Discussions about contralateral prophylactic mastectomy among surgical oncology providers and women with sporadic breast cancer: a content analysis

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Abstract

Rates of contralateral prophylactic mastectomy (CPM) have risen substantially, yet little is known about how and to what extent CPM is discussed within surgical oncology visits at the time of treatment decision-making. We examined CPM discussions in naturally occurring interactions between sporadic breast cancer patients and their surgical oncology providers. Women with early-stage unilateral disease were recruited before their first surgical visit and completed brief questionnaires to determine study eligibility and interest in treatment options. After their visits, enrolled patients and their providers completed questionnaires assessing discussion of and interest in CPM. Audio-recorded visits from 36 unique patients were randomly selected, transcribed, and analyzed. A CPM discussion was present in 28 transcripts. Approximately half of CPM discussions were initiated by the patient or the oncology provider. The topic of CPM was most frequently introduced while reviewing available treatment options. Patients were most interested in pursuing CPM to reduce the risk of future breast cancer. Providers most frequently responded by offering information (e.g., about risk of contralateral disease). A high level of agreement was found among patient, provider, and observer ratings of whether or not CPM was discussed. CPM discussions were consistently present within our sample. Results can be used to build providers' skills and bring provider–patient communication more in line with best practices and recommendations from leading professional medical societies.

Keywords

breast cancer, contralateral prophylactic mastectomy, provider–patient communication, surgery, decision making

INTRODUCTION

Rates of contralateral prophylactic mastectomy (CPM) have risen substantially in the United States over the past several decades [1–5]. CPM significantly reduces breast cancer risk and confers a survival advantage in women at highest risk of breast cancer (e.g., those with known mutations in high-penetrance genes or strong family history of breast cancer) [6, 7]. Women with sporadic breast cancer face only minimal risk of developing cancer in the contralateral breast (about 0.5% per year) [8–10], have a minimal survival advantage from undergoing CPM, and may benefit from

Implications

Practice: Contralateral prophylactic mastectomy (CPM) discussions in surgical oncology visits offer providers a unique opportunity to improve patient-centered communication and facilitate informed treatment decision-making by encouraging patients to share more about their preferences and personal values.

Policy: Policymakers who want to address rising rates of CPM among women with sporadic breast cancer must consider how CPM is discussed in surgical oncology visits, the impact conversations about CPM have on treatment choice, and the potential for targeted interventions to improve providers communication skills and informed decision-making.

Research: Future research must build on this preliminary work and aim to better understand the nature and correlates of CPM discussions at the time of treatment decision-making.

alternative risk-reducing strategies such as endocrine therapy that decrease their chance of contralateral breast cancer [11–13]. Regardless, research suggests that it is women with unilateral, sporadic cancer who are driving the upward trend in CPM [1–5].

A growing body of literature has examined psychosocial reasons for undergoing CPM among women with sporadic disease. A recent systematic review found that patients' decisions were driven by fear about future breast cancer, followed by appearance-related factors (e.g., desire for breast symmetry) [14]. A desire to obtain “peace of mind” related to fear about future breast cancer consistently emerged as a significant motivator to pursue CPM in other research studies as well as concern about decisional regret [15–18]. Women with sporadic breast cancer have overestimated their risk for contralateral breast cancer as compared to those with an identified BRCA mutation [19].

While patient-reported outcomes are generally favorable after CPM [15, 20], the procedure is not without physical and psychological risks. Postoperative complications are higher after bilateral surgery [21–23], and dissatisfaction with body image and sexuality may be prevalent [24–27].

The Society of Surgical Oncology [7] and the American Society of Breast Surgeons [6] agree that while the majority of women diagnosed with breast cancer will obtain no clinical benefit from CPM, the decision remains preference-sensitive, and must be individualized for each patient. Both organizations advise that providers' discussions about CPM include short- and long-term breast cancer risks, alternative risk reduction strategies (e.g., endocrine therapy), potential complications, and impact on survival and quality of life. Moreover, these conversations must work toward eliciting patients' preferences and personal values.

