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Harnessing Health Information Technology to Assist Individuals and Teams: Practical Insights from the Journal of Ambulatory Care Management, PBRN issue, April-June 2014

Presented By:

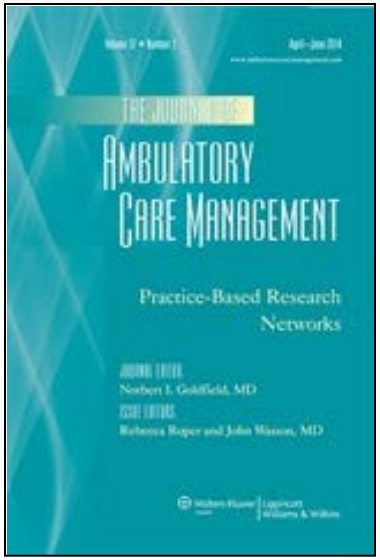
John Wasson, MD; Christopher Masi, MD, PhD; Kenneth Anderson, DO, MS, CPE;
Neda Ratanawongsa, MD, MPH; Sonja Likumahuwa, MID, MPH; Christine Nelson, PhD, RN

Moderated By:

Rebecca Roper, MS, MPH, Director, Practice-Based Research Network Initiative,
Agency for Healthcare Research and Quality

Sponsored by the AHRQ PBRN Resource Center
April 29, 2014

Agenda



- Welcome and introductions
- Overview of special JACM PBRN journal issue
- Presentations of innovative strategies featured in JACM PBRN journal issue
  - Brief Q&A session following each presentation
- Q&A session with full panel
- Instructions for obtaining CME credits

Note: After today's webinar, a copy of the slides will be e-mailed to all webinar participants.

How to Submit a Question

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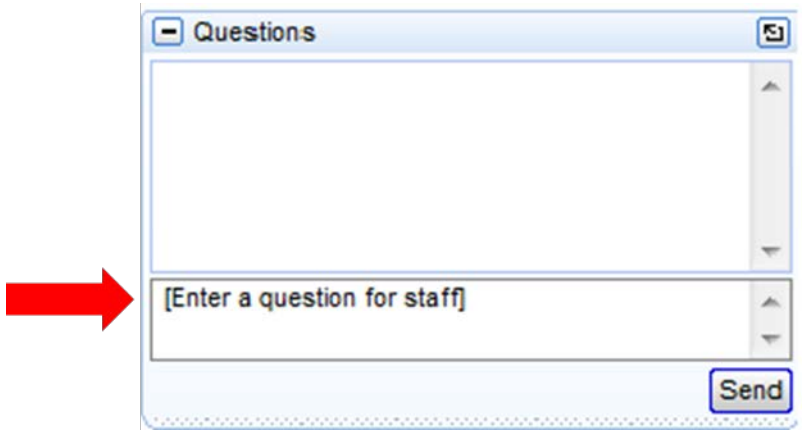


Today's Presenters

Harnessing Health Information Technology to Help Patients and Teams:

How Do We Make Static Become Dynamic?

John Wasson, MD,
Dartmouth Medical School
and Journal of Ambulatory
Care Management

Today's Presenters

A Technology-based Quality Innovation to Identify Undiagnosed Hypertension among Active Primary Care Patients

Christopher Masi, MD, PhD
NorthShore University HealthSystem

Kenneth Anderson, DO, MS, CPE
Health Research and Education Trust, American Hospital Association (formerly NorthShore University HealthSystem)

Today's Presenters

Diabetes health information technology innovation to improve quality of life for health plan members in urban safety net

Neda Ratanawongsa, MD, MPH
University of California, San Francisco Center for Vulnerable Populations

Today's Presenters

Use of Qualitative Methods and User-Centered Design to Develop Customized Health Information Technology Tools within Federally-Qualified Health Centers to Keep Children Insured

Sonja Likumahuwa, MID, MPH,
Oregon Health & Science University Department of Family Medicine

Christine Nelson, PhD, RN,
OCHIN Practice-Based Research Network

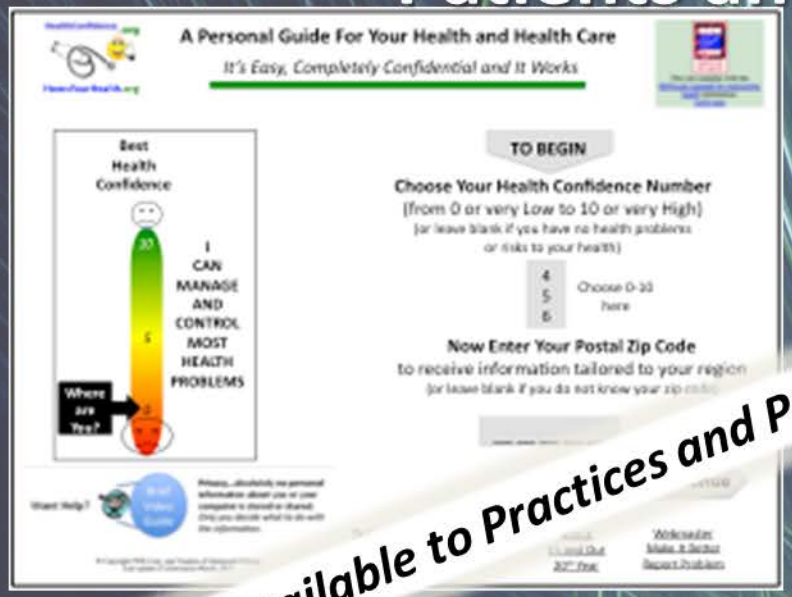
Harnessing Health Information Technology to Help Patients and Teams

How Do We Make Static Become Dynamic?

- ✔ Articles from PBRNs
- ✔ Snap Shots: 1500 words; Patient Engagement; Technology

2013. J Ambulatory Care Manage: Vol. 36, No. 3, pp. 233–234
2013. J Ambulatory Care Manage: Vol. 36, No. 3, pp. 245–250

Harnessing Health Information Technology to Help Patients and Teams to …..



Also Freely Available to Practices and PBRNs

Attain Health Confidence

- Measurement of Health Confidence using a deceptively simple question: How confident are you that you can manage and control most of your health problems?

- A family of assessment and reporting tools called HowsYourHealth.org that enable practices to efficiently utilize patient-reported information and collaborate with them on improving their Health Confidence… and much more.

- Output from the technology that automatically provides physicians the data they need to redesign a more efficient and effective office practice.

A Technology-based Quality Innovation to Identify Undiagnosed Hypertension among Active Primary Care Patients

Michael Rakotz,[1] Ken Anderson,[1] Bernard Ewigman,[1,2]
Menaka Sarav,[1] Ruth Ross,[1] Ari Robicsek,[1]
Chad Konchak,[1] Thomas Gavagan,[3] David Baker,[4]
David Hyman,[5] Christopher Masi[1]

1 NorthShore University HealthSystem
2 The University of Chicago Pritzker School of Medicine
3 UIC College of Medicine
4 Northwestern University Feinberg School of Medicine
5 BCM Baylor College of Medicine

