



## Collaborative Care to Reduce Depression and Increase Cancer Screening among Low-Income Urban Women Project (PCM3)

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## Collaborative Care to Reduce Depression and Increase Cancer Screening Among Low-Income Urban Women Project (PCM3) Community - Academic Investigators & Staff



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# Collaborative Care to Reduce Depression and Increase Cancer Screening Among Low-Income Urban Women (PCM3) Site Investigators, Staff and Patient Stakeholders

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Montefiore Family Care Center	Gianni Carrozzi, MD	Emelinda Blanco Kimberly Rodriguez Claudio Lechuga, MPH Joanna Guevarez	Miriam Rios
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# Prevention Care Management (PCM) Projects RCTs (2000-2012)

**Annals of Internal Medicine**

**Telephone Care Management To Improve Cancer Screening Low-Income Women**  
A Randomized, Controlled Trial

Allen J. Dietrich, MD; Jonathan N. Tobin, PhD; Andra Cassells, MPH; Christina M. Robinson, MS; Mary Ann Greene, M; Carol Hill Sox, Esq; Michael L. Beach, MD, PhD; Katherine N. Duhamel, PhD; and Richard C. Young, MD, MPH

**Background:** Minority and low-income women receive fewer cancer screenings than other women.  
**Objective:** To evaluate the effect of a telephone support intervention to increase rates of breast, cervical, and colorectal cancer screening among minority and low-income women.  
**Design:** Randomized, controlled trial conducted between November 2001 and April 2004.  
**Setting:** 11 community and migrant health centers in New York City.  
**Patients:** 1413 women who were overdue for cancer screening.  
**Intervention:** Over 18 months, women assigned to the intervention group received an average of 4 calls from prevention care managers and women assigned to the control group received usual care. Follow-up data were available for 95% of women, and 91% of the intervention group received at least 1 call.  
**Measurements:** Medical record documentation of mammography, Pap smears testing, and colorectal cancer screening according to U.S. Preventive Services Task Force recommendations.  
**Results:** The proportion of women who had mammography increased from 0.58 to 0.68 with the intervention and decreased

from 0.60 to 0.58 with usual care; the proportion of women who had cervical cancer screening increased from 0.71 to 0.78 with the intervention and from 0.39 to 0.50 with usual care; change in screening rates between groups was highly significant (95% CI, 0.06 to 0.19), 0.07 for Pap (0.01 to 0.12), and 0.13 for colorectal screening. The proportion of women who were up to date increased from 0.21 to 0.43 with the intervention.  
**Limitations:** Participants were from 1 city regular source of care. Medical records may not reflect actual screening.  
**Conclusions:** Telephone support can improve rates among women who visit community centers. The intervention seems to be well-tolerated in large medical groups, and other organizations can consider telephone support to address disparities in cancer screening rates and to address disparities in cancer screening rates.

*Ann Intern Med* 2006;144:563-571. For author affiliations, see end of text.

Higher screening rates for breast, cervical, and colorectal cancer could reduce cancer mortality rates substantially (1-4). Current cancer screening rates are particularly disappointing among ethnic minorities and individuals with low socioeconomic status (5, 6) who often present with late-stage diagnoses (7) and have high mortality rates (8, 9).  
Interventions to increase cancer screening have shown limited sustainability and effect on health care disparities. A previous study showed that an office systems approach, which used a medical record flowchart and practice teamwork, increased screening rates by 20% to 35% in small rural community practices (10); however, a similar intervention was less effective in larger urban practices (11). An office intervention in low-income settings in Florida increased mammography use and home fecal occult blood testing at 12 months (12), but rates decreased substantially after research support ended (13).  
Use of the telephone to support cancer screening is well documented (14-18), but interventions have typically

support for patients who are already enrolling in expanded services to other while making demands on primary care practices (24). The results of a randomized, controlled effect of centralized telephone care management on cancer screening rates among women 50 to 69 years of age at community and migrant health centers in New York City.  
**METHODS**  
**Settings** Federally qualified community health centers provide comprehensive community health services to underserved populations in New York City.  
**See also:**  
**Print** .....  
**Editors' Notes** .....  
**Editorial comment** .....  
**Related article** .....  
**Web** .....  
See into sb  
2006

**Translation of an Efficacious Cancer-Screening Intervention to Women Enrolled in a Medicaid Managed Care Organization**

