RESULTS: After querying and weighting National Inpatient Sample data, 33,246 microvascular perforator flap breast reconstructions, 16,804 microvascular TRAM flap reconstructions, and 16,918 pedicled TRAM flap reconstructions were compared. The majority of patients undergoing autologous reconstruction were White (64.1%), with a mean age of 51.1 years. Patients receiving microvascular perforator flaps had fewer total comorbidities than patients receiving microvascular TRAM (P < 0.001) or pedicled TRAM (P = 0.003) flaps.

Perforator flaps were significantly more likely among the commercially insured (perforator flap: 85.8% versus microvascular TRAM: 75.9% versus pedicled TRAM: 75.0%, P < 0.001), while TRAM flaps were more likely among patients with Medicare or Medicaid (perforator flap: 14.2% versus microvascular TRAM: 24.1% versus pedicled TRAM: 25.0%, P < 0.001). Patients of higher income quartiles had an odds ratio of 1.16 (P = 0.010) for receiving perforator flap reconstruction while controlling for age and comorbidities.

CONCLUSIONS: Reimbursement incentives disproportionally favor perforator flap autologous reconstruction among the commercially insured. Differences across insurance status exaggerate already existing disparities in breast reconstruction across socioeconomic status.

Breast Cancer Recurrence after Implant-based Reconstruction: A Cohort Analysis of Time to Cancer Recurrence between Smooth versus Textured Devices

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BACKGROUND: A recent study demonstrated that reconstruction with textured breast implants is associated with breast cancer recurrence. Laboratory studies have implicated that local inflammation—secondary to postoperative complications—may contribute to cancer recurrence via cytokine and chemokine signaling. Implant surface texture may impact local inflammation in the breast, thereby impacting tumor regrowth and metastasis. We compared breast cancer recurrence rates in our own population of breast reconstruction patients with smooth versus textured devices.

METHODS: Retrospective review of patients who underwent two-stage expander/implant reconstruction between 2006 and 2019 was performed. Demographics, cancer characteristics, device characteristics, postoperative complications, and local/distant cancer recurrences were collected. Kaplan-Meier analysis was performed for time to cancer recurrence. Unpaired t-test or Fisher exact test were performed to compare covariates between patients with and without recurrence. Binary logistic regression was performed for covariates that were significant on univariate testing. Patients with prophylactic mastectomy or stage IV cancer at the time of mastectomy were excluded.

RESULTS: Of the 926 patients, 757 (81.7%) received textured versus 169 (18.2%) smooth devices. Average age was 49.4 years and average follow-up was 75.2 months. There was no difference in age, BMI, radiation, chemotherapy, ER-status, or cancer stage between textured and smooth expander patients. Local recurrence occurred in 11 (1.5%) textured device patients and no smooth device patients (P = 0.23). Distant recurrence occurred in 66 (8.7%) textured device patients and 10 (7.0%) smooth device patients.
(P = 0.54). There was no difference between patients with smooth and textured devices in time to local or distant recurrence (P = 0.32 and P = 0.09, respectively). Multivariate analysis associated ADM use with lower odds of distant recurrence (OR 0.46, P = 0.003). Kaplan-Meier analysis showed no difference in time to distant recurrence between all patients with and without ADM (P = 0.39). Sub-group analysis of Stage III cancers, however, showed a longer time to distant recurrence in patients reconstructed with ADM (P = 0.01).

CONCLUSIONS: Growing concerns around the cancer-causing potential of textured devices exist. In this cohort study, there was no difference in cancer causing potential between smooth and textured devices.

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Resource Utilization and Outcomes among Patients Undergoing Immediate Autologous Postmastectomy Breast Reconstruction versus Immediate-delayed Breast Reconstruction

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**BACKGROUND:** Patient-reported satisfaction with immediate breast reconstruction (IBR) has been found to be similar to delayed autologous reconstruction. However, there is a variation in practice of delayed autologous reconstruction with surgeons who perform a first stage procedure with tissue expanders and acellular dermal matrix (ie, immediate-delayed reconstruction). This requires patients to undergo multiple procedures, potentially increasing resource use for breast reconstruction. In this study, we sought to examine the differences in resource use, complications, and outcomes between immediate and immediate-delayed breast reconstruction.

**METHODS:** We used the 2013–2017 IBM MarketScan Commercial Claims and Encounters database to identify female patients who underwent IBR or immediate-delayed breast reconstruction. Over a 2-year follow-up period, we calculated total costs of health care services associated with breast reconstruction. We also tallied secondary procedures, including fat grafting, mastopexy, breast augmentation, and breast reduction. We defined complications such as wound infection, donor site hernia, hematoma, and seroma, and also identified patients who experienced flap failure. Fisher exact test and quantile regression were used to determine differences between the immediate and immediate-delayed autologous reconstruction group. Linear and logistic regression models analyzed how timing of autologous breast reconstruction affected secondary procedures, complications, flap failures, and utilization costs.

**RESULTS:** There were 10,023 patients included in the study. Median age was 51 (IQR: 45–57) years. In total, 4596 (45.9%) of patients received an immediate autologous reconstruction and 5427 (54.1%) received immediate-delayed autologous reconstruction. The median cost for immediate and immediate-delayed autologous reconstructions were $42,432 and $50,929, respectively (P < 0.001). Patients undergoing immediate-delayed reconstruction were 41% less likely to undergo secondary procedures (OR: 0.59; 95% CI: 0.49, 0.72; P < 0.001). There was no difference in likelihood of complications between immediate and delayed autologous reconstruction (5.4% versus 5.6%; OR: 0.88; 95% CI: 0.75, 1.1; P = 0.13). Patients undergoing immediate-delayed reconstruction were 50% more likely to experience reconstruction failure than patients undergoing immediate reconstruction when controlling for patient comorbidity (OR: 1.5; 95% CI: 1.1, 2.0; P = 0.01).

**CONCLUSIONS:** More than half of patients undergoing autologous breast reconstruction after mastectomy receive a two-stage reconstruction. Although there was no difference in likelihood of having a complication between patients undergoing immediate versus immediate-delayed breast reconstruction, patients undergoing immediate-delayed reconstruction were more likely to experience flap failure and increased healthcare utilization costs. These results support performing immediate autologous breast reconstruction in the context of increased costs, similar risk of