University of Illinois Hospital & Health Sciences System
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UIC

Volume 3
Spring 2017

Division of Plastic and Reconstructive Surgery

The Craniofacial Center Chronicle

Dr. Mimis Cohen

the Craniofacial Center

INSIDE THIS ISSUE:

MESSAGE FROM THE MEDICAL DIRECTOR

The New Year started very well for our Center!

Thanks to the donation of the late Deanna Mannix Mitzenmacher a very generous gift was presented to us. According to the will of the trustees, part of the gift was to be used for the physical improvement of our reception and patient waiting room areas. After almost two months of construction the renovation project was recently completed providing our patients and their families with a colorful, child-friendly and functional environment. In addition more sitting space was created to comfortably accommodate our ever growing number of patients and their families. The official opening is scheduled for March 1st, 2017 and will include an open house followed by a reception.

Thanks to the grant provided to us by the Division of Specialized Care for Children (DSCC) we started purchasing cutting edge equipment and instruments based on advanced technology which will allow us to further improve planning and execution of our procedures and achieve superior results, while reducing the number of clinic visits and the subsequent loss of time in school or work for our patients and their families. Use of this technology will also revolutionize the education of our students and trainees and assist them to further improve their skills using virtual technology for planning and execution of various reconstructive procedures.

Above all however, the most valuable asset for the Center continues to be our highly experienced and dedicated staff who allow us to continue fulfilling our mission by providing our patients with state of the art companioned multidisciplinary care from birth to adulthood. It is really a great joy to work with such an incredible team of

MESSAGE FROM THE MEDICAL DIRECTOR CONTINUED

individuals and to observe our patients grow up and live normal and productive lives.

In December, I had the privilege to be invited to the graduation ceremony for one of our former patients, Hipolito Arrieta. He was treated at our Center since birth, obtained his BA at the University of Illinois and has plans to continue his studies for a Master's degree. What a great joy to witness his progress.

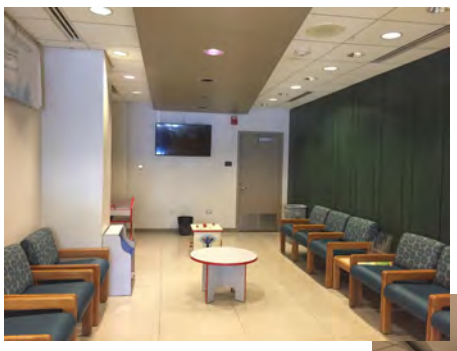
Congratulations Hipolito and good luck in your career!!

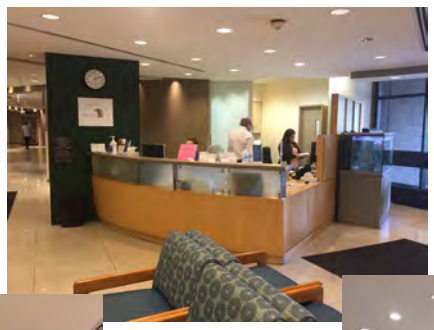
Additional personnel was hired this year to be able to manage our growing patient population in a timely fashion including Dr. Julia Corcoran, a pediatric plastic surgeon, Dr. Collazo-Garcia, a new pediatrician, Dr. Nancy Goodare-Rosenthal, a maxillofacial prosthodontist, Eduardo Arias, an anaplastologist, Sven Gartner, a dental assistant and Oscar Restrepo, a lab technician. Welcome to our team.

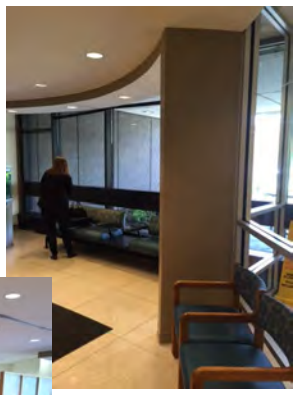
Sadly this year, we had to say goodbye to our nurse, Terri Kaisling, who after almost twenty years of loyal service decided to retire. Terri was extremely dedicated to our patients and their families and provided them with superior care and comfort.