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**ABSTRACT**  
**PURPOSE:** An earlier randomized controlled trial of prevention care management (PCM) found significant improvement in breast, cervical, and colorectal cancer-screening rates among women attending Community Health Centers but required substantial research support. This study evaluated the impact of a streamlined PCM delivered through a Medicaid managed care organization (MMCO), an infrastructure with the potential to sustain this program for the long term.  
**METHODS:** This randomized trial was conducted within an MMCO serving New York City between May 2005 and December 2005. A total of 1,316 women aged 40 to 69 years and not up to date for at least 1 targeted cancer screening test were randomized to either PCM or a comparison group. Women in the PCM group received up to 3 scripted telephone calls to identify barriers and provide support to obtain any needed breast, cervical, and colorectal cancer screening tests. Women in the comparison group received a modified version of the MMCO's established mammography telephone outreach program, also in up to 3 calls. Women in both groups received a financial incentive on confirmation that they had received a mammogram. Screening status was assessed through MMCO administrative data. Groups were compared using odds ratios.  
**RESULTS:** In an intent-to-treat comparison adjusted for baseline screening status, PCM women were 1.68 times more likely to be up-to-date for colorectal cancer screening tests at follow-up than women in the comparison group (95% confidence interval, 1.03-2.77). Follow-up screening rates for cervical and breast cancer did not differ significantly between study groups on an intent-to-treat basis.  
**CONCLUSIONS:** The abbreviated PCM telephone intervention was feasible to deliver through an MMCO and improved screening for 1 cancer. This approach has the potential to improve cancer-screening rates significantly in settings that can provide telephone support to women known to be overdue.

**INTRODUCTION**  
Lower cancer-screening rates among low-income and minority women may contribute to more late-stage diagnoses and higher rates of cancer mortality.<sup>1-4</sup> Although socioeconomic variables such as income and education may explain much of the disparity in cancer screening observed between racial and ethnic groups,<sup>5,6</sup> disparities nonetheless remain. Recent surveys in New York City found that Hispanics and African Americans were less likely to be screened for colorectal cancer than whites,<sup>7,8</sup> and cancer mortality rates were 1.3 times higher among residents living in low-income areas than among their counterparts in higher-income areas.<sup>9</sup>

**Telephone Outreach to Increase Colon Cancer Screening in Medicaid Managed Care Organizations: A Randomized Controlled Trial**

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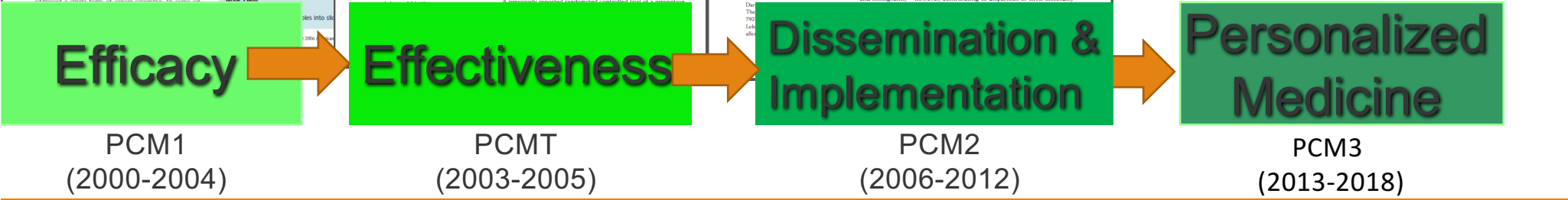
**ABSTRACT**  
**PURPOSE:** Health Plans are uniquely positioned to deliver outreach to members. We explored whether telephone outreach, delivered by Medicaid managed care organization (MMCO) staff, could increase colorectal cancer (CRC) screening among publicly insured urban women, potentially reducing disparities.  
**METHODS:** We conducted an 18-month randomized clinical trial in 3 MMCOs in New York City in 2008-2010, randomizing 2,240 MMCO-insured women, aged 50 to 63 years, who received care at a participating practice and were overdue for CRC screening. MMCO outreach staff provided cancer screening telephone support, educating patients and helping overcome barriers. The primary outcome was the number of women screened for CRC during the 18-month intervention, assessed using claims.  
**RESULTS:** MMCO staff reached 60% of women in the intervention arm by telephone. Although significantly more women in the intervention (36.7%) than in the usual care (30.6%) arm received CRC screening (odds ratio [OR] = 1.32, 95% CI, 1.08-1.62), increases varied from 1.1% to 13.1% across the participating MMCOs, and the overall increase was driven by increases at 1 MMCO. In an as-treated comparison, 41.8% of women in the intervention arm who were reached by telephone received CRC screening compared with 26.9% of women in the usual care arm who were not contacted during the study (OR = 1.84; 95% CI, 1.38, 2.44); 7 women needed to be reached by telephone for 1 to become screened.  
**CONCLUSIONS:** The telephone outreach intervention delivered by MMCO staff increased CRC screening by 6% more than usual care among randomized women, and by 15.1% more than usual care among previously overdue women reached by the intervention. Our research-based intervention was successfully translated to the health plan arena, with variable effects in the participating MMCOs.