Little is known about how and to what extent CPM is discussed within surgical oncology visits, but evidence suggests that surgeons have an important influence on patient decision-making [28, 29]. Few empirical studies have even included self-report items related to provider–patient communication about CPM. Katz et al. [30] surveyed over a thousand women with unilateral breast cancer who considered CPM and found that a third (32.3%) reported no substantial discussion about CPM with their surgeon. Of those who did report a CPM discussion, 26.7% stated that their surgeon offered a specific recommendation against bilateral surgery and 67.3% indicated that their surgeon either made a recommendation for CPM or left the decision up to them [30]. Jagsi et al. [16] selected approximately 2,400 women who were surgically treated for unilateral, breast cancer and found that a surgeon's recommendation can be important in relation to a patient's choice for or against CPM. Among those with sporadic disease ($n = 1,569$), patients were much less likely to complete CPM if their surgeon offered a recommendation against it as compared to patients who did not receive a recommendation (1.9% vs. 19%) [16].

This descriptive and exploratory study examined CPM discussions in naturally occurring interactions between women with sporadic breast cancer and their oncology healthcare providers at the time of treatment decision-making. We determined the frequency and nature of CPM discussions within surgical oncology visits, including how the topic emerged, how the conversation unfolded, and how providers and patients responded when talking about CPM. We also examined the level of agreement between patient self-report, provider self-report, and coder ratings of whether or not a CPM discussion occurred.

METHODS

Study setting and participants

The current study was completed as part of a larger exploratory/developmental research grant funded

by the National Cancer Institute. The aim of the larger NIH-funded project was to examine the clinical benefits, risks, and costs of CPM and prospectively evaluate the decision-making process leading to CPM among women with sporadic breast cancer. Women with newly diagnosed breast cancer were recruited at The University of Texas MD Anderson Cancer Center between February 2011 and April 2013. Eligible participants were diagnosed with stage 0 to III unilateral breast cancer, ≥ 18 years of age, English proficient, and endorsed some level of interest in CPM at screening. Patients with a previous breast cancer, history of prophylactic mastectomy, known germline mutation for hereditary breast cancer (e.g., *BRCA 1/2*, *TP53*), or those who were considered high risk based on family history of breast cancer were excluded from the study. Women received \$20 as study compensation. Oncology providers who took part in this study included surgeons (i.e., surgical oncologists and plastic surgeons) and advanced practice providers (i.e., nurse practitioners and physician assistants). The study was approved by the Institutional Review Board at The University of Texas MD Anderson Cancer Center.

Study procedures

Participants were approached at their first surgical visit and completed screening questions to determine study eligibility and level of interest in different treatment options (e.g., CPM, mastectomy, and breast-conserving surgery). Eligible participants were given details regarding study procedures and informed consent was obtained. Enrolled participants were asked to complete baseline questionnaires before their first surgical visit as well as brief questionnaires regarding discussion of and interest in different treatment options after each surgical visit (e.g., first visit with a surgical oncologist and follow-up plastic surgery consultation, if applicable) [31]. Providers were asked to complete post-visit questionnaires only. All participants and providers agreed to have their visits audio-recorded. This included initial visits with a surgical oncologist or advanced practice provider and initial visits with a plastic surgeon, if applicable.

Study measures

Participants were asked to rate their interest in different treatment options (e.g., CPM, mastectomy, and breast-conserving surgery) on a 5-point Likert scale (1 = *Not at all interested* to 5 = *Extremely interested*) on screening eligibility questions. Enrolled participants completed a demographics survey, which assessed age, race/ethnicity, marital status, educational background, and employment status. Participants also completed a number of psychosocial measures at baseline, including cancer-specific distress, illness uncertainty, fear of recurrence, and breast cancer knowledge. Given the scope of the

current study, and the fact that results have been presented elsewhere [31], these psychosocial measures will not be examined here. Immediately after each surgical visit, patients and oncology providers completed items about the extent to which different treatment options were discussed (e.g., *To what extent did you discuss the possibility of having CPM?*), with ratings given on a 5-point Likert scale (1 = *Did not discuss* to 5 = *Discussed extensively*).