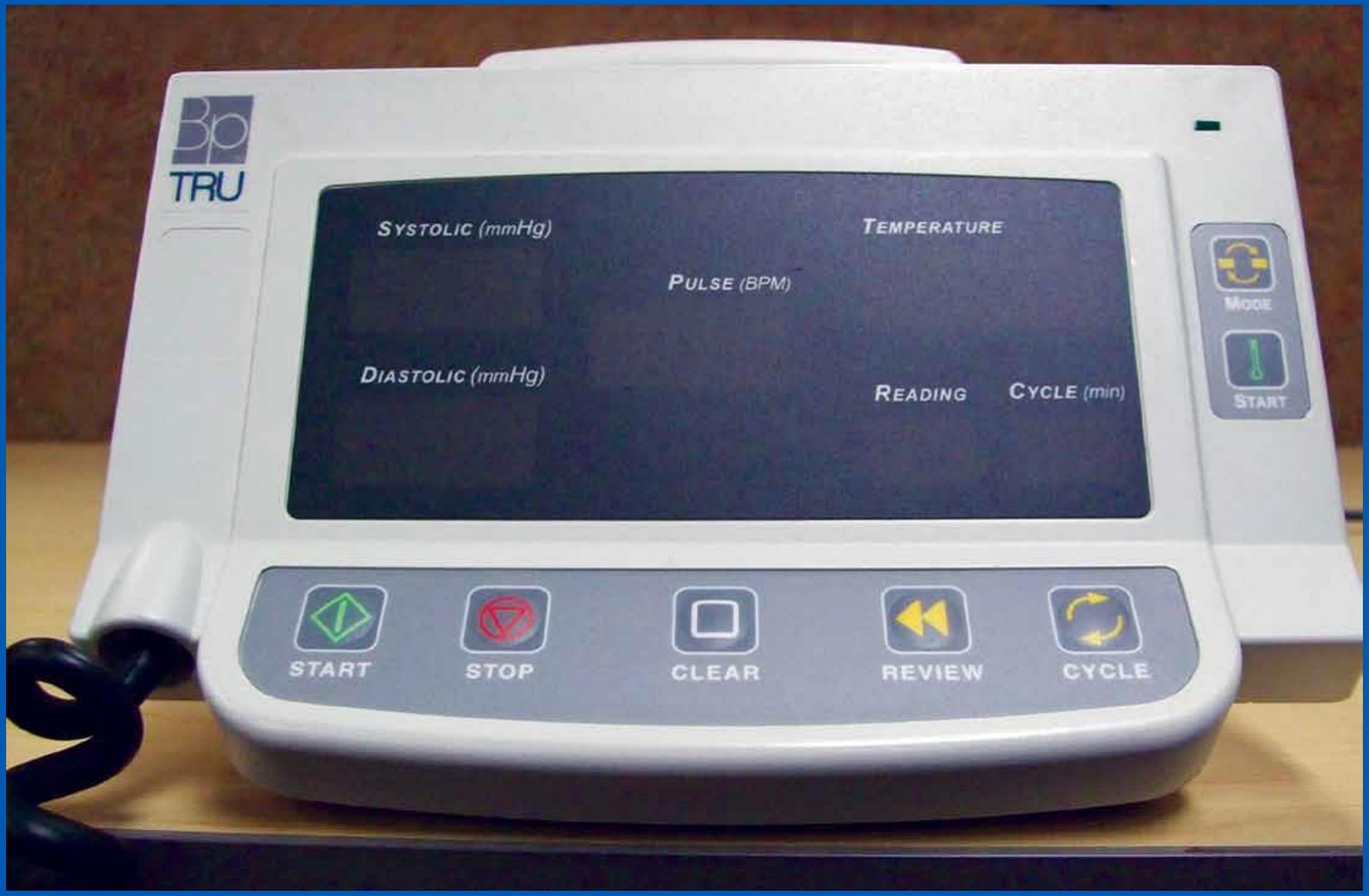
NorthShore University HealthSystem

Background

- Hypertension (BP ≥ 140/90 mm Hg) affects 33% of all U.S. adults age 20 and older
- Leading modifiable risk factor for CAD, stroke, CHF, and kidney failure
- 1 in 14 U.S. adults has BP ≥ 140/90 mm Hg but has never been informed they have hypertension
- The estimated cost (in billions) related to medical care and lost productivity in 2010:
  - $93.5 for hypertension, $108.9 for CAD, $53.9 for stroke, and $34.4 for CHF

Background

- Variability in office blood pressure readings and physician mistrust of the accuracy of these readings contribute to hesitancy to diagnose hypertension
- 24-hour Ambulatory Blood Pressure Measurement (ABPM) is often recommended for diagnosing hypertension
- However, ABPM is cumbersome and not well tolerated by a significant proportion of patients
- Ambulatory Office Blood Pressure (AOBP) devices are simple to use and 5 readings one minute apart correlate well with daytime mean ABPM readings


TRU
SYSTOLIC (mmHg)
TEMPERATURE
PULSE (BPM)
DIASTOLIC (mmHg)
READING
CYCLE (min)
MODE
START
START
STOP
CLEAR
REVIEW
CYCLE

Goals of the Study

- Apply computerized screening algorithms to the EHR's of primary care patients in an integrated health system to identify those who may have undiagnosed hypertension
- Evaluate these at-risk patients using an AOBP device to make an accurate diagnosis

Methods

- Inclusion criteria:
  - 18-79 years old
  - received care within our network of 23 primary care practices between 1/1/2009 and 12/31/2010
- Exclusion criterion:
  - An EHR diagnosis of hypertension, prehypertension, white coat hypertension, or elevated blood pressure
- Three computerized HTN screening algorithms were developed and applied to the EHR's of eligible patients

Methods

Algorithms Used to Screen for Undiagnosed Hypertension

1. All patients whose three most recent encounters yielded a mean SBP ≥ 140 mm Hg or a mean DBP ≥ 90 mm. Encounters used were within 12 months prior to their most recent encounter.
2. All patients who had three encounters with a SBP ≥ 140 or DBP ≥ 90 mm Hg within 12 months prior to their most recent encounter.
3. Patients who had a single encounter with a SBP ≥ 180 or a DBP ≥ 100 mm Hg within 12 months prior to their most recent encounter.

SBP, systolic blood pressure; DBP, diastolic blood pressure. All data were obtained from outpatient encounters with a PCP or specialist.

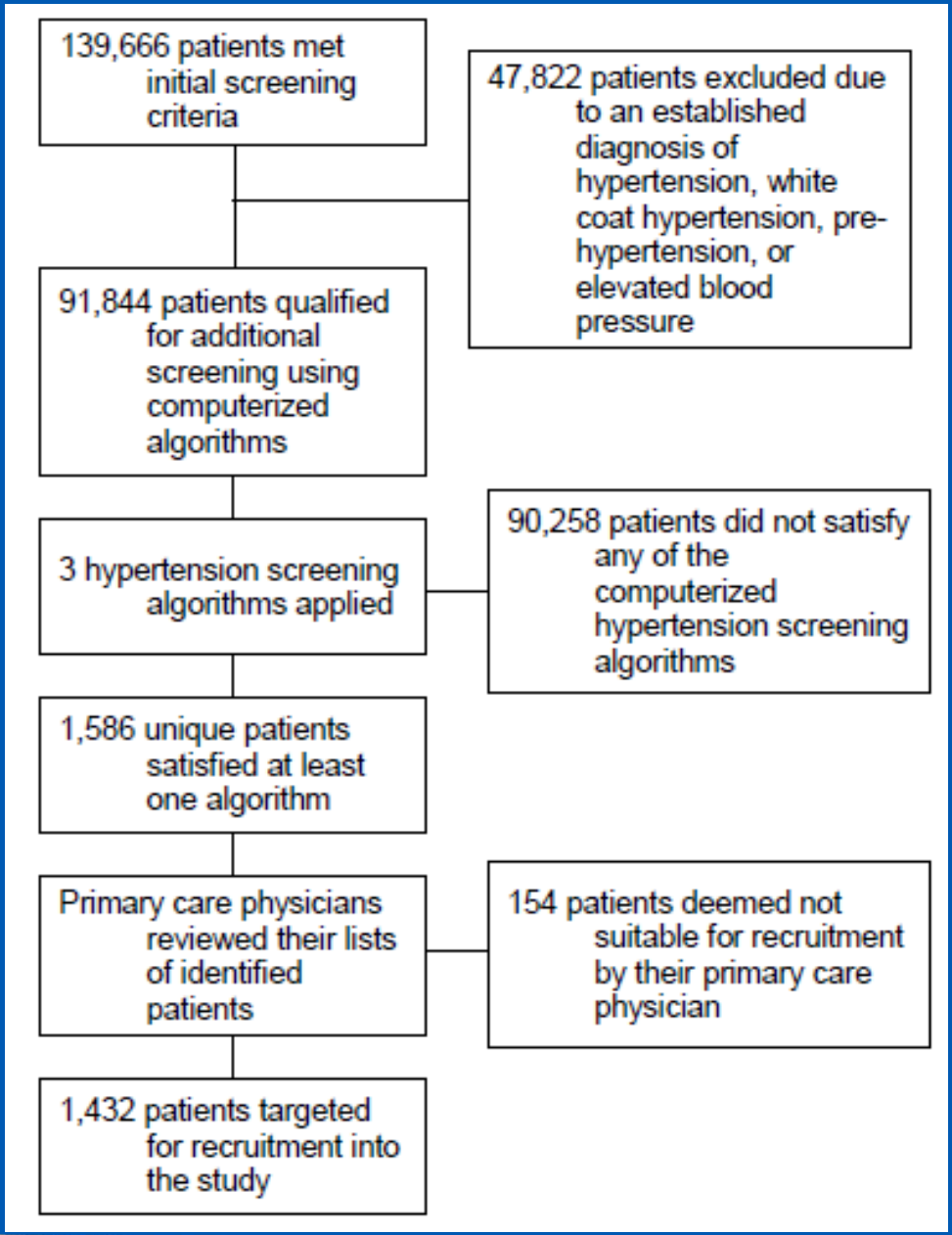
Methods

- Those who met the computerized screening criteria were mailed a letter inviting them to make an appointment for a follow-up clinic visit
- Up to three follow-up telephone calls were made if patients did not arrange this appointment
- Once in the clinic, each patient completed an AOBP screen using the BpTRU device
  - “AOBP Mean”

Methods

- Positive predictive values (PPVs) of screening algorithms were calculated using the AOBP mean from the BpTru device
- Diagnosed as hypertensive if SBP ≥ 135 mmHg or DBP ≥ 85 mmHg
- PPV = $\frac{\text{True Positives}}{(\text{True Positives} + \text{False Positives})}$

Results


139,666 patients met initial screening criteria
47,822 patients excluded due to an established diagnosis of hypertension, white coat hypertension, pre-hypertension, or elevated blood pressure
91,844 patients qualified for additional screening using computerized algorithms
3 hypertension screening algorithms applied
90,258 patients did not satisfy any of the computerized hypertension screening algorithms
1,586 unique patients satisfied at least one algorithm
Primary care physicians reviewed their lists of identified patients
154 patients deemed not suitable for recruitment by their primary care physician
1,432 patients targeted for recruitment into the study

Results

Number of At-Risk Patients Identified by each Hypertension Screening Algorithm

Algorithm	Number Identified
1. All patients whose three most recent encounters yielded a mean SBP ≥ 140 mm Hg or a mean DBP ≥ 90 mm. Encounters used were within 12 months prior to their most recent encounter.	720
2. All patients who had three encounters with a SBP ≥ 140 or DBP ≥ 90 mm Hg within 12 months prior to their most recent encounter.	968
3. Patients who had a single encounter with a SBP ≥ 180 or a DBP ≥ 100 mm Hg within 12 months prior to their most recent encounter.	527
Unique patients identified by Algorithms 1,2, or 3	1,586

SBP, systolic blood pressure; DBP, diastolic blood pressure. All data were obtained from outpatient encounters with a PCP or specialist.

