



# Using EHRs to Advance Research in Community Health Centers



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# The Institute for Family Health



**Manhattan**



**Bronx**



**Mid-Hudson Valley**

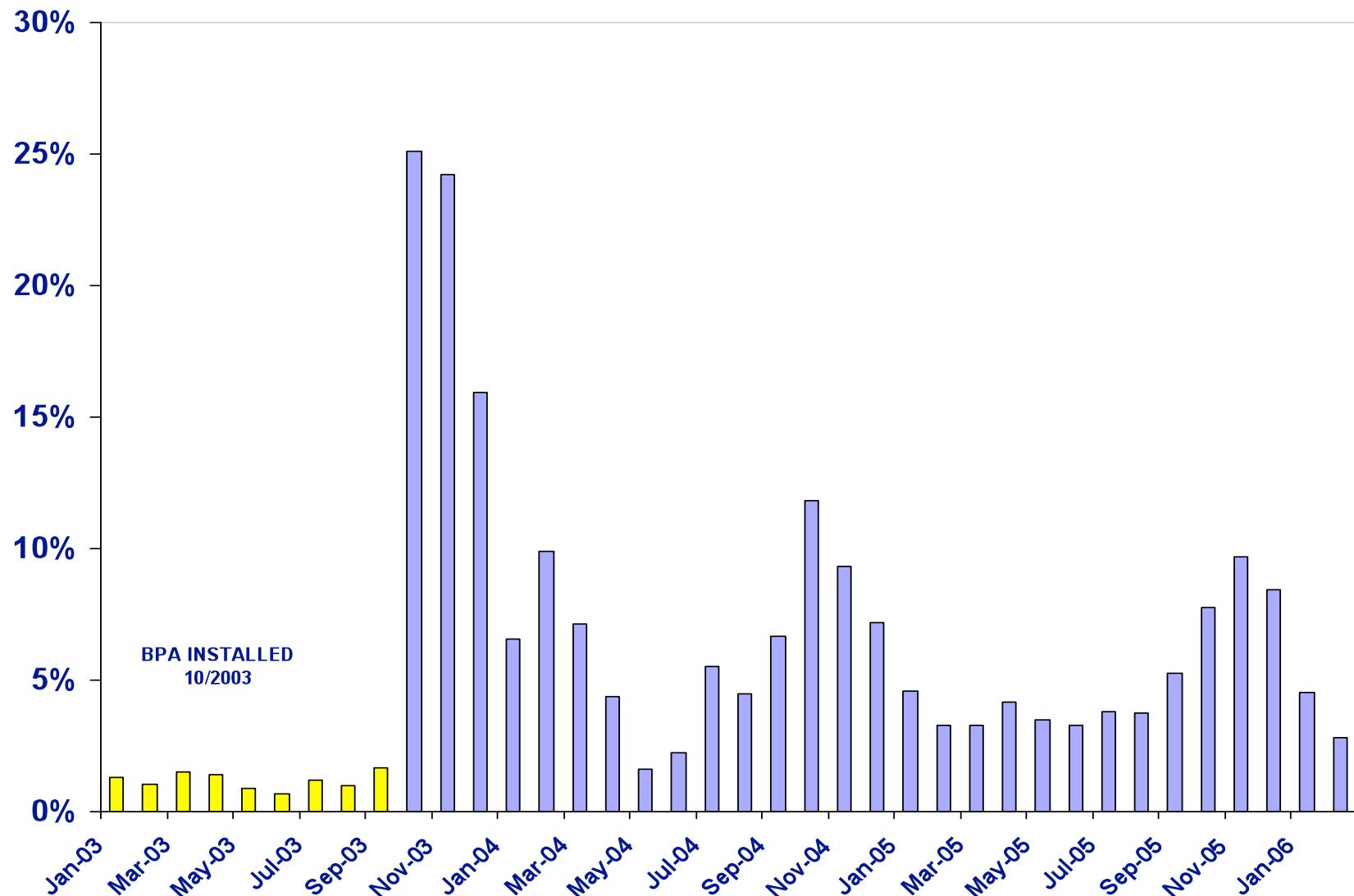


# EHRs implemented in 2002





# Pneumovax for those 65+





# EHRs contain complex patient data

- Race / Age / Gender
- Diagnoses
- Procedures
- Medications
- Lab results
- Medical history
- Visit history