Study analysis

Content analysis

A total of 125 audio-recorded visits were collected. A decision was made to randomly select a subset of 52 audio-recordings (42%) to be transcribed and utilized for codebook development. This decision was made for two reasons. First, the funding available allowed for this number. Second, transcribing and analyzing all or the majority of audio-recordings was deemed unnecessary based on our experience in qualitative research and use of qualitative research method guidelines. Qualitative research method guidelines historically argue that redundancy of themes can be attained with a sample in the range of 20–30 [32, 33]. Furthermore, Guest et al. [34] observed that when qualitatively analyzing data from a homogeneous sample, thematic saturation occurred within the first 12 cases and that basic elements were present after completing analysis of only 6 cases.

Transcripts were content analyzed by the first author (TD) and senior author (PP) [35]. To begin, the first author reviewed all 52 transcripts to identify cases where CPM discussions occurred and to create an initial coding framework with input from the senior author. The CPM discussion served as the unit of analysis and was present in a total of 39 transcripts; 15 of those transcripts were chosen at random and used to further develop and refine the coding procedure by the first and senior author. The initial codebook was piloted with the two coders double coding five transcripts and holding meetings to discuss and refine the coding categories. The two coders also confirmed that no new coding categories could be identified during this phase of the analysis. Ten transcripts were then double coded using the final codebook, with each category demonstrating acceptable levels of inter-rater reliability (Cohen's kappa range = .81–1.0). After establishing a reliable coding procedure, the remaining transcripts were divided equally between the two coders and coded independently. Finally, since a single patient may have met with two or more oncology providers and had multiple visit-recordings randomly selected for transcription, a decision was made to remove coded data from non-unique cases. This resulted in a final sample of 36 unique patients.

Coding categories included: (1) who initiated the CPM discussion; (2) the context under which the

topic of CPM emerged; (3) underlying factor(s) that appeared to be driving interest in CPM; and (4) providers' response(s) when discussing CPM. Finally, we were interested in capturing (5) providers' use of patient-centered communication and (6) patients' level of engagement within CPM discussions. To examine providers' patient-centered communication, we coded for the presence of three groups of facilitative behaviors: (a) solicit patient participation (e.g., endorse questions or encourage expression of emotion); (b) support patient decision-making (e.g., respect patient autonomy); and (c) empathic response (e.g., validate or normalize emotions). These groups of behaviors have been identified in previous research as encouraging patient participation within healthcare interactions [36–39]. In terms of patient engagement, we coded for the presence of three groups of active patient participation behaviors: (a) asks questions (including clarifying questions); (b) express emotions or concern; and (c) assertive statements (e.g., articulating opinions or preferences). These groups of behaviors have been identified in previous research and are known to be associated with a number of improved outcomes such as patient satisfaction and psychosocial well-being and providers' provision of information and use of relational communication [37, 40–45].

Statistical analysis

Bivariate comparisons were conducted to determine the level of agreement between patient self-report, provider self-report, and coder ratings of whether or not a CPM discussion occurred. Patient and provider self-reports of CPM discussion were dichotomized with scores of 1 indicating no CPM discussion and scores of 2–5 indicating the presence of a CPM discussion.

RESULTS

Enrollment and participant characteristics

A total of 173 women were approached; 43 were ineligible and 13 refused to participate due to lack of interest or time, resulting in a sample of 117 participants (90% enrollment) [31]. Audio-recorded visits from 36 unique patients were randomly selected, transcribed, and analyzed for the current study. Of these, 22 were with a surgical oncologist (61.1%), 9 were with an advanced practice provider (25%), and 5 were with a plastic surgeon (13.9%). Participants included predominantly white/Caucasian, married, well-educated, and employed women. Patient sociodemographic characteristics are displayed in Table 1.