Results

Among 1,432 patients targeted for recruitment

Characteristic	Participants (n=475)	Non-Participants (n=957)	*P* Value
Age, median y, (IQR)	54.4 (44.5-64.9)	50.1 (38.9-60.4)	<0.01
SBP, mean mm Hg, (SD)	136.5 (9.35)	136.1 (9.76)	0.46
DBP, mean mm Hg, (SD)	82.3 (7.05)	82.5 (7.25)	0.52
BMI, median kg/m^2, (IQR)	29.6 (26.3-33.8)	30.1 (26.1-34.6)	0.13
Gender, female, (%)	226 (47.6)	459 (48)	0.89
Ethnicity			0.36
African American (%)	29 (6.1)	42 (4.4)	
Asian (%)	13 (2.7)	26 (2.7)	
Caucasian (%)	337 (70.9)	655 (68.5)	
Hispanic/Latino (%)	16 (3.4)	42 (4.4)	
Other (%)	80 (16.8)	192 (20.1)	
GERD (%)	72 (15.2)	129 (13.5)	0.39
Asthma (%)	36 (7.6)	104 (10.9)	0.05
Depression (%)	36 (7.6)	75 (7.8)	0.89
Diabetes Mellitus (%)	29 (6.1)	62 (6.5)	0.77
COPD (%)	10 (2.1)	16 (1.7)	0.59
CAD (%)	5 (1.1)	13 (1.4)	0.64
CHF (%)	2 (0.4)	7 (0.7)	0.49
Prior MI (%)	1 (0.2)	2 (0.2)	0.99

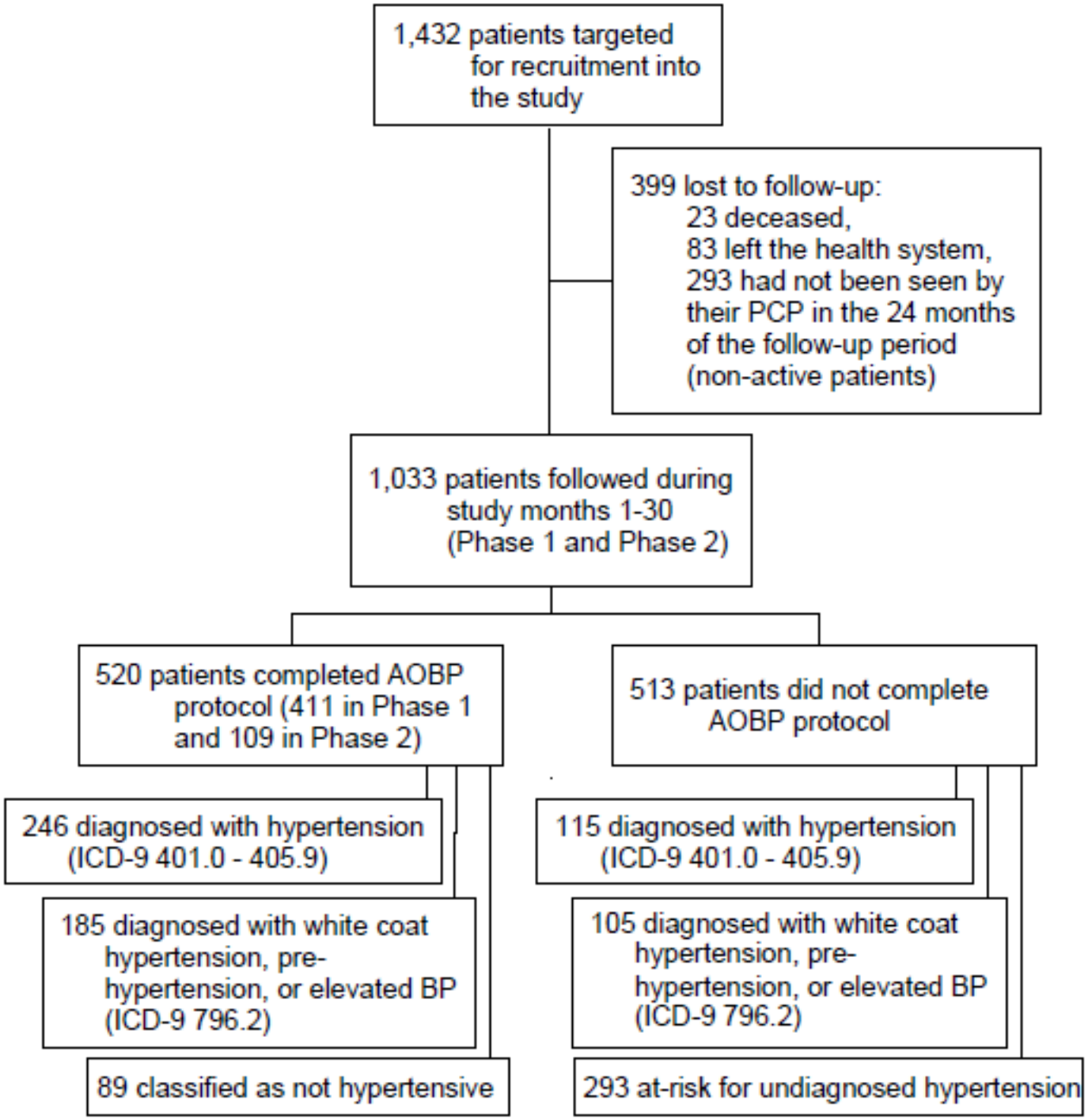
Results

Algorithm	Identified as at-risk of undiagnosed hypertension hypertensive and completed AOBP	Found to be hypertensive by AOBP, SBP ≥ 135 mm Hg or DBP ≥ 85 mm Hg	PPV (%)	95% CI
1	234	136	58	51-65
2	321	168	52	47-58
3	138	70	51	42-59
Any	475	249	52	48-57

AOBP, automated office blood pressure; BP, blood pressure; PPV, positive predictive value; CI, confidence interval.

Results

24-month follow-up of all 1,432 patients initially targeted for recruitment



Summary

- 1,432 adults met the criteria of one or more hypertension screening algorithms and were recruited for evaluation
- Of these, 475 completed an office-based AOBP and 249 (52.4%) were diagnosed with hypertension
- By the end of the 24-month follow-up, 72% of the original 1,432 patients had received a diagnosis
  - 361 had hypertension
  - 290 had either white coat HTN, pre-HTN, or elevated BP
  - 89 were classified as having a normal BP

Limitations

- Algorithms likely did not identify a significant number of individuals at-risk for hypertension
  - Less strict screening criteria would probably increase sensitivity but decrease specificity
- Computerized screening algorithms were based upon prior manual BP readings, which may have been inaccurate – need to standardize
- Conducting AOBP reading on all at-risk patients (n = 1,432) may have resulted in different PPV's
  - But non-participants were similar to participants

Implications

- Our technology-based hypertension screening program relied upon:
  - EHRs, computerized screening algorithms, and follow-up AOBP measurements
- We expect EHR's and screening algorithms will increasingly be used to diagnose chronic diseases:
  - Hypertension (AOBP or other BP measurement protocol)
  - Diabetes & chronic kidney disease (BMP)
  - Hepatitis & fatty liver disease (CMP)
  - Anemia (CBC)
  - Arrhythmia, hypertension overtreatment (syncope history)

Thank you

NorthShore
University HealthSystem

Diabetes health information technology innovation to improve quality of life for health plan members in urban safety net

Neda Ratanawongsa, MD, MPH

UCSF Center for Vulnerable Populations

Disclosures

- I have no conflicts of interest to disclose. The funders had no role in design, data collection, analysis, or presentation
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  - NIH UL1 RR024131 (SFCRN)
  - CDC Division of Diabetes Translation grant
  - California Diabetes Program
  - McKesson Foundation

