

# Implementation of culturally targeted patient navigation system for screening colonoscopy in a direct referral system

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## Abstract

Low-income minorities often face system-based and personal barriers to screening colonoscopy (SC). Culturally targeted patient navigation (CTPN) programs employing professional navigators (Pro-PNs) or community-based peer navigators (Peer-PNs) can help overcome barriers but are not widely implemented. In East Harlem, NY, USA, where approximately half the residents participate in SC, 315 African American patients referred for SC at a primary care clinic with a Direct Endoscopic Referral System were recruited between May 2008 and May 2010. After medical clearance, 240 were randomized to receive CTPN delivered by a Pro-PN ( $n = 106$ ) or Peer-PN ( $n = 134$ ). Successful navigation was measured by SC adherence rate, patient satisfaction and navigator trust. Study enrollment was 91.4% with no significant differences in SC adherence rates between Pro-PN (80.0%) and Peer-PN (71.3%) ( $P = 0.178$ ). Participants in both groups reported high levels of satisfaction and trust. These findings suggest that CTPN Pro-PN and Peer-PN programs are effective in this urban primary care setting. We detail how we recruited and

trained navigators, how CTPN was implemented and provide a preliminary answer to our questions of the study aims: can peer navigators be as effective as professionals and what is the potential impact of patient navigation on screening adherence?

## Introduction

Colorectal cancer (CRC) is the third most common cancer and the third leading cause of cancer death in USA [1]. Colonoscopy can decrease CRC incidence by 76–90% [2]. The American College of Gastroenterology identifies colonoscopy as the gold standard screening test due to its superior mortality reduction and sensitivity [3]. While adherence to recommended screening colonoscopy (SC) is increasing, it still lags behind the most efficacious screening options for other cancers (notably breast and cervical cancers) [4, 5]. Furthermore, minority groups who stand to benefit the most from SC have limited access to it. We previously demonstrated that patient navigation using a health educator increased SC adherence among our predominately low-income minority population [6]. That study, however, employed a single Latina health educator

who navigated African American and Hispanic patients alike.

Culturally targeted patient navigation (CTPN) is an intervention that addresses cultural barriers preventing low-income minorities from completing SC [7]. It is not yet widely implemented or reported on, particularly in the context of a direct colonoscopy referral system. This study reports on the implementation and preliminary success of two types of CTPN for African Americans as measured by colonoscopy completion, patient satisfaction with navigation and trust in the navigator.

### **Trends in CRC screening, incidence and mortality**

Overall CRC screening rates have improved in recent years due to aggressive attempts to motivate screening and expanded insurance coverage. Data from the 2008 National Health Interview survey found that the prevalence of structural CRC screening (colonoscopy and flexible sigmoidoscopy) among US adults aged 50–75 years increased from 51.9% in 2005 to 62.9% in 2008 [8]. Fecal occult blood tests (FOBTs) also remain a viable option for those who prefer a non-invasive procedure (or in resource-poor areas), though they lack the benefit of simultaneous screening and treatment [9–11].

Despite the increased availability and efficacy of CRC screening, disparities exist regarding screening rates and ultimately CRC incidence and mortality. Doubeni *et al.* [12] used the Medicare Current Beneficiary Survey of Medicare enrollees aged 65–80 years to analyze CRC screening rates for African Americans and non-Hispanic whites between 2000 and 2005. Despite overall improvement in screening rates, disparities persisted over the 5-year period. Screening rates among non-Hispanic whites in 2000, 2003 and 2005 were 49.0%, 52.8% and 56.6%, respectively, whereas among African Americans the rates were 41.0%, 49.6% and 52%.

These differences have significant consequences: African Americans have the highest CRC incidence and mortality of any racial/ethnic group in USA [13–15]. The American Cancer Society [13] reports that African Americans have a 20% higher

incidence rate and a 45% higher mortality rate than non-Hispanic whites. In fact, although CRC mortality has declined by 39% among non-Hispanic whites since 1960 and mortality among African Americans has ‘increased’ by 28% [16]. Higher mortality rates among African Americans may be largely explained by the later stage at which CRC is diagnosed [17], emphasizing the importance of improving adherence to screening guidelines in this population.