**INTRODUCTION**  
Colorectal cancer (CRC) remains the second leading cause of cancer death in the United States<sup>1</sup> despite screening tests that can detect and prevent it. The United States Preventive Services Task Force (USPSTF) gives CRC screening its highest recommendation,<sup>2</sup> and mortality from CRC has declined as screening rates have increased.<sup>3,4</sup> Screening rates still lag for Hispanics, African Americans, low-income individuals, and immigrants,<sup>5,6</sup> however, contributing to disparities in CRC morbidity

**Stratified Medicine**



**Personalized Medicine**



Funded by NCI Grants R01-CA87776 & R01-CA119014 (A. Dietrich, PI; J.N. Tobin, Co-PI)

# Qualitative Findings from Community Partnership Development Pilot

ORIGINAL RESEARCH

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## Exploring Cancer Screening in the Context of Unmet Mental Health Needs: A Participatory Pilot Study

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Lauren Machin<sup>4</sup>, Meiling Viera-Delgado<sup>5</sup>, Pamela Valera, PhD<sup>1</sup>, Nicole Maysonet, BS<sup>1</sup>, Elisa S. Weiss, PhD<sup>1</sup>

(1) Division of Community Collaboration and Implementation Science, Albert Einstein College of Medicine, Department of Epidemiology and Population Health at the time of writing; (2) Division of Community Collaboration and Implementation Science, Albert Einstein College of Medicine, Department of Epidemiology and Population Health; (3) Division of Community-Based Programs, Good Shepherds Services; (4) Morris Heights Health Center; (5) Phipps Community Development Corp  
Submitted 2 April 2012, revised 1 November 2012, accepted 28 November 2012. This research was supported by Albert Einstein College of Medicine's Institute for Clinical and Translational Research, funded by a Clinical and Translational Science Award (UL1 RR025750) from the National Center for Advancing Translational Sciences, a component of the National Institutes of Health.

Daily stressors and life stressors play a prominent role in mental health in the Bronx

- Important implications for multilevel intervention development.

Collaboration has strengthened the linkages and referral systems between collaborating organizations

- Provides a foundation for the sustainability of future efforts

Research is needed to identify interventions capable of **improving access and participation in mental health services in a manner that facilitates age-appropriate cancer screening** and other preventive health behaviors, particularly in resource-poor contexts like the Bronx.

# Bronx Partners

**Partners**

- Belvis Family Care Center
- Bronxworks
- Good Shepherd Services
- Lincoln Medical Center
- Montefiore Med. Center
- Morrisania Diagnostic Center
- Morris Heights Health Center
- Urban Health Plan

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## PCM3 Overall Goal

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**To Determine Whether Among Low-Income Depressed Women, Addressing and Reducing Depression Will Increase Rates of Cancer Screening**

# PCM3 Methods

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To Compare the Effectiveness of Two Evidence-based Multi-component Interventions Using a Randomized Controlled Trial (RCT):

**1) Collaborative Care Intervention (CCI)** for depression and cancer screening needs simultaneously

**2) Prevention Care Management (PCM)** for cancer screening needs only

**Recruitment**

- Women aged 50-64 who were overdue for breast, cervical or colorectal cancer screening services were evaluated for depression symptoms using the PHQ9.
- 802 women enrolled across 6 Bronx Federally Qualified Health Centers (FQHCs)



# PCM3 Methods

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## Intervention

- 2 Care Managers (CMs) at each site, one per study arm (CCI and PCM)
- Clinicians and other staff were educated about the project
- Patients in both arms receive monthly telephone support for 12 month
- CMs received extensive training and ongoing supervision to ensure compliance with protocol
- Collaboration with 2 Bronx Community Based Organizations to provide linkages to social services for CCI patients

## Evaluation

- Patients assessed at baseline, 6 and 12-months to evaluate the impact on patient-reported outcomes
  - Depression
- Final evaluation Electronic Health Record (EHR) review
  - Cancer Screening Status (Breast, Cervical, Colorectal Cancer)