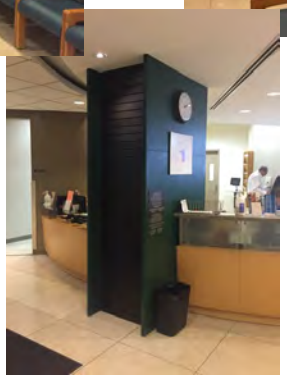
July is the national Cleft Craniofacial month and last year with the support of Face the Future Foundation and their junior board we organized a picnic for our patients providing them with fun games and food. Despite the early rain, the event was well attended and plans are underway for this year's event.

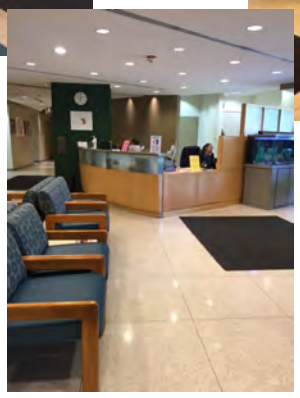
As usual, the holiday party sponsored and organized by members of the board and volunteers of Face the Future Foundation was a great success. Over 450 patients and their families were given the opportunity to celebrate the holiday season, have fun and receive a present by the dedicated Santa of the event, Mike Judge, past president of the Foundation.





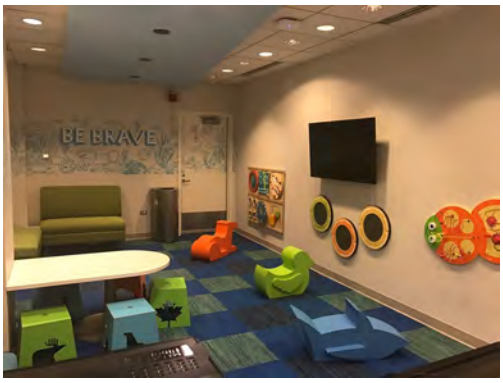






Our lobby pictures before the renovation….

PICTURES OF OUR NEW LOBBY

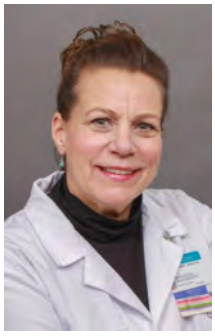


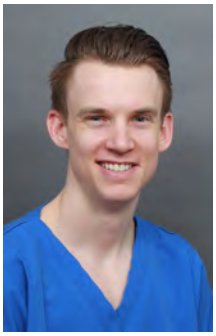

MEET THE NEWEST CRANIOFACIAL CENTER'S TEAM MEMBERS


Eduardo Aria


Dr. Geisel Collazo-Garcia


Dr. Julia Corcoran


Dr. Nancy Goodare-Rosenthal


Sven Gartner


Oscar Restrepo

THE HEAD SHAPE PROJECT BY DR. PRAVIN PATEL

The Craniofacial Center (CFC) at the University of Illinois (UIC) has been caring for children with birth defects since 1949 with an emphasis in a multidisciplinary team approach. The CFC has an established Head Shape Program to provide a more comprehensive approach to caring for children with skull deformities.

When one or more of an infant's skull joints that are called sutures fuse, the skull cannot grow properly and the infant has a misshapen skull. Because of a fused suture, the skull growth is restricted and development of the brain can be affected. These infants need a surgical team to correct the restricted growth of the skull by opening the fused suture and expanding the skull. The surgical team consists of a plastic surgeon/craniofacial surgeon, neurosurgeon and often an ophthalmologist. A cranial orthotist may also be involved to help control the shape and healing of the skull after surgery. As a fused suture can affect brain development, neurodevelopmental psychologists are important in evaluating the child and guiding early intervention to give the child the best possible learning environment. Geneticists also play an essential role to help determine if there is a generic component to the fused suture and help surgeons gauge the outcome of surgery and whether additional operations will be needed in the child's future. Some children may need audiologist, speech and language pathologists and dental specialists depending on the type of condition they may have.