### **Determinants of screening adherence**

To improve screening rates overall and eliminate racial disparities, it is necessary to understand the multifactorial barriers to screening adherence. System-level barriers such as insurance, health care policies and economic constraints often hinder low-income African American patients’ participation in cancer prevention services [18]. Personal and sociocultural barriers also affect adherence: lack of education or low health literacy, medical mistrust, fatalism and fear of the procedure [19–22].

Shifts in health care delivery policy have begun to address system-level barriers. One major shift in colonoscopy among low-income groups was a public health policy mandating coverage of cancer screening costs by Medicare and Medicaid [23]. Effective mid-2003, New York State Medicare and Medicaid reimbursement policies were modified to include coverage of SC for CRC. Another important shift was the establishment of Direct Endoscopic Referral Systems (DERS), whereby primary care physicians (PCPs) refer average-risk patients directly for SC, avoiding the inconvenience and delay of an interim office consult with a gastroenterologist [24]. The effectiveness of these developments can be enhanced through interpersonal interventions that directly target personal and sociocultural barriers.

### **Use of patient navigation to improve adherence to screening**

A patient navigator is a specially trained person within the healthcare setting who helps a patient

move through the system to obtain medical care [25]. Historically, most PN programs have assisted cancer patients in obtaining follow-up of suspicious findings and treatment [26–28]. Recently, the concept of PN has expanded to screening, focusing primarily on breast and cervical cancer screening [29–32]. Phillips *et al.* [33] found that PN significantly improved screening mammography adherence in a randomized sample of ~4000 inner-city dwelling women with a baseline adherence rate of 78%. After a 9-month intervention, mammography adherence was 87% in the intervention group and 76% in the control group ( $P < 0.002$ ).

Colonoscopy is a more complex screening test than mammography and cervical PAP smears and therefore may require additional interventions to increase adherence. Our group was among the first to introduce PN to facilitate completion of colonoscopy, specifically among minority primary care patients. In 2003, we established DERS at Mount Sinai Hospital and hired our first PN in April 2004. Mount Sinai's first PN was a bilingual Latina health educator trained in issues related to DERS, CRC screening, bowel preparation, scheduling, transport and supportive counseling. The implementation of this system resulted in an improvement in adherence to physician-recommended SC from 40% to 66% over a 3-year period [6]. While we were encouraged by the success of our first navigation program, we noticed that Latinos were 1.67 times more likely to complete SC than African Americans ( $P = 0.013$ ). Because our first PN was Latina, we hypothesized that the ethnicity of the PN might affect the screening outcome.

### Culturally targeted patient navigation

Targeted interventions are developed specifically for the demographic, behavioral or psychosocial characteristics shared by members of a particular population subgroup [34]. In addition to focusing on overcoming system barriers, CTPN incorporates discussion of personal and cultural barriers into the navigation paradigm. Previous studies have reported that culturally targeted interventions are perceived as more credible [35], result in greater retention of

knowledge over time [36] and are more likely to result in increases in targeted health-promoting behaviors than non-targeted PN [37].

### Inclusion of peers as patient navigators

Research confirms the benefits of using peer educators and lay health advisors in healthcare interventions. In cancer prevention, community health workers have increased screening knowledge [38], mammography and breast self-examination rates [39, 40]. Peer navigators have improved diagnostic follow-up after mammography among minority woman [41] and SC adherence among patients identified as unlikely to follow through with their first scheduled screening [42].

## Materials and methods

### Recruitment

In this institutional review board-approved trial, African American patients referred for SC by their PCPs were recruited during a scheduled, routine (non-acute) visit at Mount Sinai's primary care clinic. PCPs were educated about eligibility criteria for the study and referred eligible patients. PCPs explained the study to each referred patient. Interested participants were introduced to a research assistant after the appointment to discuss the study and give informed consent. PCPs ordered the SC using an electronic medical record in which the criteria for DERS were delineated.

