was then classified by demographic characteristics such as race, ethnicity, income, insurance and education level. The rate of no reconstruction frequencies against any reconstruction was evaluated for disparities.

RESULTS: There was a lower rate of no breast reconstruction among White race (110102/158723, 69.4%) as compared to African American (15514/20734, 74.8%), Native American (461/548, 84.1%) and Asian (4747/6380, 74.4%) (p<0.001). There was a lower rate of no breast reconstruction for patients with an income ≥$46K or $63K (78141/101823, 76.7%) than in patients with an income <$46K or $63K (50324/81166, 62.0%) (p<0.001). The rate of no breast reconstruction in patients with government insurance (70733/82508, 85.7%) was lower when compared to those with private insurance (56665/99165, 57.1%) and patients with no insurance (3341/4001, 83.5%) (p<0.001). There was a lower rate of no reconstruction among patients that reside in zip codes in which <14% of the population did not graduate from high school (45823/72589, 63.1%) compared to patients that reside within a zip code area in which 29%+ of the population did not graduate from high school (21865/27769, 78.7%) (p<0.001).

CONCLUSION: Differences in reconstructive rates exist based on race, income, insurance and education level. Further studies need to be conducted in order to identify and mitigate the causes of disparities to this procedure.

QS3

The Use Of Non-invasive Devices To Objectively Measure Changes In Human Facial Skin After Facial Rejuvenation Treatment

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PURPOSE: Non-invasive assessment devices providing objective data regarding various parameters of the skin have been largely available, but its use in clinical studies have been limited. The purpose of this study is to measure facial skin before and after treatment with a 1470-nm/2940-nm laser to determine if non-invasive, objective skin assessment devices can accurately and reliably measure changes in skin texture, tone, water loss, pigmentation, and wrinkles.

METHODS: Twelve patients were enrolled in the study and all patients underwent treatment with a 1470nm/2940nm laser for facial rejuvenation. Prior to treatment, standard and close-up photographs, VISIA images, and 3D images were taken. Non-invasive skin measurements were taken with high resolution ultrasonography, optical coherence tomography (OCT), transepidermal water loss (TEWL), and BTC 2000. The photos and measurements were repeated at follow up on Week 3 and 3 months. All data points were aggregated and analyzed as an average change compared to baseline values.

RESULTS: Our results showed the non-invasive skin assessment devices were able to detect significant changes after treatment in a variety of parameters. Significant improvement was seen in UV spots using the VISIA at 3 weeks and 3 months (p<0.05) and brown spots at 3 months (p<0.05). Using the BTC 2000, our devices were able to detect a statistically significant improvement in elasticity (p<0.05). Attenuation coefficient decreased significantly at 3 weeks (p<0.05) and lastly, blood flow at 0.6mm depth increased significant at 3 weeks (p<0.05).

CONCLUSION: Our pilot study has shown that several non-invasive devices can be used to detect changes in facial skin following an office-based laser treatment. These non-invasive skin assessment devices are able to detect significant changes in skin structure and pigmentation. The VISIA, BTC 2000, OCT, and Dub SkinScanner are useful tools in providing objective measurements and analyzing changes before and after skin rejuvenation treatments.

QS4

Outcomes in Breast Reconstruction: Does Race Play a Role? An Analysis of 51,362 Patients from the ACS-NSQIP

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**PURPOSE:** Racial disparities in postoperative complications are widely observed in various surgical specialties. The influence of race is particularly evident and often described in current vascular, orthopedic, and spine surgery literature. Although disparities in access to plastic surgery are well described, the effect of race on plastic surgical outcomes remains largely undefined. This study aims to clarify the influence of race on reconstructive breast surgery outcomes.

**METHODS:** The NSQIP was queried for all female patients undergoing reconstructive breast surgery between 2008 and 2016. Surgical outcomes of patients of white race were compared to those of African-American, Asian, or other races (composite of American Indian, Alaska Native, Native Hawaiian or Pacific Islander). Logistic regression was performed to control for variations between all groups with *a priori* selected variables ‘Age’, ‘BMI’, ‘COPD’, ‘Hypertension’, ‘Diabetes’, ‘Smoking status’, ‘Steroid use’, ‘Operating Time’, and ‘Type of procedure’. Racial differences in outcomes were further stratified and analyzed within four different types of breast reconstruction: delayed or immediate autologous breast reconstruction and delayed or immediate prosthesis-based breast reconstruction.

**RESULTS:** In total, 51,362 patients were included in the analysis of which 43,864 (85.4%) were white, 5,135 African-American (10.0%), 2,057 Asian (4.0%), and 332 of other races (0.6%). Patients of African-American race had larger body mass indices (31.3 ± 7.0 versus 27.6 ± 6.3, *p*-value <0.001) in addition to higher rates of diabetes (12.3% vs 4.6%, *p*-value <0.001) and hypertension (44.7% versus 23.4%, *p*-value <0.001) when compared to white patients. Both univariate and multivariate analysis showed no differences in overall complication rate. When modeling for overall complication rate, the odds ratios (OR) of being of a minority race were not significantly different compared to being white (OR 0.980, 95% CI 0.877–1.095; *p*-value =0.720, OR 1.035, 95% CI 0.848–1.263; *p*-value =0.734, OR 0.674, 95% CI 0.395–1.149; *p*-value =0.147 for African-American, Asian, and other respectively). Moreover, when sub-stratified into different types of reconstruction, no differences were observed.

**CONCLUSION:** Among the four types of reconstructive procedures, differences in surgical outcomes do not seem to be based on race. Racial disparities in outcomes appear to be less apparent in reconstructive breast surgery compared to the current literature within other surgical specialties.

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**QS5**

**Adding Depth to Cephalometric Analysis: Comparing 2D and 3D Angular Cephalometric Measurements**

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**PURPOSE:** Lateral cephalometric radiographs (LCR) have been the standard tool used for cephalometric analysis in craniofacial surgery. Over the past decade, a 3D revolution in cephalometric analysis and surgical planning has been underway. To date, research has not validated whether cephalometric measurements taken from 2D and 3D data sources are equivalent and interchangeable.

**METHODS:** A total of 62 head CT scans (36 females, 26 males) with an average age of 63±20 years were selected. Twelve cephalometric angular measurements were taken from 3D reconstructed skulls using the software package Mimics 19.0 (Materialize; Leuven, Belgium). These same facial angles were measured from 2D lateral cephalograms reconstructed from the original CT scans using Dolphin 11.9. Measurements achieved with both techniques were compared for agreement using a paired t-test. Intra-class correlation coefficient assessment was used to determine inter-rater reliability. Statistical significance was set at *p*<0.05.

**RESULTS:** Five of the 12 angular measurements (SNA, SNB, MP-FH, U1-SN, and U1-L1) demonstrated statistically significant differences (*p*<0.05) between the 2D and 3D analyses. All of these differences were less than the standard deviations for the respective measure.

**CONCLUSION:** The differences between angular cephalometric values obtained from 2D LCRs and 3D CT reconstructions are small. This supports the practices of using 2D and 3D cephalometric data interchangeably in most applications. Clinicians must be selective in which measures they employ to maximize accuracy and care must be taken when measuring dental inclination with lateral cephalograms.