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


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**Improving Healthcare Systems (IH-12-11-4522)**
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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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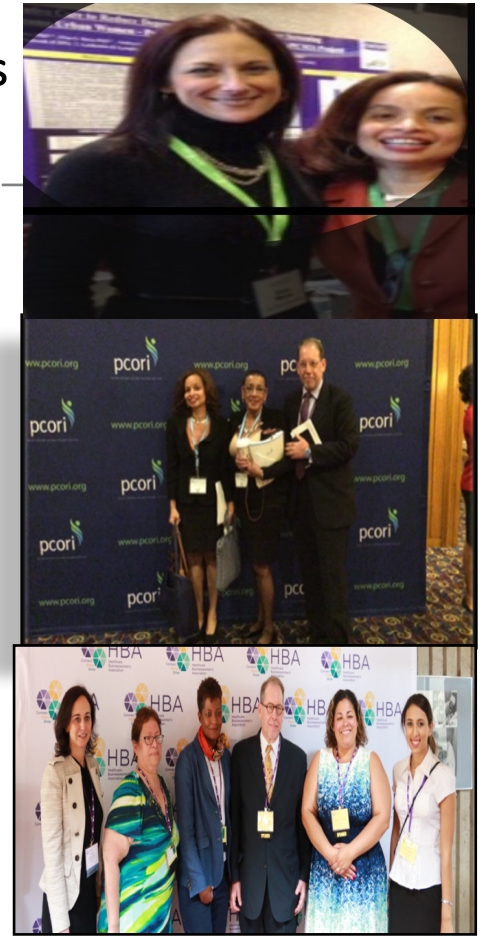
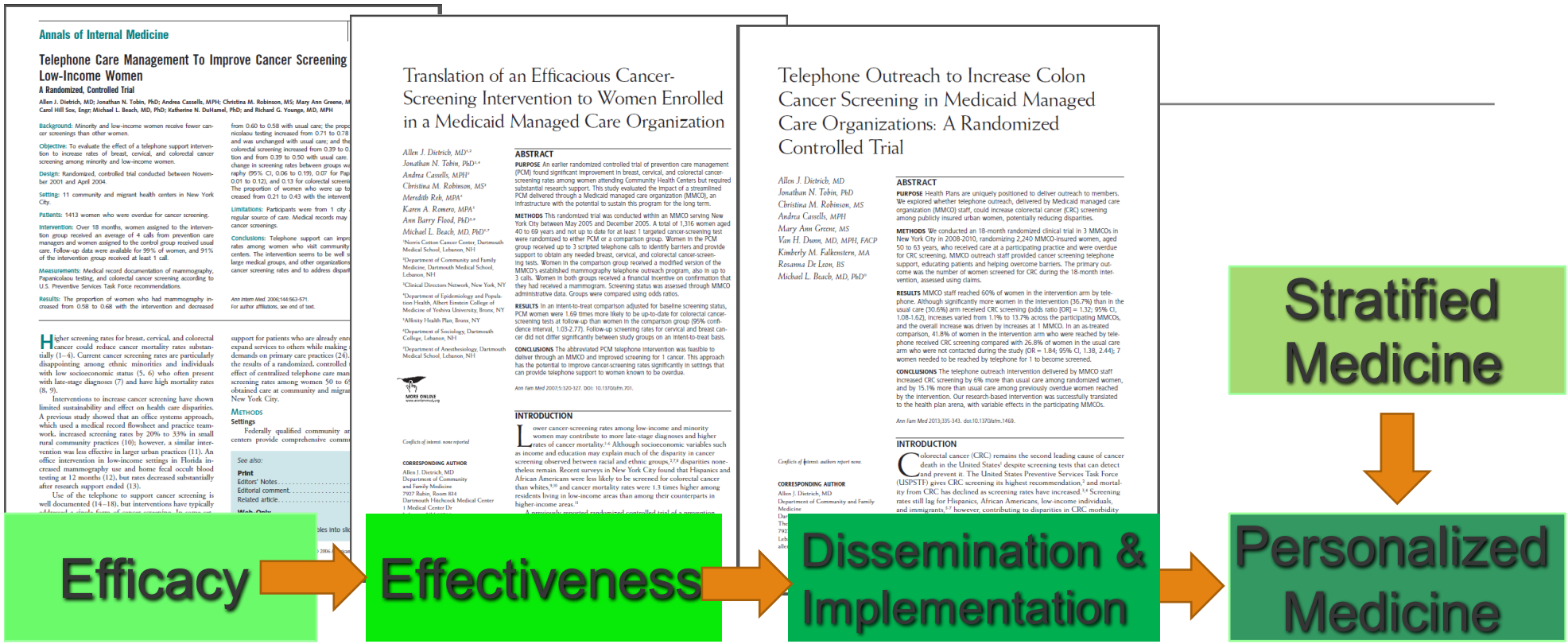
# Collaborative Care to Reduce Depression and Increase Cancer Screening Among Low-Income Urban Women (PCM3)
## Site Investigators, Staff and Patient Stakeholders