CPM discussions

Content analysis

A CPM discussion was identified and coded in a total of 28 out of 36 (77.8%) transcripts analyzed

Table 1 | Patient sociodemographic characteristics

Characteristic	<i>n</i> (%)
Age, mean (range), years	53.8 (28–70)
Race/ethnicity	
White/Caucasian	21 (75%)
Hispanic/Latino	4 (14.3%)
Black/African American	2 (7.1%)
Asian/Pacific Islander	1 (3.6%)
Marital status	
Married and living with partner	18 (64.3%)
Single/separated/divorced/widowed	10 (35.7%)
Education level	
Less than high school	1 (3.6%)
High school or technical school degree	13 (46.4%)
College degree	10 (35.7%)
Graduate school degree	4 (14.3%)
Employment status	
Employed full-time or part-time	16 (57.1%)
Unemployed	9 (32.1%)
Retired	3 (10.7%)

The table reflects the characteristics for the 28 unique patients in the sample of 36 visit transcripts that included a discussion of contralateral prophylactic mastectomy.

as part of this study. Results of the content analysis are presented in Table 2, including coding categories, individual codes and sub-codes, associated frequencies and percentages, and operational definitions or exemplary quotations. For cases in which percentage totals are greater than 100%, multiples codes were allowed per category.

Approximately half of CPM discussions were initiated by the patient ($n = 13$; 46.4%) or the oncology provider ($n = 12$; 42.9%). A small number of CPM discussions were initiated by a significant other or family member ($n = 3$; 10.7%). In the majority of cases, CPM was introduced while discussing available treatment options ($n = 25$; 89.3%). In a quarter of the discussions, CPM was introduced while talking about disease history ($n = 7$; 25%). For example, the provider might review what's known from previous tests or the patient might recap events leading up to the visit. In a small number of discussions, the conversation was focused on genetic testing for inherited breast cancer or family history of breast cancer ($n = 3$; 10.7%). Finally, in one case, the provider and patient were talking about the goal of achieving breast symmetry after reconstruction when the topic of CPM emerged ($n = 1$; 3.6%).

Factors driving patients' interest in CPM were readily apparent in the majority of CPM discussions ($n = 18$; 64.3%). It should be noted that although CPM was discussed in the remaining cases ($n = 10$; 35.7%), it was not clear from the conversation why the patient was interested in CPM. Interest in pursuing CPM to reduce the risk of future breast cancer was the most frequently observed code ($n = 15/18$; 83.3%). In a smaller number of discussions, the

patients specifically stated that they were considering CPM in order to avoid going through the cancer experience again ($n = 4/18$; 22.2%). In other words, these patients did not want to face the prospect of receiving a diagnosis, weighing treatment options, or going through treatment and recovery for a second time. Finally, in a handful of cases, the patient expressed interest in talking about or pursuing CPM for cosmetic or appearance-related reasons (e.g., achieving breast symmetry after reconstruction; $n = 3/18$; 16.7%).

The majority of CPM discussions included provider responses coded into multiple individual codes ($n = 17$; 60.7%). Most CPM discussions included a provider response that fell under the overarching code of offering information to the patient ($n = 18$; 64.3%). This included the provider offering statistics or an overview of the patient's risk of contralateral breast cancer, explaining the lack of scientific evidence supporting CPM for sporadic breast cancer, mentioning alternative conditions when CPM would in fact be recommended (e.g., when a patient is a known BRCA carrier), and/or listing the increased surgical risks and potential complications of bilateral surgery. The second most frequently coded response was when the provider offered a clear and explicit recommendation against CPM ($n = 11$; 39.3%). In about a quarter of discussions, the provider offered no substantive response ($n = 8$; 28.6%), either missing or otherwise choosing to overlook the topic of CPM as it was introduced into the conversation. Four other response categories were also coded, including instances where the provider probed for additional information about the patient's interest in CPM and/or concerns ($n = 3$; 10.7%), offered a referral to genetic counseling ($n = 2$; 7.1%), empathized with the patient by normalizing or validating their emotions or experience ($n = 2$; 7.1%), or reassured the patient ($n = 2$; 7.1%).