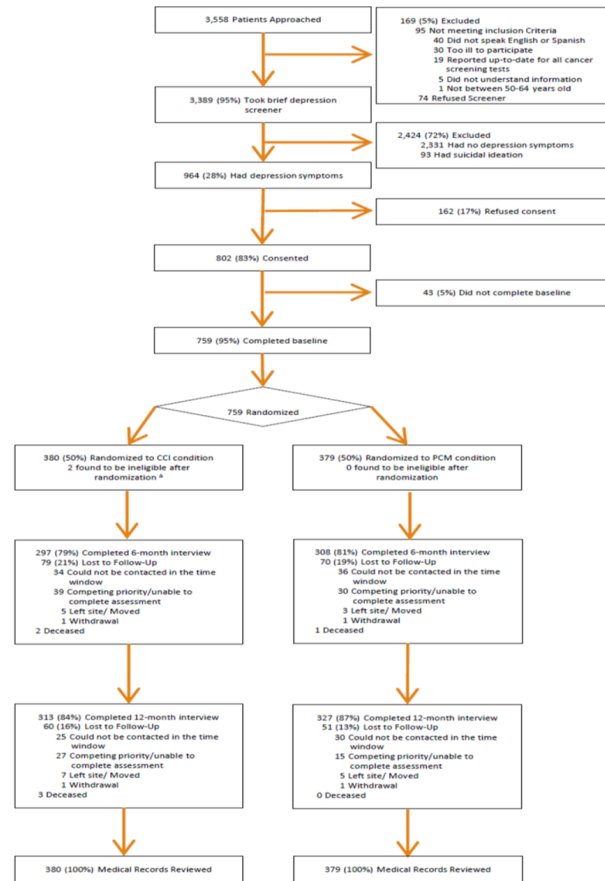
# RCT: PCM vs CCI

	Prevention Care Manager (PCM)	Collaborative Care Model (CCI)
Cancer Screening	<ul style="list-style-type: none"> <li>Educate and increase awareness</li> <li>Provide patient navigation</li> <li>Provide motivational interviewing and support to overcome barriers to cancer screening</li> </ul>	<ul style="list-style-type: none"> <li>Educate and increase awareness</li> <li>Provide patient navigation</li> <li>Provide motivational interviewing and support to overcome barriers to cancer screening</li> </ul>
Mental Health		<ul style="list-style-type: none"> <li>Provide depression care and motivational support (supportive counseling)</li> <li>Be an interface between primary care and mental health providers</li> <li>Provide linkage to social services</li> </ul>

# RESULTS

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### Collaborative Care to Reduce Depression and Increase Cancer Screening Among Low-Income Urban Women Project CONSORT DIAGRAM



\* Ineligible and deceased were excluded from the denominator when calculating the follow up rates

## Baseline Demographic Characteristics of Participants

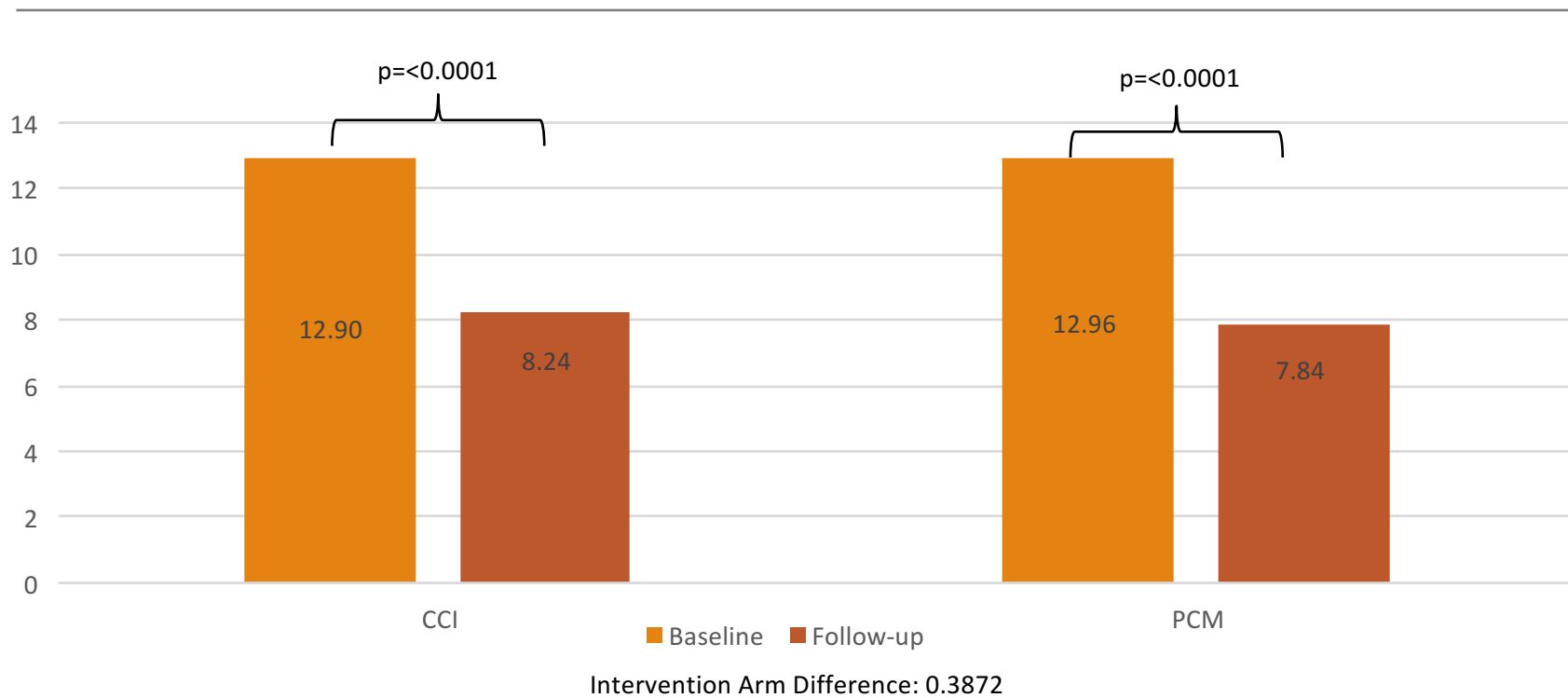
Variable	CCI (n = 378)	PCM (n = 379)	p-value
<b>Employment, n (%)</b>			0.956
Employed	76 (20)	78 (21)	
Unemployed	102 (27)	108 (29)	
Homemaker	61 (16)	59 (16)	
Other	139 (37)	134 (35)	
<b>Household income, n (%)</b>			0.017
\$0 to \$9,999	258 (69)	242 (65)	
\$10,000 to \$14,999	42 (11)	69 (19)	
\$15,000 or more	74 (20)	62 (17)	
<b>Insurance, n (%)</b>			0.598
Medicaid + Medicare	32 (8)	32 (8)	
Medicaid	275 (73)	285 (75)	
Medicare	17 (5)	12 (3)	
Employer	12 (3)	17 (4)	
No insurance	41 (11)	33 (9)	
<b>Years receiving care at the community health center before consent, n (%)</b>			0.360
< 3	126 (33)	138 (37)	
≥ 3	251 (67)	239 (63)	
<b>Variable</b>	<b>CCI (n = 378)</b>	<b>PCM (n = 379)</b>	<b>p-value</b>
<b>Mean age (SD) at consent, y</b>	56.2 (4.3)	55.8 (4.2)	0.279
<b>Hispanic, n (%)</b>	289 (76)	301 (79)	0.325
<b>Primary language, n (%)</b>			0.794
English	163 (43)	167 (44)	
Spanish	215 (57)	212 (56)	
<b>Born in US, n (%)</b>	142 (38)	154 (41)	0.371
<b>Marital status, n (%)</b>			0.969
Married/cohabiting	95 (25)	95 (25)	
Single/divorced/widowed/separated	271 (72)	274 (72)	
Other	10 (3)	9 (2)	
<b>Education, n (%)</b>			0.552
Less than 8 years	89 (24)	81 (22)	
8-11 years	113 (30)	131 (35)	
Completed High School	90 (24)	82 (22)	
Post High School and higher	84 (22)	82 (22)	

