## **Original Study**

# Coordination of Care for Breast Reconstruction Patients: A Provider Survey

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#### **Abstract**

Treatment for patients undergoing breast reconstruction is often complex, requiring special expertise from multiple providers. This study surveyed medical oncologists and plastic surgeons about their knowledge, attitudes, and communication related to treatment of patients undergoing breast reconstruction. Identifying the gaps in understanding of treatment course, understanding each provider's responsibility in timely care, and increasing communication about a patient's treatment could improve patient care and enhance safety of breast reconstruction.

**Objectives:** Communication between medical oncologists (MOs) and plastic surgeons (PSs) is important to optimize outcomes for patients with breast cancer seeking breast reconstruction. We sought to evaluate the knowledge MOs and PSs have of each others' fields, roles expected of each other, and frequency of communication. **Methods:** A cross-sectional survey was conducted in a convenience sample of MOs and PSs. The survey included knowledge questions about reconstruction and chemotherapy, questions about provider and patient responsibilities for timely chemotherapy initiation, and questions about communication with other specialties. **Results:** MOs and PSs had similar knowledge scores (MOs, 59%; PSs, 56%; P = .5), but both lacked knowledge about aspects of the other specialty's field related to breast reconstruction. The MOs and PSs agreed on the MOs' degree of responsibility for timely chemotherapy initiation (MOs mean, 4.4 (out of 5); P = .2). However, they disagreed about the PS's responsibility for timely chemotherapy initiation (MOs mean, 3.8; PSs mean, 3.0; P = .01). Communication occurred about 2.5 times more often for patients with complications than patients without complications (P < .0001). **Conclusion:** MOs and PSs have deficits in knowledge about each other fields and differ in their opinion regarding the burden of responsibility in ensuring timely chemotherapy initiation, suggesting room for improvement in communication and understanding.

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#### **Background**

More patients with breast cancer than ever are undergoing immediate breast reconstruction <sup>1-4</sup> and adjuvant chemotherapy. Although immediate breast reconstruction is considered safe from an oncologic perspective, <sup>5-8</sup> it carries a relatively high complication risk <sup>9,10</sup> and has the potential to delay the initiation of

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chemotherapy. Breast reconstruction has a longer recovery time than mastectomy alone, and chemotherapy initiation during recovery has the potential to impair wound healing. Because of this interdependence between administration of adjuvant chemotherapy and performance of immediate breast reconstruction, communication between the medical oncologist (MO) and plastic surgeon (PS) is paramount. The need for better coordination and communication in cancer care has been well-documented and described, 11-14 but coordination around reconstruction and oncologic care has generally not been addressed.

Several potential barriers to communication exist between MOs and PSs. Each specialty is unlikely to have had training related to the other field and may be unaware of important issues affecting both fields. For example, PSs generally receive minimal education about

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systemic therapy. Thus, they may not know which reconstruction patients are most likely to need adjuvant chemotherapy, or how reconstructive complications affect the timeliness of chemotherapy initiation. MOs generally do not receive formal education about reconstructive procedures, so they may not know how problems with healing are managed. MOs and PSs are unlikely to encounter each other during their normal workday. Further, some clinical settings may lack a multidisciplinary conference where interaction among breast providers could occur. Not having direct interaction may result in poorer communication and less appropriate care. <sup>15</sup> High levels of communication and coordination, by contrast, are associated with more appropriate, guideline-concordant care. <sup>16,17</sup>

We sought to evaluate the quality of MOs' and PSs' knowledge and communication about patients with breast cancer undergoing immediate breast reconstruction and adjuvant chemotherapy. Our specific objectives were three-fold: (1) to evaluate the knowledge MOs and PSs have of each other's fields, relevant to breast cancer therapy/reconstruction; (2) to describe the attitudes MOs and PSs have towards treatment of patients with breast cancer, including responsibilities and roles in ensuring optimal care; and (3) to evaluate the self-reported practices of MOs and PSs in the postoperative care of women undergoing breast reconstruction and adjuvant chemotherapy.