Eligibility criteria included African American patients >50 years of age, without active gastrointestinal symptoms, significant comorbidities that would necessitate a medical consult prior to undergoing a colonoscopy (e.g. chronic obstructive pulmonary disease, severe heart disease) or a history of inflammatory bowel disease or CRC. Patients must not have undergone colonoscopy for at least 5 years or have been up to date with other forms of CRC screening (e.g. FOBT, flexible sigmoidoscopy) and they must have telephone service. Referrals were reviewed by nurses in the Division of Gastroenterology via electronic medical record review after recruitment to confirm eligibility and

evaluate for contraindications to colonoscopy or sedation. Subsequently, the Project Coordinator randomized participants to each study arm (Pro- versus Peer-PN). Randomization was created by our statistician using SPSS 19.0 to fulfill our cells in a 2:3 ratio (Pro:Peer), as determined a priori for maximum power.

### **Recruitment and characteristics of patient navigators**

Five Peer-PNs were successfully recruited as lay navigators through fliers posted in the endoscopy suite and primary care clinic of Mount Sinai School of Medicine and through a previous study. African Americans >50 years of age who had recently undergone SC were considered eligible to apply. There were no education or employment requirements. Of the five peer navigators, three were under the age of 65 years, four were female and at least three had completed 12 or more years of education. All but one had previous telephone work experience. Peer-PNs were compensated on an hourly basis.

By comparison, four African American Pro-PNs were successfully recruited through Internet employment postings. Applicants were required to hold a bachelor's degree or higher and have experience working with minority communities and conducting research. There was no eligibility requirement pertaining to colonoscopy completion. Of the four Pro-PNs, all were females under the age of 35 years. Three held master's degrees. Pro-PNs' compensation was based on annual salaries of Mount Sinai School of Medicine. Salaries for all navigators were supported by a grant from the National Cancer Institute.

### **Training culturally targeted patient navigators**

CTPN training incorporated four approaches to cultural targeting: peripheral, linguistic, evidential and sociocultural [7]. The peripheral approach involved a member of a particular group presenting material in a way that was most likely to appeal to the group's other members. For example, all navigators and

participants were African American. The linguistic approach focused on using colloquial language and limiting medical jargon to target low health literacy and limited general comprehension of CRC and colonoscopy. Navigators were trained to provide information in layperson terms. 'CRC' was referred to as 'colon cancer' and 'physician' as 'doctor'. CTPNs were provided with a glossary of alternate definitions and explanations for relevant medical terms.

The evidential approach imparted the importance of CRC screening for African Americans. CTPNs were trained to discuss statistics such as incidence and mortality rates of CRC among African Americans versus other groups, lower awareness of and participation in CRC screening in African American communities, and the potential benefit to African American communities if CRC screening were to become more prevalent. The sociocultural approach addressed health-related issues in the context of the broader social and cultural values and concerns of African Americans. CTPNs were trained to discuss a range of barriers including concerns about safety, fear of cancer diagnosis and treatment, racial and gender concordance between patient and provider, physicians' motives and medical mistrust. Studies by our group and other community work have shown that discomfort with the sexual connotation of colonoscopy, fear of pain and embarrassment are common barriers to compliance [18, 22, 43]. Although these particular barriers exist across racial/ethnic groups, there is evidence that they are more widespread among African Americans [44–47]. CTPNs were thus trained to emphasize that the gastroenterologist performing the colonoscopy would make every effort to preserve participants' privacy and dignity in order to reduce embarrassment and emotional discomfort. Discussions were framed to address possible concerns about being treated disrespectfully and insensitively.

The CEDIP model, developed by the research team and based largely on motivational interviewing techniques [48–51], is a semi-structured directive and anticipatory approach to PN implemented to enhance cultural competency through mastery of five tasks, forming the acronym: clarify, empathize, disclose, inform and plan. During CEDIP training,

navigators explored and addressed barriers to colonoscopy, responded to a range of participant responses and were trained to systematically address financial, structural, psychological and sociocultural barriers to SC. Because they had no personal experience with colonoscopy, Pro-PNs were trained using a nearly identical model, CEEP (clarify, empathize, educate and plan).

Pro-PNs completed training over a 2-week period while Peer-PN training was extended over 3 months; the two groups were mainly trained separately. Training consisted of three sessions reviewing CRC topics and navigator responsibilities, a session with a gastroenterologist to provide a clinical perspective, telephone communications training and a series of one-on-one structured role plays simulating a navigation encounter. Periodic assessments were administered to evaluate PN knowledge. At the beginning of training, the Peer-PNs had significantly lower knowledge levels than the Pro-PNs. By the last assessment there was still a difference but it was no longer significant. See Shelton *et al.* [52] for details about the training process and navigator characteristics.

