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Delivery Of Survivorship Care Plans: A Feasibility Study

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Abstract

Introduction: Despite the Institute of Medicines recommendation that all cancer survivors be provided with a survivorship care plan (SCP) at the end of their treatment, very few cancer centers have a mechanism for doing so. One of the major obstacles for providing breast cancer patients SCPs is that breast cancer treatments are complex, occur over a variable length of time, and are provided by many different providers, thus it is difficult to determine when and who should provide SCPs to patients. However, the majority of patients diagnosed with stage I-III will receive surgery and will continue to follow up with their surgeon for several years following their active treatment phase. The purpose of this study was first to determine if it is feasible to identify women for SCPs at their postoperative visit and track them prospectively throughout their treatment. The secondary aim of this study was to determine if participant's knowledge about their diagnosis, treatment, and risk for long term side effects improved after receiving their SCP.

Methods: 75 English-speaking women over the age of 18 with stage I-III breast cancer were enrolled at their postoperative appointment. The participants' treatment progress was tracked through the electronic medical record; the treatment information was abstracted from the records and used to create treatment summaries. Once treatment was completed, participants received the SCP during one of their scheduled follow-up appointments. Knowledge of tumor, treatments, potential side effects, and screening recommendations were assessed before receiving the SCP and again two months later. Accuracy of responses at baseline and follow up were compared using the McNemar test.

Results: Accrual occurred during 42 clinic days between April 2011 and February 2012. Of the patients who met the eligibility requirements 100% agreed to participate and we were able to complete 100% of the SCPs regardless of where participants received their treatments. Finally the surgical department was the only common department among all our participants. We found that participants were more accurate in reporting details about their tumor, treatments, screening recommendations, and potential side effects at follow up than they were at baseline for most measures but the only statistically significant changes were in identifying their stage ($p = 0.0016$), receiving 5-Fluorouracil during chemotherapy ($p= 0.0196$), and having an increased risk of leukemia ($p = 0.0348$).

Conclusion: Women recently diagnosed with breast cancer are interested in receiving survivorship care plans after treatment, as demonstrated by 100% accrual rate of eligible patients approached in the postoperative visit. The postoperative visit in a surgical clinic may provide the starting point for tracking a patient through treatment. Additionally SCPs appear to improve patient knowledge in several important areas including basic and specific treatment details, as well as screening recommendations and potential side effects.

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Breast cancer is the most frequently diagnosed cancer in American women with an estimated 232,340 new cases of invasive breast cancer this year alone [1]. Though breast cancer remains the second most common cause of cancer related death among women, advances in screening and treatment have substantially improved breast cancer prognosis [1]. Currently there are 2.9 million survivors of breast cancer, which account for more than 40% of the female cancer survivors in the United States [1] .

Although breast cancer survivors are cured from their cancer, many patients face long-term side effects from their treatment. The risk of complications depends on the specific treatment the patient received, but many common treatments can lead to lymphedema, infertility, osteoporosis, cardiovascular disease, and secondary malignancies [2-5]. Both patients and providers should be aware of these rare but serious complications and monitor the patient's health accordingly. Without universal health care records, the burden of recalling details of their breast cancer treatment falls largely on the patients after they are no longer being actively seen by their oncology team [6]. While patients are seen frequently by medical professionals while undergoing cancer treatment, very little information about the diagnosis, treatments, potential side effects, and future screening recommendations is written down for patients [7]. The lack of written information is problematic as it has been shown that many cancer patients feel overwhelmed and anxious during their appointments which inhibits them from absorbing and understanding the information [8]. Furthermore as soon as cancer patients are no longer undergoing active treatment their frequent visits to their oncology team stop, which can cause anxiety and feelings of abandonment [9]. Thus, not only can the lack of understanding of disease-related details have potential long-term consequences on the adequacy and appropriateness of the survivor's health, it can also have immediate psychological consequences as patients feel unprepared to handle the transition from cancer patient to cancer survivor [9]. These issues, coupled with the growing number of survivors, has led to an increased awareness from providers and policy makers of the need for standardized care strategies for cancer survivors that are no longer undergoing active treatment.

