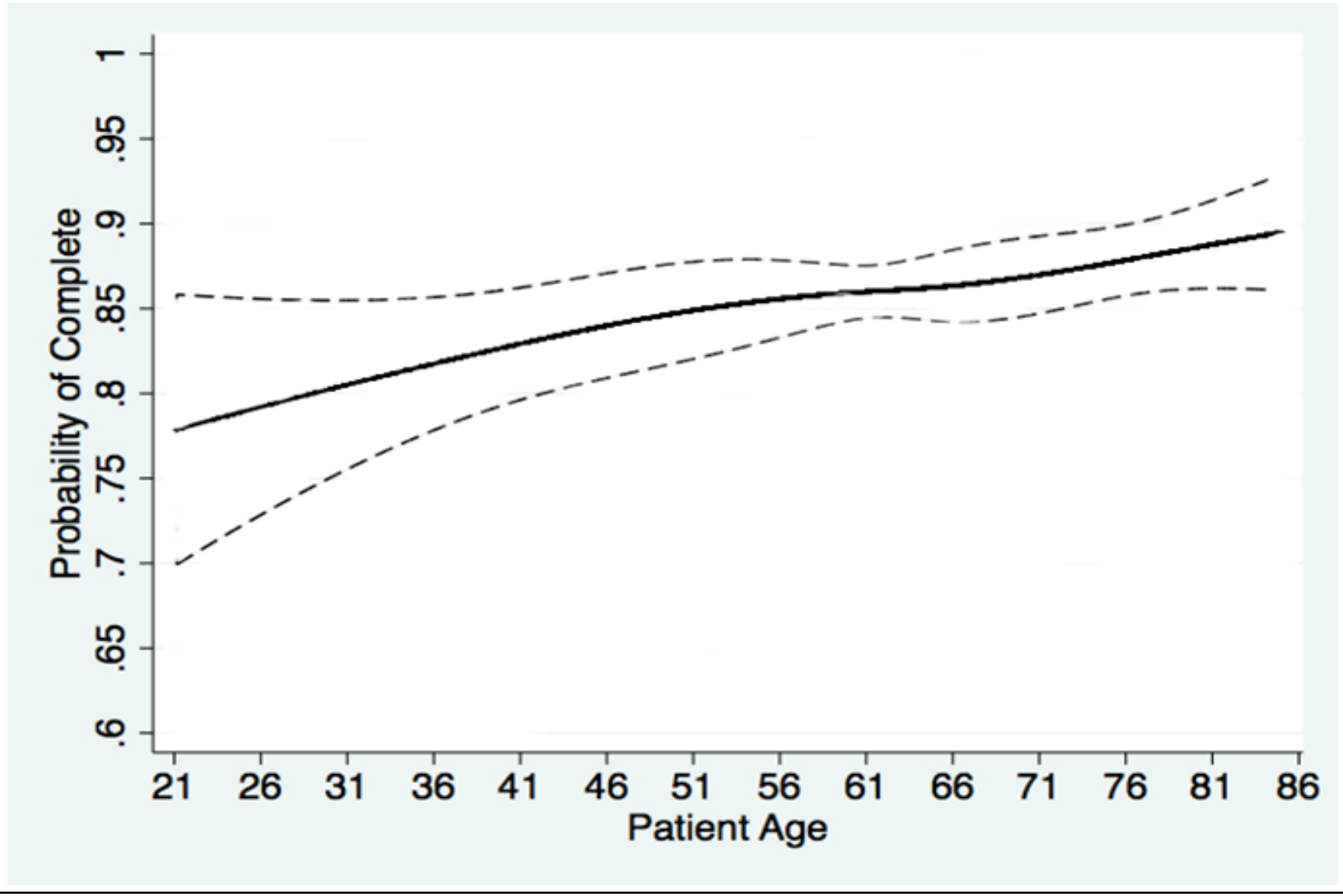
	Total	HF	Dep	Diabetes	Cancer
N (patients)	1,271	393	692	134	52
Mean Age (SD)	60.3 (13.4)	68.0 (10.7)	56.9 (13.5)	54.3 (11.9)	61.2 (6.9)
White (%)	71.7	76.3	64.5	88.8	88.5
Female (%)	33.0	0.1	48.1	59.0	9.6
≤ High school (%)	41.4	49.6	30.5	76.1	34.6
Income ≤ $30,000 (%)	48.3	71.3	38.3	28.4	59.6
VA (%)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

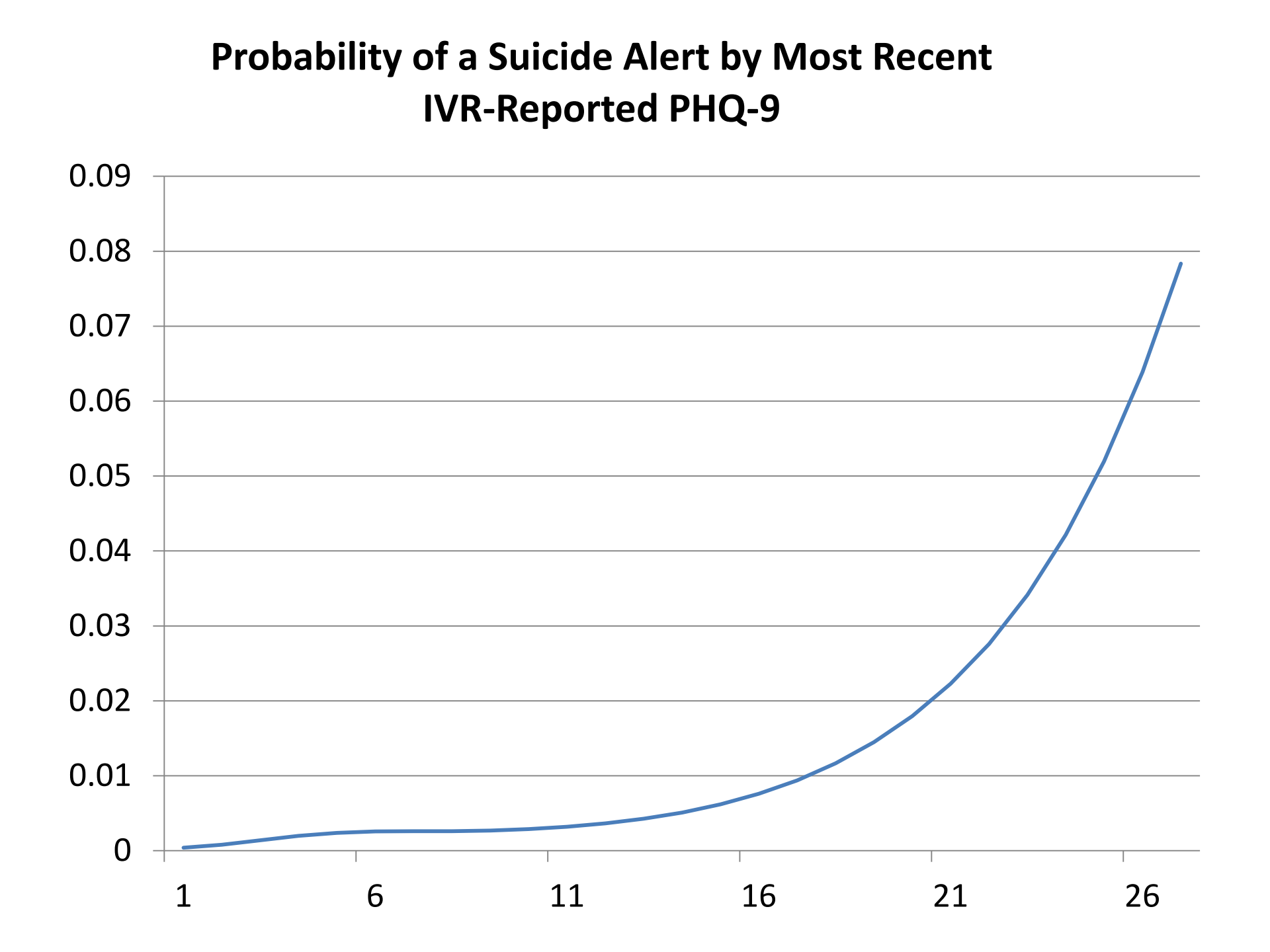