### Peer versus professional navigators and protocol

The principal difference between Peer- and Pro-PNs was that Peer-PNs modeled coping with concerns about the exam (e.g. anxiety, fear and/or discomfort) by discussing strategies that helped them get through their own exams. This disclosure about colonoscopy from a 'similar other' gave patients the opportunity to hear and benefit from information relevant to their own CRC screening expectations and experience. Other than this key distinction, navigators followed an identical protocol. Based on our previous work, navigation included three phone calls. Call attempts were made at various times of the day and days of the week, including the weekend. Call logs were examined regularly to determine when to consider a person not reachable. At this point a letter was sent to the participant, asking them to contact us. During the initial call, the PN made a colonoscopy appointment, answered

basic questions and provided information about the preparation and the procedure. Following the first call, the PN mailed written instructions for bowel preparation and a reminder postcard with the patient's colonoscopy date. The PN subsequently contacted each participant 2 weeks and 3 days prior to their procedure to remind them of their appointment, confirm receipt of mailed information, review bowel preparation instructions, assess transportation needs and make arrangements if necessary, and provide education and support. PNs offered a detailed explanation of what to expect on the day of the procedure from time of registration until discharge.

### Data analysis and outcomes measured

Demographic information was collected during an interview (Time-1 Assessment) with a research assistant at the time of recruitment. Socio-demographic characteristics were compared between study participants in the Peer-PN group versus those in the Pro-PN group. Analyses were conducted using SPSS 19.0 software. Equality of proportions for categorical variables was compared using a chi-square test. Equality of means was tested using one-way analyses of variance. Fidelity monitoring was conducted with 10% of audio-recorded telephone calls to ensure adherence to the content of the scripts and equivalent performance between the Peer- and Pro-PNs. The mean number of phone calls attempted and mean number of minutes spent per navigator per participant were measured to detect differences in navigation delivery.

We report three outcomes of PN success as suggested by the National Patient Navigator Leadership Summit of the ACS [53]. Our main outcomes were completion of colonoscopy via chart audit, patient satisfaction with the program and patients' level of trust in the navigator. Trust in the navigator was measured in an interview with a research assistant after the 2-week navigation call (Time-2 Assessment) in terms of personal trust in the navigator and trust in the information presented by the navigator (message and source credibility). Patients indicated their level of agreement with six statements about personal trust on a 5-point scale. Message and



source credibility was measured by indicating agreement with eight statements on a 4-point scale (see Fig. 2 for both scales). Patient satisfaction was assessed in a post-colonoscopy interview with a research assistant (Time-3 Assessment) through two questions: one on a 5-point scale and one on a 4-point scale (Table I).

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## Results

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### Study participants

In our preliminary analysis of the first 24 months of this ongoing study (May 2008–May 2010), we enrolled 288 African American patients, 240 (83.3%) of whom were medically cleared and randomized [134 in the Peer-PN arm (55.8%) and 106 in the Pro-PN arm (44.2%)] (Fig. 1). Recruitment was excellent with 91.4% of eligible primary care patients agreeing to enroll in the study. A total of 48 participants (16.7%) were excluded from randomization due to medical ineligibility ( $n = 45$ ; 15.6%) and personal reasons ( $n = 3$ ; 1.0%); thus, 240 participants were randomized. However, after randomization, an additional 48 participants (16.7%) were excluded from analysis because they were not able to receive navigation services. Reasons for exclusion included the following: unable to be reached ( $n = 32$ ; 66.7%), became ineligible due to medical conditions ( $n = 14$ ; 29.1%), a pending colonoscopy ( $n = 1$ ; 2.1%) and deceased ( $n = 1$ ; 2.1%). Thus, 192 patients (80.0%) (116 in the Peer-PN arm and 76 in the Pro-PN arm) successfully received navigation services although not all subsequently completed a colonoscopy.

Baseline socio-demographic characteristics of study participants are shown in Table I. Women represented 70.0% of the study population. The mean age was 59 years; 66.7% of participants had less than or equal to a high-school education. The majority (78.2%) were unmarried and 49.5% of participants had annual household incomes <\$10 000. Approximately half (50.2%) were covered by Medicaid while 29.1% were covered by Medicare and 20.7% had private health insurance. The Peer-PN and Pro-PN groups were comparable,

with no statistically significant differences in socio-demographic characteristics.

