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Evaluation of Mammogram Parties as an Effective Community Navigation Method

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Abstract

Women of color do not have the same level of access to mammography services as their White counterparts and this inequity may be one of the contributing factors to the documented racial disparity in breast cancer mortality in the US. The present study sought to assess the effectiveness of the mammogram party, a promising, but under-studied approach to increasing mammography uptake, particularly among under-served populations. The program targeted mammogram-eligible women in community settings on the West and Southwest sides of Chicago, gathering basic demographic information, mammography history, and interest in assistance obtaining a mammogram. Women were navigated either through traditional one-on-one navigation or to a mammogram party. Seven outcome metrics were calculated for each type of navigation. We compared navigation outcomes for those who attended to those who did not attend a mammogram

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party using two-tailed t-tests and chi-square tests. We found that the mammography completion rate for mammogram parties was comparable to that for standard one-on-one navigation (65.8% vs. 63.7%), which is more labor-intensive as evidenced by the number of contacts needed to successfully navigate a woman to mammography (10.9 versus 15.0). Mammogram parties offer a unique opportunity for fellowship and support for clients who are particularly fearful of mammograms or identifying breast cancer. Programmatically, mammogram parties are an efficient way to complete several mammograms in one day. Having the option to both navigate women to mammogram parties or one-on-one navigation allows for more flexibility for scheduling and may ensure a completed a mammogram.

Keywords

mammogram parties/events; increase mammography use/uptake; community navigation; evaluation

Introduction

Epidemiological studies of breast cancer mortality suggest that, not only are there racial disparities in breast cancer mortality in nearly every major US city, but also that the gap between Black and White women has widened over time.[1] Indeed, the data demonstrate that in many cities between 1990–2010, the White mortality rate improved while the mortality rate among Black women either stagnated or worsened, leading to an increase in the disparity over this period. These data suggest that advancements in detection and treatment of breast cancer have not been equally distributed among all women.[1] Despite its controversial history, mammography, coupled with timely diagnosis and treatment, is the only screening modality proven to reduce mortality from breast cancer through early detection.[2] However, some studies have suggested that women of color do not have the same level of access to mammography services as their White counterparts, that low-income and minority women are less likely to be in adherence to mammography timeline guidelines, and that these inequities may be contributing to the documented racial disparity in breast cancer mortality.[3, 4]

Several recent systematic reviews have delineated effective approaches that programs have used to increase mammography uptake, including: client appointment reminders in any format; education using small media; one-on-one education; group education; group education in a relaxed and supportive party atmosphere through the use of games and informal one-on-one conversations about breast health; removal of both structural and financial barriers to receiving mammography, and providing mammography services on-site.[5–11] In addition to these methodologies, incorporating Community Health Workers (CHW) as navigators is an effective strategy to increase mammography use.[12]

The mammogram party is a promising approach to increasing mammography uptake as it combines several of these proven effective methods for increasing mammography.[5, 11, 12] However, the current literature is lacking in both descriptions and evaluations of mammogram parties as a method of navigation to mammography screening. This stems in part from the fact that the term “mammogram party” has also been used to describe party-

like events that promote mammography through education, but do not actually provide mammography services on-site.[13–17] One such study evaluated the mammogram party as an educational tool with the outcome being participants' self-reported "intention to screen".[18] Only one study included mammography services as part of the mammogram party. The study, which was conducted in a community center with an on-site mobile mammography unit, reported high attendance rates and low no-show rates for mammography.[19]

Given that there are few studies documenting the outcomes of mammogram parties, we report our evaluation of mammogram parties provided as a means to navigate women to mammography through our *Helping Her Live* Program.[20, 21] In addition, we describe lessons learned from our experience hosting mammogram parties at our facility.

Methods

Helping Her Live (HHL) is a community-based breast cancer navigation program operating on the west and southwest sides of Chicago (described in detail elsewhere).[20, 21] Briefly, full-time CHWs recruited from the communities we serve perform outreach in various community settings to recruit women who are eligible for screening and diagnostic mammography. The target population is women 40 and older who have not had a recent mammogram and who live in the HHL catchment area based on zip code of residence. During outreach, the HHL program is introduced to the newly enrolled client and contact information is gathered. In addition, the participant can indicate whether she wants a CHW to assist her in obtaining a mammogram. The participant can also provide HIPAA authorization, enabling the CHW to view her medical record to verify the results of a completed mammogram.