In 2006 The Institute of Medicine released a report outlining ten recommendations to improve the care of cancer survivors [10]. One of the recommendations suggested practitioners provide patients with survivorship care plans (SCPs), which is thought to help patient's transition from a "cancer patient" to a "cancer survivor" [10]. A survivorship care plan is a document summarizing information about the cancer and treatment. Essentially, it consists of four components, a treatment summary, information about potential late or long-term side effects, surveillance and healthy lifestyle recommendations, and identification of who will coordinate care. Though a growing number of comprehensive cancer treatment facilities have survivorship clinics that provide patients with survivorship care plans, they almost exclusively rely on physician or patient self- referral to survivorship clinics [11, 12]. To our knowledge there are very few comprehensive cancer treatment centers that report having a built-in component to cancer care that insures all patients will receive survivorship care plans despite the recommendation from the Institute of Medicine [11, 12]. Developing a strategy for

providing SCPs to all cancer survivors is vital, as future accreditation of hospital cancer programs by the Commission on Cancer of the American College of Surgeons will require a system for doing so, beginning in 2015 [13].

There are several obstacles that have limited the wide dissemination of SCPs. One previous barrier is that there was a lack of standardized templates. However, this limitation was recognized by American Society of Clinical Oncology (ASCO) who developed a cancer treatment template that allows providers a convenient way to store information about a patient's specific treatment and The University of Pennsylvania Cancer Center who developed an online tool with the Livestrong Foundation that provides standardized care plans, which provide information on long term side effects and screening recommendations based on responses to treatment questions[14, 15]. One limitation with the ASCO tool is the level of detail is such that it requires a physician to complete the details of the patient's history. The LIVESTRONG care plan is an on-line care plan that patients can generate themselves; however, this requires the patient to know which treatments they had. Studies have shown providers who have the information can complete the relevant questions to develop these care plans in less than ten minutes [16]. While the development of templates does solve a previous barrier it does not eliminate the need for physician's involvement in the creation of SCPs.

A second obstacle in providing SCPs to breast cancer patients is the diversity of treatment pathways. Breast cancer treatments are complex, occur over a variable length of time depending on the characteristics of the patient and the malignancy, and are provided by many different medical specialists [12]. This diversity in treatment plans and providers makes it difficult to systematically provide breast cancer survivors at the end of their treatment through a particular specialist, as this requires coordination and communication amongst the providers that is not always possible. However, the majority of patients diagnosed with stage I-III will receive surgery and will continue to follow up with their surgeon for several years following their active treatment phase [12]. If patients were open to the idea of discussing survivorship at the time of surgery, the surgical oncologist could serve as an ideal venue for identifying patients who will need to be given a SCP at the end of their treatment.

The primary purpose of this study was to assess the feasibility of providing SCPs to breast cancer survivors by enrolling them at the postoperative visit and tracking them prospectively throughout their treatment. The secondary aim was to determine if participant's knowledge about their diagnosis, treatment, and risk for long term side effects improved after receiving their SCP.

Methods

The study was conducted at Smilow Cancer Hospital at Yale-New Haven, at the Smilow Cancer Hospital Breast Center, a nationally accredited comprehensive breast cancer program. The Human Investigation Committee at Yale University approved all of the study procedures and documents and all participants gave written informed consent.

Participants and Recruitment

Participants were enrolled between April 2011 and February 2012 during their postoperative appointment. Female patients were eligible for the our study if they had pathologically confirmed stage I, II, or III breast cancer, had their breast cancer surgery at Smilow Cancer Hospital, and were over 18 years of age. Participants were excluded from participation if they were not fluent in English, or if they had a concurrent cancer diagnosis.