| Site | Site Investigator | Site Staff | Patient Stakeholders |
|---|---|---|---|
| Urban Health Plan | Alejandra Morales, PsyD,<br>Franco Barsanti, PharmD | Jennifer Concepcion<br>Sasha Garcia<br>Jonathan Diaz<br>Barbara Salcedo, MPH | Margaret Glean |
| Morris Heights Health Center | Alison Maling, LCSW | Onassis Ceballo<br>Yocasta Diaz Perez | Doris Hamrick |
| Montefiore Family Care Center | Gianni Carrozzi, MD | Emelinda Blanco<br>Kimberly Rodriguez<br>Claudio Lechuga, MPH<br>Joanna Guevarez | Miriam Rios |
| NYC H+H (Lincoln Hospital Ambulatory Care Services, Segundo Ruiz Belvis D&TC , Morrissania D&TC) | Maria Espejo, MD<br>Walid Michelen, MD<br>Amanda Ascher, MD<br>David John, MD | Wallis Taveras<br>Peggy Hyman Dow, MPH<br>Louann Casiano, MPH<br>Erica Gilbert, MPH<br>Maryanne Guerrero, MPH | Carmen Abrante<br>Carmen Rivera |
| Good Shepherd Services | Ellen O'Hara-Cicero, LCSW | Keisha Gill | Anitta Ruiz |
| BronxWorks | John Weed, LCSW | Kimberley Wong | Norma Perez |



# 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

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

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

**Efficacy** → **Effectiveness** → **Dissemination & Implementation** → **Personalized Medicine**

**Stratified Medicine**

| PCM1 (2000-2004) | PCMT (2003-2005) | PCM2 (2006-2012) | PCM3 (2013-2018) |
|---|---|---|---|

**Funded by NCI Grants R01-CA87776 & RO1-CA119014 (A. Dietrich, PI; J.N. Tobin, Co-PI)**

# Qualitative Findings from Community Partnership Development Pilot

ORIGINAL RESEARCH

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

Abigail Williams, MPH[1], Jennifer Erb-Downward, MPH[2], Emilie Bruzelius, MPH[1], Ellen O'Hara-Cicero, LCSW-R[3], Alison Maling, LCSW[4], Lauren Machin[4], Meiling Viera-Delgado[5], Pamela Valera, PhD[1], Nicole Maysonet, BS[1], Elisa S. Weiss, PhD[1]