At least one facilitative behavior code was observed in half of the CPM discussions ($n = 14$; 50%). Oncology providers demonstrated evidence of soliciting patient participation in about 40% of cases ($n = 11$; 39.3%) and supporting patient decision-making in about a fifth of cases ($n = 6$; 21.4%). As noted above, an overt empathic response was rarely observed ($n = 2$; 7.1%).

At least one active patient participation behavior code was observed in the majority of CPM discussions ($n = 20$; 71.4%). Patients most frequently asked questions to get additional information or clarify information ($n = 15$; 53.6%). Patients used assertive communication in about one-third of cases ($n = 10$; 35.7%) and explicitly expressed an emotion or concern in about one-fifth of CPM discussions ($n = 6$; 21.4%).

Concordance between CPM discussion ratings

There was a high level of agreement between patient and provider self-report ratings of whether or

Table 2 | Content analysis coding categories and individual codes for visit transcripts that included discussion of CPM

Coding categories	Individual codes	
	Sub-codes	Operational definition or exemplary quotation
I. Initiation (n = 28/28; 100%)	1. Patient (n = 13/28; 46.4%)	CPM introduced by patient
	2. Oncology provider (n = 12/28; 42.9%)	CPM introduced by surgical oncologist, advanced practice provider, or plastic surgeon
	3. Significant other or family member (n = 3/28; 10.7%)	CPM introduced by significant other or family member who accompanied patient
II. Context (n = 28/28; 100%)	1. Treatment options (n = 25; 89.3%)	Surgical and/or other treatment options available to a patient
	2. Disease history (n = 7; 25%)	Series of events from diagnosis leading up to visit; review of disease characteristics and previous treatments
	3. Genetic testing/family history of cancer (n = 3; 10.7%)	Purpose of genetic testing; family members diagnosed with breast cancer and/or other forms of cancer
	4. Appearance-related outcome (n = 1; 3.6%)	Goal of obtaining breast symmetry after reconstruction
III. Underlying factors (n = 18/28; 64.3%)	1. Risk reduction (n = 15/18; 83.3%)	"Yeah, I think it cuts my chances of getting cancer... and that's my concern."
	2. Avoid future cancer experience (n = 4/18; 22.2%)	"From what I heard and was told, it could spread in ten years or so to the other side...I just don't want to have to start back over to do this."
	3. Appearance-related (n = 3/18; 16.7%)	"And symmetry, you know? I want to be balanced."
IV. Providers' response (n = 28/28; 100%)	1. Offers information (n = 18/28; 64.3%)	
	a. Risk of developing cancer in the contralateral breast (n = 14/18; 77.8%)	"Your risk really is what it was before you ever had cancer to begin with, which is 0.5 to 1.0 percent per year."
	b. Conditions when CPM would be recommended (n = 8/18; 44.4%)	"There are some women...patients that have really high family histories [of breast cancer], okay? So they're at high risk because of that or patients that have the gene mutation. Those patients...I'm obviously going to recommend that they do the other breast as well."
	c. Lack of scientific evidence supporting CPM for sporadic breast cancer (n = 7/18; 38.9%)	"So far the large trials have shown no survival advantage by taking the big surgery; by taking more normal tissue...My taking tissue over here hasn't shown a survival advantage."
	d. Increased surgical risks and potential complications from bilateral mastectomy (n = 5/18; 27.8%)	"Just remember that would be considered elective surgery and you are taking on a little bit of extra risk because you are going to have a little bit longer anesthesia time. The additional risk of having the usual risks associated with any surgery: bleeding, infection..."
	2. Specific recommendation against CPM (n = 11/28; 39.3%)	"Well, as you stand right now, your contralateral breast looks fine. So we wouldn't recommend removing a healthy breast."
	3. No substantive response (n = 8/28; 28.6%)	N/A
	4. Probes (n = 3/28; 10.7%)	"So I know that you're weighing possibly doing a prophylactic mastectomy on the other side...I wanted to see how you were weighing that information. I know you've gotten a little bit from surgical oncology with the breast surgeons...How are you thinking about that right now?"