**Table 2. Baseline Clinical Characteristics of Participants**

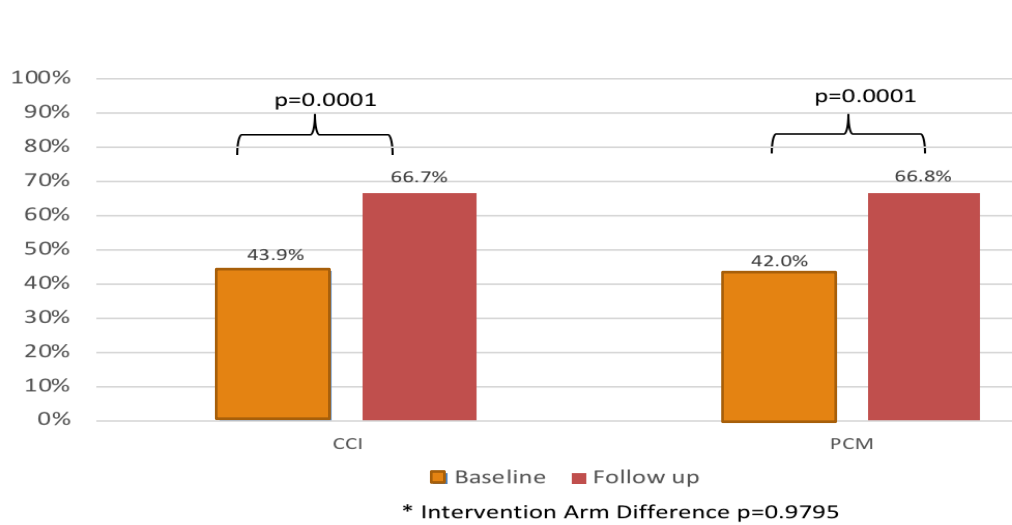
Variable	CCI (n = 378)	PCM (n = 379)	p-value
<b>PHQ9 score groups, n (%)</b>			0.242
5-9 Mild Depression	104 (27.59)	104 (27.44)	
10-14 Moderate Depression	159 (42.18)	147 (38.79)	
15-19 Moderately Severe Depression	80 (21.22)	102 (26.91)	
20-27 Severe Depression	34 (9.02)	26 (6.86)	
Mean (SD)	12.90 (4.22)	12.96 (4.08)	
<b>Cancer history, n (%)</b>	28 (7)	32 (9)	0.583
<b>Hysterectomy, n (%)</b>	84 (22)	83 (22)	0.977
<b>Smoking Status, n (%)</b>			0.849
Current	92 (29.87)	89 (27.81)	
Former	50 (16.23)	53 (16.56)	
Never	166 (53.90)	178 (55.63)	
<b>Body Mass Index</b>			0.614
Mean (SD), kg/m <sup>2</sup>	32.40 (7.61)	31.96 (7.72)	0.428
Underweight, n (%)	4 (1.07)	7 (1.88)	
Normal, n (%)	53 (14.21)	48 (12.87)	
Overweight, n (%)	101 (27.08)	112 (30.03)	
Obese, n (%)	215 (57.64)	206 (55.23)	
<b>Comorbid condition, n (%)</b>			
Asthma	124 (32.89)	123 (32.54)	0.918
Hypertension	242 (64.19)	245 (64.81)	0.858
Hyperlipidemia	220 (58.36)	209 (55.29)	0.395
Diabetes	157 (41.64)	152 (40.21)	0.689

