Angelo A. Leto Barone, MD, Michael Grzelak, BS, Regina Cho, BS, MSE, Amy Q. Quan, MD, George Kokosis, MD, Georges Samaha, MD, Patrick Byrne, MD, Anirudh Arun, MD, Richard Redett, III, MD
Johns Hopkins University, Baltimore, MD, USA

PURPOSE: Microtia is a congenital deformity characterized by an abnormally shaped or absent ear that affects 3 in 10,000 live births in the general population. Autologous reconstruction, currently the gold standard for surgical ear reconstruction in microtia patients, is a time-consuming and skill-dependent process. Hand carving the cartilage for ear reconstruction often results in suboptimal outcomes. Furthermore, the costs of these procedures are relatively expensive and, at times, prohibitive for patients. Alloplastic implants are an alternative option, although themselves costly and burdened by frequent complications. We present a novel medical device that allows for the development of anatomically accurate, safe, precise, and consistent ear frameworks for microtia repair.

METHODS: The AuryzoN™ system consists of two components. A thickness cutter, named DimensioN, allows the user to slice cartilage or other synthetic implantable materials to achieve a desired thickness. The second device, AuryzoN™, is essentially a press, and utilizes steel blades shaped in specific ear cartilage configurations. The desired blade tray is inserted into the press device and the cartilage placed on the base of the device, allowing for precise cutting. The individual components can then be assembled to form the final construct, which can be subsequently implanted under a skin flap. Biologic and non-biologic materials were used in our preliminary tests as a substrate to test framework production. Individuals from different professional backgrounds (including people not in the medical field, and medical students and plastic surgery residents) were recruited. Testers were asked to carve an ear framework by hand with the aid of clinically used paper templates and afterwards using AuryzoN™. Time to framework completion was recorded and ease of use of the device was assessed. Overall quality of the construct was scored by plastic surgeons who were blinded to operator technique and the operator’s level of skill.

RESULTS: N=10 ear frameworks were obtained either by traditional hand carving techniques or with the AuryzoN™ device using non-animal substrates. Individual components of the ear framework were obtained in an average of 4.82 minutes in all instances with AuryzoN (range: 4.2–5.5 minutes) versus an average of 37.52 minutes (range: 19.9–46.6 minutes) when the substrate was cut by hand using a provided template. Cartilage framework production using AuryzoN™ was accurate regardless of operator skill level or professional background. Significantly higher quality scores were reported in all constructs obtained with the AuryzoN device.

CONCLUSION: Our preliminary data shows that AuryzoN™ allows users to reliably obtain a cartilaginous ear framework with high fidelity, in a user-friendly system within several minutes. A clinical trial for the use of our device has just started at our institution. Due to the portable and analog nature of the device, we seek to enhance ear reconstruction both in the U.S. and in resource-poor countries.

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Fertility and Family for Plastic Surgery Residents and Fellows

Debra A. Bourne, MD1, Wendy Chen, MD1, Benjamin Schilling, MS2, Eliza Beth Littleton, PhD2, Kia Washington, MD3, Carolyn De La Cruz, MD1
1University of Pittsburgh Medical Center, Pittsburgh, PA, USA, 2University of Pittsburgh, Pittsburgh, PA, USA, 3University of Colorado, Aurora, CO, USA

PURPOSE: Plastic surgery training occurs during childbearing years. Women now constitute over one-third of plastic surgery residents. Limited data has been published assessing childbearing in plastic surgery trainees. This is the first study to collect data directly from residents and fellows to understand issues surrounding childbearing and to propose solutions.

METHODS: This IRB-approved study was performed through distribution of a survey to all current plastic surgery residents and fellows in ACGME accredited programs. Data collected included demographic information, number of pregnancies, assisted reproductive technologies (ART) employed, complications, attitudes regarding pregnancy and breastfeeding, parental leave, and impact of training on decisions to have children.
RESULTS: The survey was completed by 307 trainees, for a resident response rate of 27.0%. Mean age was 31.7±3.8 years, 58.6% of respondents were married, and 35.3% reported at least one pregnancy for themselves or partner.

