



A National Web Conference on Practical Models to Improve Patient-Clinician Communication Using Health IT

December 18, 2012
2:30pm – 4:00pm ET



Moderator and Presenters Disclosures

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Agency for Healthcare Research and Quality

Presenters:

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There are no financial, personal, or professional conflicts of interest to disclose for the speakers or myself.



Agency for Healthcare Research and Quality

Advancing Excellence in Health Care

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Conversational IT for Better, Safer Pediatric Primary Care

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AHRQ Grant # R18 HS 17248



Project Team

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Background

- Large gap between what is recommended for primary care of children and what actually occurs
- Larger gaps related to care of chronic conditions between visits to primary care settings
- A pressing need to be more patient-centered:
 - Respond to individuals
 - Engage patients outside clinical settings
 - Providing access to personal medical information
 - Empower patients to be active participants



Study Objectives

Determine whether a parent-centered interactive voice response (IVR) system, used *at home* and integrated with an EHR, can improve:

- Child health supervision
- Medication safety
- Parental activation



The Personal Health Partner (PHP)

- Fully automated “conversational” system (synthetic voice and speech recognition)
- Uses internet-based voice-XML protocols
- Parents call 3-7 days before WCC visit
- Age-specific modules
- EHR-data available to system during call
- Key functions: assessment, counseling, information sharing (data and alerts)



Benefits of Conversational IT

- Telephones are ubiquitous
- Communication through spoken language may better support lower literacy families
- Internet-based telephony is highly scalable



Introducing Susan

“Welcome to the Personal Health Partner...”



PHP Assessment Samples

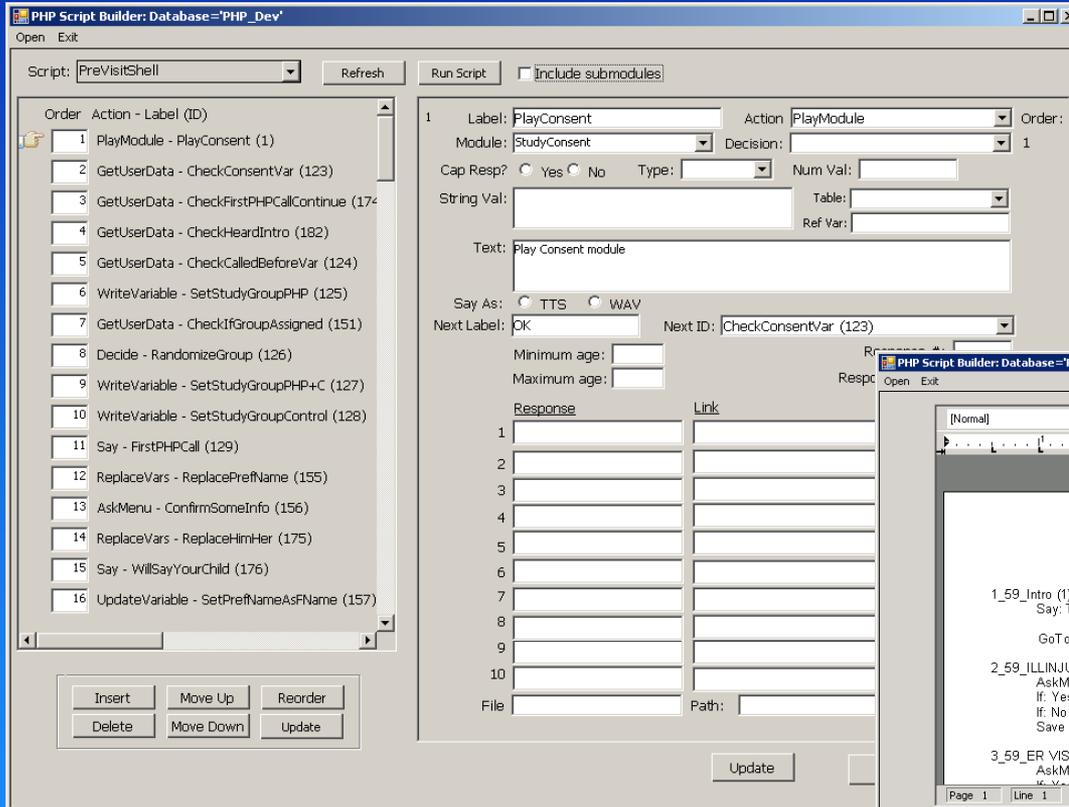
Topic	Trigger	Activation Message
Parental Smoking	Caller is smoker	Call local/national quit line
Child Development	Failed screening	Discuss concerns with PCP, offer EI phone number
Maternal Depression	Positive screen (PHQ2), no current treatment	Call/find parent PCP, discuss feelings with pediatrician
TB Risk	At risk, due for screening	Remind clinician to do PPD
Medication Reconciliation	Inactive or undocumented med in EHR Med List	NA (physician notified via EHR)
Medication Use	On prescription meds	Bring medication to visit
	Dosing errors	Discuss dosing with clinician
	Asthma reliever used as controller	Bring medication to visit and discuss use with clinician



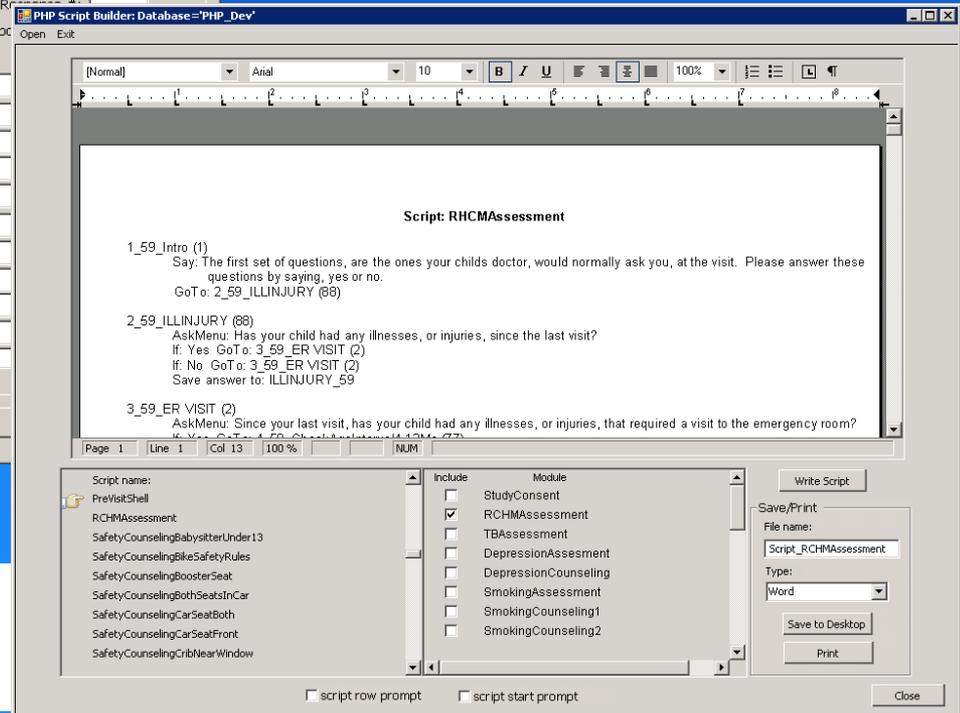
Developing Data-driven Conversations - Actions

Action	Description
Say	Text with tagged elements to supports search and replace for customized expressions
Ask	Capture response from user from a menu, number, date, phone number, or free audio recording
Decide	Redirect conversation based on decision rules and current parameters (java-based function)
PlayList	Reviews a variable length list of items (e.g., medications) via TTS or recorded speech
GetData	Get user data
WriteData	Save user data
UpdateData	Update user data
Play Module	Begin module
End Module	End module

Programming Conversations



Script Builder
 (used by technical staff)



Script Writer
 (used by non-technical staff)

EHR Integration

Quick Note: B_QN_Pedi Quick: GARRET TEST

QN1 | QN2 | QN3 | QN4 | QN5 | QN6

Pedi Quick | HPI | PHx | ROS | VS | PE | Lab | AP | Dispo

Menu | HPI | Age/Sex | QUESTIONS FOR PA

PA
 H1N1 Flu
 Last
 Med/Prob/All
 Hx
 VS
 ROS/PE
 Forms/CM
 Results
 Imm Summary
 Imm Details
 Imm Orders
 Orders/Appt
 Contact/Ins

Update

Meds

Probs

All | Dir

Age/Sex | Prob List | Prev AP

Ord

Include Note

Probs
 Meds
 Allergy
 Directive
 Med Hx
 Surg Hx
 Fam Hx
 Subst Hx
 Soc Hx
 Vax Hx

CC: []
 Vst Type [] Hx from: []
 Lang Arabic Interp: []

Print Med List for Patient Review

FOR PATIENT REVIEW ONLY!! DOES NOT QUALIFY FOR MED REC!