Fused skulled joint that affects the skull and eye development

One year after skull and orbit (eye) reconstruction

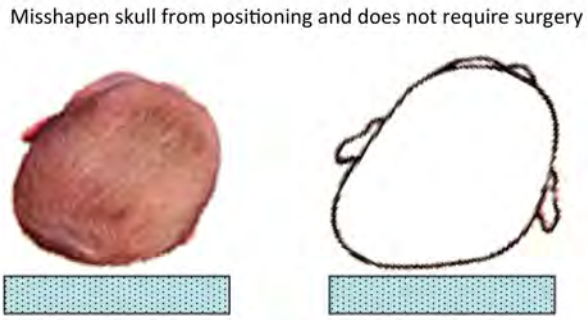
Babies may have also misshapen skulls not because of a fused skull joint because of how the child sleeps. The skulls of babies when they are first born are soft and the pressure of how they sleep can easily shape the skull. Since 1992, pediatricians have recommended that all babies sleep on their back on a firm bed to avoid sudden infant death syndrome [SIDS]. While the infant death rate has come down, the number of babies with a misshapen head has dramatically increased in the last two decades. In these babies the skull joints are all open and do not need surgical correction. However, these children benefit from a program of repositioning the baby when they sleep, some may need physical therapy for torticollis (wry-neck) and others may need a custom orthotic helmet. Many infants will need a combination of treatment that benefit from a comprehensive management by specialist who work closely together. For this group of children it

When a child is referred for a misshapen skull evaluation, the initial decision is to determine whether the child has a fused suture and needs surgery or whether the misshapen skull include plastic/craniofacial surgeon, pediatrics, physical therapists, cranial orthotists and

The Head Shape project continued

psychologists. is a positional and can be corrected by non-surgical approaches. This initial evaluation is done by a plastic/craniofacial surgeon who directs the surgical team when the skull suture is fused and a pediatrician dedicated to directing the non-surgical management for positional skull deformities.

Every infant that is referred to the CFC for evaluation of a misshapen skull receives a comprehensive evaluation where the mission of CFC has always been to provide a multi-disciplinary child and family centered approach to care since 1949.

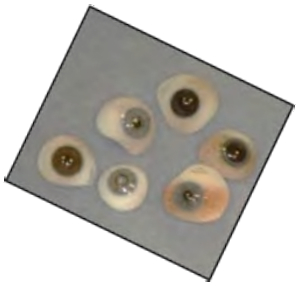


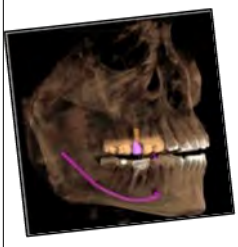
Summer Patient picnic by alma moya

Face the Future Foundation and The Craniofacial Center hosted it's first summer picnic for patients and their families. Patients and their families enjoyed a day of food, games, and sharing with other members of the Craniofacial Center community. Activities included a slide, obstacle course, and other fun games, and a food truck served hot dogs, salads, soft drinks, and Italian ice. Parents thought the picnic was an "excellent" idea, and the event gave them the opportunity to interact and share experiences with other parents. Special thanks to our adolescent patients who supervised the games and to all the staff and families who made the picnic a success. Everyone already is looking forward to next picnic!

MXP: Truly A dream team by Dr. David Reisberg

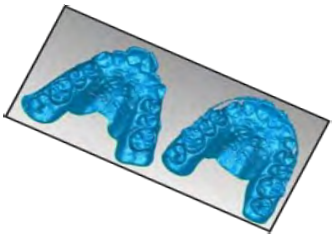
The Maxillofacial Prosthetics Clinic (MXP) has been an integral part of The Craniofacial Center since the 1960s. It all began when Dr. Sam Pruzansky, the Center's founder enlisted the services of Alice Katz, a medical artist at UIC to make facial prostheses for patients who were not candidates for surgical reconstruction. Soon afterwards, Dr. Iradj Sooudi, later followed by Dr. Henry Gold, joined the team to make oral prostheses to help patients eat, speak, and look better. MXP was off and running. Medical artist Susan Habakuk joined in 1971 with a goal of expanding facial prosthetic services. She not only did that but also developed a unique program to teach medical art students at UIC the fine art of anaplastology (the fabrication of facial prostheses); the first such program in the country! In 1981, Dr. David Reisberg joined MXP as maxillofacial prosthodontist and director.