For participants who indicate that they would like a CHW to assist them in obtaining a mammogram, traditional navigation services are provided (Supplementary Figure 1). HHL's navigation model is described in detail elsewhere and summarized briefly here.[21] The first step in the navigation process is the *Intake*, where CHWs contact the client to collect intake information, including basic demographics, insurance information, and clinic preferences such as location or gender of providers. The second step is to schedule the *PCP* (primary care physician) appointment; because a referral is required for mammography, CHWs work directly with clients to schedule an appointment with a PCP to secure the mammogram referral (this step can be skipped for clients who already have a referral). The third and final step is the *Mammogram*, when the CHW schedules the mammogram appointment and ensures receipt of results and any needed follow-up imaging. For the *PCP* and *Mammogram* steps, CHWs notify and remind clients of appointments and may also assist with transportation or even attend the appointment with the client, if requested.

Mammogram Parties

A mammogram party is a gathering of a group of women in a party atmosphere at the facility where the mammogram will be performed. The party is hosted by CHWs and a block of 10–15 screening mammogram appointments is secured through the mammography department at an imaging center in the area. Mammogram parties occurred approximately monthly. Women were invited to a mammogram party if their mammogram was due near the

date of a scheduled party. Participants interested in attending a mammogram party are navigated exactly as described above, only instead of being scheduled for an individual appointment, they are navigated to one of the block appointments that has been arranged for the mammogram party (Figure S1).

A party room is set up at the facility for about 4–5 hours covering the full span of the mammogram appointment block for all clients on a given day. The CHWs lead all aspects of the mammogram party, from entertainment to education. The room is decorated, music is played, educational materials are made available, and food and non-alcoholic drinks are provided. When participants arrive, they are greeted by the CHWs and are given a packet of games and a gift bag containing some incidental items (pens, magnets, date books, etc.). Any participating partners providing other services such as chair massages, hand massages, manicures, etc. are introduced.

With the assistance of a CHW, each participant is registered in-person for their mammogram appointment at the facility. The CHWs work their way around the room, greeting participants, answering questions, and engaging with participants. In addition, the CHWs are delivering health messages about the importance of mammography and following up on abnormal results, as well as informing participants about the next steps. Time for having lunch or breakfast is provided. The breast health quiz and breast health word search games are played and prizes are handed out to the winners. Clients are then asked to gather their needed paperwork for their mammograms.

Participants are brought to the mammography suites at their designated appointment times. The facility performs the mammogram as usual. The results are sent by the mammography facility and patients are informed of their results and next steps by the mammogram facility staff or on-site navigators.

In the event that a participant has a referral for a screening exam, but the imaging facility determines that a diagnostic mammogram is needed, the HHL CHW assists the client in getting a corrected referral and the diagnostic image is scheduled that day (if possible) or at a different time. In addition, for women who had prior mammograms at other facilities, the CHW assists the client in obtaining comparison films when requested.

Once the mammogram is completed and the party is over, the HHL CHW assists the participants with transportation home by providing parking vouchers, giving taxi fare or bus cards, arranging a medi-van, or, on occasion, drives the client home. About two weeks after the mammogram party, the CHW reaches out to the participant to confirm that she has received her result letter. The HHL CHWs will review medical records for those who signed the authorization and/or contact the client for self-reported results. If additional diagnostic follow-up is needed, the CHW assists in arranging those appointments. If the image was normal, then the client is set up to receive an annual reminder card for her next mammogram.

Two types of mammogram parties are documented in this analysis. First, a mammogram-only party includes clients who have a valid mammogram referral and thus the appointments held for the party are only for mammograms. Second, same-day-care mammogram parties

are similar to the mammogram-only parties except that clients who do not have a mammogram referral are also seen by a primary care provider (PCP), who provides a mammogram referral. The image is taken on the same day as the PCP appointment. Thus, same-day-care parties only occurred when a PCP and a mammogram could be scheduled and completed on the same day.