# EHR Meaningful Use and Research have the Same Goals

- Improve Quality, Safety, Efficiency of Care
- Reduce Health Disparities
- Increase Engagement of Patients and Families
- Improve Care Coordination
- Improve Population and Public Health
- Ensure Privacy and Security Protections of Personal Health Information

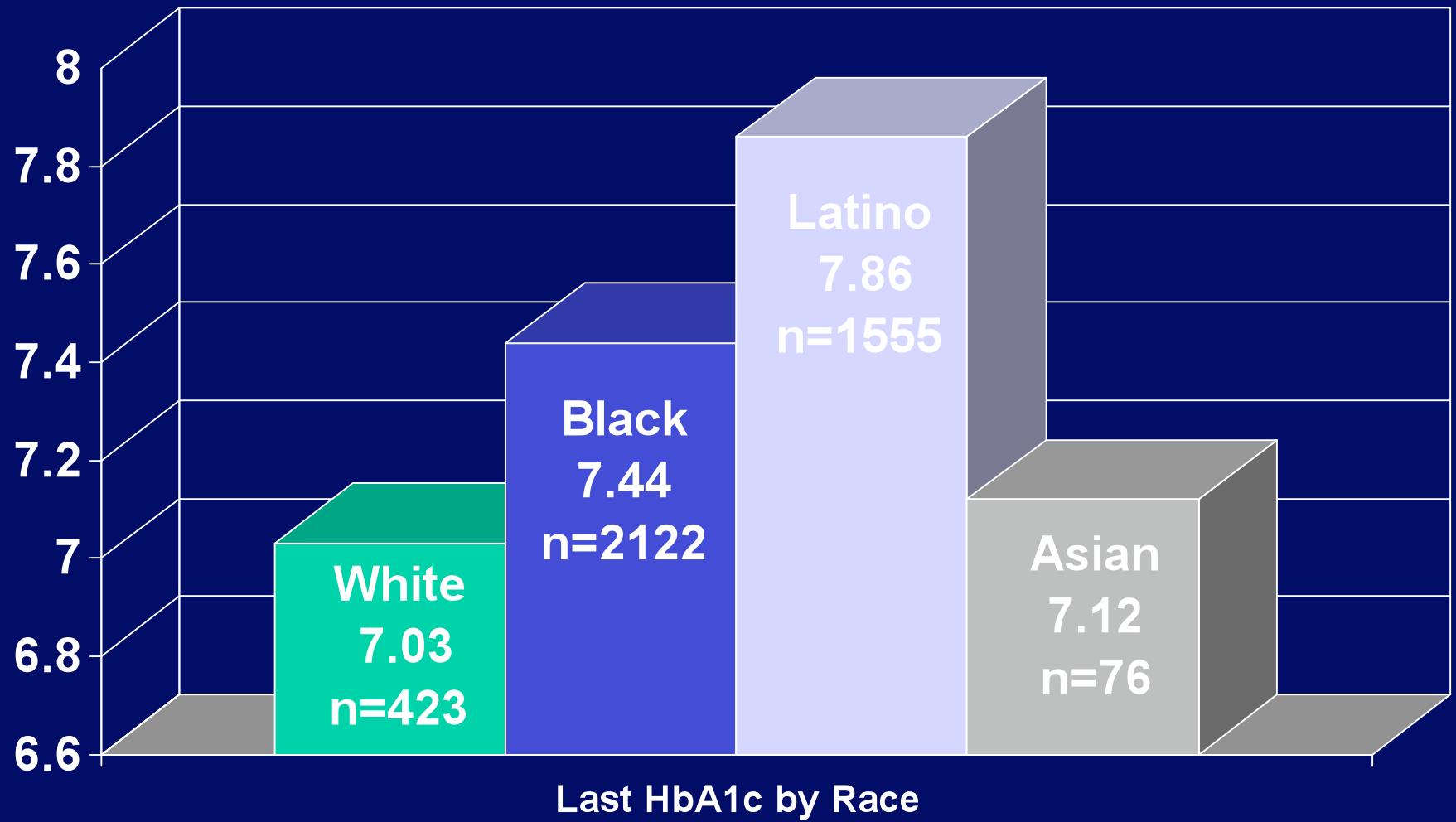


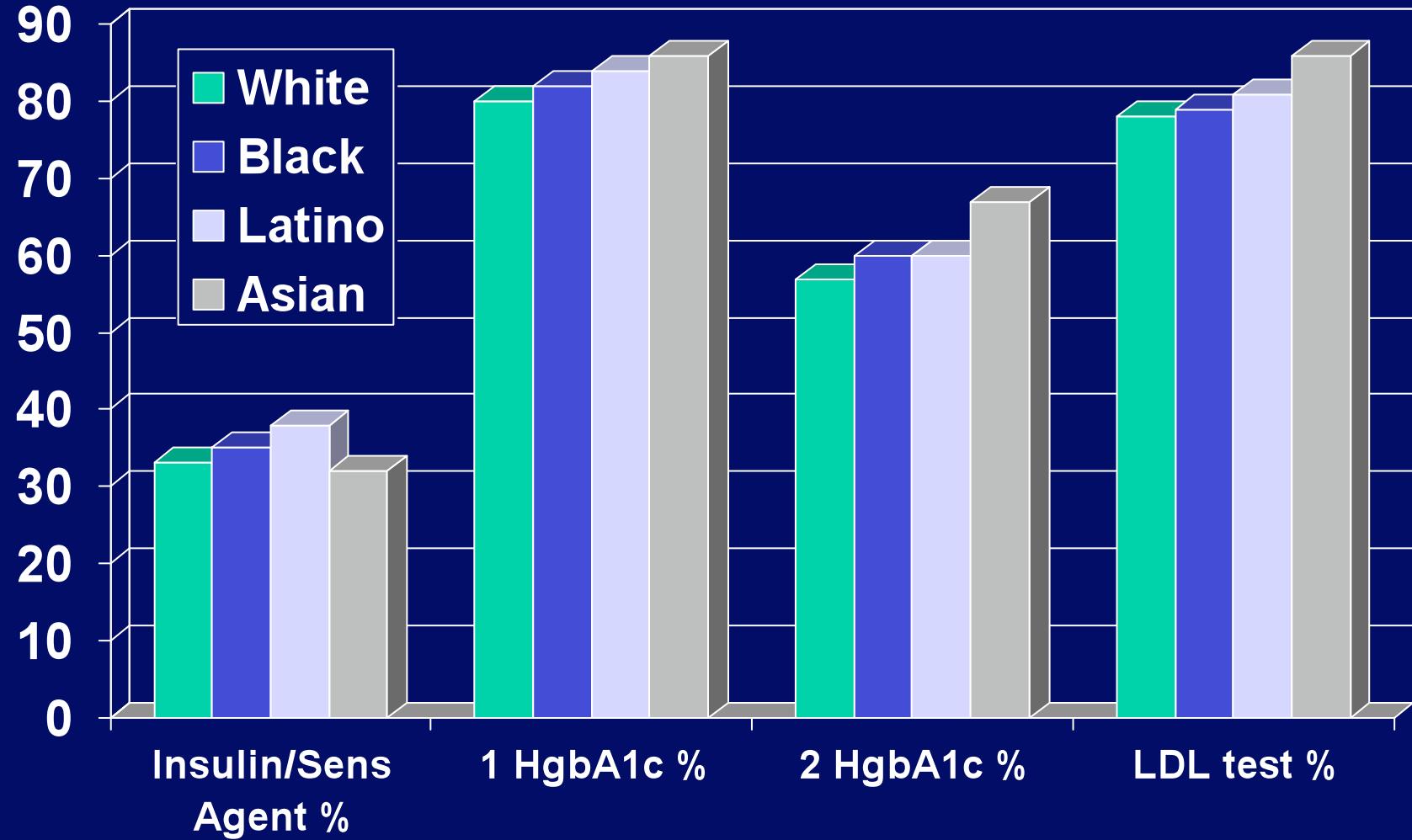
# Diabetes Research: A Case Study





# What's Wrong with this Picture?





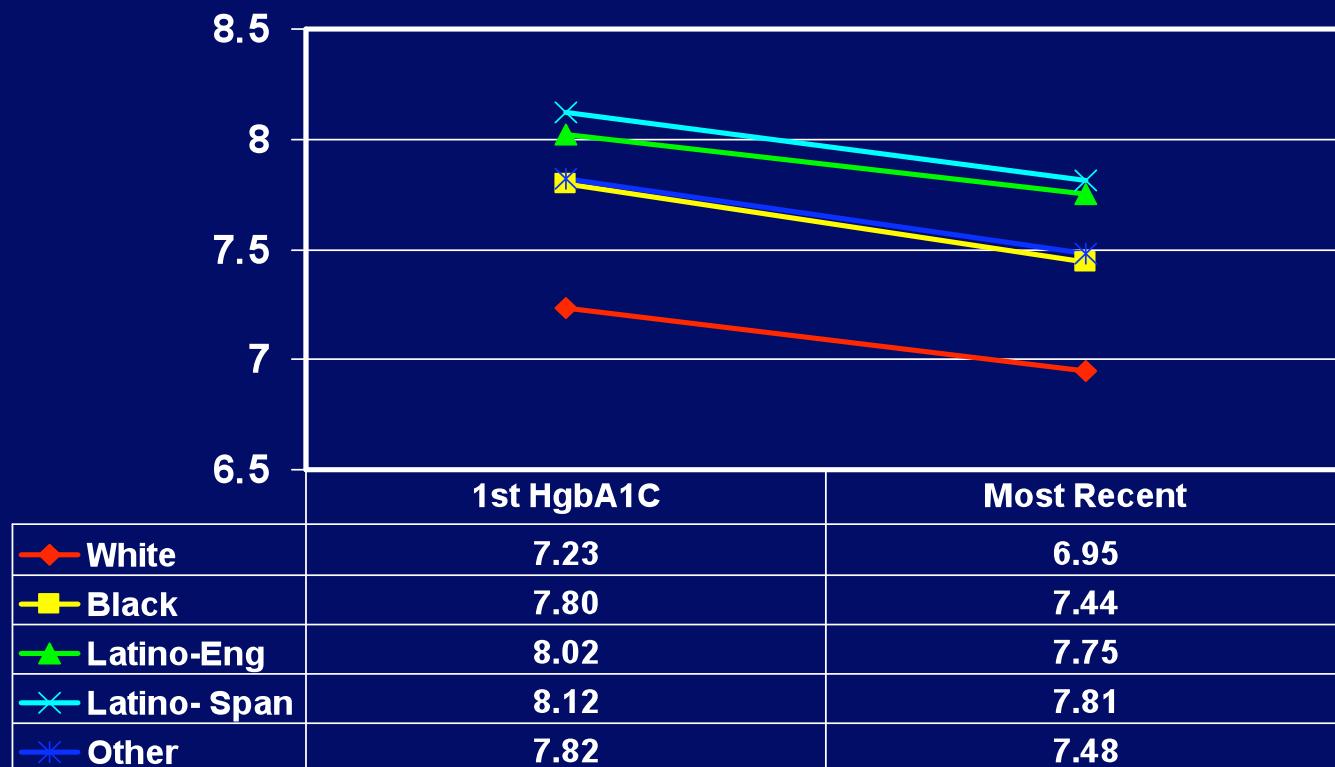


# Using Electronic Health Records to Improve Quality and Reduce Disparities in Diabetes Care

The Commonwealth Fund  
New York University  
Advisory Committee