Defining our communities

- Practice-based researchers in CA safety net:
  - Persons with diabetes in San Francisco Community Health Network (CHNSF)
  - Primary care clinicians
  - Health plan / insurers overseeing care for persons with diabetes
  - Representative of larger CA communities
- 10-year evolution: disparities → interventions → practice-/population-based implementation

Objectives

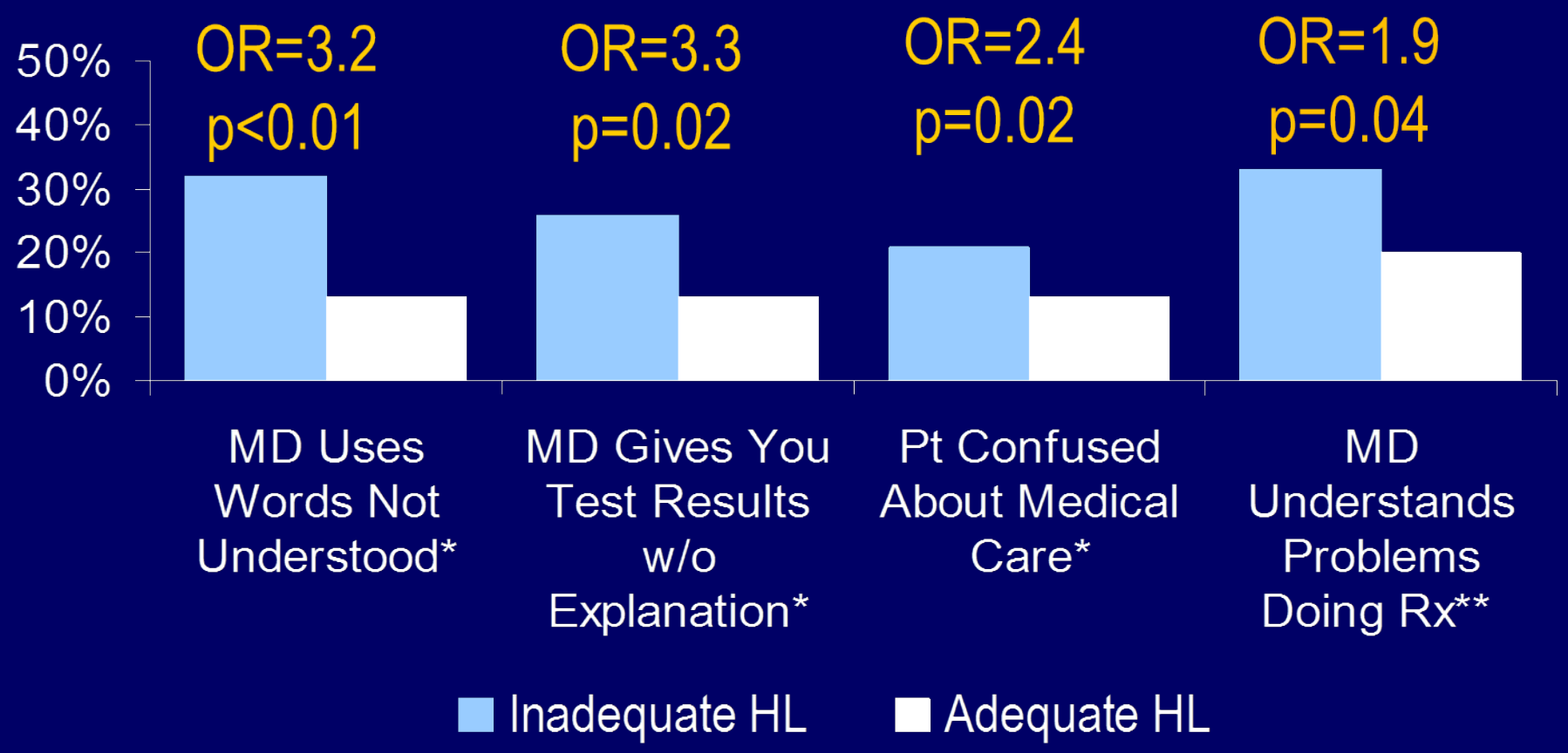
- Disparities in diabetes health due to communication barriers in traditional health care
- Diabetes self-management health IT intervention
  - Practice-based research → population-based implementation
  - Impact on self-management and quality of life
- Learning opportunities and next steps

Limited Health Literacy (LHL)

- Over half of public hospital pts
- Average reading level for Medicaid patient: grade 5
- Impact on health outcomes:
  - Poorer knowledge of chronic conditions
  - Worse self-care
  - Higher utilization of services
  - Worse health outcomes
    - Poor glycemic control (AOR 2.03; p = 0.02)

Scott 2002, Williams 1998, Baker 2003, IOM 2004; Schillinger 2002

… And Poor Communication with Clinicians



* Usually / Always

** Never, Rarely, Sometimes

Schillinger PEC 2004

Limited English Proficiency (LEP) & Lack of Language-Concordant Care

- 6.2 million (19%) in California 2000 census
- LEP Asian immigrants using interpreters report unasked questions about care (30% vs. 21%, P<.001)
- LEP Latinos with language discordant MD had increased odds of poor control (AOR 1.98)
- Less likely to report receiving self-mgmt advice

Wilson 2005; Fernandez 2010; Green AR 2005; Lopez-Quintero 2009

Health IT for Self-Management Support

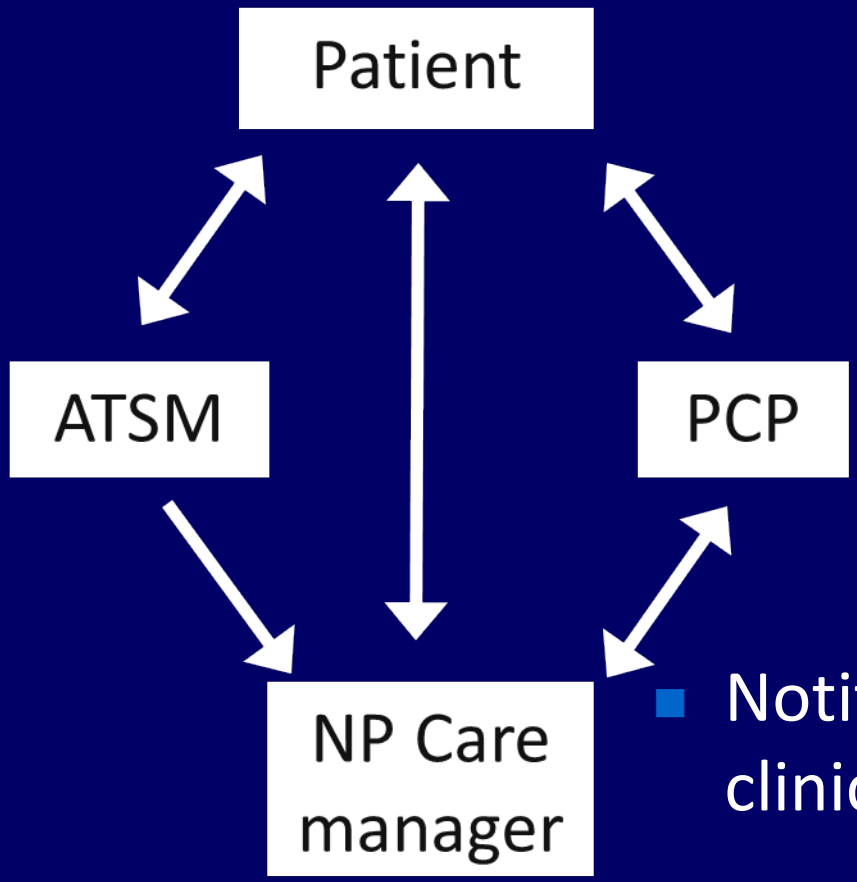
- Self-management support improves behaviors, satisfaction, and outcomes
- Desired by patients with LHL and LEP
- Automated telephone self-management (ATSM)
  - 97% of adults in CA have phone
  - Relatively inexpensive and efficient
  - Control jargon, volume, pace, and language
  - Effective in diverse, low income patients

Sarkar 2008

Improving Diabetes Efforts Across Language and Literacy (IDEALL)

- Developed with users
- Preferred language
- Weekly surveillance
- Touch tone response
- Tailored education

- Language-concordant care managers respond to out-of-range triggers



- Notify clinics

IDEALL Development Process

1) Identify priority population/condition and objectives
2) Harness registry and network to identify population
3) Develop queries to solicit questions and concerns
4) Write and revise health education (cooperative process)
5) Pilot questions and health education responses with pts
6) Translate and adapt toward cultural appropriateness
7) Record and code
8) Design callback algorithm (scenarios) and trigger reports
9) Beta-test
10) Train clinical staff
11) Launch