(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

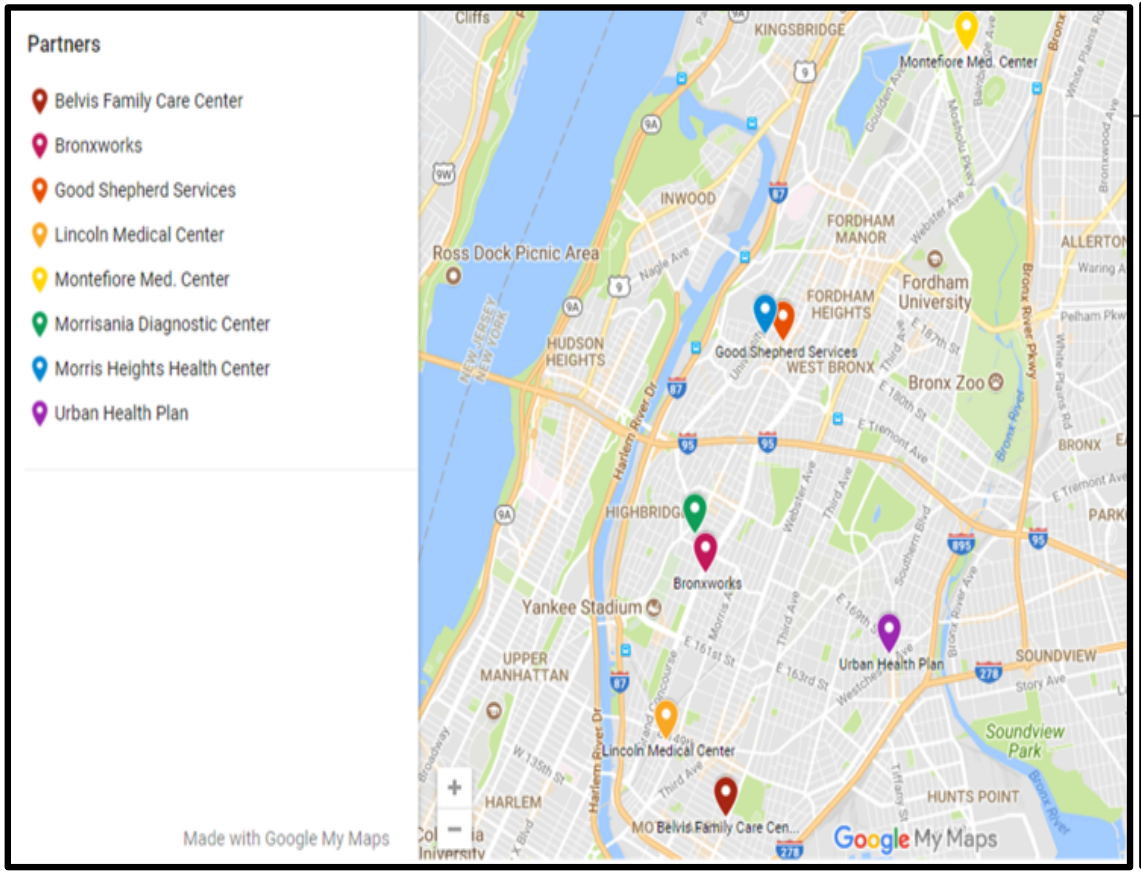
- Important implications for multilevel intervention development.

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




# PCM3 Overall Goal

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

# PCM3 Methods

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

**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)

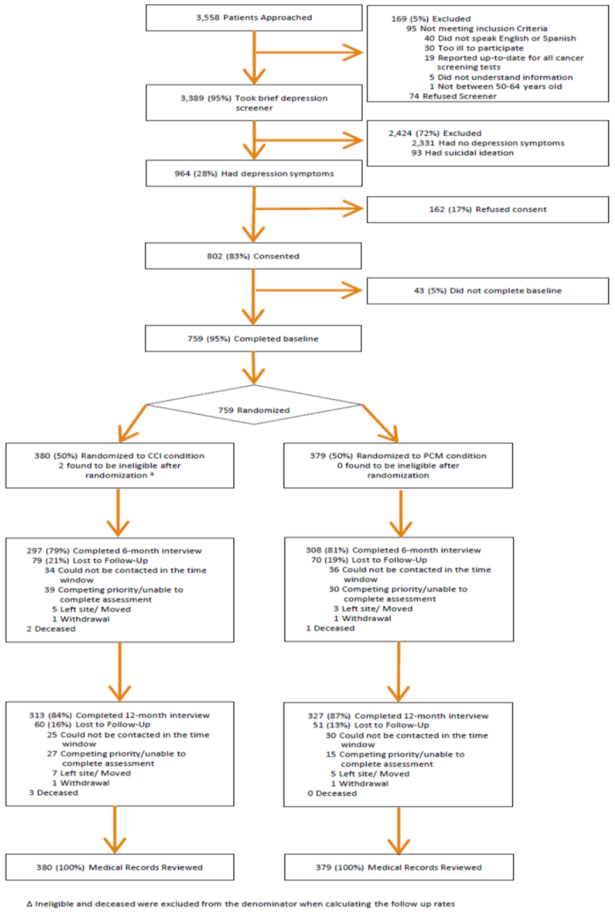
# RCT: PCM vs CCI

| | Prevention Care Manager (PCM) | Collaborative Care Model (CCI) |
|---|---|---|
| Cancer Screening | • Educate and increase awareness<br>• Provide patient navigation<br>• Provide motivational interviewing and support to overcome barriers to cancer screening | • Educate and increase awareness<br>• Provide patient navigation<br>• Provide motivational interviewing and support to overcome barriers to cancer screening |
| Mental Health | | • Provide depression care and motivational support (supportive counseling)<br>• Be an interface between primary care and mental health providers<br>• Provide linkage to social services |