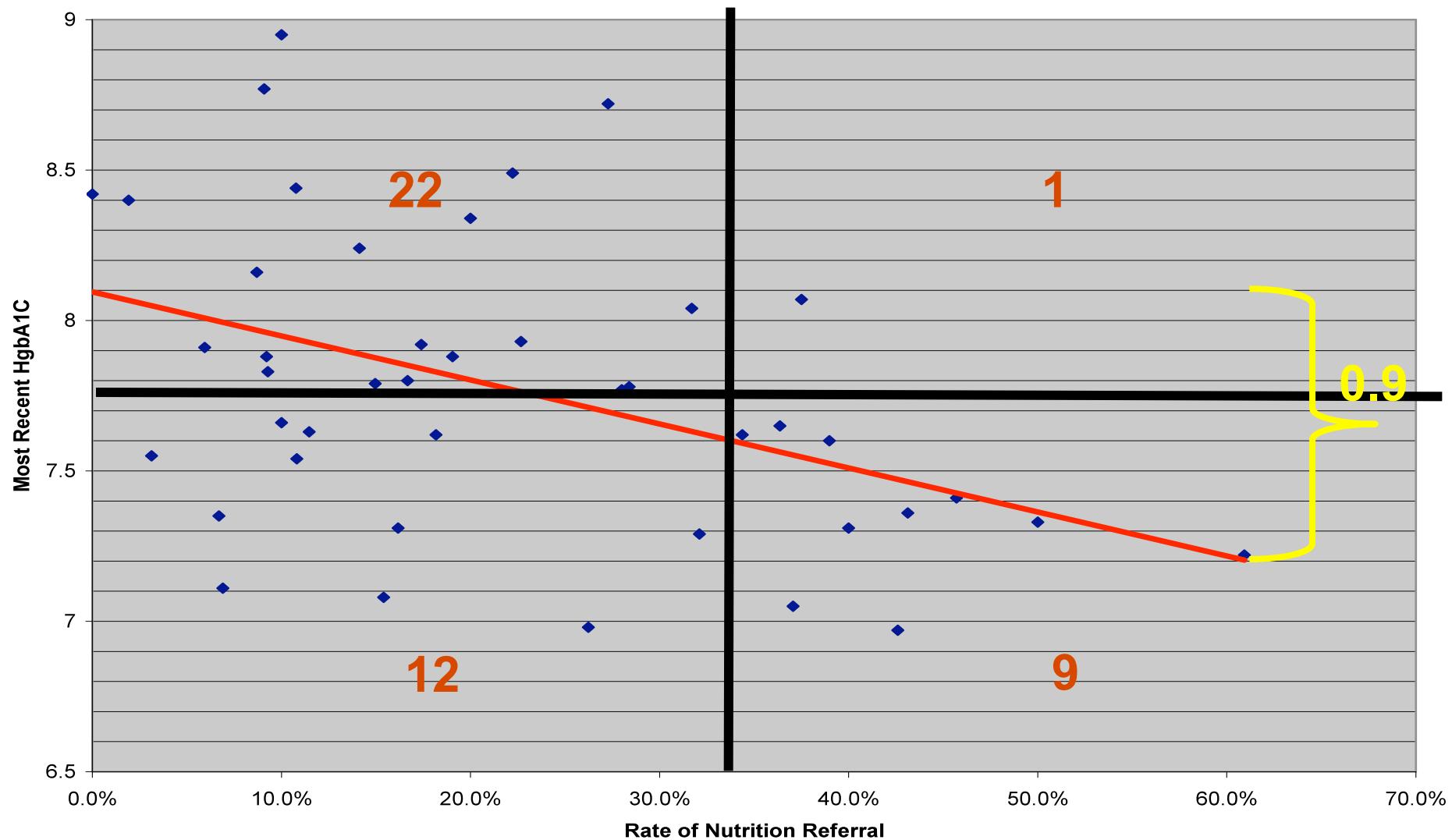


# Reductions in HbA1c with Treatment by Race/Language





# Provider Nutritionist Referral Rate vs. Pts Average HgBA1c





# Key Findings

- Black and Hispanic patients have higher initial HbA1c tests
- Black and Hispanic patients' HbA1c levels decrease at a slower rate than the levels of white patients
- No significant differences in provider performance with patients of different races/ethnicities
  - Likelihood of Hba1c testing
  - Time to first HbA1c
  - Visits
  - Medication
  - Nutrition referrals
- Higher visit frequency and receiving a nutritionist referral are associated with faster rates of decline in HbA1c levels, controlling for initial HbA1c level and other covariates



