THE OFFICIAL PUBLICATION OF THE HERMAN OSTROW SCHOOL OF DENTISTRY OF USC | SUMMER 2017

TRODENT

THEIR MOMENT TO SHINE

MADISON AND KACEY UNDERGO INCREDIBLE TRANSFORMATIONS AT THE HANDS OF USC ORAL AND MAXILLOFACIAL SURGEONS

10 REASONS
TO CHOOSE PATTERSON DENTAL

PATTERSON OFFICE SUPPLIES
Dolphin Imaging & Management Solutions a Patterson Technology
eaglesoft a Patterson Technology
CEREC by sirona
caesy a Patterson Technology
schick by sirona
Patterson Advantage Practice growth
a-dec reliablecreativesolutions

1. More than 90,000 products – the largest inventory in the industry – all backed by a complete satisfaction guarantee
2. Total-package approach: top-name equipment, installation and follow-up
3. Powerful Eaglesoft practice management software – with eServices options to streamline office management
4. Complete, continuing support after the sale from the Patterson Technology Center
5. Multiple ordering options, including online at pattersondental.com
6. Next-day delivery to most cities in the U.S. and Canada
7. Patterson Advantage® program to help you reinvest in your practice
8. Contemporary office design for new builds, remodels and expansions
9. Experienced, local technical service representatives for routine maintenance or emergency repairs onsite
10. Quick turnaround on handpiece and small equipment repair at our National Repair Center

Visit us online at pattersondental.com

For more information, contact your Patterson representative or call 800.873.7683.

PATTERSON® DENTAL

PB150024 (5/14)

DEAN'S MESSAGE

Dear Trojan Dental Family,

Welcome to the Summer 2017 issue of *TroDent*!

This issue is so jam-packed with compelling stories that I hardly know where to begin.

I'll start with the story of Diana Sedler, a periodontology resident who made all of us so incredibly proud by applying the CPR skills she learned at Ostrow to actually save a life (pages 12-13). It's really remarkable to think that today, as you read this magazine, there's someone walking the planet, enjoying the precious extra time afforded her— all thanks to Diana's superior preparation, training and quick action. Diana is an inspiration to us all.

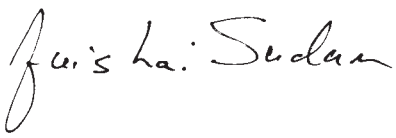
Equally inspiring are the young women featured in this issue's cover story, which you can find on pages 18-24. Both were born with profound birth defects that could have easily held them back in life. But, thanks to a team of dedicated plastic surgeons and oral and maxillofacial surgeons — both at USC and Children's Hospital Los Angeles — these young women can fully pursue their dreams and lead their lives just like anyone else. Ostrow's own Drs. Mark Urata and Jeffrey Hammoudeh were instrumental in the transformations and are a testament to how effective the collaboration between plastic surgery and oral and maxillofacial surgery (both are board certified in both disciplines) can be in the treatment of craniofacial pathology. This interdisciplinary approach is what sets apart Ostrow's oral and maxillofacial surgery specialty program, and we're proud of the program as well as these talented faculty members!

We also have the story of Michelle Baum, a young dental hygienist whose dominant right arm was so damaged by a vicious dog attack that her very livelihood might be threatened. Baum's courage and resilience in the face of tragedy really underscore the strength of her character. We wish only the best for her as she continues to put this terrible ordeal behind her. You can find her story on pages 28-29.

Additionally, we have the story of an oral cancer survivor who has dedicated herself to raising public awareness about the importance of early detection and intervention (pages 26-27), a story about a familiar barista who was ashamed to smile until Ostrow faculty and students stepped in (pages 16-17) and the story of a dental hygiene graduate who, in the spirit of the community-mindedness imparted in him at Ostrow, volunteers his time to provide oral healthcare to homebound seniors (pages 30-31).

Enjoy the issue, and have a great summer. I look forward to seeing you all in the fall for USC's homecoming on Nov. 4.

Fight on!