Health IT Can Promote Patient-Centered Diabetes Care (IDEALL)

- Randomized trial: ATSM, group visits, & usual care
- 339 patients with poorly controlled DM
  - 43% Spanish- and 11% Cantonese-speaking
- 94% completed ≥1 call → 84% ≥1 action plan
- High PCP satisfaction
  - Perceived activated pts & higher quality of care
  - Overcoming barriers to LEP & med mgmt

Schillinger 2009, Ratanawongsa 2012

IDEALL Program Outcomes

- Improved:
  - Interpersonal communication with providers
  - Self-management behaviors (diet, exercise)
  - Functional status & days confined to bed
  - Detection of adverse / potentially adverse events
- Cost-effective:
  - $65,167 for set-up and ongoing costs
  - $32,333 for ongoing costs only

Schillinger 2009; Sarkar 2008; Handley 2008

Potential for Medicaid Partnership

- Goals:
  - Improve coordination of care
  - Support patients and clinicians
  - Promote personal control over services
  - Harness IT to reduce disparities
- Survey of CA Medicaid managed care plans
  - Few had chronic care mgmt targeting LEP/LHL
  - 68% planning to expand programs for diabetes
  - Barriers: cost of broad implementation and IT

Goldman 2007

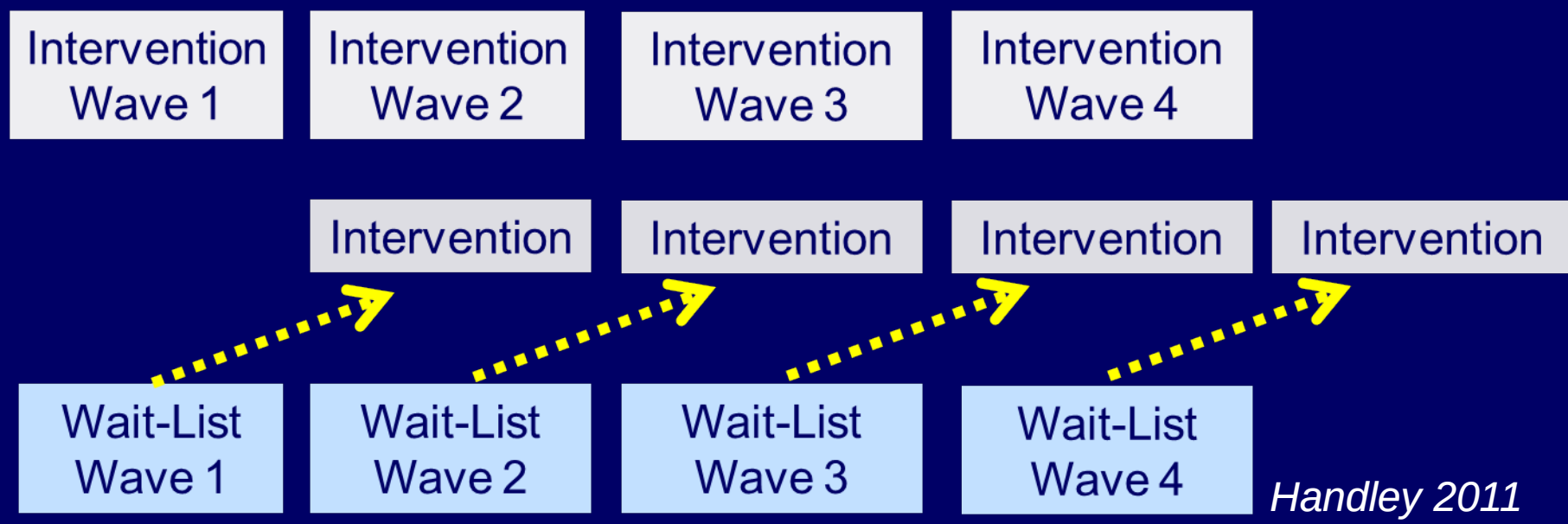
SMART Steps: Partnering to Put Research Into Practice

- San Francisco Health Plan (SFHP): nonprofit govt-sponsored Medicaid managed-care plan
  - Linguistically diverse vulnerable population
  - SFHP recruitment for members from 4 clinics
  - SFHP implementation
  - Evaluation by UCSF

SAN FRANCISCO HEALTH PLAN
Here for you

Quasi-Experimental Study Design

- SFHP did not want control group (no intervention)
- Preferred staggering of rollout for staffing
- Wait list with 6-mo crossover, recruiting in waves



Handley 2011

Intervention: ATSM + health coach

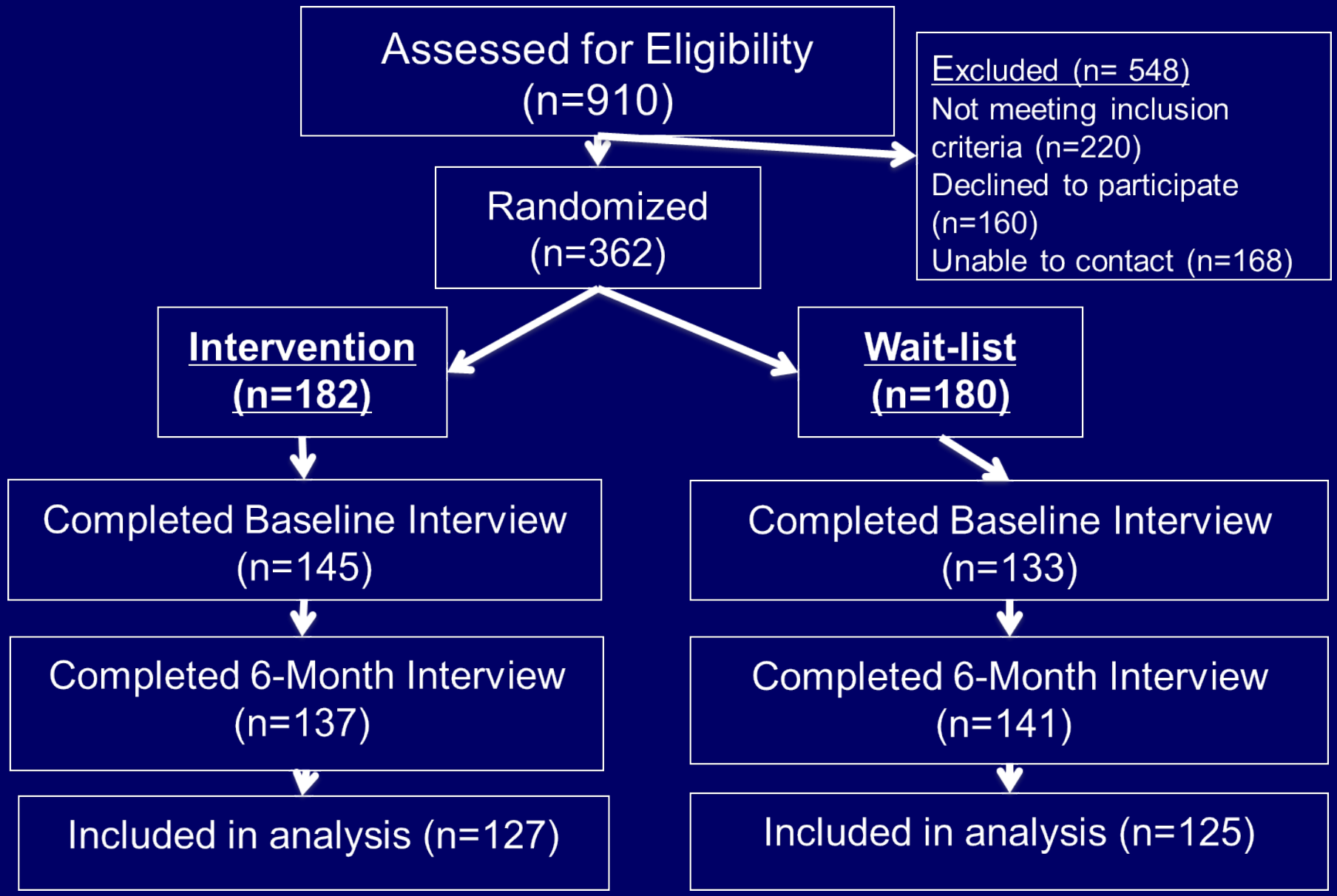
- 27 weeks of ATSM calls
- SFHP health coach for follow-up calls
  - Tailored training & scripts

Question	Call Back Trigger	Prosodie Education (use to guide education during callback)	SMART Steps Scripts
In the last 7 days, how many days did you MISS taking your DIABETES medications, even just one pill or shot? Was it 0 days, 1 day, 2 days, 3 days, 4 days, 5 days, 6 days, or 7 days? Press the number of days that you MISSED taking your	3-7	*You might be going through something similar to Mrs. Jones. Mrs. Jones sometimes forgot to take all of her diabetes pills. She also stopped taking her pills when she felt good. After a few weeks she began to feel tired and sick and went to see her doctor. Her doctor was very worried about her*	Nonjudgmental: "Many patients take their medications differently from the way they are prescribed. It's important for me to understand how you're taking your medications." Check accuracy: "In this week's call, you answered that you missed your diabetes medications ___ days this week. Is that correct? Check understanding about diabetes meds: • "What medications are you taking for diabetes now? Tell me their names. How much do you take? What they are for?" • "Do you have the bottles? Can you get them and read the name / instructions on them?" • "Are you taking a medication called ___? Tell me how you're taking it." • "I just want to check about ___ medication. Your health care team thinks you are taking ___ medication ___ times per day. That seems different from what you just said. Tell me more about that." Check for barriers to adherence: • "What side effects or problems do you have when you take ___?"