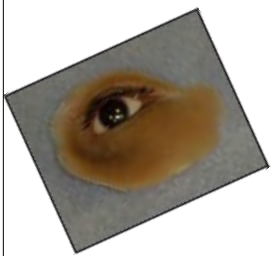




Over the years, MXP, like The Center itself, has continued to be a dynamic force; growing and embracing state-of- the-art techniques and procedures to improve its quality of services and the quality of lives of its patients. We were part of the original FDA study to approve titanium implants to retain facial prostheses, have expanded into the realm of digital technology with x-ray and body scanners and 3d printers, and are currently in the process of expanding our prosthetics lab to enable us to provide even more life-like prostheses to meet our patient's needs.

The MXP team is called upon whenever surgery alone cannot resolve the patient's functional or cosmetic problems. We work closely not only with our surgeons but also with our other team members in speech, audiology, psychology, orthodontics and nursing to achieve the optimal outcome for each patient. MXP's services have become so advanced that we are recognized world-wide as a leader in the field of oral, facial, and ocular prosthetics. We are often referred patients from other centers in Chicago and around the country that do not have the prosthetic expertise that we can provide. We are fortunate to have Robert Brown as our





MXP: Truly A dream team continued

ocularist, Rosemary Seelaus and Eduardo Arias as our anaplastologists, and Drs. Nancy Rosenthal and David Reisberg as maxillofacial prosthodontists. Completing the MXP team are assistants Maria Aguilar and Sven Gartner and lab technologist Oscar Restrepo.
A DREAM TEAM if ever there was one!

Face the Future Foundation 2016 Holiday party

Each December Face the Future Foundation hosts a holiday party for the patients and their families. We are so grateful for all that Face the Future Foundation does for us. Below are pictures of the December 2016 holiday party.

3D printing of Dental Models: Advantages in Setting Up Orthoognatic Surgery by Dr. David Morris & Dr. Neil Warshawsky

3D printing technology has been transformative in product development for many industries. Its applications have included both the production of prototypes and the manufacture of components in many fields: medical, architectural, automotive, entertainment and theater, and consumer electronics. In the collaborative preparation of orthognathic surgical cases, surgeons and orthodontists at our center have found that the use of 3D-printed dental models provide certain clear advantages over using traditional plaster casts.

Orthognathic surgery, or surgery to reposition the maxilla and/or mandible is done in order to improve occlusion and thereby the patient's functional ability to bite, chew and eat. Discrepancy in how a patient's jaw bones relate to one another may be due to disproportionate development of one or both bones, a posttraumatic deformity, or cleft or other congenital condition (**Figure 1**). An essential component of planning the operation is obtaining accurate,

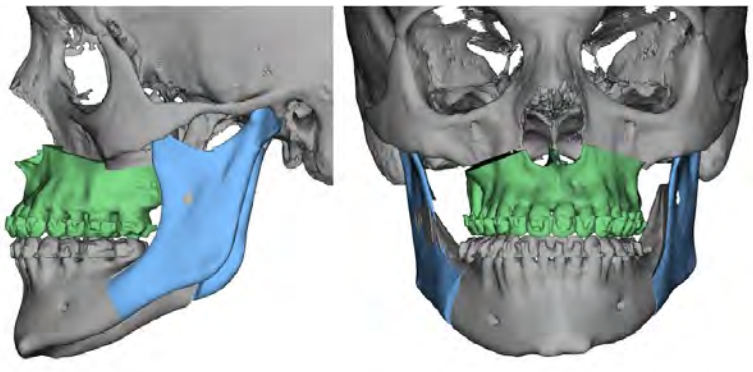


Figure 1. *This 3D image of the facial bones demonstrates those segments that are being repositioned during orthognathic surgery.*

current dental models of the patient. The surgeon and orthodontist articulate these dental models such that the teeth are in the desired occlusion, then from this an oral splint is fabricated that will be placed between the teeth intraoperatively to enable this planned occlusion to be transferred to the patient.