Pain? Y N Not Answerable Scale: []

Comment []

Reason for Visit: []

Refills? Yes No Not Sure

SIMPLE VITALS

Hgt (cm): [] in. T(F): [] RR: []
 Wgt (kg): [] lb. T site: [] O2 Rest []
 HC (cm): [] Glucose: [] Peak Flow: []
 HR: [] Rhythm: [] O2 L/min []
 BP [] / []

Comments

Comments []

Sign: []

Add Forms

Add Asthma | Add Treatment
 Add ADD-ADHD | Add Sickle Cell
 Add Healthy Wgt
 Add Behav Dev | Add Formal DB Tests
 Add RHCM | Add Complex Care
 Add Headache

Open Pedi Billing Orders

Prob Focused Care RHCM 0-11 yr

Dispo w/Med Rec

Prev Form (Ctrl+PgUp) | Next Form (Ctrl+PgDn) | Close

Clinician Prompt

Quick Note... B_QN_Pedi Quick: GARRET TEST

QN1 | QN2 | QN3 | QN4 | QN5 | QN6

Pedi Quick | HPI | RHCM | PHx | ROS | VS | PE | Lab | Dispo

Menu | HPI | Age/Sex | QUESTIONS FOR PA

PA CC: []

H1N1 Flu Vst Type [] Hx from: []

Last Lang Arabic Interp: []

Med/Prob/All

Hx

VS

ROS/PE

Forms/CM

Results

Imm Summary

Imm Details

Imm Orders

Orders/Appt

Contact/Ins

Update

Meds **There is patient entered data to review** Go

Probs

All Dir Age/Sex Prob List Prev AP

Ord

Include Note

Probs

Meds

Allergy

Directive

Med Hx

Surg Hx

Fam Hx

Subst Hx

Soc Hx

Vax Hx

Open Pedi Billing Orders

Prob Focused Care RHCM 0-11 yr

Dispo w/Med Rec

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HC (cm): [] Glucose: [] Peak Flow: []

HR: [] Rhythm: [] O2 L/min []

BP [] / []

Comments

Comments []

Sign: []

Add Forms

Add Asthma Add Treatment

Add ADD-ADHD Add Sickle Cell

Add Healthy Wgt

Add Behav Dev Add Formal DB Tests

Undo RHCM Add Complex Care

Add Headache

Prev Form (Ctrl+PgUp) Next Form (Ctrl+PgDn) Close

Clinician Review

PHP_B_Pedi_PtEntData: GARRET TEST

Page 1 | Page 2

Instructions:
 Select and/or change answers then click 'Accept Selected'. (answers can be changed in forms)

Page 1
Page 2

Select **Completion date:** 06/16/2009 07:12:45 Select

RHCM Questions:

Illnesses/injuries since last visit?	<input type="radio"/> Y <input checked="" type="radio"/> N	<input checked="" type="checkbox"/> <input type="checkbox"/>	Guns in the Home?	<input type="radio"/> Y <input checked="" type="radio"/> N	<input checked="" type="checkbox"/> <input type="checkbox"/>
ER visits since last visit?	<input type="radio"/> Y <input checked="" type="radio"/> N	<input checked="" type="checkbox"/> <input type="checkbox"/>	Any Lead Risk Factors?	<input type="radio"/> Y <input type="radio"/> N	<input checked="" type="checkbox"/> <input type="checkbox"/>
Seeing a dentist?	<input type="radio"/> Y <input checked="" type="radio"/> N	<input checked="" type="checkbox"/> <input type="checkbox"/>	High, low, no risk	<input type="text" value=""/>	<input checked="" type="checkbox"/> <input type="checkbox"/>
Limiting juice/soda?	<input checked="" type="radio"/> Y <input type="radio"/> N	<input checked="" type="checkbox"/> <input type="checkbox"/>	Problems with unstable housing?	<input checked="" type="radio"/> Y <input type="radio"/> N	<input checked="" type="checkbox"/> <input type="checkbox"/>
Problems with constipation?	<input type="radio"/> Y <input checked="" type="radio"/> N	<input checked="" type="checkbox"/> <input type="checkbox"/>	Problems with having enough food to eat?	<input type="text" value="Sometimes"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>
Toilet training difficulties?	<input type="radio"/> Y <input checked="" type="radio"/> N	<input checked="" type="checkbox"/> <input type="checkbox"/>	Major family stressors?	<input type="radio"/> Y <input checked="" type="radio"/> N	<input checked="" type="checkbox"/> <input type="checkbox"/>
Bedwetting problems?	<input type="radio"/> Y <input checked="" type="radio"/> N	<input checked="" type="checkbox"/> <input type="checkbox"/>	Does mother (caregiver) have a PCP?	<input checked="" type="radio"/> Y <input type="radio"/> N	<input checked="" type="checkbox"/> <input type="checkbox"/>
Sleep problems?	<input type="radio"/> Y <input checked="" type="radio"/> N	<input checked="" type="checkbox"/> <input type="checkbox"/>	In past month has she been down, depressed?	<input type="radio"/> Y <input type="radio"/> N	<input checked="" type="checkbox"/> <input type="checkbox"/>
Discipline problems?	<input type="radio"/> Y <input checked="" type="radio"/> N	<input checked="" type="checkbox"/> <input type="checkbox"/>	In past month, has she been bothered by...?	<input type="radio"/> Y <input type="radio"/> N	<input checked="" type="checkbox"/> <input type="checkbox"/>
Behavior problems?	<input type="radio"/> Y <input checked="" type="radio"/> N	<input checked="" type="checkbox"/> <input type="checkbox"/>			
School problems?	<input type="radio"/> Y <input checked="" type="radio"/> N	<input checked="" type="checkbox"/> <input type="checkbox"/>			
Learning problems?	<input type="radio"/> Y <input checked="" type="radio"/> N	<input checked="" type="checkbox"/> <input type="checkbox"/>			

Risk Assessment

Cigarette smokers at home? Y N

Alert/Reminders

Child watches more than 2 hours of TV per day. Child eats less than 5 servings of fruits and vegetables per day. Child does not exercise. Parent is a current smoker. Child failed the communication module of the ASQ. Include



Patient Entered Data “Accepted”

PHP_B_Pedi_PtEntData: GARRET TEST

Page 1 | Page 2

[Pedi Quick](#)
[HPI](#)
[PtEntData](#)
[RHCM](#)
[PHx](#)
[ROS](#)
[VS](#)
[PE](#)
[Dispo](#)
->

Instructions:
 Select and/or change answers then click 'Accept Selected'. Accept Selected (answers can be changed in forms)

Page 1
Page 2

Select **Completion date:** 06/16/2009 07:12:45 Select

RHCM Questions:

Illnesses/injuries since last visit?	Saved	Guns in the Home?	Saved
ER visits since last visit?	Saved	Any Lead Risk Factors?	Saved
Seeing a dentist?	Saved	High, low, no risk	Saved
Limiting juice/soda?	Saved	Problems with unstable housing?	Saved
Problems with constipation?	Saved	Problems with having enough food to ea	Saved
Toilet training difficulties?	Saved	Major family stressors?	Saved
Bedwetting problems?	Saved	Does mother (caregiver) have a PCP?	Saved
Sleep problems?	Saved	In past month has she been down, depr	Saved
Discipline problems?	Saved	In past month, has she been bothered b	Saved
Behavior problems?	Saved		
School problems?	Saved		
Learning problems?	Saved		

Risk Assessment

Cigarette smokers at home? Saved

Alert/Reminders

Child watches more than 2 hours of TV per day. Child eats less than 5 servings of fruits and vegetables per day. Child does not exercise. Parent is a current smoker. Child failed the communication module of the ASQ. Include

Prev Form (Ctrl+PgUp) Next Form (Ctrl+PgDn) Close



Study Design

- RCT (randomized at time of call)
 - Control (IVR Safety Survey)
 - PHP
- Parents of 4 month to 11 year olds with “well child” visit mailed brochure codes
- \$20-\$40 gift card incentive
- Study ended March 2011
- Data: PHP system, post-visit parent interview, and provider survey

Recruitment

SUMMARY

The Personal Health Partner is an automated telephone system designed to:

- (1) Gather information about your child before a primary care visit.