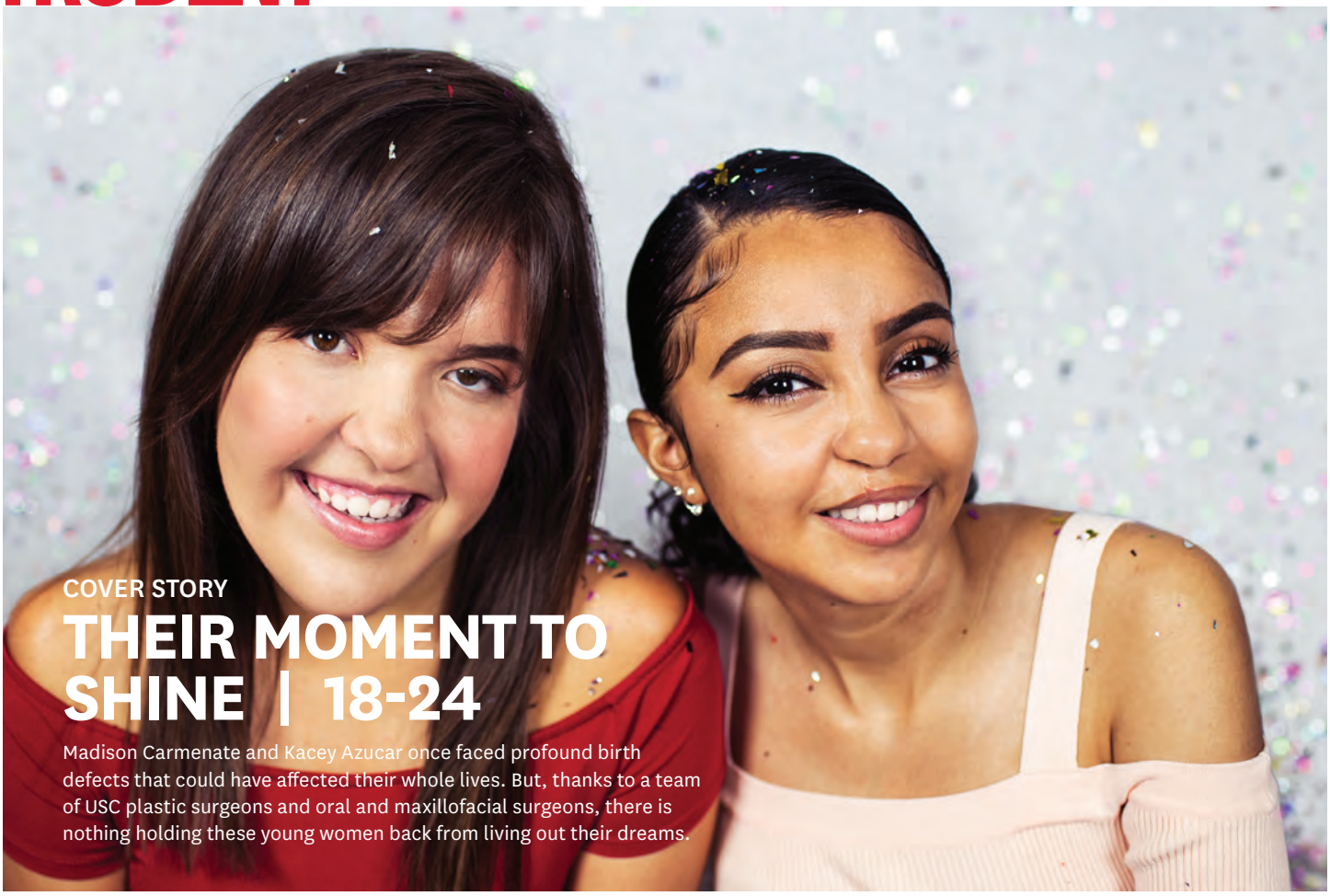
Avishai Sadan DMD, MBA
Dean
G. Donald and Marian James Montgomery Professor of Dentistry
Herman Ostrow School of Dentistry of USC

Stay connected!

facebook.com/deansadan

twitter.com/Dean_Sadan

TRODENT



COVER STORY

THEIR MOMENT TO SHINE | 18-24

Madison Carmenate and Kacey Azucar once faced profound birth defects that could have affected their whole lives. But, thanks to a team of USC plastic surgeons and oral and maxillofacial surgeons, there is nothing holding these young women back from living out their dreams.