Funded by: Patient-Centered Outcomes Research Institute (PCORI)
Improving Healthcare Systems (IH-12-11-4522)

# RESULTS

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




Δ 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 |
|---|---|---|---|
| **Employment, n (%)** | | | 0.956 |
| Employed | 76 (20) | 78 (21) | |
| Unemployed | 102 (27) | 108 (29) | |
| Homemaker | 61 (16) | 59 (16) | |
| Other | 139 (37) | 134 (35) | |
| **Household income, n (%)** | | | 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) | |
| **Insurance, n (%)** | | | 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) | |
| **Years receiving care at the community health center before consent, n (%)** | | | 0.360 |
| < 3 | 126 (33) | 138 (37) | |
| ≥ 3 | 251 (67) | 239 (63) | |

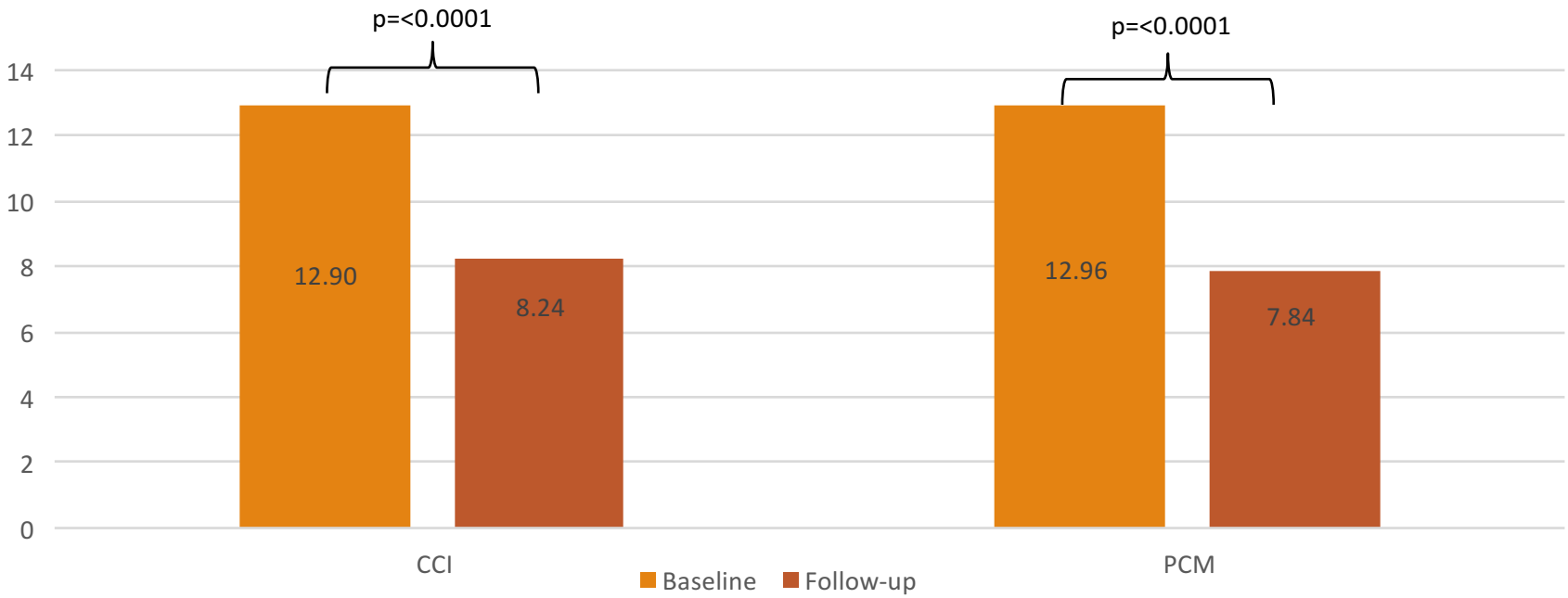
| Variable | CCI (*n* = 378) | PCM (*n* = 379) | p-value |
|---|---|---|---|
| **Mean age (SD) at consent, y** | 56.2 (4.3) | 55.8 (4.2) | 0.279 |
| **Hispanic, n (%)** | 289 (76) | 301 (79) | 0.325 |
| **Primary language, n (%)** | | | 0.794 |
| English | 163 (43) | 167 (44) | |
| Spanish | 215 (57) | 212 (56) | |
| **Born in US, n (%)** | 142 (38) | 154 (41) | 0.371 |
| **Marital status, n (%)** | | | 0.969 |
| Married/cohabiting | 95 (25) | 95 (25) | |
| Single/divorced/widowed/ separated | 271 (72) | 274 (72) | |
| Other | 10 (3) | 9 (2) | |
| **Education, n (%)** | | | 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 |
|---|---|---|---|
| **PHQ9 score groups, n (%)** | | | 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) | |
| **Cancer history, n (%)** | 28 (7) | 32 (9) | 0.583 |
| **Hysterectomy, n (%)** | 84 (22) | 83 (22) | 0.977 |
| **Smoking Status, n (%)** | | | 0.849 |
| Current | 92 (29.87) | 89 (27.81) | |
| Former | 50 (16.23) | 53 (16.56) | |
| Never | 166 (53.90) | 178 (55.63) | |
| **Body Mass Index** | | | 0.614 |
| Mean (SD), kg/m$^2$ | 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) | |
| **Comorbid condition, n (%)** | | | |
| 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 |