Historically presurgical dental models have been made by removing the orthodontic archwires and taking alginate impressions of the upper and lower arches. Next the alginate impressions are poured with plaster or stone and allowed to dry. The stone models are then removed from the trays and excess stone is trimmed. These stone models are then articulated and the splint made.

With 3D printing technology this process of fabricating dental models has changed. Rather than taking intraoral impressions, an intraoral scan is taken of the patient, using a want that is moved across the dental arches. This is a more comfortable process for patients. The data file from this scan is exported to a 3D printer and the dental models are **(Figure 2)**. These models can then be articulated (**Figure 3**) and an intraoral made from them to be used in the operating

3D printing of Dental Models: Advantages in Setting Up Orthoognatic Surgery continued

room. Alternatively, as other components of the surgical planning process have become computer-based, the 3D data from the dental casts can be incorporated into this virtual plan.

In addition to an improvement in patient comfort, several other advantages of 3D printed dental models have become apparent. From a practical, hands-on perspective, the details of tooth crowns and orthodontic appliances are excellent and the material very strong. Imperfections like chips, cracks, and air bubbles that might be seen with stone models are not an issue. If laboratory modifications are indicated (eg. cutting the models to mimic an osteotomy, or building a higher base, the latter shown in Figure 3), the 3D-printed models easily allow for this.

Figure 2 *These dental models were fabricated through intraoral scanning and 3D printing.*

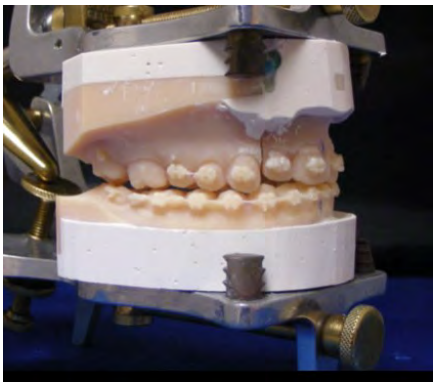


Figure 3 *This set of 3D printed dental models has been placed onto an articulator and from this a splint to be used intraoperatively has been made.*

Another advantages lies in the fact that the model's data is held in a computer file, rather than in the model itself. Thus the scan can be done in one office (eg. out of state) and be printed at a different site (eg. out our center). This obviates the issue of sending dental models in the mail and risking loss or damage of physical models. If a model were lost, it can easily be reprinted. This also has archival implications. For both clinical and research purposes, it is important to be able to preserve data (preoperative and postoperative dental records). In the form of dental models, these are bulky and it becomes difficult to physically store the models, especially as their maybe several sets. Now this data is archived on a computer rather than on a shelf, yet there remains the ability to reprint the physical models at any future time.

Successful outcomes in orthognathic surgery rely on the clinical assessment, vision, and judgment on the part of the orthodontist and surgeon. Over the past decade, many of the technical aspects of orthognathic surgical planning have been facilitated by computer-based 3D planning. Our center has been very active in this technological development from both research and clinical perspectives. Use of intraoral scanning and the resultant 3D printing of dental models has become integrated into the computer-based 3D planning of orthognathic cases.

HI-TECH COLOUR SYSTEMS AT THE CRANIOFACIAL CENTER BENEFIT PATIENTS, CLICIANS & RESEARCHERS ALIKE BY ROSEMARY SEELAUS

In the Fall of 2015, The Craniofacial Center unveiled the "Clinical Colour Science Laboratory (CCSL)"; a first of its kind in Clinical Colour Science for Facial Prosthetic Rehabilitation & Surgical Reconstruction. By the committed efforts of Face the Future Foundation, CCSL was made possible. The clinical treatment room and colour laboratory has quickly demonstrated tremendous benefit for Craniofacial patients, clinicians & researchers.