# Diabetes Intervention

Patients with HbA1c values >9 receive  
“affirmative action” care

- Monthly visits
- On-site HbA1c testing
- CDE visits
- Group visits



# During the Visit: BPAs and SmartSets

The screenshot shows a computer screen displaying the BestPractice electronic health record (EHR) system. The top navigation bar includes links for Home, Zztest, Diabetes, Images, Questionnaires, Benefits Inquiry, References, SmartSets, Open Orders, Change PCP, Print AVS, Media Manager, Patient Files, and Classic SmartForms. The main patient summary area shows a patient named ELIZABETH MOLINA-ORTIZ, age 31, female, with MRN 1291077. Allergies are listed as "Not on File". The PCP is "(None)", and there is an alert for "HM, Alert". The INS is "(None)" and MyChart status is "Inactive". The date of the visit is 4/28/2009. A message indicates the visit is with ELIZABETH MOLINA-ORTIZ. The left sidebar menu lists various clinical sections: Charting, Chief Complaint, Vitals, BestPractice (selected), SmartSets, Nursing Notes, Progress Notes, History, Diagnoses, Orders, Pt. Instructions, LOS & Follow-up, and Close Encounter. The right side of the screen displays a "Chief Complaint" section with "None" listed, a "Vitals" section with "No readings taken.", and a "BestPractice Alerts" section containing several items:

- ▼ NURSE/MA: Perform RANDOM BLOOD SUGAR for Diabetes, REMEMBER to remove Patient's shoes and socks in exam room. THANKS!!!!!!  
 Open SmartSet: IN-HOUSE: RANDOM GLUCOSE
- ▼ NURSE/MA: No BMI within 2 years - please record Height and Weight.
- ▼ NURSE/MA: Perform HEMOGLOBIN A1C and RANDOM BLOOD SUGAR for Diabetes. Remember to REMOVE PATIENT'S SHOES and socks in exam room.  
 Open SmartSet: IN-HOUSE HGA1C
- ▼ No Tetanus Vaccine in last 10 years. Please consider ordering. \*Please Note: TDAP is not covered for patients 65 and older. The patient will be billed \$50.00 for TDAP if they are over 65.  
(No related orders found in patient record)  
 Open SmartSet: TETANUS , ADULT
- ▼ NURSE/MA: Please perform MONOFILAMENT TESTING. Result as one point for every body part not felt.  
 Open SmartSet: IN-HOUSE MONOFILAMENT TESTING
- ▼ NURSE/MA: Please complete Risk Factors Assessment for Diabetes (non-modifiable risks).  
 Open SmartSet: NCQA DIABETES (NON MODIFIABLE) RISK FACTORS
- ▼ NURSE/MA: Please complete Risk Factors Assessment Diabetes (modifiable risks).

At the bottom of the screen, a navigation bar includes links for Log In, Logout, Create Orders, Pt. Reminder, Results, Staff Message, CC'd Charts, Ccancel Charts, Encounters, Patient Related, and Help.



# Outside the Visit: Diabetes Registry

R	S	T	U	V	W	X	Y	Z	AA	AB
HbA1C_LAST_VALUE	HbA1C_LAST_DATE	HbA1C_AVG_12MOS	LDL_LAST_VALUE	LDL_LAST_DATE	LDL_AVG_12MOS	BP_SYSTOLIC_LAST	BP_DIASTOLIC_LAST	BP_LAST_DATE	BP_SYSTOLIC_AVG_12MOS	BP_DIASTOLIC_AVG_12MOS
6.5	3/24/2009	6.5				180	98	3/24/2009	161.6	92
8	3/15/2008		114	3/17/2008		132	85	4/5/2008	132	85
6.4	8/16/2006		50	8/16/2006		124	76	4/7/2008	124	76
6.2	2/19/2008		59	1/29/2008		140	94	4/7/2008	140	94
6.9	3/26/2004					130	70	9/17/2008	130	70
9.3	3/27/2008		148	3/27/2008		118	76	4/7/2008	118	76
5.8	4/8/2008	5.8	151	4/8/2008	151	124	80	4/7/2008	124	80
						118	88	12/1/2008	119	83
5.5	11/10/2008	5.5				106	58	1/28/2009	98.8	56.4
6.8	11/30/2007		87	11/30/2007		115	80	4/10/2008	115	80
6.3	4/11/2008	6.3	124	4/11/2008	124	110	74	4/10/2008	110	74
5.9	2/5/2008		84	2/5/2008		124	70	4/10/2008	124	70
8.5	4/3/2008	8.5	108	4/3/2008	108	135	72	4/11/2008	135	72
						100	60	10/14/2008	102	65



# IFH Stats

[log out](#) | [more reports](#)

Dr. ZZtest

Report Date: 03/28/2009

[Where is the 'Download' option?](#)