**SUMMARY:** There were no socio-demographic or clinical differences at Baseline, except for a higher % of lowest household income (\$0 to \$9,999) in the CCI arm

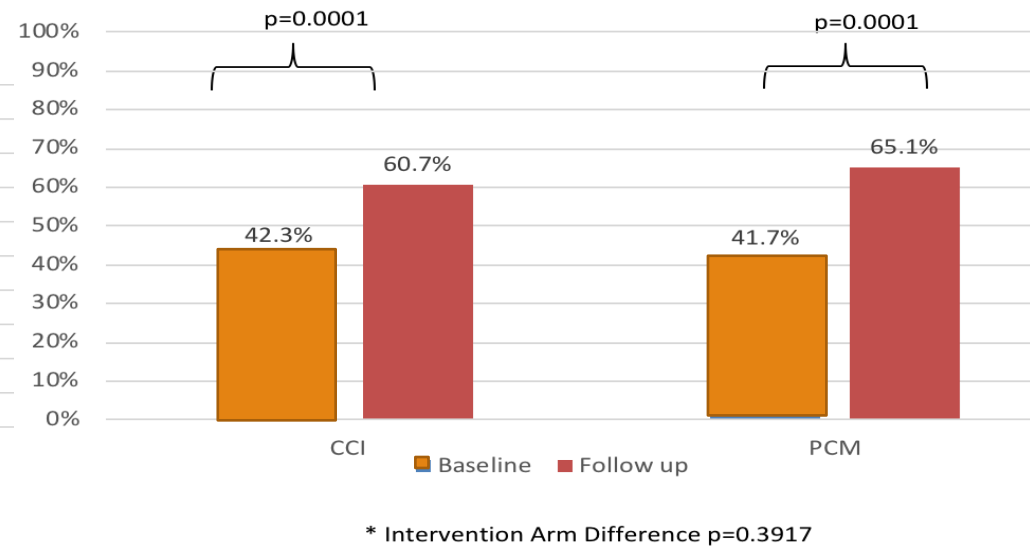
# Comparison of Improvement in Depression (PHQ9) by Intervention Arm (N=629)