What is the Personal Health Partner?

The Personal Health Partner (PHP) is a talking computer program that asks you questions about your child's health. You can answer these questions using any telephone — even your cell phone. Your answers will be shared with your child's health care team through the electronic health record at BMC. Your pediatrician or nurse practitioner will be better prepared for your visit because he/she will know what your concerns are before the visit.

Why should I call PHP?

You may learn more about your child's health by calling PHP. Also, PHP is a research project, and we need your help! This project may improve the way we care for kids. We need to have parents use the program to see if it works.



What will I get for participating?

We will mail you a \$20 gift card (to either Target, Toys-R-Us, Stop-and-Shop, or Amazon.com) after you have completed 2 phone calls.



What do I have to do if I participate?

- Call and talk to PHP 2 times. The first call will be before your child's doctor's visit.
- During the first call with PHP, you will have 1 or more of the following:
 - ◊ Assessment and counseling about safety;
 - ◊ Assessment of a full-range of primary care topics and use of medicines at home;
 - ◊ Counseling around primary care topics.
- In the second call, a research assistant will call you a week after your doctor's visit and ask you some questions about your visit.

How long will the calls take?



Each call will be about 20 minutes long. The entire program will take no more than 1 hour.

Parents or legal guardians can participate. Your participation is optional. It is completely up to you. If you decide not to participate, your care at BMC will not change in any way.

How do I call?

Call:
617-414-7715

Enter the security code during your first PHP call. You will be asked to give additional pieces of information to check the identity of your child and that you are a parent or legal guardian.

Your child's appointment information:

Please call PHP as soon as you can. To be in the study you need to call at least 1 day before your appointment.

(We need time to transfer your information before your visit).

TIP: Some people find it helpful to have a pen & paper ready before they make the call.

If you have any questions before or after you call PHP, call 617-414-2994 to talk to a research assistant.

Questions about this project:

Lidans, MD
Director
PHP Partner Study
Department of Pediatrics
Innovative Health Services
IA-0218

617-414-7707
ms@bmc.edu



The Personal Health Partner

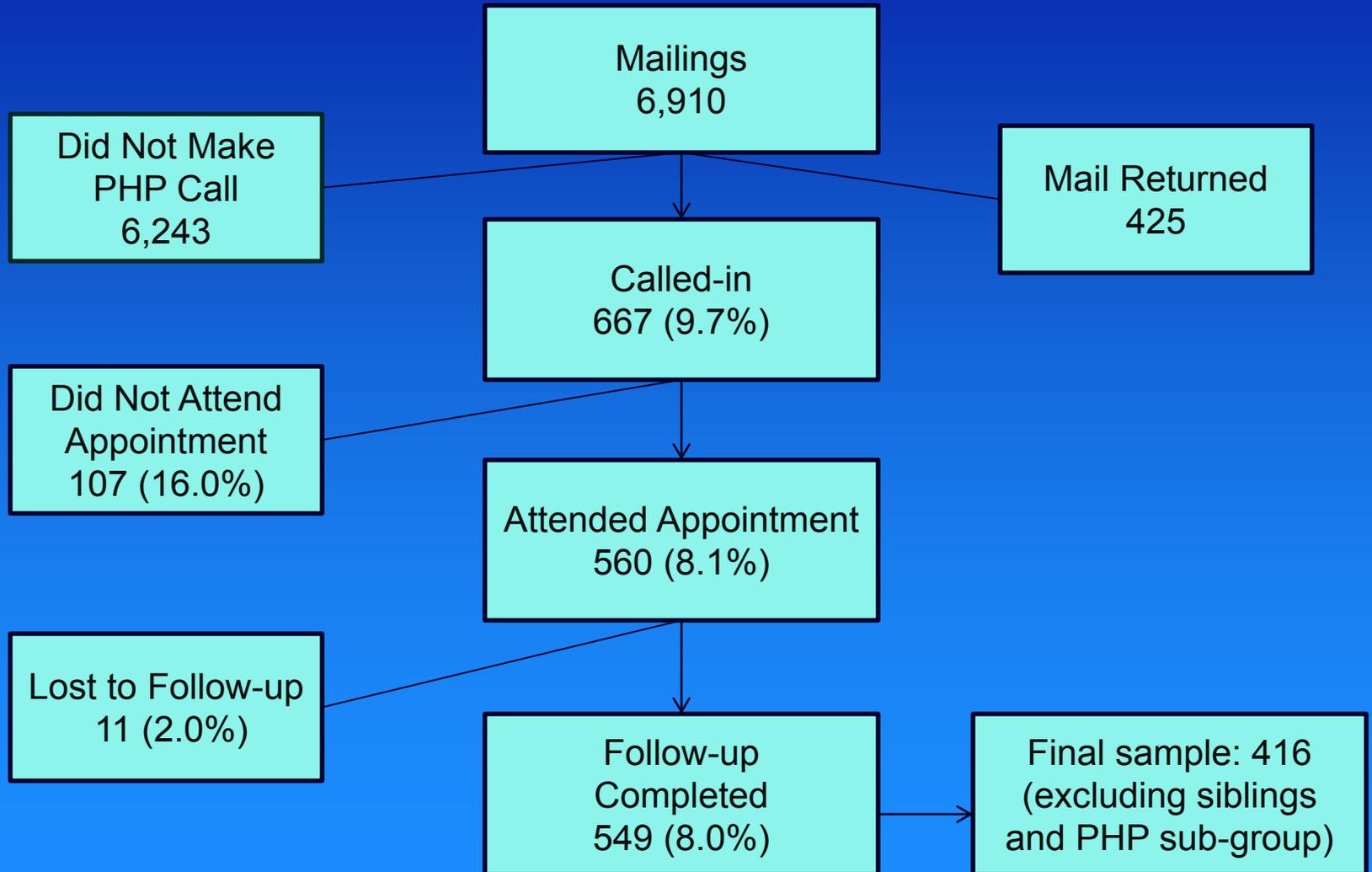


Please help us evaluate a **NEW** way to improve the care your child receives at Boston Medical Center!

Boston Medical Center



Enrollment





Demographics

	Control (n = 163)	PHP (n = 253)
Parents		
No. (%) female	147 (91.3)	232 (92.4)
No. (%) college degree	66 (35.5)	95 (32.9)
No. (%) employed	84 (51.9)	118 (45.9)
Children		
Mean (sd) age - years	4.87(3.6)	4.53 (3.5)
No. (%) African American	121 (65.1)	196 (67.8)

Sample Alert Rates

Topic (some age-specific)	n	PHP No. (%)
> 2 hrs TV/day	166	66 (44.7)
< 5 fruits/veggies/day	140	121(86.4)
Parent smokes	243	45 (18.5)
Positive depression screen	246	47 (19.1)
Positive TB risk assessment	245	42 (17.5)
Failed ASQ Communication*	149	11 (7.4)
At least 1 extra medication in EHR	192	162 (84.4)

Avg. call duration (min) = 29.4 PHP vs. 17.6 Control

*ASQ – Ages and Stages Questionnaire



Pre-visit Activation Acceptance

Topic	No. (%) Agreed/Offered
Agree to help child reduce TV time	7/66 (10.6)
Call smoking Quit Line	11/45 (24.4)
Bring up feelings of sadness with doctor	7/47 (14.9)
Remind doctor to think about PPD	42/42 (100)
Bring medications to visit	31/162 (19.1)

Visit Content: RHCM

Topic	n	No. (%) Control	n	No. (%) PHP	p
TV discussed at visit	117	42 (35.9)	166	69 (41.6)	ns
< 2 hours TV/day	116	2.2	167	2.0	0.15
Fruits/veggies discussed	67	49 (73.1)	110	84 (76.4)	ns
< 5 portions/day fruits/vegetables	117	108 (92.3)	167	144 (86.2)	0.18
Smoking discussed at visit	161	72 (44.7)	248	135 (60.6)	0.06
Parent smokes	163	19 (11.7)	253	47 (18.6)	0.06
Parent smokes/smoking discussed	19	12 (63.2)	47	31 (66.0)	ns
Parent smokes/called Quit Line	19	12 (63.2)	47	28 (59.6)	ns
Depression discussed at visit	162	38 (23.5)	251	180 (43.0)	< 0.01
Parent is depressed	163	56 (34.4)	251	77 (30.7)	ns
TB discussed at visit	162	31 (19.4)	247	88 (35.6)	< 0.01
Positive TB risk assessment	159	9 (5.7)	245	20 (8.7)	ns



