with the delivery of DFO, as evidenced by the significant decrease in cell number at 100µM DFO compared to 0µM DFO (p=0.00, p=0.00). Percent viability, which was quantitatively determined utilizing an MTS assay, significantly decreased in both cell lines in response to 10Gy XRT (MDA-MB-231: 100% to 77%, p=0.00; MDA-MB-468: 100% to 76%, p=0.04) and 25µM DFO (MDA-MB-231: 100% to 84%, p=0.00; MDA-MB-468: 100% to 56%, p=0.00) administered independently. Finally, 100µM DFO increased the sensitivity of MDA-MB-231 (100% to 90%, p=0.01) and MDA-MB-468 (100% to 71%, p=0.04) cells to 10Gy XRT.

CONCLUSION: XRT and DFO significantly decreased breast cancer cell proliferation when delivered independently and in combination. In a complementary fashion to previously published studies on iron chelation and cancer proliferation, this study provides evidence that DFO may be safely utilized to facilitate improved surgical, aesthetic, and quality of life outcomes without increasing tumorigenesis among patients with triple-negative breast cancer.

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A Systematic Literature Review on Disparities in Postmastectomy Breast Reconstruction

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PURPOSE: Eliminating healthcare disparities is a major priority as the United States population diversifies. Literature focusing on identifying disparities in postmastectomy breast reconstruction continues to expand. However, no study has assessed whether this research is progressing appropriately to promote tangible intervention in reducing disparities. The purpose of this study is to utilize a previously established public health framework for advancing health disparities research to evaluate the current state of breast reconstruction disparities research and provide literature-based recommendations for interventions.

METHODS: A systematic literature review was performed in accordance with the preferred reporting items for systematic reviews and meta-analysis (PRISMA) to identify studies evaluating disparities in postmastectomy breast reconstruction. Results were analyzed according to the Kilbourne model, which categorizes disparities research into one of three phases: detecting (identifies and measures disparities in vulnerable populations), understanding (establishes determinants of disparities at the individual/systemic level) and reducing (proposes and evaluates interventions for eliminating disparities).

RESULTS: Ninety-five studies were identified between 1979–2016, with 61(64.2%) published after 2010. Forty-nine (51.6%) articles were retrospective cohort or case-control studies (ASPS level III evidence). Fifty-eight (63.7%), 31 (34.1%) and two (2.2%) studies provided detecting-, understanding- and reducing-phase disparities research, respectively. Non-plastic and reconstructive surgery (PRS) journals accounted for 70.5% of all articles and for most higher phase research articles, publishing 83.9% and 100% of second and third phase studies, respectively. Disparity categories investigated included race/ethnicity, age, income, insurance status/type, geography, and education level. The most commonly investigated disparity categories were race/ethnicity and age (73.7% and 50.5% of studies, respectively). The most commonly measured outcome was percent of sub-population receiving reconstruction (63, 66.3%), followed by reconstruction type (14, 16.7%). Patient-, provider-, system, and research-level factors were identified as potential targets for interventions to reduce disparities.

CONCLUSION: Despite the expanding pool of research on postmastectomy breast reconstruction disparities, the majority of this research focuses on detecting disparities with inadequate progression to second (understanding) and third (reducing) phase studies. The PRS community should take increasing ownership of this issue and promote higher-phase disparities research, as over half of published research exists in non-PRS journals. Increasing research funding, availability of language- and culturally concordant educational materials, as well as advocacy and sociopolitical awareness within the plastic surgery community is
necessary to advance research on postmastectomy breast reconstruction and ultimately, eliminating it.

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Pathologic Evaluation of Reduction Mammoplasty Specimens and Subsequent Diagnosis of Malignant Breast Disease: A Nationwide Analysis
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PURPOSE: Reduction mammoplasty is one of the most common plastic and reconstructive procedures performed in the United States. Surgeons routinely submit breast specimens for evaluation after reduction mammoplasty owing to the nature of breast surgery. However, no rigorous evidence informs the necessity of routine pathologic evaluation of breast reduction specimens based on patient factors. This study sought to measure the use of pathologic evaluation of breast specimens among patients undergoing reduction mammoplasty and assess the rates of new diagnoses of malignant breast disease and associated cost for reduction mammoplasty surgical encounters. We hypothesized that pathologic evaluation would be widely utilized following reduction mammoplasty despite increased cost of care and relatively low rates of subsequent malignant breast disease, particularly among patients in low-risk age groups.

METHODS AND MATERIALS: We analyzed the Truven MarketScan Databases from 2009 – 2015 to identify female patients age 18 years and older undergoing reduction mammoplasty for macromastia. Patients were excluded if they were not observed at least 12 months before and after the operation, if they had genetic susceptibility to breast cancer, prior benign or nonspecific breast disease, or prior personal/family history of breast cancer. We recorded patient age, patients receiving pathologic evaluation of the breast specimens (gross or microscopic), new diagnoses of benign or malignant breast disease after pathologic evaluation, and total cost for the reduction mammoplasty encounters, including all services delivered on the same date as surgery and cost for pathologic examination of breast specimens within 7 days of surgery. We performed descriptive statistics to assess age-based rates of pathologic evaluation following reduction mammoplasty and new diagnoses of benign or malignant breast disease after pathologic evaluation. We also compared the total cost for reduction mammoplasty for encounters with and without use of pathologic evaluation.

RESULTS: We identified 17,738 macromastia patients undergoing reduction mammoplasty, of which 91.3% (n=16,193) received pathologic evaluation breast tissue specimens. Use of pathologic evaluation was clinically similar across age groups <70 years (90.8–92.1%), and slightly lower for patients 70 and older (85.0%). Of patients who received pathologic evaluation, 99.7% (n=16,140) received microscopic evaluation. Among 7,610 patients 39 years and younger, 0.05% (n=4) were subsequently diagnosed with malignant breast disease within 3 months of surgery, compared to 0.25% in the entire cohort (n=44/17,738). Patients who received pathologic evaluation after reduction mammoplasty had $918 greater costs on average (mean $12,387; SD 9,348), compared to patients who did not receive pathologic evaluation (mean $11,469; SD 11,623).

CONCLUSION: Breast tissue after reduction mammoplasty is routinely submitted for pathologic evaluation, without consideration of age-based risk for breast cancer. Routine pathologic evaluation of breast tissue in patients 39 years and younger required an additional $1.7 million on average to detect a single occult breast cancer after reduction mammoplasty. In the quest for high-value care, clinicians and policy-makers should consider whether the practice of routine pathologic evaluation of breast tissue should be individualized based on patient age and other risk factors for breast disease.

Early Intervention with Pulse Dye and CO2 Ablative Fractional Lasers to Improve Cutaneous Scarring Post-Mastectomy - a Randomized Controlled Trial
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