Study Design

Once the participant was enrolled, we began tracking their cancer treatment through the electronic medical record. At the end of a participant's active treatment we reviewed the relevant medical records and abstracted the necessary clinical information needed to create treatment summaries using the ASCO template, and the Livestrong Care Plan generator. Participants were contacted by a research administrator as they approached the end of their active treatment and were scheduled for a baseline (post-treatment) interview that took place 15 minutes before or after an existing appointment in the cancer center. We defined the end of treatment as the time at which patients had completed their radiation and/or chemotherapy treatments and had been initiated on hormonal therapy, if applicable. If the patient did not receive any adjuvant therapy the end of treatment was defined as the appointment in which they were informed their active treatment was completed. The only exception to this protocol was patients being treated with a yearlong course of Herceptin who could still be completing their chemotherapy at the time of the baseline appointment.

During the baseline appointment participants were asked to complete three self-administered surveys about their demographic information, medical history, and knowledge of the breast cancer surveillance recommendations without assistance (see measures). The participants were then given a written copy of their personalized care plan with a Yale cover letter explaining the purpose of the document. Two months after the baseline appointment participants were mailed the follow up questionnaires and a prepaid return envelope. Participants who did not return the follow-up surveys within a month of the mailing were contacted by telephone and were re-mailed the surveys.

Measures

Information on demographics, cancer diagnosis, cancer treatments, and knowledge of follow up recommendations was collected via the self-administered questionnaires at the baseline visit. The first questionnaire asked basic demographic information and included

questions pertaining to the participant's age, racial/ethnic group, education, marital status, employment, reproductive history, and serious comorbidities. The second questionnaire was used to assess the participant's knowledge of their treatment prior to receiving the SCP including questions on the clinical pathology of their tumor at diagnosis, the types of treatment they received including questions on specific medications prescribed and dates that they were administered each treatment. The final questionnaire asked the participant specific questions about long-term side effects of breast cancer treatment, and screening recommendations for breast cancer survivors. In addition it asked participants to rate their assessment of their own knowledge about their stage, treatments, surveillance guidelines, and potential long-term side effects on a scale from 0 to 10 where 0 was defined as no knowledge and 10 was defined as expert level knowledge. The second and third questionnaires were also used at follow up but the third questionnaire had one additional question asking if the participant was satisfied with her SCP.

Statistical Analysis

We originally intended to characterize reasons why women choose not to enroll in our study, however as we enrolled all of the women who met our eligible criteria this was not necessary. In addition we had intended to compare the characteristics of participants who received their SCP to the characteristics participants who did not receive their SCP using chi-square analysis, t-tests, and logistic regression to determine which characteristics of the participant were associated with the receipt of an SCP, however we again found that we were able to give all of our enrolled participants an SCP.

Analysis of the participant's knowledge before and after the SCP was limited to participants who returned both the baseline and follow up surveys. The comparisons between participants who did not return the follow up surveys to those who did return the follow up surveys was done using chi-square tests for categorical variables and t tests for continuous variables. Responses to knowledge questions were dichotomized as correct if the answer was correct or incorrect if the participants choose "don't know" or marked the incorrect answer. We used the McNemar test to conduct the comparison of correct answers chosen at baseline to those chosen at follow.

All of our analyses were conducted using SAS 9.3 (SAS Institute, Cary, NC) at a significance level of <0.05.

Results

We screened 129 post-operative visit diagnoses to identify eligible participants patients for enrollment between April 2011 and February 2012, 54 people were not eligible to participate due to non-invasive carcinomas (n= 46), metastatic disease (n = 3), and non-English speaking (n = 5) (Figure 1). Of the 75 post-operative visit diagnoses that met the inclusion criteria, 75 patients were approached and all 75 agreed to participant, for a 100% enrollment rate. We were able to track the treatment progress and complete the SCPs for all 75 participants. Further examination of the participants' clinical pathology during the creation of the SCPs revealed that three of the participants did not have invasive breast cancer and one was unable to read in English. Though we provided these women with their SCPs, as these patients did not meet the eligibility requirements they were excluded from further evaluation. During the baseline assessment three participants withdrew from the study and one was released from the study due to the development of metastatic disease during the interim between enrolment and completion of initial therapy thus our final sample size was 67 women. Of the 67 eligible participants who completed the baseline questionnaire, 51 also completed the follow up assessment for a follow up rate of 76.1%.