OTC Medication Misuse (All Families)

For all parents (PHP and control):	No. (%) "Yes" (n=416)
Have you ever given your child fever medicine?	400 (96)
If yes,	
Ever give less than the amount prescribed or written on the box?	50 (13)
Ever give more than the amount prescribed or written on the box?	12 (3)
For parents with children under 4 years old:	No. (%) "Yes" (n=203)
Cold medicines are medicines that you can buy at the drug store that are used to help a child with a cold that has a cough. In the past year, have you ever given your child liquid or pill cold medicine?	45 (22)



Visit Content: Medication Reconciliation

Topic	No. (%) Control (n=163)	No. (%) PHP (n=253)	p
EHR med list correct	39 (24)	53 (21)	0.57
At least one extra medication	117 (72)	190 (75)	0.77
At least one missing medication	58 (35)	56 (22)	0.31



Visit Content: Medication Review

For parents of children on at least one prescription medication:	No. (%) Yes Control (n=57)	No. (%) Yes PHP (n=93)	p
Did you bring your child's medicine to the visit?	5 (8.8)	21 (22.6)*	0.03

* 9/31 (29%) for PHP parents who agreed during call to bring medication



Asthma Medication Misuse Identification by PHP

For parents of children on a daily asthma controller medication:	No. (%) "Yes" (n=23)
Do you sometimes forget to give your child his/her daily asthma medicines?	2 (9)
Do you sometimes alter the dose of your child's daily asthma medicines to suit his/her needs?	7 (30)
Do you have albuterol in your home now, for your child?	19 (83)
You said your child was prescribed [controller medicine]. Do you use this medicine as needed for quick relief, when your child has asthma symptoms, such as coughing, and wheezing?	13 (57)
Do you use this medicine to prevent your child's future asthma symptoms?	11 (49)

Parent-user Satisfaction*

Topic	No. (%) Agree		p
	Control (n=163)	PHP (n=253)	
Thought differently about health after using PHP	59 (37.6%)	79 (32.1%)	ns
Reduced visit time	69 (43.9%)	151 (61.6%)	0.001
Liked using PHP because it was used at home	143 (91.1%)	218 (89.0%)	ns
Liked using PHP because it used the telephone	131 (83.4%)	205 (84.0%)	ns
Would have preferred website	61 (38.9%)	105 (42.9%)	ns
Prefer to talk to a person	90 (57.3%)	124 (50.6%)	ns
System went at a good pace	133 (84.7%)	197 (80.4%)	ns
Length of call was reasonable	141 (89.8%)	181 (73.9%)	0.001
Felt more prepared for visit	106 (67.5%)	198 (80.8%)	0.009
Would use PHP in the future	144 (91.7%)	216 (88.2%)	ns
Would recommend PHP to others	139 (88.5%)	218 (89.0%)	ns

* Offered Agree, Neutral, Disagree



Clinician-user Satisfaction*

The PHP system:	Strongly Agree	Agree	Neutral	Dis-Agree
Is easy to use	40%	50%	10%	
Increases completeness of my documentation	50%	50%		
Reminds me to do things I might forget to do	40%	50%	10%	
Improves my efficiency during visits	30%	50%	20%	
Shortens the length of visits	10%	10%	80%	
Integrates well into my clinical work flow	40%	40%	20%	
Improves the quality of care that I deliver	40%	60%		
Identifies important problems	50%	30%	20%	
Helps with medication management	10%	30%	50%	10%
Improves medication safety	10%	20%	60%	10%

* n = 10, offered 5-point Likert scale - no clinicians strongly disagreed with any question



Limitations

- Under-powered to find differences in several areas
- Limited to English-speaking families
- Behavior-change dose relatively small
- Study subjects may not be representative



Conclusions

- PHP was very well accepted by both clinicians and parents
- An integrated IVR-EHR system has the potential to improve primary care in multiple areas
- Successful medication reconciliation efforts will likely require an expanded or alternative approach



Future Directions

- Implementation as part of routine care
- Multi-modal platform
 - IVR, smartphone, web
- Extension to other ages and conditions



Contact Information

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Implementing a Low-literacy, Multimedia IT System to Enhance Patient-Centered Cancer Care

Elizabeth A. Hahn

Associate Professor

Department of Medical Social Sciences

Feinberg School of Medicine

Northwestern University

AHRQ Grant # R18 HS 017300



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Pam Khosla, MD
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Communication in Health Care Delivery

- Modern health care systems use multimedia:
 - to present health information
 - to assist in decision making
 - to collect self-report data
- Healthy People 2020 goal is to use communication and HIT strategically:
 - to improve health outcomes and health care quality
 - to achieve health equity
- Use of new HIT is recommended as a strategy*:
 - to improve access to health information
 - to enhance quality of communication in health care delivery

*(Kreps et al., 2003)



Communication in Health Care Delivery

- Many HIT tools remain inaccessible to many patients, particularly those with low literacy skills.
- Vulnerable populations (low literacy, racial/ethnic minorities, low income):
 - greater disease burden
 - less informed about diagnosis and treatment
 - less satisfied with communication with providers



Talking Touchscreen (TT)

- Bilingual, multimedia, computer-based tool
 - For self-administration of questionnaires
 - To access patient education information
 - Meets patient usability and acceptability criteria
 - Relevant to Healthy People 2010-2020 objectives



Cancer Care Communication (C3) Study

- Adult, English-speaking patients with a recent diagnosis (within 6 months) of Stage I-III breast or colorectal cancer
 - < 1 month of starting infusion chemotherapy
 - < 2 weeks of starting radiation therapy
 - sensory & cognitive ability to use computer
- Randomized
 - booklets vs. booklets + multimedia software
- Followed through end of treatment and first follow-up visit



Characteristics of C3 Study Participants

Characteristics of 126 Cancer Patients		<i>n</i> (%)
Cancer diagnosis (Stage I-III)	Breast	94 (75%)
	Colorectal	32 (25%)
Female		105 (83%)
Ethnicity and race	Hispanic	28 (22%)
	Non-Hispanic Black	71 (56%)
	Non-Hispanic Other	27 (22%)
Education	< H.S.	29 (23%)
	H.S., GED	42 (33%)
	> H.S.	53 (42%)
	missing	2 (2%)
Mean Health LiTT	52 (SD: 7.9; range: 28-62)	
Mean age, years	53 (SD: 10.2; range: 26-70)	
Cancer care ctr.	Safety net, large	87 (69%)
	Safety net, small	24 (19%)
	Traditional	15 (12%)



In the past 7 days:



I have a lack of energy

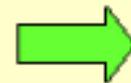
Not at all

A little bit

Somewhat

Quite a bit

Very much



Medications for Mr. Beta

Medication	Start Date	End Date	Instructions
Hanebrex: 200 mg tablets	Aug. 27	Sept. 26	1 Tablet daily
Yostatin: 250 mg tablets	Mar. 8	None	1 Tablet twice daily
Nandozol: 90 mcg per puff	Mar. 8	None	1-2 Puffs by mouth every 4-6 hours as needed
Cellacillin: 250 mg tablets	Apr. 22	Apr. 29	2 Tablets on the first day, then 1 Tablet daily after that



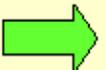
Look at the Medications for Mr. Beta. How many tablets of Cellacillin should he take on the third day?