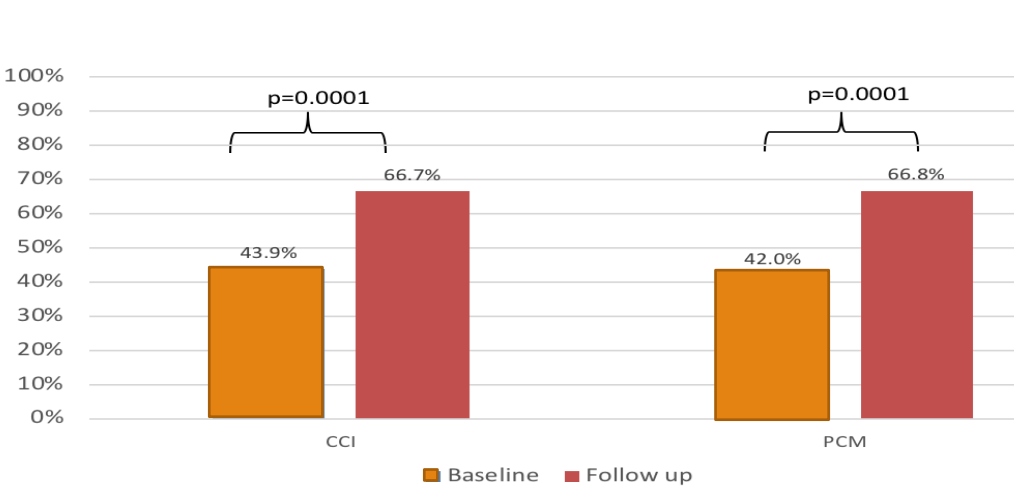
**SUMMARY: There were no socio-demographic or clinical differences at Baseline, except for a higher % of lowest household income ($0 to $9,999) in the CCI arm**