Both male (67.4%) and female (76.5%) respondents intentionally postponed having children due to career. Females were significantly more likely to report negative stigma attached to pregnancy (70.4% vs. 51.1%, \( p = 0.003 \)) and plan to delay childbearing until after training. 55.6% of female trainees reported an obstetrical complication. ART was utilized by 19.6% of trainees.

Mean maternity leave was 5.5 weeks with 44.4% taking less than six weeks. Mean paternity leave was 1.2 weeks. 62.2% of females and 51.4% males reported dissatisfaction with leave.

61% of female trainees breastfed for 6 months and 19.5% continued for 12 months. Lactation facilities were available near operating rooms for 29.4% of respondents.

CONCLUSIONS: Plastic surgery residents and fellows postpone childbearing due to the demands of their career and have their first child 5 years later than the general US population. This could be a contributing factor to increased rates of obstetrical complications (55.6% compared to 14.5% in the general population) and use of ART (19.6% compared to 5.6%) in this cohort.

The American College of Obstetricians and Gynecologists recommends a minimum of 6 weeks paid parental leave, however 44.4% of plastic surgery trainees are not able to take leave of this length. The American Academy of Pediatrics recommends 6 months of exclusive breastfeeding and continued supplemental breast feeding until 1 year. Only 19.5% of plastic surgery trainees were able to follow these recommendations.

Policies to allow for greater flexibility in rotation schedules to permit a lighter workload during pregnancy, and formal parental leave and breastfeeding policies are needed. Assisted reproductive technology should be included in health benefits for plastic surgery trainees.

Naikhoba C.O. Munabi, MD, Madeleine S. Williams, BA, Pedram Goel, BS, Eric S. Nagengast, MD, Jeffrey A. Hammoudeh, MD, DDS, Mark M. Urata, MD, DDS, William P. Magee, III, MD, DDS.

1Children's Hospital Los Angeles, Los Angeles, CA, USA, 2Children's Hospital Los Angeles, 4650 Sunset Blvd., #96, CA, USA

PURPOSE: Internationally, transportation distance is a major barrier to obtaining cleft care. Current guidelines recommend that all persons live within 2 hours of a facility with lifesaving general surgery procedures available. However, ideal accessibility of subspecialized surgery remains unknown. This study evaluates distribution, demographics, and socioeconomic factors of patients undergoing primary cleft surgery at Children’s Hospital Los Angeles in order to better understand the ideal geospatial dynamics of cleft care.

METHODS: Following IRB approval, retrospective review was performed of all patients undergoing primary cleft lip or palate repair over 4 years. Variables included patient demographics, cleft type, insurance type, distance from hospital, and length of follow up. Four cohorts were established based on distance to hospital (<15, 15–30, 30–35, >45 miles) and analyzed in relation to other variables. Subgroup analysis was performed for cleft type and ethnicity. Statistical analysis was performed in Excel and SPSS17 with significance at \( p < 0.05 \).

RESULTS: 307 patients - 18.6% (n=57) cleft lip (CL), 35.5% (n=109) cleft palate (CP), 46.3% (n=142) cleft lip and palate (CLP) - were included. Patients ethnically were 52.1% hispanic (n=160) and 27.0% non-hispanic (n=83) (20.8% unreported, n=64). Racial identification was 21.5% white (n=66), 9.8% asian/pacific (n=30), 3.6% black (n=11), and 65.1% other (n=200). Primary languages were English (n=205, 66.8%), Spanish (n=84, 27.4%), and other (n=4, 1.3%).

64.5% of patients (n=198) had state insurance, 20.5% (n=63) PPO, 11.7% (n=36) HMO, and 3.3% (n=10) other. Average patient distance from hospital was 47.9±138.9 miles. Average patient follow up time was 5.0±2.8 years. With increasing distance to hospital, patients were significantly more likely to be non-hispanic, English speaking, have

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Geospatial Analysis of Medical Reach and Barriers to Surgical Cleft Care in Los Angeles

Geospatial Analysis of Medical Reach and Barriers to Surgical Cleft Care in Los Angeles