1

2

3

4





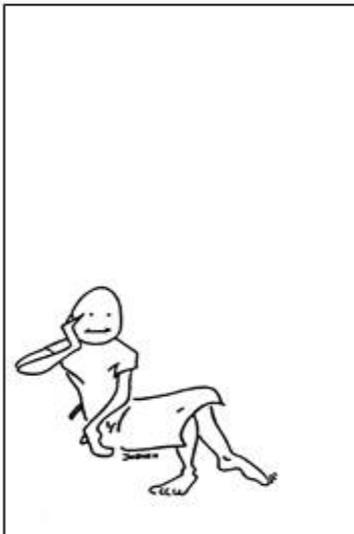
Satisfaction with Communication

- Adapted from the Commonwealth 2006 Quality of Health Care Survey and FACIT-TS
- 6-item subscale
 - Does your cancer doctor explain things in a way you can understand?
 - Are you involved in decisions about your cancer care and treatment?
 - Do you have an opportunity to ask questions?
 - Do you get to say the things that are important to you?
 - Does your cancer doctor seem to understand what is important to you?
 - Does your cancer doctor answer your questions?
- Mean (SD): 15.3 (3.8), range: 2-18, alpha: 0.93

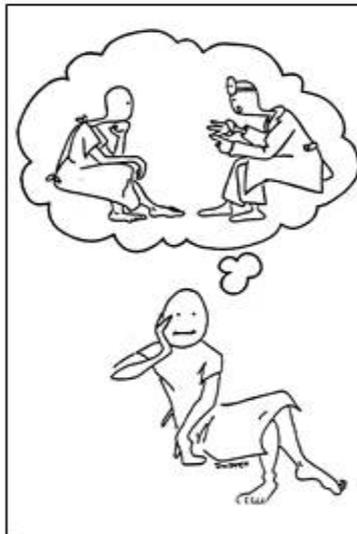
Response scale: *No, not at all; Yes, but not as much as I want; Yes, almost as much as I want; Yes, and as much as I want*



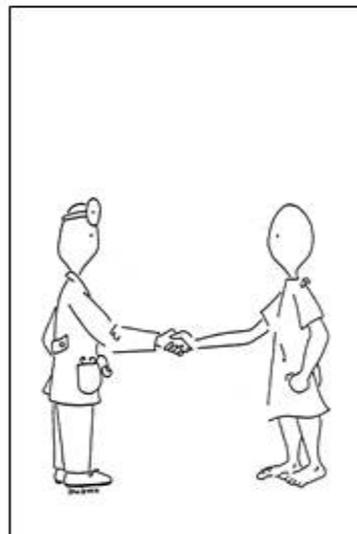
Please choose the option that best describes your preference.



I prefer to make decisions about my health care.



I prefer to make decisions about my health care after seriously considering my doctor's opinion.



I prefer that my doctor and I share responsibility for making decisions about my health care.



I prefer that my doctor make decisions about my health care, but seriously considers my opinion.



I prefer to leave decisions about my health care to my doctor.





Please choose the option that best describes your preference.

<p>I prefer to make decisions about my health care.</p>	<p>I prefer to make decisions about my health care after seriously considering my doctor's opinion.</p>	<p>I prefer that my doctor and I share responsibility for making decisions about my health care.</p>	<p>I prefer that my doctor make decisions about my health care, but seriously considers my opinion.</p>	<p>I prefer to leave decisions about my health care to my doctor.</p>



Baseline: <1% (n=1)

11% (n=14)

47% (n=61)

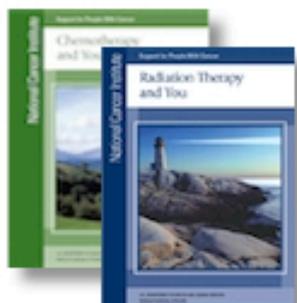
29% (n=38)

8% (n=10)



Satisfaction with Communication: Baseline Results

Independent variable	parameter est. (* $p < 0.05$)
Cancer care center	
Traditional	1.76 *
Small safety net	0.08
Large safety net	---
CASE: seek and obtain information	0.82 *
Talked to doctor for information	
a lot	2.69 *
somewhat	1.11
not at all, a little bit	---
Decision making preference	
self (consider doctor's opinion)	0.91
shared	-1.80 *
doctor (doctor considers my opinion)	---



*Your Treatment
Chemotherapy
and
Radiation
Therapy*



*Your Cancer
Breast and
Colon and
Rectum*



*Eating
Hints*



*Cancer
Pain*



**Topics
for Today**

My cancer

My treatment

*Topics
for
Today*



*Video -
Doctor
Welcome*



*Video -
Learning
About Your
Cancer and
Finding Help*



*Patient
Resources
to Help
You*



*Facing
Forward:
Life After
Cancer
Treatment*



Menu



Evaluation

	Bsln. (n=57)	1 mo. (n=61)	End trt (n=29)	F-up (n=23)
I found the information I wanted				
No/not as much as I wanted	---	16%	3%	4%
Yes, almost as much as I wanted	39%	42%	45%	39%
Yes, and as much as I wanted	61%	42%	52%	57%
CancerHelp was useful				
Not at all/a little bit	---	16%	14%	4%
Somewhat	37%	36%	28%	39%
A lot	63%	51%	59%	57%
Helped me better understand my disease and treatment				
Not at all/a little bit	2%	6%	14%	---
Somewhat	47%	38%	24%	43%
A lot	51%	56%	62%	57%
I will use CancerHelp again				
No	2%	---	---	---
Maybe	42%	49%	45%	70%
Definitely	56%	51%	55%	31%

n=65 randomized to multimedia software



Use of CancerHelp®

- Total of 154 patient sessions in the clinic
 - 59 sessions (38%) occurred at times other than scheduled study visits



Patient Navigation and Feedback

- Most patients had no difficulty navigating CancerHelp[®] Patient Education Software
- Most provided favorable ratings and comments
 - "Great! It was easy to find the information I needed."
 - "It is easy to use. I don't need help. I can do it at my own pace."
 - "Great, it was so easy to use, you can move from one screen to the other without a problem."
 - "It was great. You have helpful information and it's easy to access the information I need."
 - "Educational, informational, and best of all easy to read and understand."

Topics for Today



What would you like to discuss with your doctor today? Touch the box next to each topic that you would most like to discuss. Then touch the "Print" button below to get a copy to give to your doctor.

My cancer 

Working or daily activities 

My treatment 

Diet and nutrition 

Symptoms or side effects 

Emotions and coping 

Medications 

My family or friends 

Tests or procedures 

What to expect in the future 

Financial concerns 

Other 

Menu

Print 



Usage of “Topics for Today”

Topic	Frequency
My cancer	28
My treatment	51
Symptoms or side effects	48
Medications	41
Tests or procedures	17
Financial concerns	8
Working or daily activities	5
Diet and nutrition	16
Emotions and coping	15
My friends or family	4
What to expect in the future	5
Other	4



Self-reported Use of “Topics for Today”

Traditional (n=7):

- 1 of 7 patients (14%) reported printing the Topics checklist
- “It was nice.” (did not discuss with doctor or nurse)

Safety net, small (n=6):

- 5 of 6 patients (33%) reported printing the Topics checklist
- 3 of 5 patients (60%) discussed it with their doctor or nurse
- “I was able to discuss my concerns with my doctor and financial needs with the social worker.”
- “It helped me think about what topics were important for me.”
- “I just printed the list to remind myself about what I wanted to talk about to my doctor.”



Self-reported Use of “Topics for Today”

Safety net, large (n=19):

- 12 of 19 patients (63%) reported printing the Topics checklist
- 10 of 12 patients (83%) discussed it with their doctor or nurse
- “It reminded me of certain things I needed to discuss with my doctor.”
- “It was interesting to show my doctor the list. We discussed pretty much everything I had checked.”
- “It was helpful and I believe it will help other patients like me to discuss important issues with their doctor.”
- “It was for my own use to keep track of my problems.”



Usage of “Understanding Cancer Pain”*

- Viewed by 20 patients in 22 sessions
- Half of those sessions (11) occurred at times other than scheduled study visits
- Study visit vs. non-study visit usage:
 - study visit sessions: 96 total Pain slides viewed
 - non-study visit sessions: 350 total Pain slides viewed



Survivorship Care Plans

- Primary care physicians often are not familiar with the consequences of cancer and its treatment
- Wide variation in care results from the lack of clear evidence for what constitutes best practices
- Leading organizations (IOM, ASCO, CDC) recommend that every cancer survivor receive a "survivorship care plan" (SCP)
 - Cancer treatment history
 - Potential treatment long-term and late effects
 - Recommended surveillance for recurrence and new cancers
 - Follow-up care plans
 - Links to support services
 - Health promotion information
- Presentation of SCPs to patients are “teachable moments” to promote patient-centered care



Survivorship Care Plans in the C3 Study

Introduction:

This Survivorship Care Plan has information about your cancer diagnosis, treatment, follow-up medical care, and steps you can take to stay healthy.

The information in this care plan is important for you to keep. That way, doctors and other health care providers that you see in the future will have information about your cancer, its treatment, and how best to treat your health.

[7-page document]



Survivorship Care Plans in the C3 Study

Traditional ($n=7$):

- 5 of 7 patients (71%) received SCP
- “It wasn’t reviewed with me.” “Just handed it to me.”
- How much have you used the SCP?: Not at all ($n=7$)

Safety net, small ($n=3$):

- 1 of 3 patients (33%) received SCP
- “Gave a copy to my primary doctor.”