FEATURES

DEPARTMENTS

ostrow.usc.edu

THE OFFICIAL PUBLICATION OF THE HERMAN OSTROW SCHOOL OF DENTISTRY OF USC | SUMMER 2017

TRODENT
HERMAN OSTROW SCHOOL OF DENTISTRY OF USC
925 W. 34TH STREET, DEN 202
LOS ANGELES, CA 90089-0641
(213) 740-0428

CONTACT US WITH STORY IDEAS AT:
OSTROW.COMMUNICATIONS@USC.EDU

DEAN
AVISHAI SADAN DMD, MBA

EDITOR
JOHN HOBBS MA ’14

DESIGN/PRODUCTION
GARETT YOSHIDA
JOHN HOBBS MA ’14

CONTRIBUTORS
STEPHANIE CORRAL
KATHARINE GAMMON
SARA GHAEM-MAGHAMI DDS ’88
JOHN HOBBS MA ’14
BRYAN KANG MA ’18
MICHELLE McCARTHY
CALEN OUELLETTE
YASMINE PEZESHKPOUR MCM ’16
LEON UNTERMAN DDS ’63
ZEN VUONG
JAMIE WETHERBE MA ’04
COURTNEY YUN ’15, DDS ’20

PHOTOGRAPHY
MICHAEL AASHEIM
HANNAH BENET
BOBBY CURTIS
DAVID SPRAGUE
LINDSEY NAM YIP DDS ’16

COVER PHOTOGRAPHER
HANNAH BENET
HANNAHBENET.COM

PHOTOGRAPHY ASSISTANT
TAYLOR STOFFERS

PRINTED BY
GREENS PRINTING
GREENSPRINTING.COM

USC

HAPPY HALF-BIRTHDAY!

ARE YOU 70 1/2 ?

Do you know someone who is?

A gift to the Herman Ostrow School of Dentistry of USC directly from your IRA is a tax-smart way to support your favorite program and can be excluded from your gross income (tax-free gift!).

Of course, everyone is unique. We are happy to chat about any additional tax benefit or criteria that might apply to your situation.

Call the Office of External Relations at (213) 740-0428 or email *ostrow.development@usc.edu* to create your legacy today.

Herman Ostrow School of Dentistry of USC

TRODENT

FEATURES

SECRET LIVES MICHAEL MERU | 9

Outside of business hours, it’s all downhill for Michael Meru DDS ’09, ORTHO ’12, a Salt Lake City-based orthodontist who moonlights as a semi-professional snowboarder.

CONTRIBUTORS

HANNAH BENET
Hannah Benet is an activist and editorial photographer based in Los Angeles. She loves collaborating with others to share a compelling story. Her personal work is largely inspired by bringing attention to environmental injustices and their resulting impact on communities. She’s had her work published in *Flaunt*, *Afterglow* and *USC Chan Magazine*. Most recently, Benet has been building a fine art series, chronicling the catastrophic impact of the Porter Ranch, Calif., natural gas leak, which affected thousands of residents forced to relocate after breathing in toxic air for months.

STEPHANIE CORRAL
Stephanie Corral is a new media journalist at College of the Canyons. Her writing has been published in *Los Angeles* magazine, *Kinfolk*, *Freunde von Freunden* and the *Los Angeles Times*. Born and raised in Los Angeles, she graduated from California State University, Northridge with a bachelor’s degree in journalism. In 2009, she moved to Madrid to teach English for a year, which turned into three years. She considers the Spanish capital her second home. In her free time, she enjoys reading, hiking, baking, archery and planning her next adventure to keep her restlessness at bay.

SARA GHAEM-MAGHAMI DDS ’88
Sara Ghaem-Maghami earned a bachelor’s degree in biology from the University of California, San Diego and her DDS from USC. She earned a pediatric dentistry certificate from UCLA. She is a diplomate of the American Board of Pediatric Dentistry and has received advanced training in behavior management, trauma, special health care needs, interceptive orthodontics, space maintenance, oral hygiene and dietary counseling. She is inspired by educating children and their families on the importance of oral health for a lifetime of smiles. Read more about what inspires her on page 32.