Outcomes

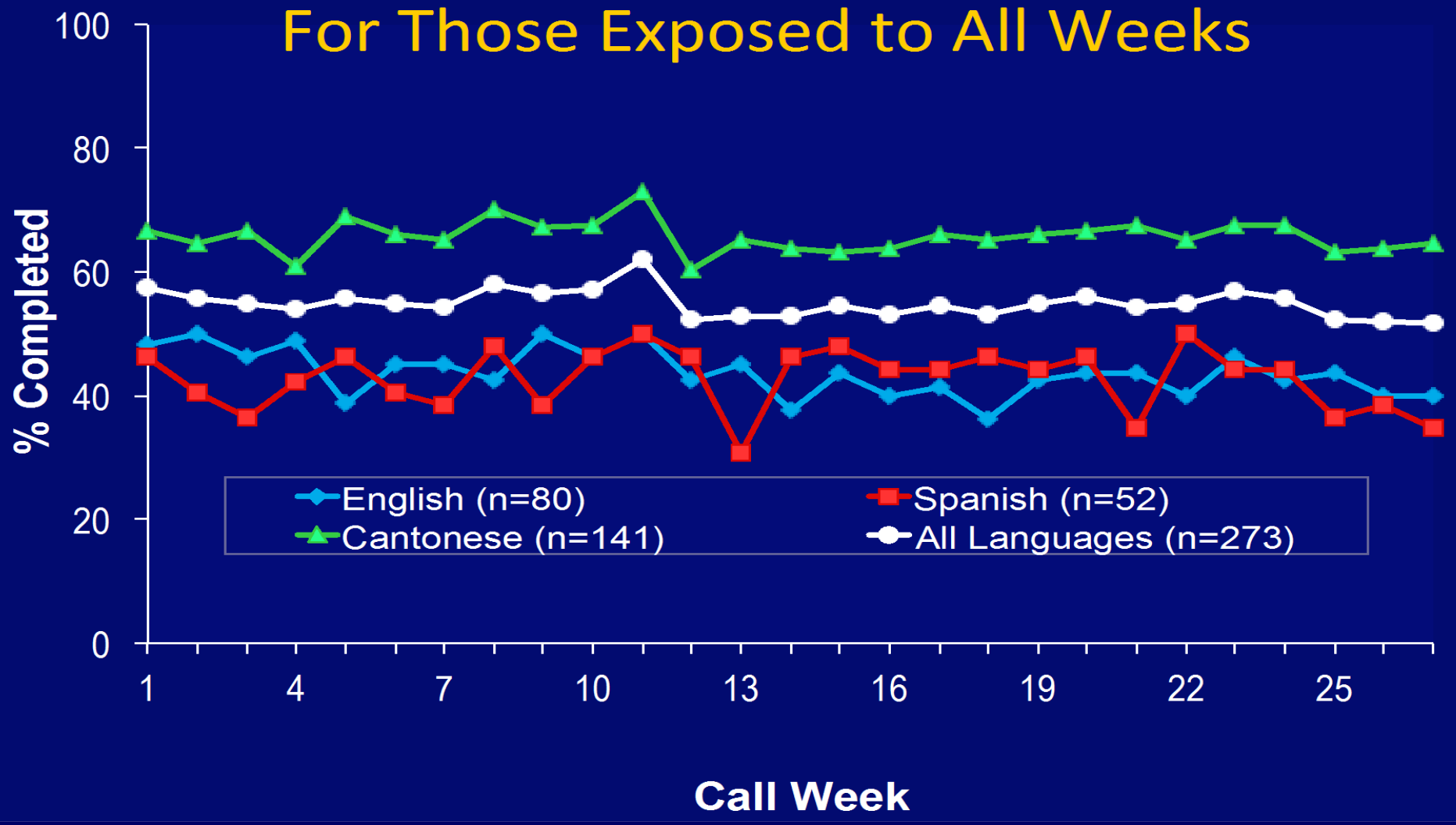
- Engagement in ATSM
  - % completing calls
- Compare intervention vs. waitlist in change from baseline to 6-month:
  - Summary of Diabetes Self-Care Activities
  - Quality of life (SF-12)
  - Cardiometabolic markers

Toobert 2000, Ware 1996


Assessed for Eligibility (n=910)
Excluded (n= 548)
Not meeting inclusion criteria (n=220)
Declined to participate (n=160)
Unable to contact (n=168)
Randomized (n=362)
Intervention (n=182)
Wait-list (n=180)
Completed Baseline Interview (n=145)
Completed Baseline Interview (n=133)
Completed 6-Month Interview (n=137)
Completed 6-Month Interview (n=141)
Included in analysis (n=127)
Included in analysis (n=125)

Characteristic	Intervention (n=127)	Wait-List (n=125)
Age in years, mean (SD)	56.6 (7.9)	54.9 (8.6)
Women	77%	72%
Latino Black / African-American Asian / Pacific Islander White / Caucasian	26% 6% 60% 6%	20% 10% 62% 7%
Born Outside the U.S.	86%	85%
Cantonese-speaking Spanish-speaking	54% 20%	55% 19%
8th grade education or less	39%	47%
Limited health literacy	47%	40%
Income ≤ $20,000 / Yr	61%	60%
Hgb A1c >8.0%	30%	24%

Completed Calls by Language For Those Exposed to All Weeks



Engagement by Language Among Patients Exposed to 27 Calls (n=273)

	All	Cantonese (N=141)	Spanish (N=52)	English (N=80)	p-value
Completed ≥1 Call, %	85%	90%	81%	80%	0.07
Number of completed calls, median (IQR)	19 (4-24)	21 (11 – 26)	10.5 (2 – 19.5)	9 (2 – 23)	<0.01

Change in Self-Care at 6 Months (n=252)

	Adjusted* Difference (95% CI)	Standardized Effect Size*	p-value
Overall Self-Care	0.2 (0.1, 0.4)	0.29	<0.01
Glucose monitoring	0.7 (0.2, 1.3)	0.30	<0.01
Foot care	0.6 (0.2, 0.9)	0.32	<0.01
Med adherence	0.0 (-0.2, 0.2)	0.02	0.82

*Controlling for baseline value

Change in Quality of Life at 6 Mos (n=242)

	Adjusted* Difference (95% CI)	Standardized Effect Size*	p-value
Physical Component SF-12	2.0 (0.1,3.9)	0.25	0.04
Mental Component SF-12	1.3 (-1.0,3.6)	0.14	0.26

*Controlling for baseline value

Change in Cardiometabolic Markers (n=252)

	Adjusted* Difference (95% CI)	Standardized Effect Size*	p-value
Hemoglobin A1c	-0.3 (-0.6, 0.1)	-0.22	NS
Systolic blood pressure	0.6 (-3.8, 5.1)	0.03	NS
Diastolic blood pressure	2.1 (-0.6, 4.9)	0.19	NS
Low-density lipoprotein	11.0 (-6.5, 28.4)	0.28	NS

*Controlling for baseline value

Successful Engagement

- Partnering with LHL / LEP patients:
  - Bicultural and bilingual content
  - Unmet need for language-concordant support
- Practice-based research:
  - Innovate and create from within
  - Invest in the safety net providers
- Partnership with Medicaid managed care plan
  - Population-based implementation
  - Long-term relationships

Learning Opportunities

- Phone-based population recruitment
- Health coaches
  - Tailoring, training, and turnover
  - Bicultural as well as bilingual staff
- Fidelity: data collection & feedback
- Quasi-experimental designs beyond RCT

Handley et al (in press)

Future Directions

- Scope: develop new content for health promotion self-mgmt across health conditions
- Platform: mHealth beyond telephone outreach
- Linkages to patient-centered medical home, including electronic health records
- Reach and sustainability:
  - Within our health system
  - Medicaid and other insurers

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- PI: Dean Schillinger
- Co-investigators: Margaret Handley, Judy Quan, Kelly Pfeifer, Urmimala Sarkar, Catalina Soria
- San Francisco Health Plan: Allison Lum, Dawn Surratt, Karen Fong, Jennifer Beach, Juanita Gonzalez, Nicole Lam, and Stanley Tan
- California Diabetes Program
- San Francisco Bay Area Collaborative Research Network
- Health Delivery Systems Center for Diabetes Translational Research