Table 2 | Continued

Coding categories	Individual codes	
	Sub-codes	Operational definition or exemplary quotation
	5. Referral to genetic counseling (<i>n</i> = 2/28; 7.1%)	"We should get your BRCA tested...That's a gene that sometimes runs in families that may be the cause of breast cancer in your family...So I think it's worth a visit with the genetic counselors to discuss."
	6. Empathizes (<i>n</i> = 2/28; 7.1%)	"So if you want to have the other breast removed, I'm comfortable with that plan. I understand the anxiety related to having had a papilloma; having had an MRI finding."
	7. Reassures (<i>n</i> = 2/28; 7.1%)	"We're going to be watching this side pretty closely. So if you were to end up with something, then it wouldn't change anything for me in the long run. It's not like we are burning a bridge we can never go fix this side...We can do that easily if it comes to that."
V. Provider facilitative behaviors (<i>n</i> = 14/28; 50%)	1. Solicit patient participation (<i>n</i> = 11/28; 39.3%)	Utterances in which a provider explicitly solicits a question, understanding, concern, opinion, or preference of a patient
	2. Support patient decision-making (<i>n</i> = 6/28; 21.4%)	Utterances in which a provider articulates the right of the patient to make a medical decision, explicitly supports a medical decision of the patient, or explicitly encourages a patient to get more information to make a more informed decision
	3. Empathic response (<i>n</i> = 2/28; 7.1%)	Utterances in which a provider explicitly empathizes with the situation or condition of a patient or consoles a patient
VI. Active patient participation (<i>n</i> = 20/28; 71.4%)	1. Ask questions (<i>n</i> = 15/28; 53.6%)	Utterances intended to seek or clarify information
	2. Assertive statements (<i>n</i> = 10/28; 35.7%)	Utterances in which the patient expresses her rights, beliefs, interests, or desires; Includes stating opinion or preferences, making suggestions or recommendations, and disagreeing or interrupting
	3. Express emotion or concern (<i>n</i> = 6/28; 21.4%)	Utterances in which the patient expresses worry, anxiety, fear, anger, frustration, or some other form of emotion or affect

CPM = contralateral prophylactic mastectomy; N/A = not applicable.

not a CPM discussion occurred (96.7% agreement). Similarly, agreement was high between coder and patient self-report ratings of CPM discussions (91.7% agreement) as well as between coder and provider self-report ratings (89.7% agreement).

DISCUSSION

To the best of our knowledge, this is first study to examine CPM discussions by analyzing naturally occurring conversations between women diagnosed with sporadic breast cancer and their surgical oncology providers. Our preliminary results support findings of previous research, suggesting that fear of breast cancer plays a prominent role in the decision-making process of women considering CPM [14–18]. When an underlying factor driving patients' interest in bilateral surgery was identified, the overwhelming majority of cases revolved around the potential for CPM to reduce risk of cancer in the contralateral breast. Given that women with sporadic disease tend to overestimate their future cancer risk [19], it is important to find effective ways of

framing risk-related information as well as addressing factors that limit deliberate reasoning in formulating preferences for treatment (e.g., heuristics and biases, affect, and interpersonal features [46]). For example, patients may be under the impression that more surgery leads to better outcomes. The American Society of Breast Surgeons has provided a comprehensive guide to help oncology providers in navigating CPM discussions, which includes covering estimated risk of developing cancer in the contralateral breast and the benefits, risks, and limitations of CPM [6]. Other useful recommendations for communicating risk to patients include using plain language, presenting data using absolute risk and comparative risk, utilizing pictographs (if using graphical representations), staying mindful of the ordering of information about risks versus benefits, prioritizing pertinent information for decision-making over completeness, and continually drawing attention to the time interval over which risk occurs [47].