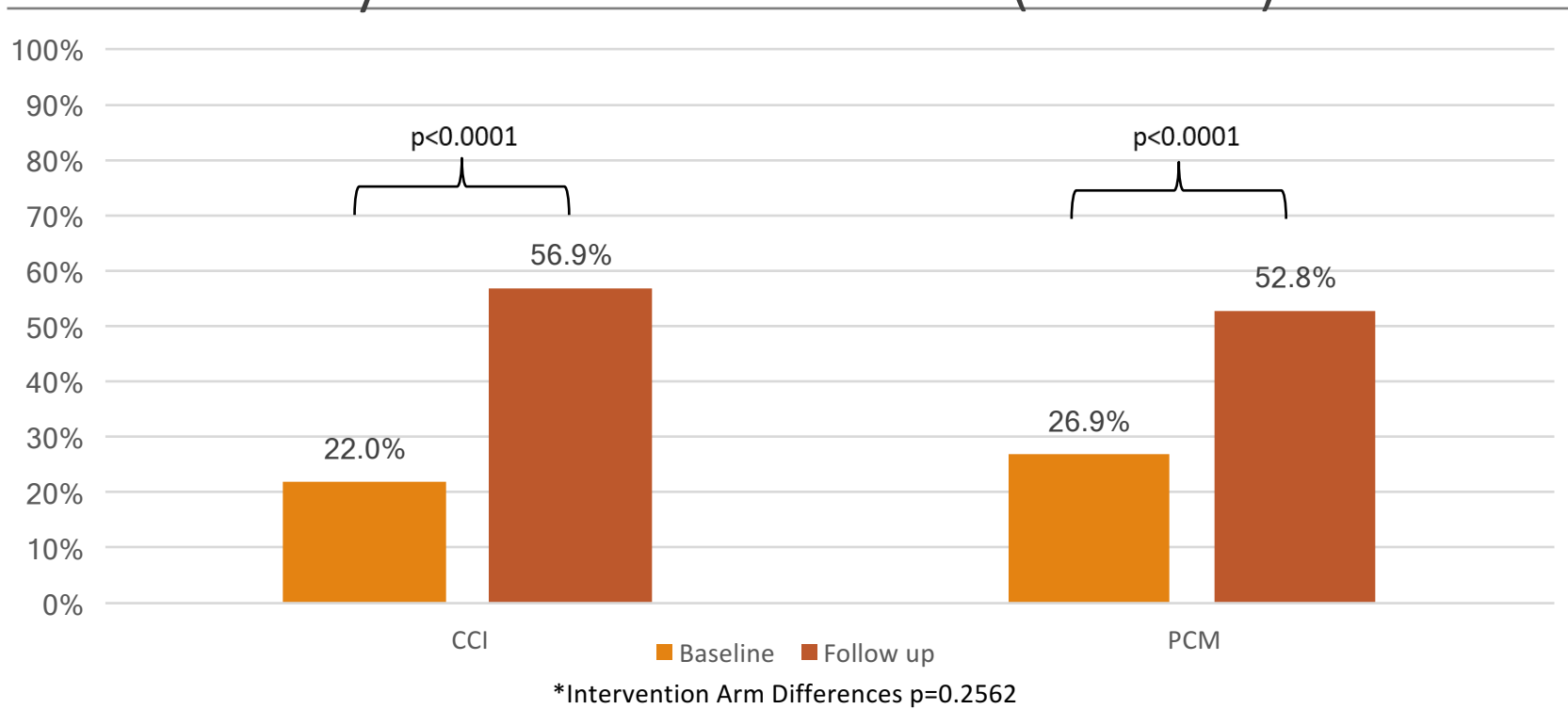
### Follow-up Breast Cancer Screening Up to Date Status by Intervention Arm (N=757)



### Follow-up Cervical Cancer Screening Up to Date Status by Intervention Arm (N=757)



# Follow-up Colorectal Cancer Screening Up to Date Status by Intervention Arm (N=757)





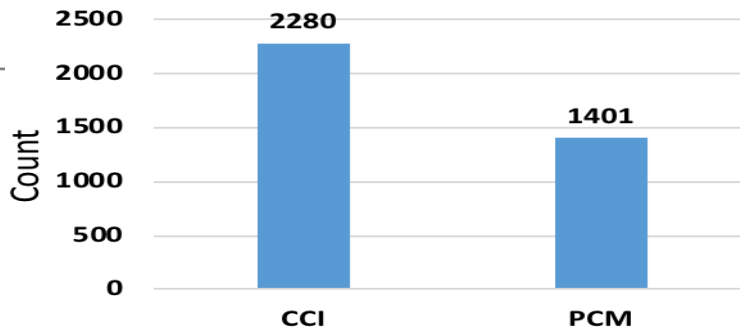
# Logistic Regression Model of Up to Date Colorectal Cancer Screening after Intervention

Effect	Model 1 OR (95%CI)	p-value	Model 2 OR (95%CI)	p-value
Treatment Group (CCI vs PCM)	1.346 (0.979-1.851)	0.0677	1.48 (1.042-2.102)	0.0286
PHQ9 at baseline	0.989 (0.952, 1.027)	0.5552	0.989 (0.948-1.032)	0.6187
Improvement of depression by one level (Yes vs No)			1.295 (0.862-1.946)	0.2133
Baseline colorectal cancer up to date (Yes vs No)	11.014 (6.720-18.053)	<0.0001	9.718 (5.688-16.603)	<0.0001
Age	0.958 (0.923-0.994)	0.0232	0.957 (0.919-0.998)	0.0393
Income		0.1286		0.1991
Income (\$10,000 to \$14,999) vs (\$0 to \$9,999)	0.711 (0.450-1.124)		0.717 (0.433-1.185)	
Income (\$15,000 and above) vs (\$0 to \$9,999)	0.698 (0.457-1.066)		0.701 (0.437-1.124)	