Data Analysis

We analyzed seven metrics to evaluate the success of the program. The number of days in navigation is the number of calendar days between the date the client was assigned to a CHW (typically within 2 working days of the initial outreach contact) and the date the client received her mammogram results. The number of contacts, from phone calls to in-person meetings, which are required to successfully navigate a client to mammography, is measured for each of the three steps in the navigation process (outlined above): 1) *Intake*; 2) *PCP*, and 3) *Mammogram*. The total number of contacts is a summation of the contacts for the three phases. Finally, we measured the percent of clients who completed a mammogram. This measure is calculated by dividing the number of women who completed a mammogram by the total number of women in the group. This measure is calculated for those invited to a mammogram party, those who were not invited to a mammogram party and the overall sample of women in this analysis.

Two tailed t-tests were used to calculate differences in mean days in navigation and number of contacts. Chi-square tests were conducted to compare percent completed a mammogram between groups. For these metrics, we present data for the following groups: (1) women who were invited to a mammogram party and were attendee completers (IAC), i.e. women who attended a party and completed a mammogram; (2) women who were invited to a mammogram party but were non-attendee completers (INAC), i.e. those who attended the party but did not receive a party block mammogram due to scheduling or referral issues, but completed a mammogram at a future date; (3) women who were invited to a mammogram party but were non-completers (INC), i.e. women who cancelled or were no shows and were lost to follow up ; (4) women who were not invited to a mammogram party but were non-attendee completers (NINAC), i.e. women who completed a mammogram through the standard navigation process, and (5) women who were not invited and were non-completers (NINC), i.e. women navigated to a non-party mammogram but were lost to follow up. The following three comparisons were made: (1) the IAC group with the NINAC group, (2) the INC group to the NINC group, and finally (3) the INAC to the NINAC group. A p-value of <0.05 was considered statistically significant. Analyses were done using SAS version 9.4 (SAS Inc, Cary, NC) as well as the statistical features of Microsoft Excel (Microsoft Corporation, Redmond, WA). The Helping Her Live program, including all data collection, was approved by the Institutional Review Board of Sinai Health System.

Results

Table 1 displays the demographic data of all *Helping Her Live* clients who had a mammogram request completed (i.e. a mammogram was completed) or closed (i.e. refused or lost to follow up) between September 2011 and May 2015 (n=3,003 unique women). The

data in Table 1 represent the eligibility criteria for navigation. A majority of women enrolled for services were 40 years old or older (88%); were either African American (49%) or Mexican (36%); were uninsured (60%), and either never had a mammogram or did not have one in the last 2 years (70%). Additionally, 81% of women resided in the project area. This program attempted navigation on 67 unique participants each month resulting in an average of about 800 women in a given year.

Table 2 presents navigation outcomes for party attendee completers, non-party attendee completers, and non-completers based on whether or not the client was invited to a mammogram party (n=4,240 navigation requests). Based on data in Table 2, an average of 65 mammograms were completed each month, resulting in 783 annual mammograms. Comparing the IACs (n=372) with the NINACs (n=2,060), there was no statistically significant difference in the number of days in navigation (72 versus 68, respectively). The total number of navigation contacts was lower among IACs (10.9) compared to NINACs (15.0) ($p<0.0001$). There was no statistically significant difference in Intake contacts between IACs and NINACs (1.4 versus 1.5). The number of PCP contacts was lower among IACs (3.8) compared to NINACs (5.3) ($p<0.01$). There was no statistically significant difference in Mammogram contacts between IACs and the NINACs (8.0 versus 8.2). The percent completing a mammogram did not differ statistically significantly between IACs and NINACs (65.8% versus 63.7%).

The number of days in navigation was statistically significantly higher among INCs (n=79, 144 days) compared to NINCs (n=1,176, 57 days) ($p<0.0001$). The total number of navigation contacts was higher for INCs (23.9) than NINCs (19.5) ($p<0.05$). The number of Intake contacts was lower among INCs (1.7) than NINCs (3.2) ($p<0.01$). The number of PCP contacts was higher among INCs (15.9) compared to NINCs (11.6) ($p<0.01$). The number of Mammogram contacts was higher among INCs (15.5) compared to NINCs (12.1) ($p<0.01$).