Safety net, large ($n=8$):

- 4 of 8 patients (50%) received SCP
- “Just received it.”
- “It will help me when I see other doctors.” “I like it.” “It’s good because I have a summary of everything.”



Lessons Learned: Facilitators

- Study activities were integrated into “clinic flow”
- Buy-in from health care providers and staff
- Importance of taking time to establish personal relationships and rapport
 - go beyond research duties by assisting patients and staff
- Software was installed on a kiosk and a laptop, allowing access in multiple locations
- Minimized patient burden and literacy stigma:
 - reduced reading level demands
 - learning points highlighted by images and links to definitions



Lessons Learned: Barriers

- Most patients who receive care in safety net facilities do not have computers at home, and requested a DVD
- Length of cancer treatment was greater than anticipated
 - Mean: 9.5 months
 - Range: 1-26 months
- Clinician burden of delivering survivorship care plans to patients



Conclusions

- Talking Touchscreen (TT) is a practical, user-friendly method for assessment of patient-reported outcomes
- CancerHelp[®] patient education is a valued resource
 - continuing to be used in large safety net center
- Integrated two HIT applications to:
 - improve access to health information
 - enhance the quality of health care communication



Conclusions

- Secure and flexible:
 - meets security requirements in DHHS Automated Information Systems Security Handbook
 - programmed as a flexible, Web-based research application that could be linked to an EMR system
- TT for PRO assessment and CancerHelp[®] are both available in English and Spanish



Contact Info

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Agency for Healthcare Research and Quality

Advancing Excellence in Health Care

www.ahrq.gov

Using Information Technology for Patient-Centered Communication and Decisionmaking about Medications

Michael S. Wolf, PhD, MPH

Associate Professor and Associate Division Chief

General Internal Medicine

Feinberg School of Medicine

Northwestern University

AHRQ Grant # R18 HS 017220

A Complex Behavior

Deconstructing Medication Use and “Adherence”

- Reconcile meds with providers
- Fill/refill prescriptions (primary)
- Be aware of indication(s)
- Know proper dose, spacing, duration
- Know auxiliary instructions/warnings
- Learn about side effects (vigilance)
- Consolidate multi-drug regimens
- Handle regimen changes (include generics)
- Maintain behavior
- **Manage everything else in your life!**





Non-Adherence: An Old Problem

- High Prevalence
 - 45% to 55% across CVD/Diabetes
 - 20% to 35% in HIV/AIDS
 - 20% Unfilled New Prescriptions*
- High Cost
 - \$190 to \$300 Billion/year**
- High Consequence
 - Poor chronic disease outcomes, medication errors, adverse drug events, re-hospitalizations

* Fischer 2010

**NYT, 2010; NEHI 2011

Why?

"INTENTIONAL"	
<ul style="list-style-type: none"><li>▪ Cost<li>▪ Side Effects<li>▪ Ambivalence	

Why?

"INTENTIONAL"	"UNINTENTIONAL"
<ul style="list-style-type: none">▪ Cost▪ Side Effects▪ Ambivalence	<ul style="list-style-type: none">▪ Complexity▪ Understanding (Health Literacy)▪ Memory

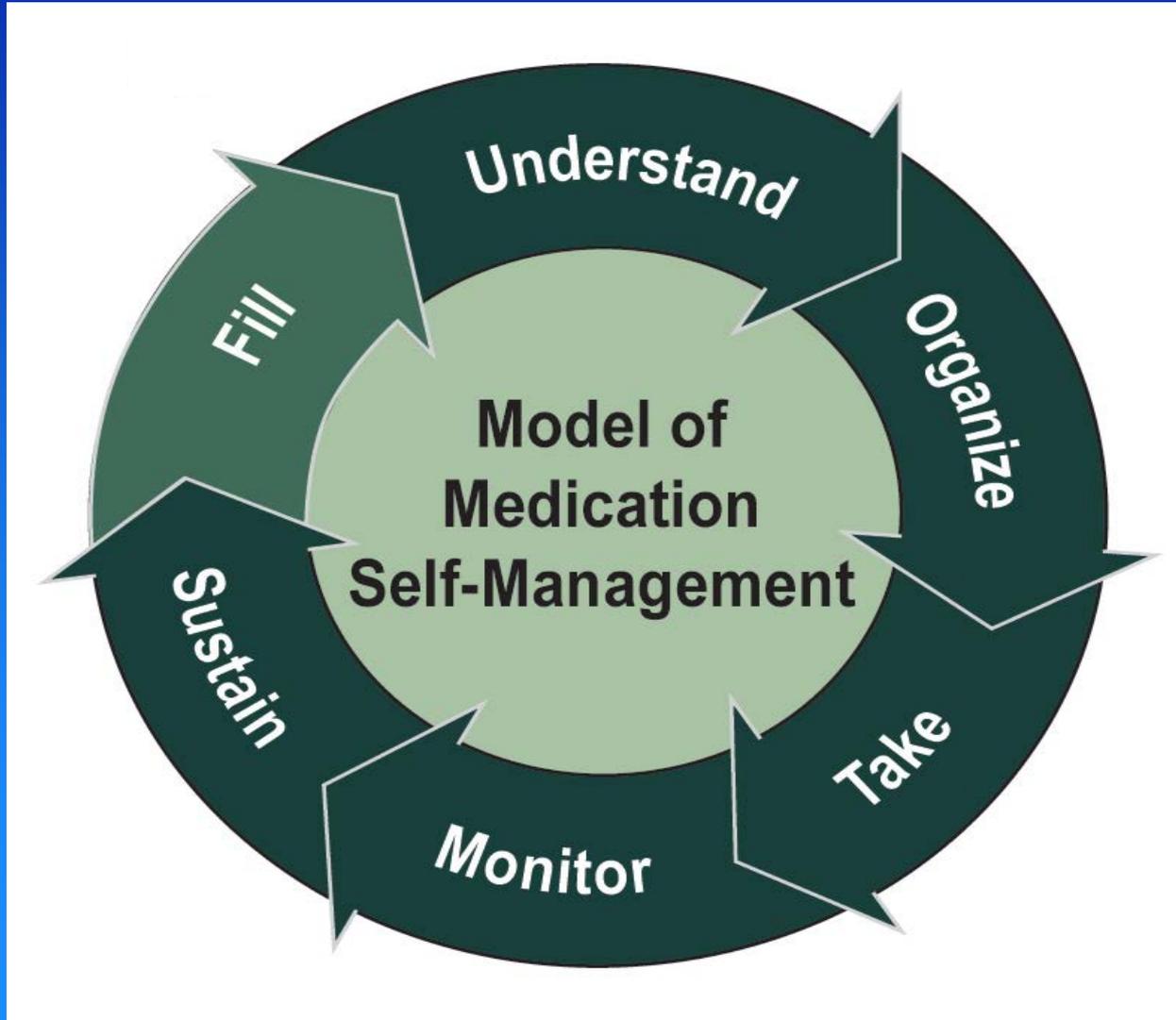
Why?

"INTENTIONAL"	"UNINTENTIONAL"
<ul style="list-style-type: none">▪ Cost▪ Side Effects▪ Ambivalence	<ul style="list-style-type: none">▪ Complexity▪ Understanding (Health Literacy)▪ Memory

47%

53%

Model of Medication Self-Management





A Health Literacy Agenda

- Beyond Cost
 - Improve knowledge
 - Support Memory
 - Stay Connected

- Intervention Targets
 - Clinician counseling
 - Rx labeling
 - External aids
 - Consumer technologies



Multifaceted Strategies Needed

- Better Counseling: Engage patients at point of care
- Simplify Behavior: “Do the math” for patients
- Leverage Technology: Support memory, communication
- Follow-Up: Recognize that adherence problems evolve



Reconcile Medicines

Please Review Your Medicines

It is very important that your doctor knows all the medicines you are taking.

Follow these steps:

Step 1. Remove any medicines you are not currently taking by **drawing a line through the drug's name**.

Step 2. For medicines you are currently taking, place a check (✓) in the **Taking as directed?** column next to the correct box indicating if you are taking the medication as described in the instructions.

Step 3. Place a check (✓) in the **Concerns** column next to any concern you may have about the medication.