### Mean calls attempted and minutes spent per participant

Data showed no significant difference between the mean number of calls attempted per completer between Peer-PNs (8.4) and Pro-PNs (10.1) ( $P = 0.072$ ). Similarly, the difference between the amount of time spent on the phone with each completer was not significant (51.6 min for Peer-PNs; 52.1 min for Pro-PNs) ( $P = 0.900$ ).

### Colonoscopy screening rates, patient satisfaction and trust

In our sample, 74.7% of all patients completed SC. In the Peer-PN group, 71.3% completed as did 80.0% in the Pro-PN group. There was no statistically significant difference in SC adherence between the two groups ( $P = 0.178$ ). 83.8% of participants completed the Time-3 Assessment. Overall, they rated navigation very well: 85.1% of participants in the Peer-PN group rated it 'Very Good' or 'Excellent', versus 94.1% of participants in the Pro-PN group ( $P = 0.072$ ). Ninety-five percent of all participants would recommend a navigator to family or friends; 85.9% of participants completed the Time-2 Assessment. Personal and informational trust in navigators was high in both groups. As Fig. 2 shows, statements in the 'Trust in Navigator' scale were negative comments about the navigator starting with, 'I doubt that the Navigator really cares about me as a person'. Strongly disagreeing (score = 1) indicated the highest level of trust. Total scores ranged from 6 (highest level of trust) to 30 (lowest level of trust). Peer-PNs on average received a score of 10.6 and Pro-PNs received a score of 10.9 ( $P = 0.564$ ). With a high score of 32 indicating the highest level of message and source credibility, Peer- and Pro-PNs on average both received a score of 30.2 ( $P = 0.971$ ). There were no statistically significant differences in either measure of patient satisfaction or either measure of trust in the navigator. No participants experienced unintended effects or harms.

**Table I.** Baseline socio-demographic characteristics of participants by study group (East Harlem, NY, USA; May 2008–May 2010)