Demographic and clinical characteristics for the 51 women included in the present analysis are shown in Table 1. We observed that a significantly larger proportion of non-Hispanic whites (p= 0.0014) and women with private insurance completed the follow up surveys (p = 0.0184). The average age at diagnosis was 56.8 years; and the predominant racial/ethnic group was non-Hispanic white (92.2%). The majority of our participants were highly educated and married. None of our participants were uninsured. 47.1% of our participants were diagnosed with stage I breast cancer, 37.3% with stage II, and 15.7% with stage III. 74.5% of our sample was ER positive, 68.6% were PR positive, 11.8% were HER2 positive, and 19.6% were triple negative. The majority of our sample received hormonal therapy (76.5%) and radiation (70.6%), whereas just over half (56.9%) underwent adjuvant chemotherapy. Finally 25.5% of our participants also attended the Survivorship Clinic at Yale Cancer Center.

The accuracy of responses for tumor characteristics and treatments received at baseline and follow up are shown in Table 2. A greater number of participants selected correct responses at follow up for the majority of the questions, however the only statistically significant improvements in accuracy between baseline and follow up was the participants knowledge of their stage at diagnosis (p= 0.0016) and correct identification of being prescribed 5-Fluorouracil (p=0.0196). The accuracy of responses for long-term side effects and screening recommendations at baseline and follow up are shown in Table 3. Again more participants choose the correct response for the long-term side effects, and screening recommendations at follow up than at baseline. However, the only statistically significant change was that more women in our sample knew that some breast cancer treatments increased the risk of developing Leukemia (p= 0.0348).

Table 4 shows the participants perception of their own knowledge at baseline and at follow up. At both baseline and follow up the majority of participants reported having

high knowledge of their stage (60.4%, and 66.7% respectively), treatments they received (69.4%, and 71.4% respectively), and surveillance guidelines (61.4%, and 54.6% respectively). However at both baseline and follow up less than half of the participants reported having high knowledge of potential side effects of their treatment (50.0%, and 42.9% respectively). There was no statistical difference in responses before and after receiving the SCP.

The accuracy of responses of participants who attended the Survivorship Clinic at Yale Cancer Center was compared to the accuracy of responses of participants who did not. At follow up participants who attended the Survivorship Clinic were not more accurate in identifying details of their disease or treatment. However, participants who attended the Survivorship Clinic at Yale were more accurate in the identification of the treatment side effects including lymphedema ($p= 0.0462$), cardiac problems ($p= 0.0225$), leukemia ($p=0.0428$), neuropathy ($p = 0.0302$), and menopausal symptoms ($p = 0.0193$). Despite this, the participants who attended the Survivorship Clinic did not have statistically higher perceived knowledge at follow up.

Finally the majority of participants (83.6%) reported being satisfied with their SCP.

Discussion

Despite the Institute of Medicine's recommendation that cancer centers provide SCPs to all cancer survivors, few cancer centers have systems for doing so. The primary goal of this study was to determine if it is feasible to identify women during their postoperative visit and track them prospectively through their treatment with the goal of giving a survivorship care plan after completion of initial treatment. Previous research suggests that women prefer to discuss survivorship at the end of their treatment, as they are already overwhelmed with information about their diagnosis and treatment options during their active treatment phase [17]. However, introducing survivorship during the postoperative visit could be advantageous, as it eliminates one of the chief logistical obstacles in broadly providing care plans, which is that not all breast cancer patients undergo the same treatment progression and thus it is difficult to identify a suitable time after which the provider should distribute SCPs. Though adjuvant treatment pathways differ between patients, nearly all breast cancer patients receive surgery and thus surgery clinics could provide an opportunity to identify the majority of patients who will eventually be cancer survivors. Moreover, like many cancer centers, at Yale breast cancer patients are recommended to follow up with their surgical providers every 6 months for the first 3 years, and every year thereafter until 5 years post operative suggesting that surgical clinics may be the ideal place to provide patients with completed SCPs after their active treatment [18].