#### **Methods**

#### Study Design

The study was approved by the University of North Carolina Institutional Review Board (#10-0511). A cross-sectional survey was conducted in a convenience sample of MOs and PSs. Surveys were distributed by mail and email, and at 2 regional professional meetings (medical oncology and plastic surgery) in the Southeast region of the United States. We included only PSs who reported performing at least 1 breast reconstruction per year and MOs who reported treating at least 5 patients with breast cancer per year.

#### Measures

The survey consisted of questions about demographics and practice characteristics, and questions in the following 3 domains: (1) knowledge about immediate breast reconstruction and chemotherapy; (2) attitudes about who is most responsible for timely chemotherapy initiation; and (3) practice behaviors related to communication or coordination with other specialties. To develop these questions, we considered which aspects of breast reconstruction affect medical oncology practice, and which aspects of chemotherapy administration affect plastic surgery practice. The surveys for the 2 specialties were identical, except for some wording variation to make the question more appropriate to the respective specialty. We pilot-tested an initial draft of the surveys in convenience samples of 4 PSs and 3 MOs and revised them based on their feedback. The survey is available in Appendix I in the online version.

Knowledge Questions About Immediate Breast Reconstruction. The general knowledge questions ask about the frequency of complications after immediate breast reconstruction<sup>9</sup> and the frequency of clinically significant chemotherapy delays owing to reconstruction.

Case descriptions evaluate knowledge about when to start chemotherapy in a patient with a complication and knowledge about the management of reconstruction complications (open wound, seroma).

Knowledge Questions About Systemic Therapy. Four case descriptions evaluate knowledge about systemic therapy. We were specifically interested in knowledge about (1) indications for chemotherapy, because this could affect healing; (2) indications for endocrine therapy, because this could affect venous thromboembolism or microvascular thrombosis risks; (3) timing of trastuzumab (herceptin), because it is given every 3 weeks for a year during which additional stages of reconstruction occur; and (4) treatment after neoadjuvant chemotherapy in high-risk patients, because those patients need to have rapid healing after reconstruction in order to proceed to adjuvant radiation therapy on time.

Attitude Questions. We asked participants to rate the responsibility of MOs, surgical oncologists, PSs, and the patient in ensuring timely initiation of chemotherapy. We asked MOs to rate the importance of immediate breast reconstruction when planning adjuvant chemotherapy, and we asked PSs to rate the importance of the likelihood of chemotherapy when planning immediate breast reconstruction. We asked how necessary it was for the MO and PS to communicate about a patient undergoing reconstruction scheduled to have chemotherapy.

Practice Behavior Questions. To evaluate practice behaviors related to communication or coordination of care, we asked MOs how often they knew what type of breast reconstruction a patient who had undergone chemotherapy had received, and PSs how often they knew the likelihood of chemotherapy for a patient undergoing reconstruction before surgery. We asked each specialty how often they would communicate with the other specialty about a patient undergoing breast reconstruction who needed chemotherapy, for both those who were and were not having wound healing complications.

#### Statistical Considerations

The knowledge measures showed general construct validity, with PSs scoring higher than MOs on the questions about surgical healing, and MOs scoring higher than PSs on the questions about systemic therapy. Formal validity testing, however, was not performed. One question about infection after breast reconstruction was discarded because a high percentage of PSs (35%) answered incorrectly.

Descriptive statistics were computed, and the Wilcoxon Rank Sum test for continuous variables and the Fisher exact test for categorical variables were used for comparisons between groups. For the 8 knowledge questions, missing responses and "I don't know" were considered incorrect. The frequency of answering a question correctly was compared between specialties and compared between groups using the Fisher exact test. A total knowledge score was computed by dividing the number of correct responses by the total number of knowledge questions. Associations between practice characteristics (monthly volume of new patients with breast cancer,

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