## Summary

PROVIDER	PANEL	A1C < 7%	A1C > 9%	BP < 130/80	BP >= 140/90	LDL < 100	LDL >= 130	EYE EXAM	NEPHRO	NEURO	NON-SMOKE	TOTAL
-- Goals (75pt Needed) --		>40% (10pt)	<=15% (15pt)	>25% (10pt)	<=35% (15pt)	>36% (10pt)	<=37% (10pt)	>60% (10pt)	>80% (5pt)	>80% (5pt)	>80% (10pt)	100pt
INSTITUTE	4282	46%	19%	37%	30%	49%	21%	8%	60%	24%	75%	55
EAST 13TH ST. FAMILY HLTH	78	48%	16%	42%	23%	58%	17%	23%	62%	23%	82%	65
DR. ZZTEST	46	51%	14%	50%	20%	70%	11%	28%	67%	15%	85%	80



# Identify Disparities

Patient Ethnicity Groups													
ETHNICITY	PANEL	ALC < 7%	ALC > 9%	BP < 130/80	BP >= 140/90	LDL < 100	LDL >= 130	EYE EXAM	NEPHRO	NEURO	NON-SMOKE	TOTAL	
-- Goals (75pt Needed) -		>40% (10pt)	<=15% (15pt)	>25% (10pt)	<=35% (15pt)	>36% (10pt)	<=37% (10pt)	>60% (10pt)	>80% (5pt)	>80% (5pt)	>80% (10pt)	100pt	
ASIAN	4	50%	0%	0%	75%	75%	25%	75%	25%	100%	100%	70	
BLACK	78	39%	22%	37%	35%	42%	13%	15%	55%	51%	77%	45	
HISPANIC	37	36%	33%	30%	27%	38%	25%	5%	43%	51%	83%	55	
MULTI-RACIAL	2	100%	0%	100%	0%	0%	50%	0%	0%	0%	100%	60	
NATIVE AMERICAN	1	0%	100%	100%	0%			0%	0%	0%	100%	35	
WHITE	7	17%	17%	29%	29%	33%	17%	14%	43%	14%	57%	35	
OTHER	8	38%	0%	50%	25%	38%	25%	13%	50%	50%	100%	70	



# Progress

Westchester increased rate of A1c<7% by 10%

Amsterdam decreased rate of A1c >9% by 11%

Mt Hope increased ophthalmology consults rates by 7%

Sidney Hillman increased neuropathy screening rate by 21%



# Effect of Electronic Health Alerts on Communicable Disease Outbreaks

The screenshot shows the Epic Hyperspace software interface. On the left, a patient chart for "Zztest, Green" is displayed, showing details like age (52), sex (F), DOB (3/7/1957), MRN (1128739), and allergies ("No Known Allergies"). The charting section includes "Chief Complaint" (Fever, Cough) and "Vitals" (BP, Pulse, Resp, Temp, SpO2, Wt - Scale, Height, Peak Flow). A "BestPractice Alerts" section highlights a "Swine Flu Alert" about influenza symptoms. On the right, a "Slide Layout" panel is open, showing various layout templates for slides.



# Just getting underway

- Can BPAs decrease inappropriate prescribing for elderly patients?
- Can BPAs for potentially teratogenic medications increase documentation of contraceptive counseling in women of reproductive age?



# How do CHCs get involved in research?





# Research Infrastructure

- Research Committee
- Institutional Review Board
- Practice-Based Research Network
- Partnerships
- Grant Support





# Research Dissemination

- Bennett IM, Coco A, Anderson J, Horst M, Gambler AS, **Barr WB**, Ratcliffe S. Improving maternal care with a continuous quality improvement strategy: a report from the Interventions to Minimize Preterm and Low Birth Weight Infants through Continuous Improvement Techniques (Implicit). *Journal of the American Board of Family Medicine*. 2009 July-August;22(4):380-6.
- Hripcsak G, Soulakis ND, Li L, Morrison FP, Lai A, Friedman C, **Calman NS**, Mostashari F. Syndromic surveillance using ambulatory electronic health records. *Journal of the American Medical Informatics Association*. 2009 May-June;16(3):354-61. Epub 2009 March 4.
- Sengupta S, **Calman NS**, Hripcsak G. A model for expanded public health reporting in the context of HIPAA. *Journal of the American Medical Informatics Association*. 2008;15:569-574.
- **Calman NS, Kitson K, Hauser D.** Using Health Information Technology to Improve Health Quality and Safety in Community Health Centers. *Journal of Progress in Community Health Partnerships: Research Education and Action*. Spring 2007 1(1):83-88.



# Thank You!