COURTNIE YUN ’15, DDS ’20
Courtnie Yun is a proud Trojan, having attended USC for her bachelor’s degree in biological sciences and her doctor of dental surgery degree, which she will complete in 2020. At this year’s Research Day, Yun earned a Dean’s Research Award, a first-place DDS Basic Science Award and a Dentsply Sirona Student Clinician Research Award for her investigation into “Flavonoids for CMV-induced salivary gland tumor therapy.” She shares her findings on page 8. When she’s not studying or conducting award-winning research, the Southern California native enjoys hiking, teaching her dog tricks and trying new foods.

USC researchers close to identifying crucial gene for human cleft lip and palate

BY ZEN VUONG

A group of researchers has found that three siblings born with cleft lip and palate share a common gene mutation associated with the birth defect.

The gene intraflagellar transport 88 (IFT88) ensures transportation antennae (cilia) on embryonic cells travel to the right place, enabling the development of cartilage, bone and smooth muscle in the face and skull.

"Finding this birth defect in every single child in a family is like catching lightning in a bottle because it allowed us to pinpoint the gene mutation that is probably responsible," said Yang Chai PhD '91, DDS '96, senior author of the study and Ostrow's associate dean of research. "Our finding that the gene IFT88 is involved in cleft lip and palate is unlikely to be mere coincidence."

However, because this study involved only three children, Chai said more investigation is needed to find a causal relationship.

The study — a collaborative effort between Ostrow, the Keck School of Medicine of USC, Children's Hospital Los Angeles and the nonprofit Operation Smile — was published in the journal *Human Molecular Genetics* in January.

Operation Smile, an international nonprofit that provides free facial surgeries in developing countries, found and provided support to three siblings — two boys and a girl — in Mexico who were born with cleft lip and palate. Their mother did not have the congenital disorder, but their father did. Surgeons at CHLA repaired the orofacial abnormality.

In America, cleft lip and palate is one of the most common birth defects, according to data from the Centers for Disease Control and Prevention. An estimated 7,000 children are born with cleft lip and palate every year.

"Although most people are not familiar with cleft lip and palate, it is a common congenital anomaly that impacts survival, feeding, speech and has long-term implications if not repaired early and correctly," said Pedro Sanchez, a co-author of the study, a medical geneticist at CHLA and an assistant professor of clinical pathology and pediatrics at the Keck School of Medicine. "It occurs in approximately 1 in 1,000 live births.

"Understanding the underlying causes of craniofacial disorders can one day lead to an intervention that can reduce the severity of this birth defect, thereby lessening the social, emotional and financial burden that these families face."

Genome sequencing locates a key gene mutation

Researchers went through 32,061 unique gene variations to identify IFT88.

"If someone carries this mutation, they may have a higher chance of giving birth to children with cleft lip and palate," said Chai, who is also director of USC's Center for Craniofacial Molecular Biology. "Doctors can provide consultations to these patients before they give birth, so parents can have surgery lined up and seek out proper care for their newborns."

The study of IFT88 may eventually have far-reaching implications. Other congenital diseases tied to a genetic disorder of cilia on embryonic cells include retinal degeneration, hearing defects, polydactyly (extra fingers or toes at birth) and brain malformations.

Animal model supports genome sequencing data

Genome-wide association studies usually use the data of hundreds or thousands of patients to identify a gene mutation, yet it is still an association study.

"In our study, however, the animal model and the human mutation match," Chai said. "In the animal model, there is no doubt. We have shown that 100 percent of the mice who have a single mutation in IFT88 have cleft lip and palate."

NEWS BRIEFS

CAROL GOMEZ SUMMERHAYS, 2017 ELLIS ISLAND MEDAL OF HONOR RECIPIENT

Earlier this spring, Carol Gomez Summerhays DDS '78 was awarded the prestigious 2017 Ellis Island Medal of Honor for her exceptional contributions to our nation. Summerhays joins an elite group of highly successful individuals to have earned such a distinction, including six past U.S. presidents, the first female presidential candidate representing a major political party Hillary Clinton and civil rights pioneer Rosa Parks. The medal is meant to honor individuals who embody fundamental American ideals, including patriotism, tolerance and compassion. Summerhays has served as past president of both the California Dental Association and the American Dental Association and as a Lieutenant in the United States Naval Reserve. She delivered Ostrow's 2016 commencement address, during which she recounted the story of her own dental school entrance interview, where she promised admissions officers to always make USC dentistry proud.