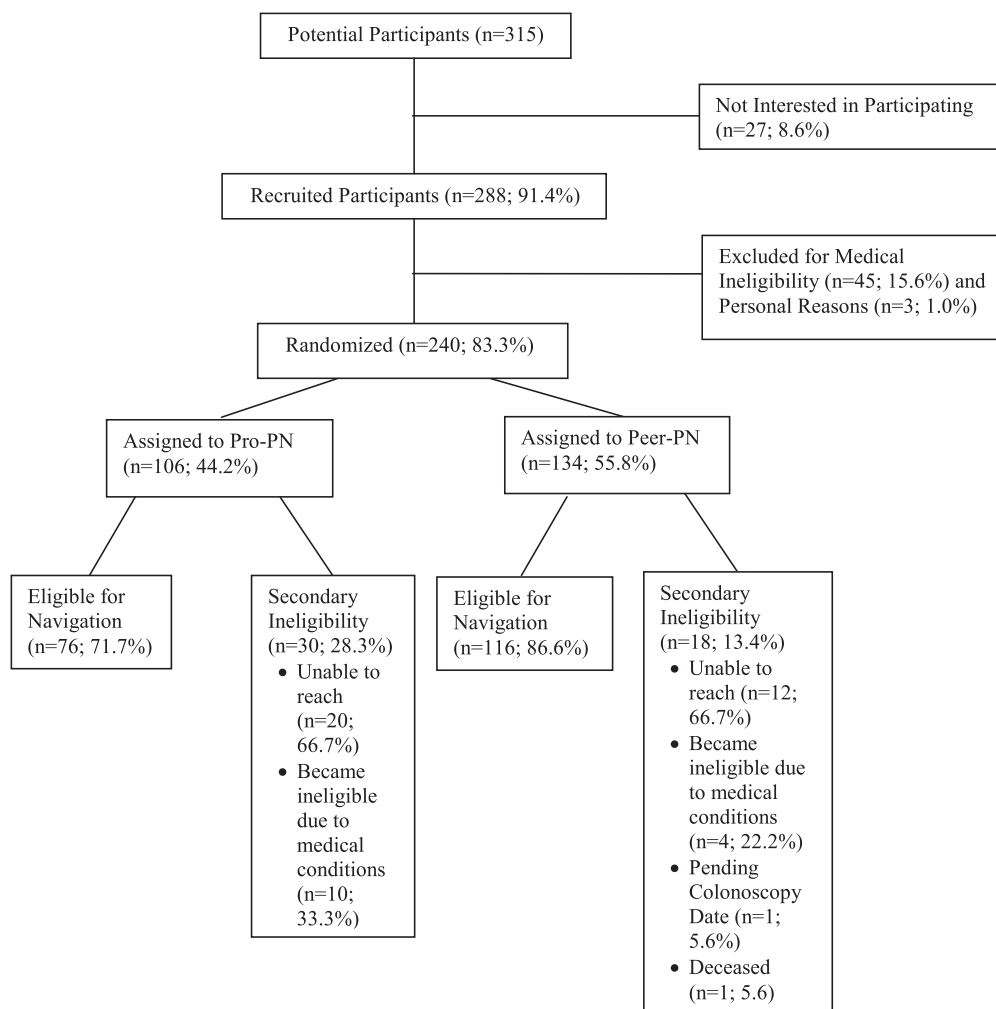
	Peer		Pro		Total		P-value
	N	%	N	%	N	%	
Gender							
Male	38	28.4	34	32.1	72	30.0	0.533
Female	96	71.6	72	67.9	168	70.0	
Mean age (SD)	134	59.5 (8.1)	106	58.4 (7.2)	240	59.0 (7.7)	0.250
Education level							
≤HS grad	84	62.7	76	71.7	160	66.7	0.141
≥Some college	50	37.3	30	28.3	80	33.3	
Marital status							
Married/partnered	24	18.1	28	26.4	52	21.8	0.119
Not married	109	82.0	78	73.6	187	78.2	
Household income							
10000 or less	58	47.9	48	51.6	106	49.5	0.594
>10000	63	52.1	45	48.4	108	50.5	
Insurance							
Medicare	40	29.9	29	28.2	69	29.1	0.268
Medicaid	67	50.0	52	50.5	119	50.2	
Private	27	20.2	22	21.4	49	20.7	
Complete colonoscopy <sup>a</sup>	82	71.3	60	80.0	142	74.7	0.178
Patient satisfaction 1: how would you rate the level of service you received from your navigator?							
Poor/fair/good	14	14.9	4	5.9	18	11.1	0.072
Very good/excellent	80	85.1	64	94.1	144	88.9	
Patient satisfaction 2: if a family member or friend had a referral for a colonoscopy, would you recommend that he or she talk to a navigator?							
Never/maybe	7	7.6	1	1.5	8	5.0	0.078
Probably/definitely	85	92.4	67	98.5	152	95.0	
Mean score: trust in navigator (SD) <sup>b</sup>							
Complete colonoscopy: Yes	59	10.6 (2.1)	75	10.9 (3.8)	134	10.7 (3.2)	0.564
Complete colonoscopy: No	20	11.2 (3.1)	11	9.6 (2.4)	31	10.7 (3.0)	0.129
Mean score: message and source credibility (SD) <sup>c</sup>							
Complete colonoscopy: Yes	59	30.2 (2.9)	75	30.2 (3.4)	134	30.2 (3.2)	0.971
Complete colonoscopy: No	20	29.3 (4.8)	11	30.7 (3.6)	31	29.8 (4.4)	0.392
Mean number of calls attempted per participant (SD)							
Complete colonoscopy: Yes	82	8.4 (3.9)	60	10.1 (7.1)	142	9.1 (5.6)	0.072
Complete colonoscopy: No	34	12.80 (7.26)	16	14.63 (6.66)	50	13.37 (7.07)	0.397
Mean number of minutes per participant (SD)							
Complete colonoscopy: Yes	82	51.6 (23.3)	60	52.1 (24.3)	142	51.8 (23.7)	0.900
Complete colonoscopy: No	34	54.1 (26.8)	16	43.5 (14.7)	50	50.8 (24.1)	0.145

<sup>a</sup>n = 192, the number of participants who completed navigation. <sup>b</sup>Scores range from 6 to 30; 6 = strongly trust, 30 = strongly mistrust. <sup>c</sup>Scores range from 8 to 32; 8 = not at all, 32 = a lot.

