privately insured respondents (OR 0.71, p<0.05). Notably, there was no difference between ‘naïve’ and ‘experienced’ respondents (p=0.37). Most respondents also indicated that they were more worried about the effects of cosmetic surgery on climate change (64%). Respondents who identified as having ADH had significantly greater odds of being more worried about the effects of medically necessary surgery on climate change (OR 3.26, p<0.001). When asked which climate change-mitigating measures respondents would be willing to undergo if receiving cosmetic plastic surgery, less than half would be willing to share rooms for overnight stays (32%) and opt for telehealth visits, if possible (40%). Notably, respondents indicated that they would be willing to pay a higher professional fee for cosmetic surgery in order to support sustainable hospital practices, such as use of wind/solar power (40%), nuclear energy (42%), and sustainable devices (41%).

CONCLUSION: While most of the general public believes climate change is happening, fewer believe healthcare has an impact on climate change. Awareness that healthcare has an impact on climate change may raise concern for the impact of surgery on climate change and make patients more worried about the effects of medically necessary and cosmetic plastic surgery on climate change. Patients may be willing to undergo personal climate change-mitigating measures and elect for higher professional fees to support sustainable surgical practice.

TRACK: RESEARCH/TECHNOLOGY

QUALITY OR QUANTITY? RESULTS OF A CONFERENCE HOSTED BY HBCU MEDICAL STUDENTS

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PURPOSE: Despite representing less than 2% of medical colleges in the United States, historically black colleges and/or universities (HBCUs) educate more than 20% of Black medical students.[1] To date, there are no efforts focused on HBCU inclusion within Plastic & Reconstructive Surgery (PRS) literature. A search for (plastic surgery) AND (HBCU) in PubMed yields zero results. Medical students from HBCUs face challenges in obtaining opportunities that are readily available to students with home PRS programs. In order to help facilitate overcoming these barriers, a group of HBCU medical students created Operation Diversify Plastics (ODP). This virtual conference featured 13 sessions held over a span of two weeks. Plastic surgeons from different ethnic/racial backgrounds, practice settings, and career positions (resident, program director, division chair, and the current president of American Association of Plastic Surgeons) served as keynote speakers. Sessions were recorded for a planned YouTube channel. A post-survey was distributed to participants who attended Week 2, to assess the effectiveness of ODP and to further analyze barriers to inclusion.

METHOD: Social media (Twitter, Instagram, Facebook, and GroupMe) was used to promote the event. A post-survey of 15 open ended and multiple-choice questions was distributed to people who registered for Week 2 of ODP. Week 2 consisted of 11 sessions and featured 15 speakers. Open-ended answers were analyzed qualitatively using a grounded theory approach, and later tallied for frequency of themes that emerged. Correlations between quantitative and qualitative data were also recorded.

RESULTS: There were 132 registrants with 90 attendees. 28% of participants completed the survey. Medical school representation included 9 countries, 6 continents, and 13 U.S. states. Educational background ranged from premedical students, medical students, medical residents, and international medical graduates (IMGs). Surprisingly, only 8% of respondents attended an HBCU. 24% of respondents reported no prior interaction with a plastic surgeon of color prior to attending ODP. Notably, the session with the largest attendance (40%) focused on scholarships and opportunities for medical students interested in PRS. Emergent themes reinforced the difficulty of obtaining PRS exposure for students underrepresented in medicine (UIM), the need for practical help acquiring a mentor, and difficulty finding research opportunities relevant to PRS.

CONCLUSION: What began as a means to elucidate barriers to inclusion for medical students at HBCUs, ultimately illustrated a need for inclusion of all UIM students who face barriers to matriculating into a U.S. based PRS residency program. Navigating the path to PRS without a home program requires autonomy, courage, and ingenuity as evidenced by responses and themes retrieved from our survey. A small group of UIM students saw a problem and developed an intervention with a global reach. Given the frequent turnover and impermanence of student-led interest groups,
we encourage the establishment of formal PRS opportunities designed for UIM students without home PRS programs.

REFERENCES:
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TRACK: RESEARCH/TECHNOLOGY PAPER
Adipocytes said, “When I grow up, I want to be in three-dimensional space:” Adipose Tissue Fabrication with Isolated Primary Human Adipocytes for Breast Cancer Study

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PURPOSE: Mature primary adipocytes are notoriously difficult to culture, and most in vitro adipocyte culture relies on adherent ceiling cultures. However, fibroblast-like cell dedifferentiation or a rapid phenotype loss often occurs due to hypoxia, structural change, or inflammation in this synthetic media-based culture method. Thus, the development of a three-dimensional ex vivo model is necessary for adipose tissue-associated studies, such as breast cancer, in which adipose tissue plays a crucial role in pathogenesis. Herein we fabricated a tissue-engineered three-dimensional patient-derived breast adipose tissue model, incorporating breast cancer cells and all the other cell components of the breast microenvironment (glandular epithelial organoids and stromal vascular fraction) within which are embedded engineered vascular channels. This high-fidelity ex vivo model which closely resembles the local breast tumor microenvironment may be used to develop more effective breast cancer therapeutics for clinical application.

METHOD: Polydimethylsiloxane (PDMS) molds were created using custom designed 3D-printed Polylactic acid (PLA) molds. 3D-printed PLA stamps and 22G catheters were used for the fabrication of tumor spheres and putative vascular channels within the same Z coordinate. Tumor spheres may then be placed precisely at predetermined distances between the vessels allowing for detailed studies of the tumor/vessel interactions. The adipose tissue model was fabricated using 10% (w/w) adipocytes and other patient-derived tissue components mixed within 1% (w/v) Type I collagen to form the main structure in PDMS molds; red-fluorescent MDA-MB-231 cells at 40,000 cells/1.6μL were added into the wells that were pre-formed with PLA stamps in the adipocyte-enriched collagen bulk to create the tumor spheres. Twenty-four hours after plating, red-fluorescent smooth muscle cells (SMC) and green-fluorescent endothelial cells (EC) were seeded sequentially within the channels at 5 million cells/mL. Control constructs were made by generating vascular structures and tumor spheres within a collagen-only matrix. Constructs were sacrificed for 7, 14 and 21 days for further analysis.

RESULTS: The engineered adipose tissue model presented a similar porous structure as the native breast tissue from which it was derived, and the viability of adipocytes in the constructs was verified by perilipin staining. Patent vascular channels lined with SMC and EC were visualized within the channels the day after seeding and SMC sprouts had formed from pre-formed channels over 21 days in culture. Concurrently, the tumor spheres were noted to invade into surrounding collagen matrix over time. Immunofluorescent staining of Ki67 revealed an increased tumor cell proliferation in the adipose tissue model on Day 7, 14 and 21 when compared to tumors cultured in a plain collagen matrix.

CONCLUSION: We have successfully engineered an advanced ex vivo, patient-specific, adipose tissue model of the breast cancer microenvironment that not only replicates patient tissue characteristics, but also includes vascular structures and cancer spheres that closely resemble early tumors. The increased tumor proliferation noted within the model underscores the importance of recapitulating the TME ex vivo and shows significant promise to investigate both the pathogenesis of cancer growth and metastasis as well as potential therapeutic interventions.

TRACK: PRACTICE MANAGEMENT
Trends in Clostridium difficile Infection Rates among Plastic Surgery Procedures: A NSQIP Database Analysis of 16,146 Cases from 2015-2019

Presenter: Annet Susan Kuruvilla, BS