Your Current Medications Are

Medication	Instructions	Taking as directed?	Concerns
CELEBREX 200 MG OR CAPS	Take one tablet by mouth daily with food	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> taking only as needed	<input type="checkbox"/> None <input type="checkbox"/> Need Refill <input type="checkbox"/> Cost <input type="checkbox"/> Side Effects <input type="checkbox"/> Other
DONEPEZIL HYDROCHLORIDE (ARICEPT) 5 MG TABS	Take one tab by mouth every AM	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> taking only as needed	<input type="checkbox"/> None <input type="checkbox"/> Need Refill <input type="checkbox"/> Cost <input type="checkbox"/> Side Effects <input type="checkbox"/> Other
TYLENOL 325 MG TABS	2 TABLETS EVERY 4 HOURS AS NEEDED	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> taking only as needed	<input type="checkbox"/> None <input type="checkbox"/> Need Refill <input type="checkbox"/> Cost <input type="checkbox"/> Side Effects <input type="checkbox"/> Other
ZIAC 5-6.25 MG or TABS	1 TABLET DAILY	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> only as needed	<input type="checkbox"/> None <input type="checkbox"/> Need Refill <input type="checkbox"/> Cost <input type="checkbox"/> Side Effects <input type="checkbox"/> Other
ZOLPIDEM TARTRATE (AMBIEN) 10 MG TABS	Take one tab by mouth every night	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> taking only as needed	<input type="checkbox"/> None <input type="checkbox"/> Need Refill <input type="checkbox"/> Cost <input type="checkbox"/> Side Effects <input type="checkbox"/> Other

Please Review Your Medicines

It is very important that your doctor knows all the medicines you are taking.

Follow these steps:

1. **EHR generates recent list at check-in**
2. **Patient completes form**
3. **Nurse reviews, provides to doctor**
4. **Doctor-patient communication**
5. **Discrepancies in chart removed**

... drawing a line through the drug's name.

... in the **Taking as directed?** column next to the ...
... in the instructions.

Problems:

- Omissions vs. commissions
- Who prescribed matters
- Non-Rx
- Delays in reconciliation

(patient leaves with bad list)

HYDROCHLORIDE (ARICEPT) 5 MG TABS	
TYLENOL 325 MG TABS	2 TABLETS EVERY 4 HOURS AS NEEDED
ZIAC 5-6.25 MG or TABS	1 TABLET DAILY

ZOLPIDEM TARTRATE (AMBIEN) 10 MG TABS	Take one tab by mouth every night
--	-----------------------------------

- yes no
 taking only as needed

- None Need Refill
 Cost Side Effects
 Other



Better Labeling

A Need to Simplify

Hour	UMS* Regimen	Patient #1	Patient #2	Patient #3	Patient #4
5:00 AM					
6:00 AM					
7:00 AM					
8:00 AM					
9:00 AM					
10:00 AM					
11:00 AM					
12:00 PM					
1:00 PM					
2:00 PM					
3:00 PM					
4:00 PM					
5:00 PM					
6:00 PM					
7:00 PM					
8:00 PM					
9:00 PM					
10:00 PM					
11:00 PM					
Doses	4	8	10	12	14

* UMS = Universal Medication Schedule

Drug A = ; Drug B = ; Drug C = ; Drug D = ; Drug E = ; Drug F = ; Drug G =



Universal Medication Schedule (UMS)

Universal Medication Schedule (UMS)

Take 1 pill in the morning (bedtime)

Take 1 pill in the morning
1 pill in the evening

Take 1 pill in the morning
1 pill at noon
1 pill in the evening

Take 1 pill in the morning
1 pill at noon
1 pill in the evening
1 pill at bedtime

-  Morning: 6-8 am
-  Noon: 11-1 pm
-  Evening: 4-6 pm
-  Bedtime: 9-11 pm



Universal Medication Schedule (UMS)

The Enhanced Rx Label

<p>Do not drink alcoholic beverages while taking this medicine</p> <p>Carry or wear medical identification stating you are taking this medicine</p> <p>You should avoid prolonged or excessive exposure to direct and/or artificial sunlight while taking this medicine</p>	<p>Michael Wolf 04/29/71</p> <p>Glyburide 5mg</p> <p>Take for Diabetes</p> <div style="border: 1px solid black; background-color: #e0e0e0; padding: 5px; margin: 5px 0;"> <p>Take: 2 pills in the morning 2 pills in the evening</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin: 5px 0;"> <thead> <tr> <th style="padding: 2px;">Morning 7-9 AM</th> <th style="padding: 2px;">Noon 11-1 PM</th> <th style="padding: 2px;">Evening 4-6 PM</th> <th style="padding: 2px;">Bedtime 9-11 PM</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; font-weight: bold; padding: 5px;">2</td> <td style="padding: 5px;"></td> <td style="text-align: center; font-weight: bold; padding: 5px;">2</td> <td style="padding: 5px;"></td> </tr> </tbody> </table>	Morning 7-9 AM	Noon 11-1 PM	Evening 4-6 PM	Bedtime 9-11 PM	2		2		<p>Rx# 1234567 9/8/2009</p> <p>You have 11 refills 180 pills</p> <p>Discard after 9/8/2010</p> <p>Provider: RUTH PARKER.MD Emory Medical Center (414) 123-4587</p> <p>Pharmacy:NOVA Scripts Central 11445 Sunset Blvd. Reston, VA (713) 123-4567</p> <p>NDC # 1234567</p>
Morning 7-9 AM	Noon 11-1 PM	Evening 4-6 PM	Bedtime 9-11 PM							
2		2								

4.625"

2.5"

	UMS Label	Standard Label
Understanding	2.1 (1.1-3.9) 74%	--- 59%
Adherence (3 months)	1.9 (1.3-2.6) 49%	--- 30%

UMS Sigs

UMS Sigs (shown from EpicCare Platform)

MetFORMIN HCl 500 MG TABS
Take 1 pill in the morning, and take 1 pill at bedtime, Disp-90 Tab, starting 5/26/2011, E-PRESCRIBE

Sig: (140 char max.)
Take 1 pill in the morning, and take 1 pill at bedtime

Dispense: Tab Refill: 

Dispense As Written

Start Date: 5/26/2011  End Date: 

Class: E-PRESCRIBE 

Comments (F6): (210 char max.)           

 **Reprogrammed, Default “Sigs”**

Epic EHR view

Medication Information

You Have a New Medication

Date: August 1, 2008

Name: John Doe

Doctor: David Baker, MD

Please read the information below. This tells you how to take your medicine.

Drug Name	Lipitor®			
Generic Name	Atorvasatin (a TORE va sta tin)			
Purpose	This medication can lower "bad" cholesterol.			
Benefit	It can help prevent a heart attack or stroke.			
How to Take	Take 1 tablet by mouth at bedtime.	Morning 6:00-8:00	Noon 11:00-1:00	Evening 4:00-6:00
				Bedtime 9:00-11:00
For How Long	You may need to be on this medication for the rest of your life.			
Call Your Doctor	If you have any of these symptoms for more than <u>1 week</u> : <ul style="list-style-type: none"> • Headaches • Stomach pain • Diarrhea 			
Stop Taking and Call Your Doctor	If you ever have: <ul style="list-style-type: none"> • Muscle pain • Muscle weakness • Joint pain 			
Important!	<ul style="list-style-type: none"> • Take this medicine only the way your doctors tells you.  Tell your doctor or pharmacist if you are pregnant, think you are pregnant, or breastfeeding. You should not take this medicine. <ul style="list-style-type: none"> • If you take over-the-counter medicines every day, tell your doctor. • Limit how much grapefruit juice you drink every day. 			
Please call NoVA ScriptsCentral Pharmacy at (123) 456-7890 if you have questions or concerns.				
These websites can tell you more about your medicine: www.ahrq.gov/consumer and www.nlm.nih.gov/medlineplus				



Case Example: Transplant

MEDICATION SHEET FOR KIDNEY TRANSPLANT PATIENTS

TRANSPLANT

TMS Strategy

Day	Date	Myfortic (Mycophenolate Sodium) 180mg tablets	*Prograf (Tacrolimus) 1mg capsules	Pepcid (Famotidine) 20mg tablets	Bactrim SS (SMZ-TMP or Sulfamethoxazole/Trimethoprim)
		Prevents Rejection	Prevents Rejection	Prevents Ulcers	Prevents Infection
		9am	9pm	9am	9pm
Monday	8-6-12	2	2	4	4
Tues	8-7-12	2	2	4	4
Wed	8-8-12	2	2	4	4
Thurs	8-9-12	2	2	4	4
Fri	8-10-12	2	2	4	4
Sat	8-11-12	2	2	4	4
Sun	8-12-12	2	2	4	4
Mon	8-13-12	2	2	4	4
Tues	8-14-12	3	3	4	4