In this study we demonstrated women are open and interested in survivorship care plans even moments after they have learned the details of their diagnosis and potential treatments, as demonstrated by 100% accrual rate of eligible patients approached in the postoperative visit. Our sample population had a wide range of treatments, 70.6% received radiation, 56.9% received chemotherapy, and only 47.1% received both. Therefore, the surgical office is the only common setting to which every woman with early stage breast cancer is guaranteed to be seen. Consequently, the postoperative visit in a surgical clinic appears to be a viable option to start tracking a patient through treatment, which in turn may provide a feasible model for delivering survivorship care plans to all breast cancer survivors. Though this study has demonstrated the patient's willingness to discuss survivorship in their post-operative appoints further research is needed to determine the cost effectiveness of a SCP system in the surgical clinic compared to other models like stand-alone survivorship clinics.

The secondary goal of this study was to determine if SCPs had an effect on the patients knowledge about their diagnosis, treatments, and risk of long-term complications. We found that participant's knowledge improved after they received their SCPs, however only a few of these changes were statistically significant. There have been two other recent studies that have explored the effectiveness of SCPs on breast cancer survivor's knowledge, one of which found them to be effective and one of which found them to be ineffective [19, 20]. While both studies had methodological constraints the Grunfeld et al finding that SCPs were not effective has been heavily criticized as both the intervention and control groups were given similar information, thus it did not truly compare the effectiveness of SCPs[21, 22]. Our findings add the evidence and suggest that SCPs are

an effective method of improving cancer survivor's knowledge. Given the inconsistency in findings as well as the scarcity of studies further investigation is needed to determine the effectiveness of SCPs. However, if SCPs are found to have even a moderate effect on knowledge this could have significant implications in survivor's health at a minimal cost.

At both baseline and follow up women felt that they were well informed on most cancer related topics with over half reporting high levels of knowledge on their stage, treatments received, and surveillance guidelines even though they were not accurate in reporting the details of their treatments. This inconsistency in perceived knowledge and actual knowledge has potential consequences as it might prevent women from informing their future providers accurate information, or verifying information with their oncology providers. Additionally there was no statistical difference in perceived knowledge for stage, treatments received, surveillance guidelines, or potential side effects, but less women reported having high knowledge on surveillance guidelines and potential side effects at follow up than at baseline. Though we provided women with their SCP and orientated them to relative information we did not specifically point out the information page-by-page. We relied on the participants to read the document and ask their provider if they had questions or needed clarification. Perhaps a better solution is giving a SCP plus dedicating time to reviewing this, essentially providing a "transition visit" where the information is reviewed.

There are a few notable limitations to this study. The first is that Smilow Cancer Hospital has a survivorship clinic, which is available to all patients who are interested in receiving survivorship care at the end of their treatment. 25.5% of our participants also participated in the clinic between baseline and follow up. Attending the survivorship Clinic may have influenced these participants knowledge who had higher levels of knowledge on some metrics at follow up, however these women also had a high knowledge at baseline suggesting that healthier, more educated women seek out the survivorship clinic. A second limitation is that we collected information in a single health care system that serves a largely Caucasian, highly educated, and insured population. It may be difficult to generalize these findings to a different population. Finally as this was a feasibility study we did not have a control group, future studies should randomize patients to receive a SCP or to usual care to determine if the SCP is more useful than the current system.