MALCOLM SNEAD EARNS UNIVERSITY OF OSLO HONORARY DEGREE

Professor Malcolm Snead has been awarded a *doctor philosophiae causa* by the University of Oslo for his contributions leading to a better understanding of tooth development. The University of Oslo often recognizes researchers around the world for their significant contributions to the advancement of science. Snead is a formidable front figure within the fields of tooth development, the molecular biology of enamel formation and biomineralization, molecular self-assembly and bioengineering and regeneration of hard tissues. Snead joined the Ostrow faculty in 1984 as a research assistant professor. He has been the chair of the division of biomedical sciences since 2012. The degree will be officially conferred upon Snead at an academic ceremony in Oslo in September.

PASCAL MAGNE RECEIVES TWO PRESTIGIOUS AWARDS

It's been a good spring for Associate Professor Pascal Magne, who has earned two prestigious awards for his work in the field of dental morphology, function and esthetics. Most notably, Magne earned the Pierre Fauchard Academy's 2017 Loader-Brenes Espinach Award, a biennial prize acknowledging worldwide leaders whose contributions to dentistry have made a lasting impact. This international award came on the heels of an Outstanding Innovation in Cosmetic Dentistry Award, which he received from the American Academy of Cosmetic Dentistry. The esthetic dentistry expert teaches Ostrow's first-year DDS students the fundamentals of biomimetic restorative dentistry using a revolutionary "2D–3D–4D" approach, in which students learn to restore the form, function and esthetics of natural teeth by completing drawings, wax-ups and finally layering exercises. He joined the Ostrow faculty in 2004.

MICHAEL PAINE NAMED FELLOW OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

In late 2016, Professor Michael Paine PERIO '99 was elected Fellow of the American Association for the Advancement of Science (AAAS) for his distinguished contributions to the field of biomineralization, for identifying protein-to-protein self assembly and for linking systemic disease of solute transport to enamel formation. The distinction places Paine in an esteemed group of individuals — including Yang Chai PhD '91, DDS '96; Michael Melnick, Harold Slavkin '61, DDS '65 and Malcolm Snead — "whose efforts on behalf of the advancement of science or its applications are scientifically or socially distinguished." Paine joined Ostrow as a research associate in 1994, earning his periodontology specialty certificate in 1999. He is currently the director of the craniofacial biology graduate program.

OSTROW ASSISTANT PROFESSOR DEVELOPS NOVEL DRUG COMPOUND TO TREAT BONE INFECTION

Earlier this year, Ostrow Assistant Professor Parish Sedghizadeh's work in developing a drug compound to fight bone infection was featured on the cover of the *Journal of Medicinal Chemistry*. In the article, titled "Design, synthesis, and antimicrobial evaluation of a novel bone-targeting bisphosphonate-ciprofloxacin conjugate for the treatment of osteomyelitis biofilms," Sedghizadeh DDS '96 shared his findings that one dose of an antibiotic-bisphosphonate drug compound was an order of magnitude more deadly than an antibiotic alone. "Our hope is to get the drug through the FDA process and approval to be able to test this in humans for clinical use to reduce the morbidity and mortality associated with bone infections," said Sedghizadeh, who joined the Ostrow faculty in 2004. The *Journal of Medicinal Chemistry* has an impact factor of 5.589.

OSTROW EXPANDS DISTANCE LEARNING ROSTER

This year, Ostrow will add three new distance learning programs to its roster, rolling out a certificate program in oral pathology and radiology as well as a master's degree and a certificate program in pain medicine. The certificate program in oral pathology and radiology is a 12-and-a-half-month online/on-site hybrid program teaching students the clinical and didactic skills necessary to evaluate and manage patients with oral disease. The master's and certificate programs in pain medicine are a collaborative effort between Ostrow and the Keck School of Medicine of USC focused on the neuroscience, psychology, assessment, classification and legal issues surrounding pain management. The master's program will take students 37 months to complete; the certificate program takes 12 and a half months. With the additions, Ostrow now offers distance learners the ability to pursue three online/on-site hybrid master's degrees and four online/on-site hybrid certificate programs.