Piette JD, Rosland Am, Marinec NS, Striplin D, Bernstein SJ, Silveira MJ. Engagement in automated patient monitoring and self-management support calls: experience with a thousand chronically-ill patients. Medical Care, *in press.*

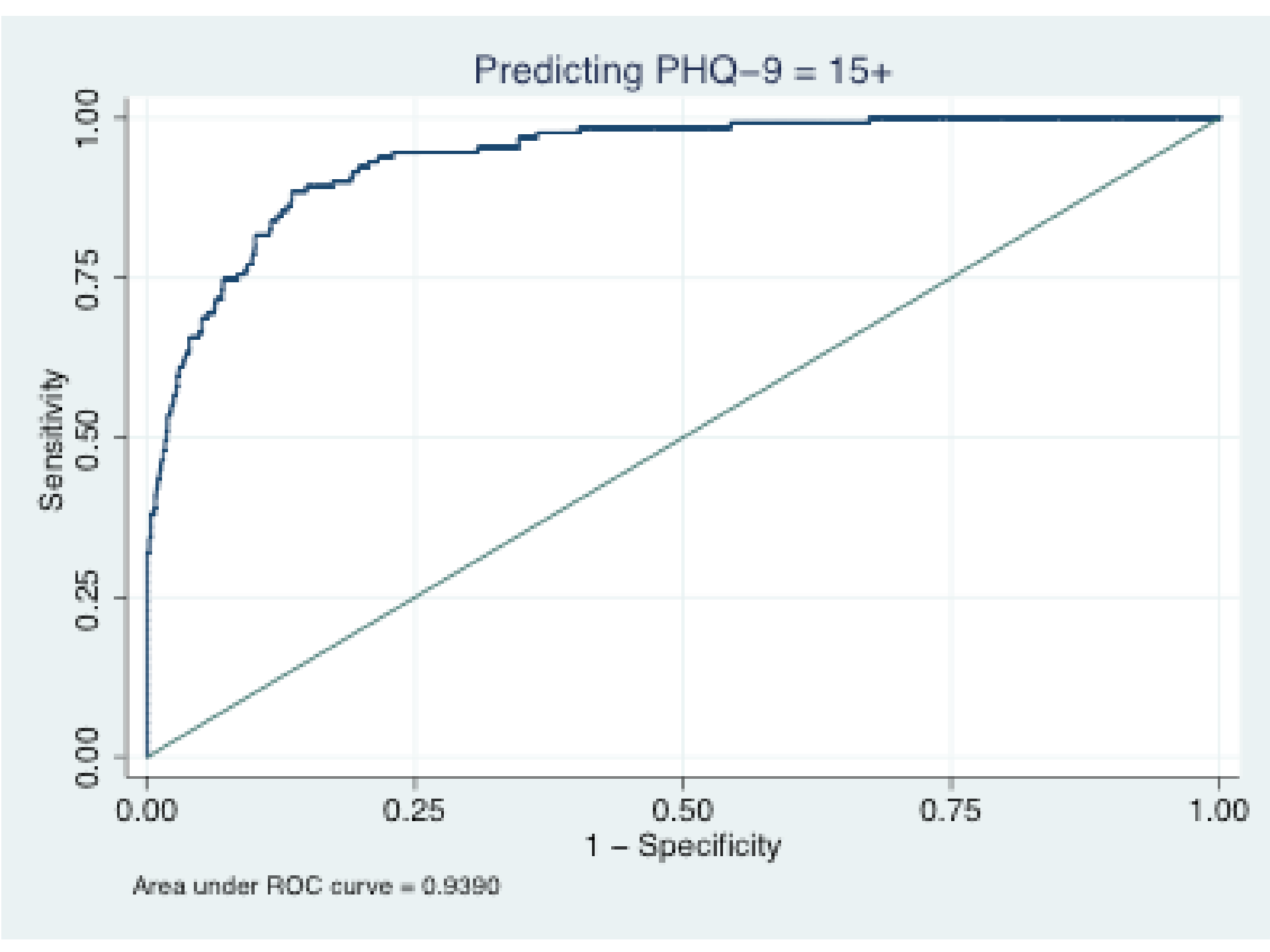
Table 2. Call Completion

	Total	HF	Dep	Diabetes	Cancer
N (patients)	1,271	393	692	134	52
N (call weeks)	28,962	15,519	7,815	5,166	462
Median Follow-up (Q-Q)	16 (11,34)	50 (32,52)	15 (13,21)	7 (7,12)	10(10,10)
N of Completed Assessments	24,053	13,907	5,544	4,188	414
% of Assessments Completed	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
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
1
6
11
16
21
26


Predicting PHQ−9 = 15+
Sensitivity
0.00
0.25
0.50
0.75
1.00
1 − Specificity
0.00
0.25
0.50
0.75
1.00
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”