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USE OF QUALITATIVE METHODS AND USER-CENTERED DESIGN TO DEVELOP CUSTOMIZED HEALTH INFORMATION TECHNOLOGY TOOLS WITHIN FEDERALLY-QUALIFIED HEALTH CENTERS TO KEEP CHILDREN INSURED

Christine Nelson, PhD, RN
Sonja Likumahuwa, MPH, MID

OCHIN

OHSU Family Medicine

STUDY INFORMATION

- Innovative Methods for Parents And Clinics to Create Tools for Kids' Care (IMPACCT Kids' Care)
  - Develop and test new HIT tools to enhance insurance outreach efforts
- PCORI funded; first round funding
- Project Period: 2013-2016
- PI: Jennifer E. DeVoe, MD, DPhil
- Phase 1: Qualitative data collection and tool development

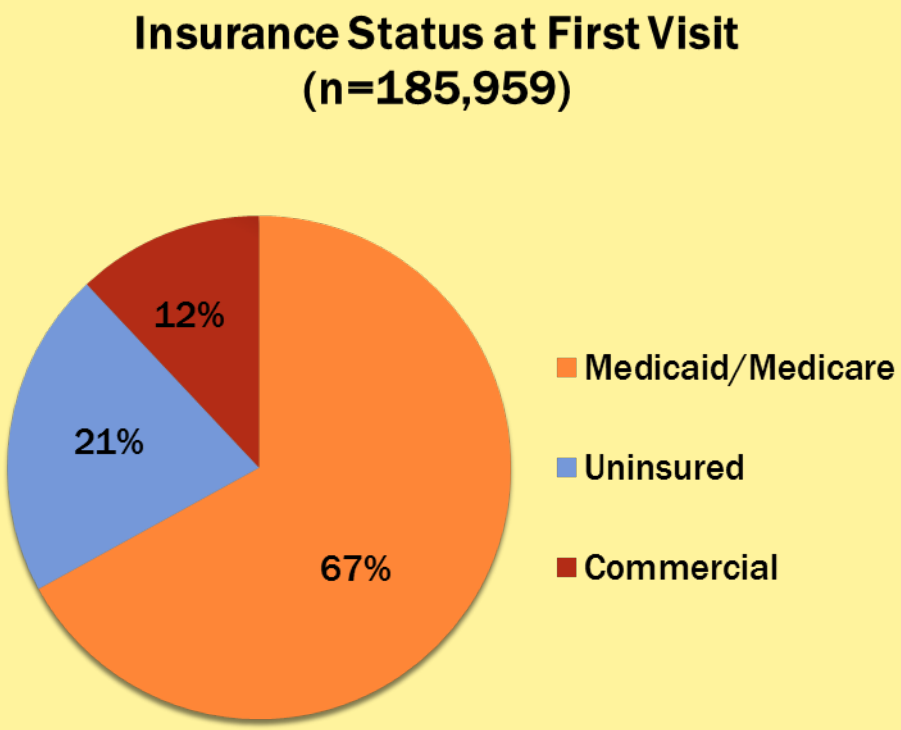
BACKGROUND

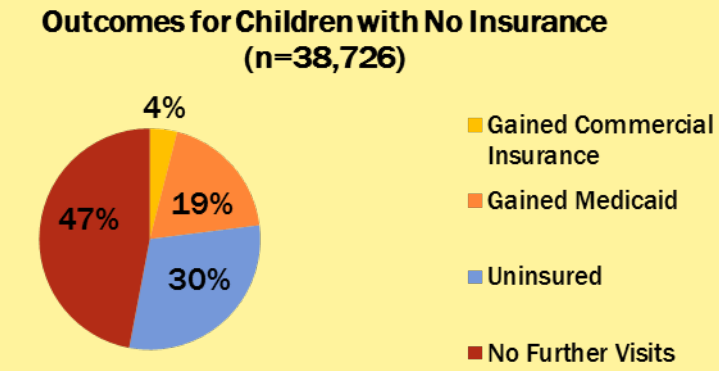
- Stable health insurance facilitates access to health care for children
- Coverage gaps are associated with unmet health care needs and poor health outcomes
- Despite federal initiatives to increase coverage, millions of US children remain uninsured or experience frequent gaps
- Patients on public insurance must regularly reapply to maintain coverage, often leading to coverage gaps
- Primary care patients and practices benefit when insurance gaps are minimized and patients remain consistently insured

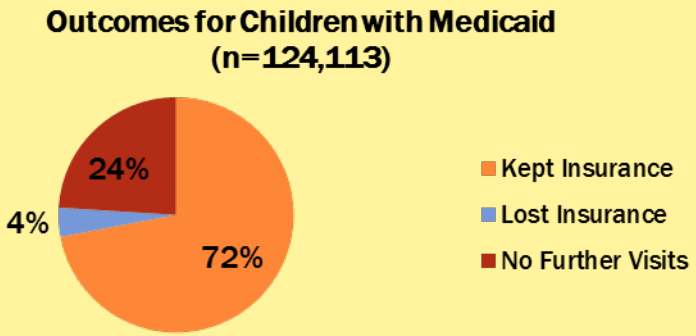
OCHIN

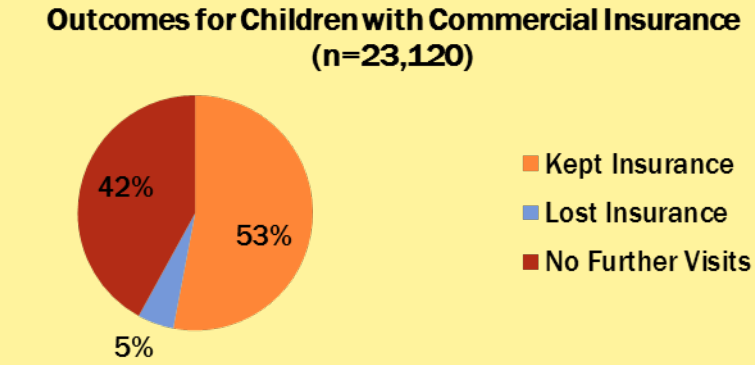
- Non-profit collaborative to support state-of-the-art health information technology (HIT) infrastructure
- Supports a Practice-based Research Network (PBRN)
  - As of April 1, 2014, the OCHIN PBRN had members in 17 states with >300 primary care clinics, and >2,500 providers caring for >1,500,000 patients
  - Most clinics in the PBRN care for low-income families
- All clinics share a common HIT infrastructure

Example: Retrospective cohort of children <19 years of age who visited an OCHIN clinic, 2010-2011









STUDY DEVELOPMENT

- 8 FQHC clinics selected based on
  - High pediatric uninsurance rates (>19%)
  - Large pediatric panel size
  - Interest in study participation
- Phase 1: Qualitative data collection and tool development

KEY QUESTIONS

- 1) How can patients' families, medical informaticists, and FQHC staff be engaged in the development of HIT tools to support health insurance outreach?

- 2) How can HIT resources be used, within the FQHC setting, to reach uninsured children and those at risk for losing coverage?

DATA COLLECTION

- Workflow observations (~95 hours)
  - carefully watching how key insurance-related tasks were accomplished in each Federally-Qualified Health Center (FQHC), facilitated by a site visit guide
- Staff interviews (31)
  - personal face-to-face interviews utilizing a semi-structured questionnaire, approximately 30-60 minutes
- Family interviews (19)
  - personal face-to-face interviews utilizing a semi-structured questionnaire, approximately 15-20 minutes
  - 11 interviews were conducted in Spanish, using an interpreter

WORKFLOW OBSERVATIONS

- Current health insurance outreach strategies:
  - Microsoft Excel workbooks
  - Monthly review of paper insurance applications
  - Review of scheduled patient charts prior to their appointment
- Clinicians not currently involved
- Key individuals included:
  - Front desk personnel
  - Insurance enrollment specialists
  - Schedulers
  - Social workers and community health workers
  - Care managers
- Existing chronic disease tools could be adapted