The number of days in navigation was statistically significantly higher among INACs (n=114, 114 days) compared to NINACs (n=2,060, 68 days) ($p<0.0001$). The total number of navigation contacts was higher for INACs (22.6) compared to NINACs (15.0) ($p<0.0001$). The number of navigation contacts was higher among INACs than NINACs for all three steps in the navigation process: Intake (1.8 versus 1.5, respectively, $p<0.05$); PCP (7.8 versus 5.3, respectively, $p<0.01$); and Mammogram (12.9 versus 8.2, respectively, $p<0.0001$). The percent completing a mammogram was statistically significantly lower among INACs (20.7%) than NINACs (63.7%) ($p<0.0001$).

Table 3 displays the navigation outcomes for the two types of mammogram parties (same-day-care and mammogram-only parties). The number of days in navigation did not differ statistically significantly between the two mammogram party types (69 versus 72 days, respectively). The total number of navigation contacts was lower for same-day-care parties compared to mammogram-only parties (8.3 versus 11.6, respectively, $p<0.0001$). The number of Intake and PCP contacts did not differ statistically significantly by party type. The number of mammogram contacts was statistically significantly lower for same-day-care parties (5.6) compared to mammogram-only parties (8.5) ($p<0.0001$). The percent

completing a mammogram was lower in those invited to same-day-care parties compared to those invited to mammogram-only parties (46.1% versus 73.2%, respectively, $p<0.0001$).

Discussion

This paper describes the first evaluation of a mammogram party with imaging services available on site as a successful breast screening navigation methodology. We found that the mammography completion rate for mammogram parties was comparable to that for standard one-on-one navigation (65.8% vs. 63.7%), which is more labor-intensive as evidenced by the number of contacts needed to successfully navigate a woman to mammography (10.9 versus 15.0). We also documented the considerable effort to attempt navigating women who ultimately do not receive mammography and are lost to follow up. Finally, we documented that despite the lower completion rate for same-day-care mammogram parties, they were more efficient than mammogram-only parties based on the overall number of contacts (8.3 vs. 11.6). This is most likely because women are receiving two appointments in one day (PCP and mammogram), eliminating the need to schedule (or reschedule) two separate appointments on two different days.

Mammogram parties offer unique advantages to both CHWs and their clients. For the clients, mammogram parties create a relaxed atmosphere with a group of women going through the same experience. This type of social support may ease clients' fears of getting a mammogram and acts as an opportunity for the CHWs to address any questions about abnormal results before the mammogram is completed. For the CHWs, having the ability to close out a large number of cases in one day should reduce workload and increase efficiency. Significant navigation effort is needed to aide clients through the process of completing mammograms; however, knowing that there are open and dedicated mammogram appointment times set aside may be more efficient than scheduling patients one by one. Notably, in our study, women navigated through the traditional one-on-one approach required 1.4 times more PCP contacts than women navigated through a mammogram party, likely because they already had their referrals negating the need to obtain one prior to the party. This likely contributed to a greater number of total contacts for one-on-one navigation.

The mammogram-only parties appear to be more successful in terms of higher completion rates, but require more effort than same-day-care as evidenced by more contacts needed to complete navigation. Given that an incorrect mammography order or referral is one of many reasons why a mammogram is not performed during a scheduled appointment, as observed in our study, one would expect that having a referring provider available and on-site to write or correct orders for mammograms would produce a higher completion rate, assuming the mammogram site could perform both screening and diagnostic exams. However, that was not the case in our analysis. One possible explanation for this difference is that we hosted parties at locations that performed only screening exams as well as at sites with both screening and diagnostic capabilities. If the party was planned for a screening-only day at a site that performed both types of exams, patients would have to be rescheduled to a date when a radiologist would be present. These clients would be considered non-attendees (INAC) if they completed a mammogram or non-completers (INC) if they did not due to no

fault of their own. This is not generally the case at screening-only facilities or screening-only days.

It is possible that the same-day-care parties were not sustainable as the team had to identify PCPs willing to dedicate blocked appointments during their clinic time to examine women for this program. The PCPs were not on staff at the mammography facilities, nor were they paid a stipend for this work. The PCPs provided blocked clinic and schedule space that is generally dedicated for all primary care patients, not just patients seeking breast health. Additionally, most of the Helping Her Live clients would be new patients to the clinic and as such may require examinations that go beyond breast health, thus creating unintentional challenges for that clinic.