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



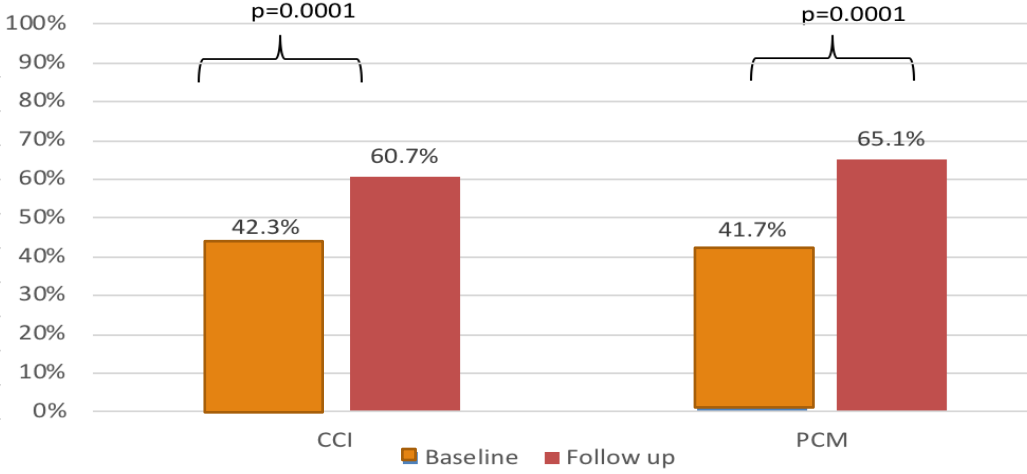

Intervention Arm Difference: 0.3872

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



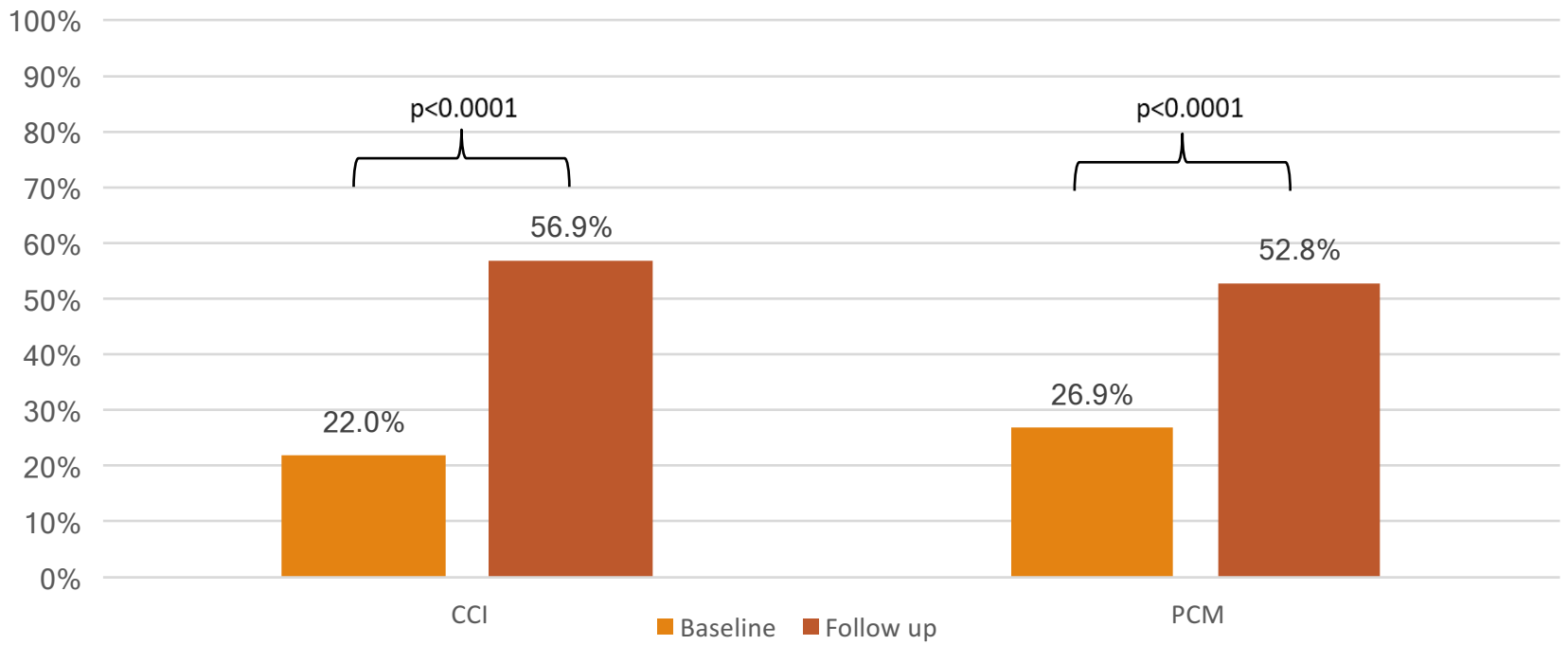

* Intervention Arm Difference p=0.9795

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




* Intervention Arm Difference p=0.3917

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



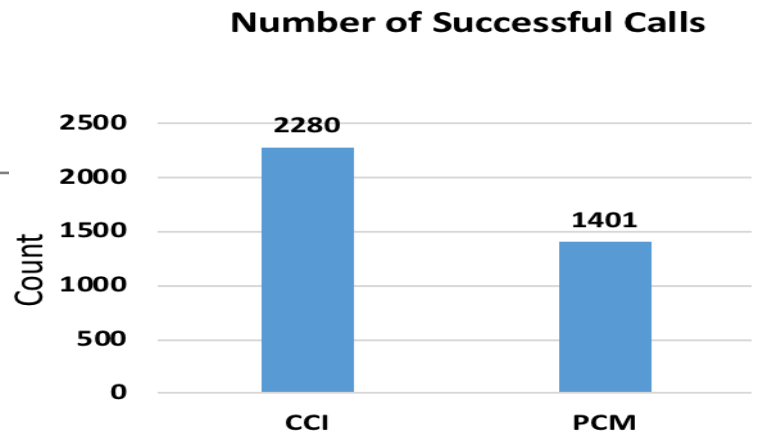

*Intervention Arm Differences p=0.2562

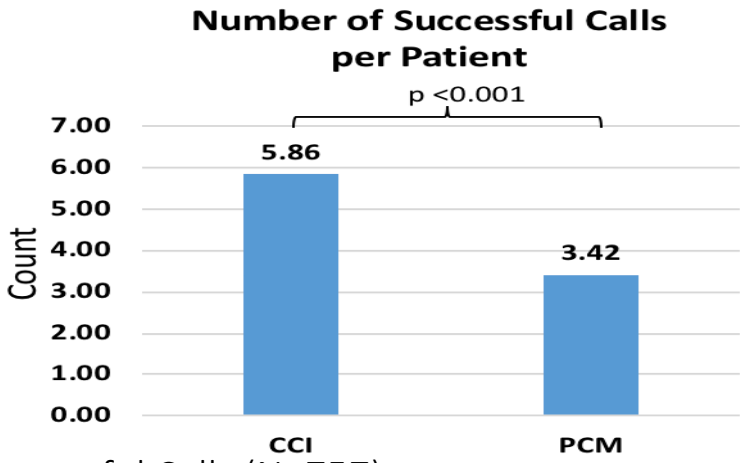
# Logistic Regression Model of Up to Date **Colorectal** Cancer Screening after Intervention

| 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) | |