To our knowledge this is the first study to demonstrate the effectiveness of approaching women for SCPs in their postoperative appointment, and one of the few studies that have examined the effectiveness of SCPs on patient knowledge. The strengths of this study are that we were able to show that patients are receptive to survivorship care as soon as their postoperative appointments. Identifying patients for survivorship following their operation could significantly increase the number of patients who receive SCPs in comprehensive cancer centers.

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Figure 1: Flow of participant enrollment

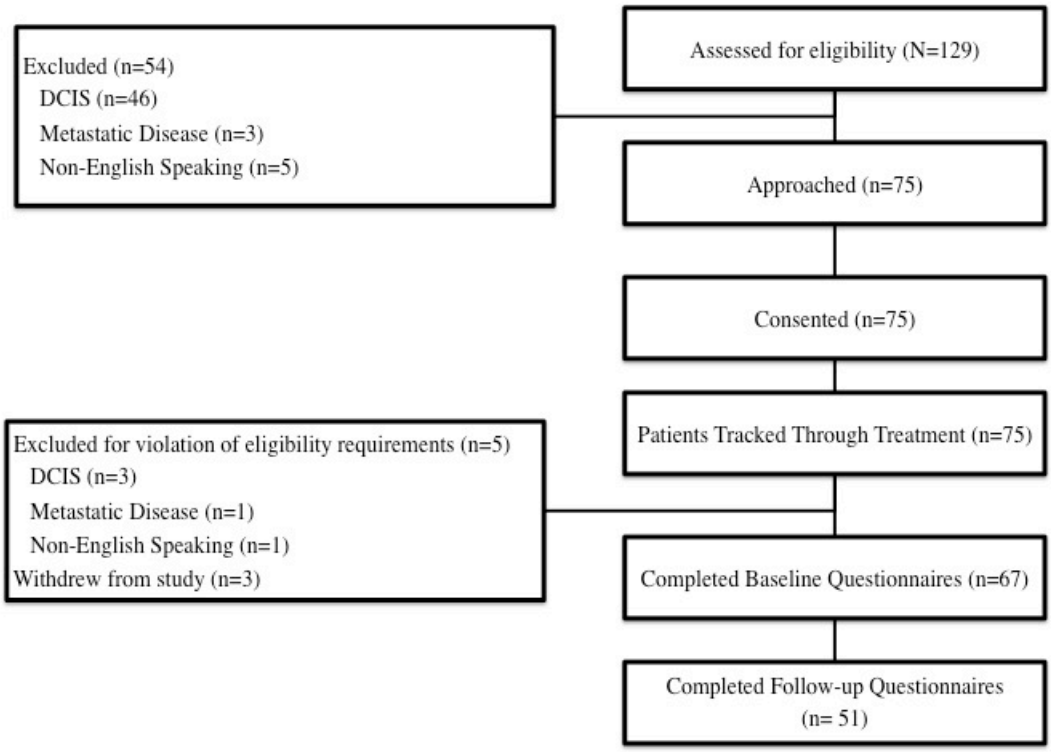

Table 1: Baseline demographics and clinical characteristics of study participants included in the analysis compared with those not included