Research suggests that there is a generally high no-show rate for outpatient services such as breast imaging, which can be as high at 44%.[22] No-shows to appointments have financial burdens on health care institutions but they are also a source for inefficient and poor quality of care.[23] Interestingly, our data demonstrated a 66% completion rate at mammogram parties, suggesting that about 34% did not show to the party despite significant effort and dedicated CHWs. With the addition of the option for one-on-one navigation, we were able to capture an additional 21%. This suggests that the exposure to the possibility of a mammogram party had about an 86% completion rate. Among those with no exposure to mammogram parties, the completion rate through one-on-one navigation was 64%, with no additional navigation options to capture the remaining 36% lost to follow up. This suggests that there is a benefit to having regular mammogram parties that include CHWs by decreasing the percentage lost to follow up when standard one-on-one navigation is the only option.

Since the inception of Helping her Live, we have learned numerous lessons that have aided our navigation activities. In order to facilitate and plan mammogram parties, there must be buy-in from those providing the mammograms. This may seem intuitive, however challenges experienced at safety-net screening facilities including staff turnover in breast imaging and insufficient communication of policy changes to program leaders can pose a challenge to a hosting a successful party. Our program faced three changes in the imaging leadership at the site where most of the mammogram parties took place. Given that our program does not operate out of a breast imaging department with clinical navigators, but rather an urban research institute with CHWs, we had to establish relationships with the key stakeholders in breast imaging such as the imaging director, the lead mammography technologist, the registration manager, and the scheduling manager, among others.

While challenging for our team, we took on the task of aiding the imaging department in rapidly identifying and communicating areas of customer service and improvements in patient care because the CHWs experienced these challenges first hand while accompanying their clients to their mammogram appointments. Since we have established these relationships with key stakeholders at the mammogram sites, we became part of the solution by working together to report any issues and suggest improvements. Our program quickly identified that many of our clients, as well as women not enrolled in the Helping Her Live program, were being turned away for services for various reasons, such as a missing or

incorrect order for a mammogram, arriving late at the mammography suite for the appointment as a result of delays in registration, or due to different practice styles of various radiologists. However, most of the problems were a result of changes in scheduling policies that were not disseminated to all key stakeholders. Once we opened the lines of communication between our program and the imaging department, these barriers were reduced, with more clients completing mammograms.

Finally, we learned that it takes time to be trusted in communities served by safety-net providers. Although our navigation program began in 2007, we did not really gain momentum until at least 2010. Our CHWs, or community navigators, are known as the "breast cancer ladies" whom ultimately developed into a trusted community resource for breast health. If they choose to do so, they generally are available on their free time to educate a neighbor or friend or even a stranger in the community about breast health. At our institute, we firmly believe in hiring full time CHWs as navigators and provide not only compensation for their community expertise, but also provide full benefits. We believe that this enables our CHWs to focus on their clients and be engaged in the program's planning and improvement efforts.

Limitations

This study evaluated the CHWs effort to assist clients to attend mammogram parties, not the planning needed to organize the parties. Additionally, mammogram parties incur some expenses, as parties should provide food, music, staff time, games or services to pass the time while waiting for mammogram appointments. Each party generally cost about $100–200 and required all FTE staff to be available to greet clients, set up the event, triage problems that may occur, provide education, and clean up.

In general, we hosted mammogram parties at least once a month in various clinical locations. If a mammogram party was scheduled for a future date, we would navigate women to those parties based on the client's phase of navigation. This implies that there were contacts being made as if the clients would be navigated thorough the standard one-on-one methodology. We cannot parse out the contacts made through regular navigation from those for the mammogram parties. This may inflate the number of contacts needed for mammogram parties. Additionally, this was not a study with random assignment, thus clients were scheduled for mammogram parties if they happened to be occurring at the time a client would be scheduled for a mammogram. It is unclear whether the parties were successful because mammogram parties were occurring or because CHWs were available to lead clients to the parties. In terms of increased mammography uptake and less effort to navigate women through the mammography process, the data indicates that if mammogram parties could be as effective as the one-on-one standard navigation methodology. A study with a random assignment and a more controlled methodology on tracking effort of the CHWs may prove with certainty that mammogram parties are both highly and likely more effective that regular one-on-one navigation methods.