MY MEDICATION RECORD											
Name: Doe, Jane						Birth date: 7-28-48					
Include all of your medications on this record: prescription medications, nonprescription medications, herbal products, and other dietary supplements. Always carry your medication record with you and show it to all your doctors, pharmacists and other healthcare providers.											
Drug	Dose	Take for...	When do I take it?				Start Date	Stop Date	Doctor	Special Instructions	
			Morning	Noon	Evening	Bedtime					
Tacrolimus (Prograf)	1mg	Transplant	3		3		3-1-12	—	Dr. Ho		
Famotidine (Pepcid)	20mg	Stomach	1		1		4-1-12	6-1-12	Dr. Ho		
Myfortic	180mg	Transplant	3		3		3-1-12	—	Dr. Ho	Take before breakfast/dinner	
Mycelex Troche	10mg	Infection	1				4-1-12	7-1-12	Dr. Ho	Dissolve in mouth, do not chew	
Valcyte	450mg	Infection	1				4-1-12	9-1-12	Dr. Ho	Take with breakfast	
Bactrim	1 tab	Infection	1				4-1-12	—	Dr. Ho		
Senna	20mg	Laxative					4-1-12	5-1-12	Dr. Ho	Take as needed	
Norco	5/325mg	Pain					4-1-12	4-8-12	Dr. Ho	Take as needed	

Usual Care



EHR-Assisted Monitoring

Chart

Go Actions Options Help Find Patient Print New Flag Phone Note Renew Rx Alliance Admin Log Out

EMR6 Test *Resp. Provider: Brian L. Williams Patient ID: 37491*
 8 Months - Female - DOB: 20-Sep-2011 *Insurance: Sliding Fee Scale Registration Notes: Wheelchair Bound Care Coordination...*
 Work: 808-775-7204 Work: 808-555-1212 *Group:*

Documents for Edit (2)

Int Oth:Aloha Car... [Edit](#)

Chrt Maint: 5/16/... [Edit](#)

[New Document](#)

Chart Summary

- Problems
- Medications !
- Allergies
- Directives
- Alerts / Flags

Histories

Flowsheet

Orders

Documents

Quality

Protocols

Graphs

Handouts

Registration

Problems

Active Only Medscape Problem

Description	Code	Onset Date	End Date	En
BACTERIAL VAGINITIS	ICD-616.10	04-May-2012		Cai
DIABETES MELLITUS, ADULT ONSET	ICD-250.00	11-Nov-2009		Su:
TOBACCO USER	ICD-305.1			Arf
AMPHETAMINE-INDUCED PSYCHOTIC DISORDER, WITH DELUSIONS	ICD-292.11			Alli
PASSIVE SMOKE EXPOSURE	ICD-E869.4			Alli
HEART MURMUR	ICD-785.2	09-Aug-2010		An/
OTITIS MEDIA, CHRONIC	ICD-381.20	11-Apr-2008		Pet

Problems reviewed on 03/12/2012 3:44 PM by Alexis McDougall

Medications

Interactions: ! Active Only

Description	Instructions	Last Rx	Ge
HUMALOG 100 UNIT/...			INS
Prescriptions			
ACCU-CHEK AVIVA STRP	Use 1 x daily to check blood sugar	23-Feb-2012 #50 X 1	GLI
Prescriptions			
Quantity: 50, Refills: 1, Date: 23-Feb-2012, Authorized by: Anthony Giasolli MD, Pharmacy: Lopez Drug Store 2405 E. 65-1267 KAWAIIA RD, Kapehu, HI 96742, Ph...			

Alerts / Flags

Anytime

From Message

Alliance Ad... Medication Adherence Alert

Subject
Test, EMR6

Message
Medication Adherence Alert
Difficulty ORGANIZING medicine
Difficulty TAKING medicine

Allergies

Active Only

Substance	Reaction	Cr
SHRIMP	rash	Se

Allergies reviewed on 03/12/2012 3:44 PM by Alexi:

Directives

Active Only

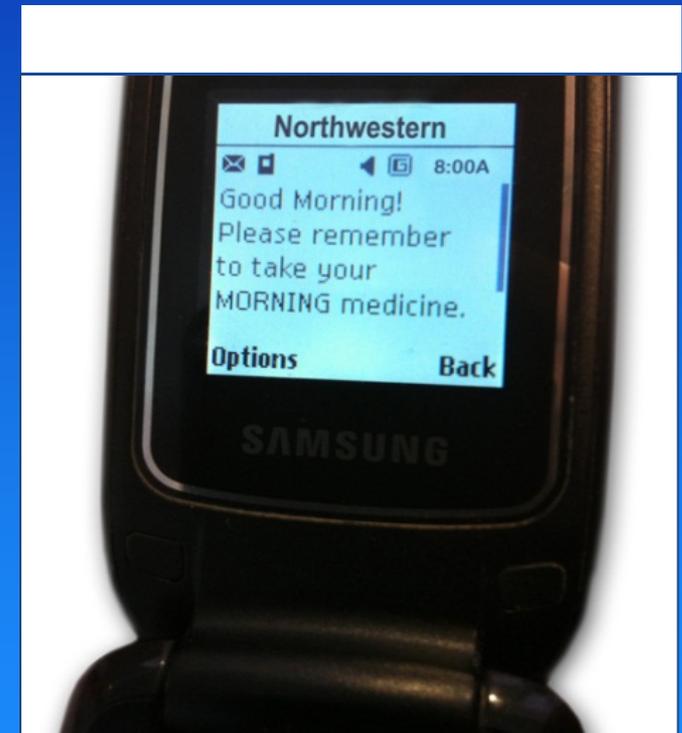
Description	Start D
DISCUSSED - NO DECISION MADE	02-Oct-

Desktop Chart Quality & Reports



Consumer Technologies

Going (Gone) Mobile



<http://www....>

- 131 Adults with limited literacy self-reported less Internet access and use

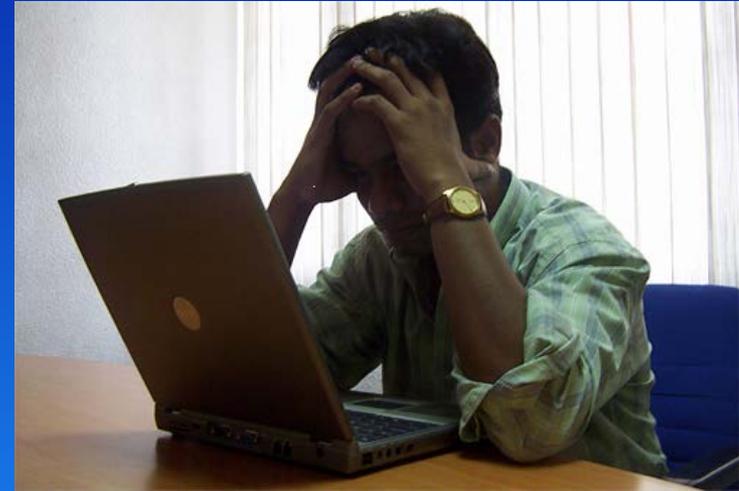
(Jensen, et al., J Aging Health May 21 2010)

- Anxiety reported with adoption of technologies

(N=1204; CREATE Study; Czaja et al., Psych Aging 2006)

Most older adults struggle with basic Web navigation and decisionmaking tasks

(Czaja, Sharit, Nair, JAMA 2008)



User Testing Needed For All Modalities



Effective Counseling

3 Minutes or Less

- Implementation Intention (Dress Rehearsal)
 - Cognitive planning or “mapping” a behavior
 - 3 minute counseling led to increased adherence

(Park et al., J Gerontol B Psych Sci Soc 2007)

When will you take this? How will you take this?

How many pills do you take at a time?

It has to be taken with food...when do eat meals?

Where will you keep it so you remember?





Next Directions

- Effective, efficient strategies for medication management
 - Kitchen sink vs. multi-arm trials
- Evaluation of high and low tech solutions
- Investigations that assess impact on inequities
 - Age, health literacy, regimen complexity
- More practical metrics for adherence



Contact Info

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Q & A

Please submit your questions by using the Q&A box to the lower right of the screen.



CME/CNE Credits

To obtain CME or CNE credits:

Participants will earn 1.5 contact credit hours for their participation if they attended the entire Web conference.

Participants must complete an online evaluation in order to obtain a CE certificate.

A link to the online evaluation system will be sent to participants who attend the Web Conference within 48 hours after the event.