## Discussion

Herein, we describe the design and implementation of a CTPN program to improve SC adherence for African American patients receiving care at Mount Sinai Hospital's primary care clinic. Prior to the

onset of our first navigation program, our institution's historical adherence rate to recommended SC was 40%, necessitating the development of an intervention to increase the use of this potentially lifesaving tool. Based on the success of our initial PN program and the need to further increase our



**Fig. 1.** Study flow chart (East Harlem, NY, USA; May 2008–May 2010).

adherence rates, a CTPN program was initiated in 2008. Our preliminary results demonstrate the successful implementation of PN by both professionals and peers based on colonoscopy completion rate, patient satisfaction and trust in the navigators. The overall completion rate of 74.7% is a substantial improvement from Mount Sinai's 66% adherence rate reported by Chen *et al.* [6].

In a study of the effect of CTPN delivered by community health workers, Percac-Lima *et al.* [54] reported a 21% SC rate in intervention patients

compared with 10% in control patients ( $P < 0.001$ ). Though the intervention doubled screening rates, the overall rate was extremely low compared with our results. Two studies within direct-referral systems targeting comparable populations (predominantly African Americans and Latinos in New York City with public health insurance) reported that PN programs increased SC rates [55, 56]. In Lebwahl *et al.* [55], after a 1-year period the overall SC rate had increased by 8 percentage points with a 56 percentage point increase in the total number of



**Trust in Navigator Scale (Anderson & Dedrick, 1990)<sup>a,d</sup>**

When answering the next group of questions, please consider the Patient Navigator, to whom you recently spoke.

	Strongly disagree	Disagree	Neither	Agree	Strongly agree
1. I doubt that the Navigator really cares about me as a person.	1	2	3	4	5
2. The Navigator was considerate of my needs and put them first. <sup>c</sup>	1	2	3	4	5
3. I worry that the Navigator may not keep the information we discussed totally private.	1	2	3	4	5
4. The Navigator's skills were not as good as they should be.	1	2	3	4	5
5. The Navigator was extremely thorough and careful. <sup>c</sup>	1	2	3	4	5
6. Sometimes the Navigator did not pay full attention to what I was trying to tell him/her.	1	2	3	4	5

**Message and Source Credibility (Herek et al. 1997<sup>b</sup> & HINTS 2005<sup>c,d</sup>)**

For the next set of questions, think about your interaction with your provider and your Patient Navigator.

How much did you trust the information you received about colonoscopy from....	Not at all	A little	Some	A lot
1. The Patient Navigator who called you to follow up on your colonoscopy appointment?	1	2	3	4
<b>Please think about the Patient Navigator who called you to follow up on your colonoscopy appointment. Please answer the next questions about your interaction with that person</b>				
2. How much did you believe what he/she said about colonoscopy?	1	2	3	4
3. How much did you feel that he/she knew what he/she was talking about?	1	2	3	4
4. How much did you feel that he/she gave correct information about colonoscopy?	1	2	3	4
5. How much did you feel that he/she gave you all the important facts about colonoscopy?	1	2	3	4
6. How much did you agree with what he/she said about colonoscopy?	1	2	3	4
7. How much did you feel that he/she was similar to you?	1	2	3	4
8. How much did you trust him/her?	1	2	3	4

**Fig. 2.** Trust in navigator and message and source credibility scales. <sup>a</sup>Anderson LA, Dedrick RF. Development of the Trust in Physician Scale: a measure to assess interpersonal trust in patient-physician relationships. *Psychol Rep* 1990;67:1091-1100; <sup>b</sup>Herek, G. M., Gillis, J. R., et al. Culturally sensitive AIDS educational videos for African American audiences: effects of source, message, receiver, and context. *Am J Community Psychol* 1998;26:705-743; <sup>c</sup>National Cancer Institute. Health Information National Trends Survey 2005 (HINTS 2005). Bethesda, MD. National Cancer Institute 2005. [http://hints.cancer.gov/docs/hints\\_report.pdf](http://hints.cancer.gov/docs/hints_report.pdf); <sup>d</sup>Made PN-specific; <sup>e</sup>Scores were reverse-coded in SPSS.

colonoscopies completed by Medicaid recipients (87% of the study population). The 8 percentage point increase is similar to our 8.7 percentage point gain in screening adherence and the increase in Medicaid participants is remarkable, but there are key differences from our study: 22% of patients were not average risk (and therefore may have been more likely to take their medical care more seriously), nor was navigation culturally targeted. Satisfaction with navigation and trust in navigators were not reported.