Conclusions

Mammogram parties offer a unique opportunity for fellowship and support for clients who are particularly fearful of mammograms or a diagnosis of breast cancer. Programmatically, mammogram parties are an efficient way to complete several mammograms in one day. Mammography centers appreciate mammogram parties when they are well-attended, meaning the blocked appointments are fully scheduled and the no-show rates are low. Having the option to both navigate women to mammogram parties or one-on-one navigation allows for more flexibility for scheduling and may ensure that about 86% of clients will complete a mammogram. Mammogram parties could be adopted in mammography facilities that have either an established screening mammography navigation program or adequate staff that serve as navigator-like staff to ensure follow-up and communication of results. Future research could focus on the individual and group benefits of mammogram parties, the effect on quality of care and timely follow-up for abnormal mammograms, as well as cost benefit. Given that the fear of breast cancer and financial worries are major barriers to receiving a mammogram [24, 25], the demand for services are very high in urban health care settings [3], and that routine mammography use contributes to a lower chance of death from breast cancer [26], navigation programs should consider adopting mammogram parties in their traditional community navigation programs.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Demographics of Helping Her Live Clients *, September 2011 – May 2015, Chicago, IL

		Total N=3,003	
		N	**%**
Age	<40	329	11
	40+	2,670	88
	Valid N	*2,999*	
Race/Ethnicity	African American	1,449	49
	Puerto Rican	146	5
	Mexican	1,074	36
	Other Hispanic/Latina	143	5
	Other Race	87	3
	Valid N	*2,899*	
Insurance	Uninsured	1,767	60
	Public Insurance	938	32
	Private Insurance	188	6
	Valid N	*2,893*	
Mammogram History	Mammogram within 2 years	970	34
Women >=40	Mammogram 2+ years ago	1,094	39
	Never Had Mammogram	862	31
	Valid N	*2,926*	
Participants in Project Area	Yes	2,466	81
	No	537	18
	Valid N	*3,003*	

* Unique women at the time of first contact

Table 2

Navigation Outcomes for Attendee Completers, Non-Attendee Completers, and Non-Completers by Party Invite Status, September 2011 – October 2014, Chicago, IL

	Invited to a Mammogram Party N=565			Not Invited to a Mammogram Party N=3236		
	Attendee Completers (IACs) N=372	**Non-Attendee Completers (INACs) N=114**	**Non- Completers (INCs) N=79**	**Non-Attendee Completers (NINACs) N=2060**	**Non- Completers (NINCs) N=1176**	**Total N=4204**
Number of Days in Navigation	72[1]	114	144[2]	68[1]	57[2]	66
Number of Navigation Contacts, Total[3]	10.9[2]	22.6	23.9[4]	15.0[2]	19.5[4]	16.4
Intake	1.4[1]	1.8	1.7[2]	1.5[1]	3.2[2]	2.0
PCP	3.8[5]	7.8	15.9[4]	5.3[5]	11.6[4]	10.3
Mammogram	8.0[1]	12.9	15.5[4]	8.2[1]	12.1[4]	8.7
% Completed a Mammogram	65.8%[1]	20.7%	NA	63.7%[1]	NA	67.4%
% Completed a Mammogram, Overall		86.0%[2]		63.7%[2]		67.4%

[1] Not Significant;

[2] $p < 0.0001$;

[3] Only includes clients with contacts for the specific navigation phase;

[4] $p < 0.05$;

[5] $p < 0.01$

Table 3

Navigation Outcomes for Same-Day-Care Mammogram Parties and Mammogram-Only Parties, September 2011 – October 2014, Chicago, IL

	Same-Day-Care Parties N=71	Mammogram-Only Parties N=301	All Mammogram Parties N=372
Number of Days in Navigation	69[1]	72[1]	72
Number of Navigation Contacts, Total [5]	8.3[4]	11.6[4]	10.9
Intake	1.6[1]	1.3[1]	1.4
PCP	2.7[1]	4.0[1]	3.8
Mammogram	5.6[4]	8.5[4]	8.0
% Completed a Mammogram	46.1%[2,4]	73.2%[3,4]	65.8%

[1] Not Significant;

[2] Out of n=146 who were invited to a same day event;

[3] Out of n=411 who were invited to a mammogram only party;

[4] $p < 0.0001$;

[5] Only includes clients with contacts for the specific navigation phase.