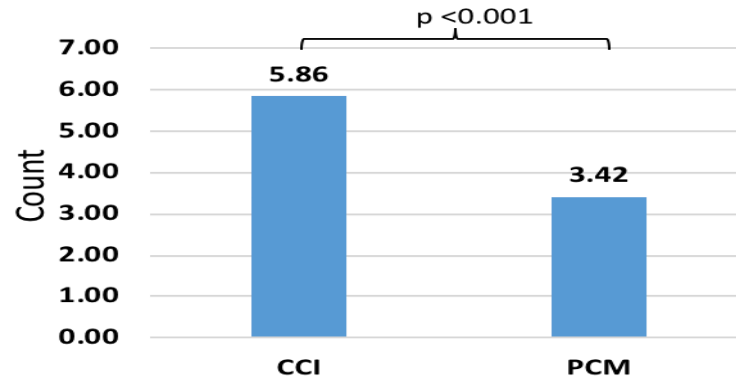
# Assessment of Implementation and Treatment Fidelity

Number of Successful Calls During the Intervention Period (N=757)

**Number of Successful Calls**

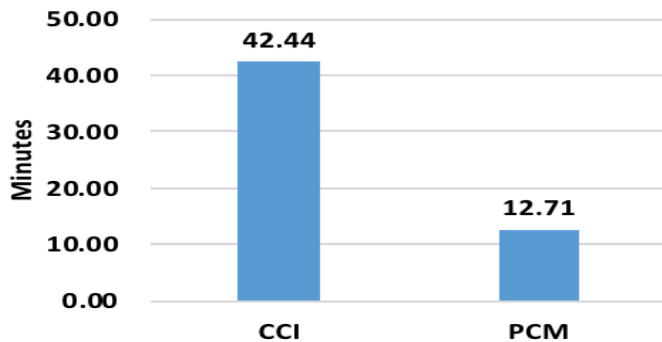


**Number of Successful Calls per Patient**

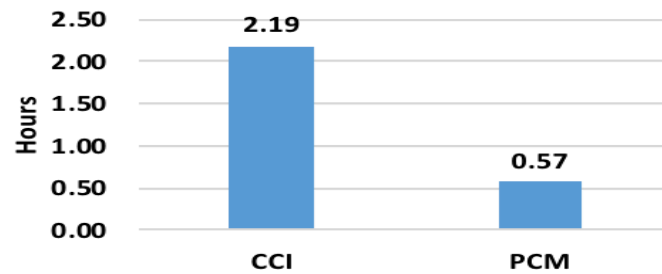


Average Duration of Successful Calls (N=757)

**Average Time Spent by PCM on Initial Call (minutes)**



**Average Time Spent by PCM on All Successful Calls per Patient over the Course of the Project (hours)**



## Summary of Findings

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- On average, women in the PCM arm received 3 successful calls compared to 6 in the CCI arm
- Depression improved significantly in both arms but the difference in improvement was not statistically significant between arms, suggesting that both PCM and CCI had similar positive effects on depression
- Breast and cervical cancer screening rates improved significantly for both groups but did not differ significantly between arm
- Women assigned to CCI were more likely to be up-to-date at follow-up for colo-rectal cancer screening than women in the PCM arm, when controlling for age, income, baseline cancer screening status and baseline PHQ9 and depression improvement

# Limitations

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- PCM3 had follow-up assessments at 6 and 12 months after baseline. It is unclear whether differential intervention effects would emerge after 12 months
- PCM3 enrolled participants based on cancer screening needs, but did not have a similar explicit eligibility criterion for mental health care resource need. Pre-study access and higher baseline utilization levels of mental health care may have attenuated the effects of CCI on mental-health related outcomes, due to a ceiling effect
- Electronic Health Records (EHR) data were not designed for research purposes. Tests obtained at another practice or overseas in a participant's home country may not be captured in the HER, leading to under-reporting, though this was probably non-differential

# Conclusions

- **Both CCI and PCM**

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- Are evidence-based interventions that can be translated and implemented successfully across a wide range of clinical settings in medically underserved communities
- Focus on overcoming barriers to engaging in health care
- If those barriers to cancer screening and to engaging in mental health care overlap, PCM discussions alone may be sufficient to address those barriers that are generally getting in the way of accessing and utilizing health care
- Successful interventions to improve cancer screening for those experiencing mental illness must address life stressors, while leveraging community partners' social services programs and low cost screening programs

# Conclusions

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- Combined interventions to improve cancer screening and mental health must address structural barriers (egs, insurance, transportation, access) that underlie both the low rates of cancer screening and unmet mental health needs
- Interventions need to improve access and also facilitate age-appropriate cancer screening and other preventive health behaviors and services
- Partnerships among patients, FQHCs and CBOs can increase linkages to services that mitigate individual and systems-level barriers to care, and address poverty-related determinants of mental illness and lack of prevention behaviors, such as age-appropriate cancer screening

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