We believe this is the first study to compare the effectiveness of delivering CTPN by professionals versus community-based peers. Both Peer- and Pro-PNs addressed barriers by reducing system complexity and making colonoscopy more accessible. Peer-PNs had similar backgrounds as study participants and had the added advantage of acting as a colonoscopy advocate by sharing their personal experiences with SC. Even though the Pro-PNs were from the same ethnic group as the patients, they were still representatives of the healthcare system. It was instructive, therefore, to evaluate whether they were able to fully engage patients' trust due to actual or perceived differences in education level, age, employment status or simply by virtue of being part of the 'system'. We found that Peer-PNs and Pro-PNs were both able to elicit high levels of personal and informational trust regardless of the colonoscopy outcome. There were no significant differences in trust comparing Peer- and Pro-PN groups for completers and non-completers. Overall, there were no significant differences comparing completers with non-completers within each navigation group. Despite the similarities in patient satisfaction and trust, we note that the Pro-PN arm of the study achieved a higher completion rate by 8.7 percentage points, a trend that, while not statistically significant, requires further exploration.

This study has several limitations. First, our results must be interpreted in the context of the study design and time frame. This study was based in an urban primary care clinic and was conducted with NIH funding at a large academic hospital with plentiful resources. A cost analysis is needed to assess the practicality of long-term implementation in our

system. Second, this is a preliminary analysis and results/trends may be further refined upon expansion of the sample size. In addition, the lack of a no-PN control group limits the analyses and potential findings. Third, we did not track participants' history of prior colonoscopy, which can affect attitudes about screening and may reflect differences in access to care. Though patient navigation targets a wide spectrum of barriers, many of which affect patients regardless of prior colonoscopy status, it could be useful to track this data in future for refinement of navigation protocol. Fourth, we were not able to determine the effects of demographic differences between peer and professional navigators. We did attempt to control for differences in education and comfort level by offering a spread-out training period and additional support, such as more opportunities for role playing, to Peer-PNs. As detailed in Shelton *et al.* [52], no significant differences were found in knowledge levels ( $P = 0.14$ ) or navigator self-efficacy ( $P = 0.69$ ) by the end of training. Fifth, our study was conducted in the context of DERS. By eliminating a difficult step on the path toward completing SC, DERS has the potential to enhance the effectiveness of PN beyond what a traditional primary care clinic may be capable of. The differential effects of DERS and PN have not been determined. Also because of DERS, our primary care clinics routinely only use colonoscopy for screening. In addition, the visibility and coverage of SC have greatly expanded during the study period. Some of our results may be due to general upward trends at state and national levels, the impact of which we could not directly measure. These factors may limit the generalizability of our results to similar patient populations in other clinical settings. Finally, this study only examined those patients who received navigation services. As we were unable to reach a number of people after the consent and randomization process, we were not able to ascertain the reasons for their lack of interest in further participation. As the focus of this study was to explore the impact of navigation, future examination of the characteristics of those who do not use navigation should be explored.

Important next steps include assessing the cost-effectiveness of implementing PN programs, examining the efficacy of CTPN in other underscreened populations (e.g. Latinos), exploring other factors contributing to the success of PN beyond the type of navigator employed and examining the stability of these findings in a larger sample. Future studies should examine in greater detail the comparative efficacy of peer versus professional CTPNs and study demographic characteristics—such as age, personal experience with colonoscopy and formal education level—that may affect navigator efficacy. Studies should report on patient-reported outcome measures detailed in Fiscella *et al.* [53] in order to standardize such measurements and facilitate valuable comparisons in the field. Thus far, this CTPN program has been successful in terms of acceptance in our clinical service by patients and clinicians. Our adherence, patient satisfaction and trust rates signify an improvement in our primary care clinic's ability to eliminate barriers to SC for low-income African American patients.

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### Conflict of interest statement

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None declared.

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