Accurate and reliable colour matching of a patient's skin is essential to a successful prosthetic result. The best colour results are not easily achieved, even by exceptional colorists; and, variable lighting conditions introduce additional challenges in achieving a reliable skin colour match in all social situations.

CCSL [pronounced see-sul] is equipped with a long list of high-tech equipment for colour measuring and mixing to address these challenges, enabling clinicians to more efficiently, reliably and predictably provide accurate skin colour matches for patients undergoing prosthetic and surgical reconstruction. Spectrophotometry, colorimetry, computerized colour formulation, centrifugal speed mixing, tristimulus illumination and metamerism are some of the multi-syllabic, technical terms often heard slung around conversations in this room – a room considered to be one of the most high-tech and cutting-edge of its kind in the world. Over one hundred patients have benefitted from the high-tech colour room.

So, what does this mean day-to-day for patients & clinicians at the Craniofacial Center?

For CFC patient Bridgett Patton, a Chicago-based RN who recently visited the center to have a new prosthetic ear made, the advanced technology in the colour room was a big confidence booster. The high-tech systems expedited the process of making her "a new ear in a hurry", something essential for this busy, young health care professional.

Specialized software where a digital record of Bridget's skin colour is stored could be quickly recalled with a precise formula to mix pigments in silicone to exactly match her skin colour. "This is so cool!" Bridget exclaimed when she realized that silicone had already been premixed in preparation for her visit. "And it's an exact match to my skin! Just like my last one."

HI-TECH COLOUR SYSTEMS AT THE CRANIOFACIAL CENTER BENEFIT PATIENTS, CLICIANS & RESEARCHERS ALIKE CONTINUED

"I can't believe you got it done so fast, …and I promise I'll be more careful next time I ride the roller coaster."

Bridget's skin colour is measured with a spectrophotometer by Senior Anaplastologist, Rosie Seelaus, who uses the colour reading to produce a colour formula on the computer for Bridget's new prosthetic ear.

For Bridgett, rushing back and forth from long shifts at the hospital to her appointments at CFC, the high-tech colour systems of CCSL made a big difference. "This is like visiting the Museum of Science & Industry", she commented as she looked around at all high-tech colour technology. Putting on her new ear during her second visit to the clinic, she was glad it looked just like the one she lost, and was grateful for the "express ear service."

"I can't believe you got it done so fast," she commented, "…and I *promise* I'll be more careful next time I ride the roller coaster.", she said with a bashful smile.

Improved efficiency, accuracy and reliability of the digital systems help CFC clinicians streamline treatment for patients like Bridget. But, it isn't only patients with prosthetic ears who benefit from the advanced technology in the Clinical Colour Science Laboratory. CFC's young medical researchers are exploring the possibility of using the high tech colour equipment in CCSL to better understand how surgeons can select skin graft sites with more accurate colour information for complex reconstructive procedures. Additionally, CFC researchers are investigating how mobile devices might offer the opportunity to measure and match colour "on the go." With infinite possibilities, the future of colour at the Craniofacial Center is inspiring.

We are grateful to Face The Future Foundation for making the Clinical Colour Science Laboratory (CCSL) possible.

The Craniofacial Center

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hospital.uillinois.edu/primary-and-specialty-care/surgical-services/craniofacial-center

the Craniofacial Center

Take a tour of Face the Future Foundation's website:
http://facethefuturefoundation.org/

SAVE THE DATE

Come Join The Craniofacial Center in Celebrating Cleft Lip and Palate Awareness Month with a Summer Picnic

July 15, 2017 @ 12:00PM - 2:00PM (Rain or Shine)

Picnic is in the parking lot next to The Craniofacial Center

There will be food, drinks, music and games