	Entire Sample n=67	Complete Data n=51	P value†
Age, years			
Mean ± SD	55.9 ± 12.6	56.8 ± 12.5	0.2747
Race/Ethnicity			
Non-Hispanic white	56 (83.6%)	47 (92.2%)	0.0014
Non-Hispanic black	3 (4.5%)	0 (0.0%)	
Hispanic/Latino	2 (3.0%)	1 (2.0%)	
Other	6 (9.0%)	3 (5.9%)	
Education			
Less than high school diploma	4 (6.0%)	1 (2.0%)	0.1509
High school diploma	9 (13.4%)	6 (11.8%)	
Some college	14 (20.9%)	11 (21.6%)	
Baccalaureate Degree	17 (25.4%)	14 (27.5%)	
Professional or Graduate Degree	23 (34.3%)	20 (37.3%)	
Marital status			
Single	6 (9.0%)	4 (7.8%)	0.2419
Married/cohabiting	41 (61.2%)	34 (66.7%)	
Widow	8 (11.9%)	6 (11.8%)	
Separated/divorced	12 (17.9%)	7 (13.7%)	
Insurance			
Private Insurance	40 (60.6%)	34 (68.0%)	0.0184
Public Insurance	26 (39.4%)	16 (32.0%)	
Uninsured	0 (0.0%)	0 (0.0%)	
Disease stage			
Stage I	32 (47.1%)	24 (47.1%)	0.8619
Stage II	25 (36.8%)	19 (37.3%)	
Stage III	11 (16.2%)	8 (15.7%)	
Type of Treatment			
Radiation	43 (65.2%)	36 (70.6%)	0.1215
Chemotherapy	36 (53.7%)	29 (56.9%)	0.3956
Hormonal therapy	52 (77.6%)	39 (76.5%)	1.0000
Hormone Receptor Status			
Estrogen Receptor	51 (76.1%)	38 (74.5%)	0.7429
Progesterone Receptor	47 (70.2%)	35 (68.6%)	0.7597
HER2	8 (11.9%)	6 (11.8%)	1.0000
Triple Negative	12 (17.9%)	10 (19.6%)	0.7159
Attended Yale Survivorship Clinic			
Yes	16 (23.9%)	13 (25.5%)	0.7429
No	51 (76.1%)	38 (74.5%)	

*Numbers may not sum due to missing data, and percentages may not sum to 100% due to rounding.

† P-value for t-test for continuous variables χ^2 test for categorical variables.

Table 2: Accuracy of knowledge of basic and specific treatment details at baseline and follow up

Basic Treatment Information	Baseline	Follow Up	P value†
Stage			
Accurate	37 (72.6%)	47 (92.2%)	0.0016
Inaccurate	14 (27.5%)	4 (7.8%)	
Radiation (y/n)			
Accurate	51 (100%)	51 (100%)	n/a
Inaccurate	0 (0.0%)	0 (0.0%)	
Chemotherapy (y/n)			
Accurate	51 (98.1%)	51 (98.1%)	n/a
Inaccurate	1 (1.9%)	1 (1.9%)	
Hormone Therapy (y/n)			
Accurate	35 (68.6%)	41 (80.4%)	0.0833
Inaccurate	16 (31.4%)	10 (19.6%)	
Specific Treatment Information			
5- Fluorouracil			
Accurate	19 (65.5%)	26 (89.7%)	0.0196
Inaccurate	10 (34.5%)	3 (10.3%)	
Cyclophosphamide			
Accurate	21 (72.4%)	23 (79.3%)	0.4142
Inaccurate	8 (27.6%)	6 (20.7%)	
Methotrexate			
Accurate	21 (72.4%)	25 (86.2%)	0.1573
Inaccurate	8 (27.6%)	4 (13.8%)	
Anthracyclines			
Accurate	20 (69.0%)	22 (75.9%)	0.4142
Inaccurate	9 (31.0%)	7 (24.1%)	
Carboplatin			
Accurate	21 (72.4%)	25 (86.2%)	0.1025
Inaccurate	8 (27.6%)	4 (13.8%)	
Taxanes			
Accurate	25 (86.2%)	24 (82.8%)	0.6547
Inaccurate	4 (13.8%)	5 (17.2%)	
Tamoxifen			
Accurate	46 (90.2%)	47 (92.2%)	0.5637
Inaccurate	5 (9.8%)	4 (7.8%)	
Anastrozole			
Accurate	46 (90.2%)	49 (96.1%)	0.1797
Inaccurate	5 (9.8%)	2 (3.9%)	
Letrozole			
Accurate	46 (90.2%)	47 (92.2%)	0.6547
Inaccurate	5 (9.8%)	4 (7.8%)	
Aromasin			
Accurate	48 (94.1%)	49 (96.1%)	0.5637
Inaccurate	3 (5.9%)	2 (3.9%)	

*Numbers may not sum to 51 as some participants did not receive each therapy, and percentages may not sum to 100% due to rounding.
† P value for McNemar test.