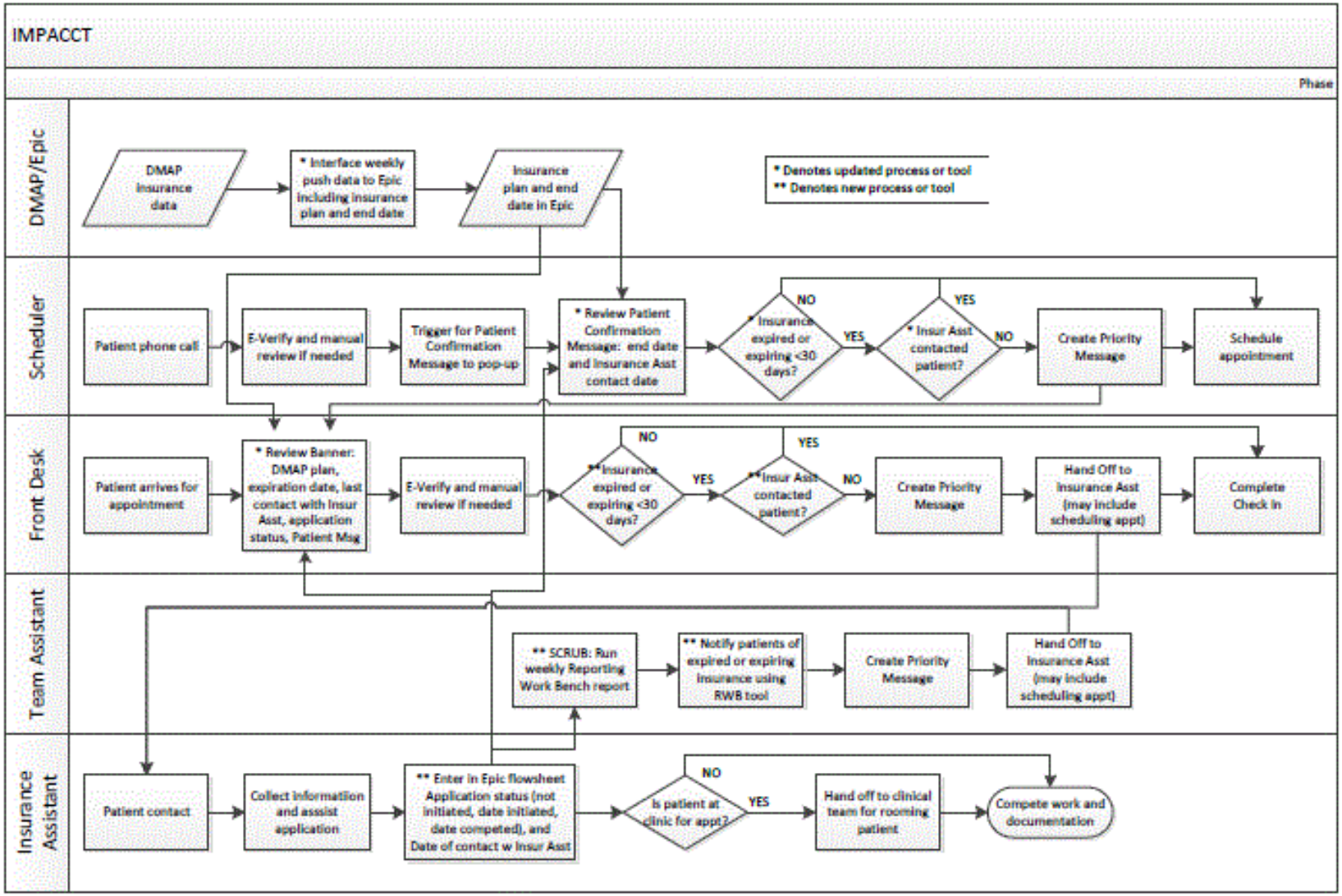
STAFF INTERVIEWS

- Insurance is a high-priority issue
- Current strategies were viewed as inefficient and inadequate
- Providers and Medical Assistants should not be involved
- Tools need to be built to function throughout health policy changes

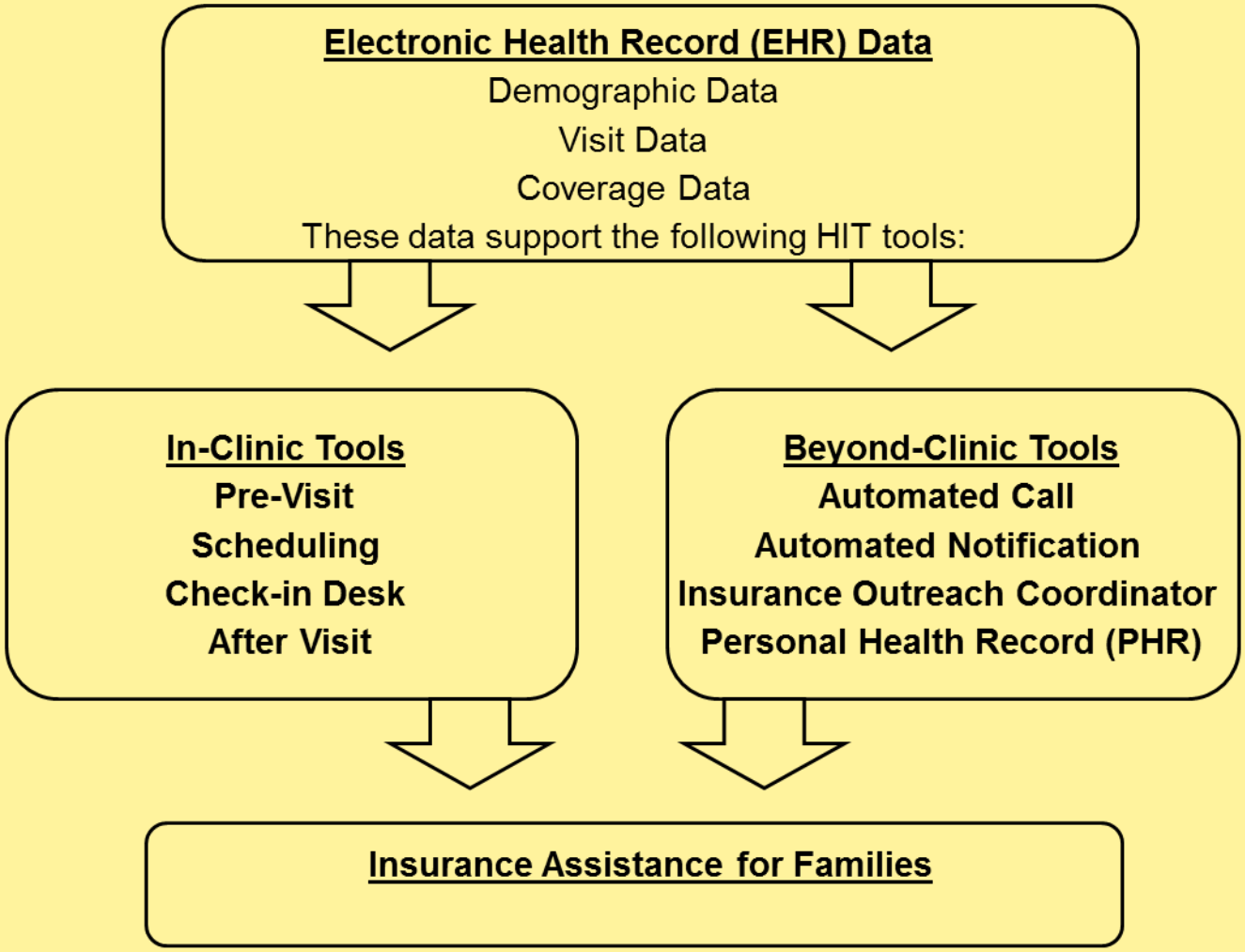
FAMILY INTERVIEWS

- Health insurance is important to families
- Family challenges included:
  - Different coverage end-dates for different children in the family
  - Re-application letters sent to old addresses
  - Paperwork volume
  - Language and literacy barriers
- Families want clinics to assist them
- Families were comfortable with clinics keeping track of insurance information
- Communication strategies families approved of were:
  - Telephone
  - Text messages
  - Letter or email
  - Personal health record

WORKFLOW DIAGRAMS



PROPOSED SUITE OF TOOLS



CONCLUSIONS

- HIT can be used to identify, track, and communicate with families regarding their child's health insurance coverage
- The IMPACCT Kids' Care project is partnering with families, medical informaticists, and clinic staff to develop HIT tools
- We successfully combined qualitative research methods with user-centered design approaches
- These methods may be applied to other primary care HIT needs

ACKNOWLEDGEMENTS

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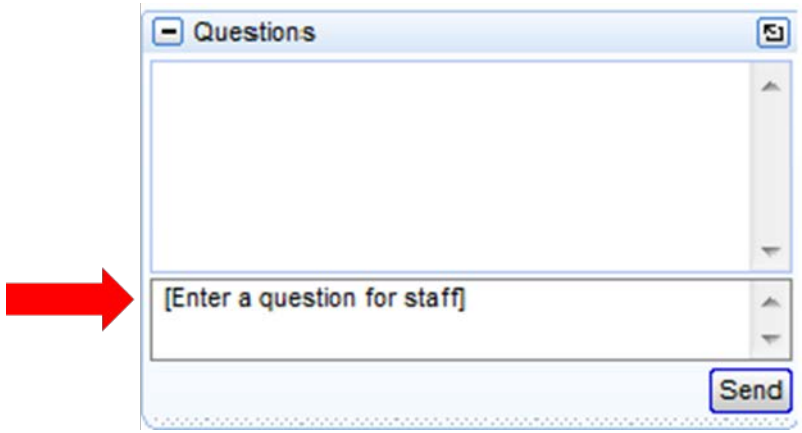

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