Increasing factual knowledge about cancer and surgery risks may not be an adequate communication

strategy, as affective and other psychosocial factors such as cancer worry and fear of recurrence may carry more weight in patients' decision-making process [31]. Ideally, provider–patient communication includes an assessment of and plan for managing underlying anxiety related to decisions. Surgeons and advanced practice providers may lack confidence in this area and may benefit from training targeting distress screening with well-validated measures [48, 49], accurately identifying patients' emotions, and communication skills [50].

It was encouraging to see that oncology providers in our sample were not only open to discussing CPM, but were making deliberate efforts to introduce this possible treatment option into the conversation. In terms of providers' response as the discussion unfolded, providers were clearly most confident offering information to patients. Many of the offering information sub-codes identified through our content analysis of visit transcripts are consistent with recommendations from the American Society of Breast Surgeons [6] and the Society of Surgical Oncology [7].

Our preliminary findings suggest several areas in which patient–provider conversations about CPM can be enhanced. There appeared to be limited effort to ensure that patients were comprehending information. For example, patient-centered communication skills typically include checking for comprehension. A provider might check for comprehension by asking a patient to use their own words to summarize some piece of information that had been shared [51]. Next, there was little evidence to suggest that providers were explicitly encouraging patients to elaborate on why they might be interested in CPM or to share more about what their thoughts and concerns related to future risk of cancer might be. Providers can build on their strengths in providing information by first encouraging patients to share more about their perspectives regarding future risk of cancer, knowledge of treatment options, and personal preferences, goals, and values. Such communication skills are consistent with core components of patient-centered communication in cancer care [31] and are also closely aligned with recommendations from the American Society of Breast Surgeons [6] and the Society of Surgical Oncology [7].

The current study includes a number of strengths. First, we examined CPM discussions in naturally occurring interactions between women with sporadic breast cancer and their oncology providers at the time of treatment decision-making. The combination of coder-rated and participant self-report data is also an important strength of this study. Some limitations must also be considered when interpreting our findings and conclusions. The study participants were recruited from a single site of care and were predominantly white/Caucasian and had high education and SES level, which limits the generalizability of findings. Generalizability is also limited due to

the fact that participants were required to be English proficient in order to take part in this study. Next, we transcribed and analyzed a random sample of the audio-recorded visits. While our sample size of 36 is small for quantitative research, it falls well within the accepted range for identifying themes in qualitative research [35]. Finally, the fact that participants were aware of their visits being audio-recorded may have impacted recruitment and/or communication behavior and process within interactions [52].

This study showed that CPM discussions were frequently present within our sample. Approximately 78% of the transcripts coded included a discussion of CPM. Our hope is that this preliminary work will stimulate additional research. Future studies should include larger and more diverse samples, and also aim to conduct more extensive quantitative analyses to better understand how provider–patient communication impacts treatment choice (e.g., completion of CPM) and psychological outcomes (e.g., decisional regret). Empirical studies should also explore how the presence of a significant other, family member, or friend may influence CPM discussions.

Results from this line of research can be used to build providers' skills and bring provider–patient communication more in line with recommendations from the American Society of Breast Surgeons [6] and the Society of Surgical Oncology [7]. This is of course only one piece of the puzzle, as patient-focused interventions (e.g., treatment decision aids [53] and communication training [41]) are also important in improving provider–patient interactions and ensuring informed treatment decisions.

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Compliance with Ethical Standards

Primary Data: The findings reported in this paper have not been previously published and the manuscript has not been simultaneously submitted elsewhere. The authors have full control of all primary data and agree to allow the journal to review their data if requested.

Conflict of Interest: The authors declare that they have no conflicts of interest.

Ethical Approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent: Informed consent was obtained from all individual participants included in the study.

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