Table 3: Accuracy of knowledge of screening recommendations and side effects at baseline and follow up

	Baseline	Follow up	P value†
How often should you see your oncologist			
Correct	33 (64.7%)	37 (72.6%)	0.3458
Wrong	18 (35.3%)	14 (27.5%)	
Frequency of Mammograms			
Correct	24 (47.1%)	28 (54.9%)	0.3938
Wrong	27 (52.9%)	23 (45.1%)	
Potential Side Effects			
Lymphedema			
Yes	35 (71.4%)	40 (83.3%)	
No	7 (14.3%)	4 (8.3%)	0.0956
Do Not Know	7 (14.3%)	4 (8.3%)	
Bone Loss			
Yes	33 (67.4%)	34 (69.4%)	
No	7 (14.3)	8 (16.3%)	0.7815
Do Not Know	9 (18.4%)	7 (14.3%)	
Infertility			
Yes	22 (45.8%)	24 (50.0%)	
No	15 (31.3%)	13 (27.1%)	0.5271
Do Not Know	11 (22.9%)	11 (22.9%)	
Cardiac Problems			
Yes	21 (43.8%)	24 (50.0%)	
No	14 (29.2%)	13 (27.1%)	0.3657
Do Not Know	13 (27.1%)	11 (22.9%)	
Fatigue			
Yes	40 (80.0%)	42 (87.5%)	
No	6 (12.0%)	4 (8.3%)	0.5271
Do Not Know	4 (8.0%)	2 (4.2%)	
Leukemia or blood cancer			
Yes	18 (36.0%)	23 (46.9%)	
No	16 (32.0%)	16 (32.7%)	0.0348
Do Not Know	16 (32.0%)	10 (20.4%)	
Neuropathy			
Yes	20 (40.0%)	26 (54.2%)	
No	14 (28.0%)	10 (20.8%)	0.1088
Do Not Know	16 (32.0%)	12 (25.0%)	
Limb Swelling			
Yes	28 (56.0%)	34 (70.8%)	
No	11 (22.0%)	4 (8.2%)	0.1336
Do Not Know	11 (22.0%)	10 (20.8%)	
Nerve Damage			
Yes	21 (42.0%)	25 (55.6%)	
No	15 (30.0%)	8 (17.8%)	0.2850
Do Not Know	15 (28.0%)	12 (26.7%)	
Menopausal Symptoms			
Yes	33 (67.4%)	33 (67.4%)	
No	8 (16.3%)	9 (18.4%)	1.0000
Do Not Know	8 (16.3%)	7 (14.3%)	

*Numbers may not sum to 51 due to missing data, and percentages may not sum to 100% due to rounding. † P value for McNemar test.

Table 4: Perceived knowledge at baseline and follow up

	Baseline	Follow up	P value†
Stage			
High	29 (60.4%)	32 (66.7%)	
Medium	15 (31.3%)	11 (22.9%)	0.6594
Low	4 (8.3%)	5 (10.4%)	
Treatments Received			
High	35 (71.4%)	35 (71.4%)	
Medium	10 (20.4%)	12 (24.5%)	0.7212
Low	4 (8.2%)	2 (4.1%)	
Surveillance Guidelines			
High	27 (55.1%)	26 (53.1%)	
Medium	14 (28.6%)	20 (40.8%)	0.2474
Low	8 (16.3%)	3 (6.1%)	
Potential Side Effects			
High	24 (48.9%)	21 (42.9%)	
Medium	16 (32.7%)	23 (46.9%)	0.2504
Low	9 (18.4%)	5 (10.2%)	

† P value for McNemar test.