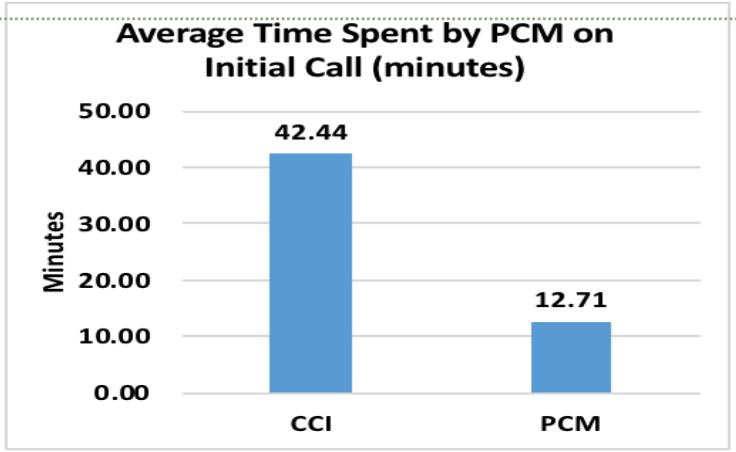
# Assessment of Implementation and Treatment Fidelity

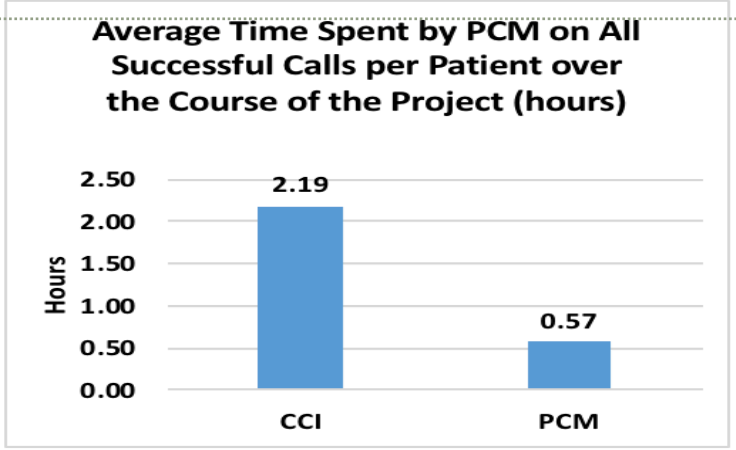
## Number of Successful Calls During the Intervention Period (N=757)




## Average Duration of Successful Calls (N=757)



# Summary of Findings

- 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

- 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**
  - 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

- 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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