5 THINGS TO KNOW ABOUT

Rizkalla Zakhary

BY YASMINE PEZESHKPOUR MCM ’16

Rizkalla Zakhary, better known as “Dr. Zak” around USC, has been a memorable educator in anatomy for generations upon generations of Ostrow students. For decades, Dr. Zak oversaw the dissection of human cadavers by thousands of students aspiring to become health sciences professionals. Earlier this year, at Ostrow’s Part-Time Faculty Appreciation Dinner and Awards ceremony, Dr. Zak was honored for his 50 years of service as a faculty member at both the dental school as well as the USC Division of Biokinesiology and Physical Therapy. Here are five more things to know about Dr. Zak:

1 **HE RECEIVED HIS PHD FROM TULANE UNIVERSITY IN HYPOTHERMIA IN 1964.** Before coming to the United States, Dr. Zak was a graduate student, teaching at the American University in Cairo, Egypt. His mentor at the time was involved in studies on hypothermia in newborn babies and the cooling of human bodies, which inspired him to get his doctoral degree in the discipline.

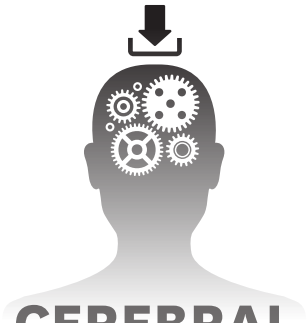
2 **WHEN HE FIRST BECAME ASSISTANT PROFESSOR OF CLINICAL ANATOMY IN 1967, THE DENTAL SCHOOL WAS ACROSS CAMPUS.** “Back then we were in a very old building where the law school is located now. It was where the dental school was while they were building the current school as it stands today,” he says.

3 **AFTER 25 YEARS AS A FACULTY MEMBER AT THE DENTAL SCHOOL, DR. ZAK WAS SET TO RETIRE UNTIL ANOTHER OPPORTUNITY CAME UP.** He took on a role as adjunct associate professor of anatomy at the USC Division of Biokinesiology and Physical Therapy, where he continued to work until his actual retirement, nearly 25 years later, in July 2016.

4 **WHEN IT COMES TO SCALPEL WORK, THIS MAN IS SHEER PRECISION.** For class demonstrations, Dr. Zak and his colleague once removed a cadaver’s brain and spinal cord in one piece while keeping all the nerves intact as well.

5 **HIS FORMER STUDENTS ALWAYS GREET HIM WITH THE SAME STATEMENT: “YOU HAVEN’T CHANGED A BIT.”** “I can’t help but think the vapors from the chemicals to preserve the cadavers have preserved me too,” he responds, with a laugh.

PHOTO BY HANNAH BENET



CEREBRAL DOWNLOAD

BY
COURTNIE YUN

Could a natural herbal supplement be used to treat a certain type of salivary gland cancer?

At this year's Research Day, Courtnie Yun '15, DDS '20 presented her findings, exploring the promising new treatment option and winning three distinctive awards along the way.

My interest in infectious diseases was a serendipitous development, arising from the intersection of the seemingly unlimited time during my gap year and the opportunity I had to work as a lab technician.

Naïve and confused but eager to learn, I spent many hours meticulously slicing tiny pieces of salivary gland tissue and dipping them in different dyes. This allowed us to microscopically visualize the effects of baicalein — a promising new treatment for CMV-induced salivary gland cancer.

Human cytomegalovirus (hCMV), a herpes virus, is a common virus that has the ability to infect various types of cells and tissues. The virus often resides in the salivary glands and can spread through bodily fluids, including saliva. Many people are carriers of the latent virus, but it's the immunocompromised — newborn babies or those with HIV — that are most likely to get an active infection. The clinical complications of hCMV infection can be severe, including overwhelming inflammation in the infected tissues and a weakened immune system. However, increasing evidence has suggested an entirely new complication where active hCMV infection is involved with various cancers, including brain, breast, lung, colon and prostate.

Ostrow's Craniofacial Developmental Genetics Laboratory, led by Drs. Michael Melnick and Tina Jaskoll, made a breakthrough in 2012 by confirming that active hCMV infection can cause mucoepidermoid carcinoma (MEC), the most common type of salivary gland cancer. This discovery was made through analysis of cell-specific localization of active viral and oncogenic signaling proteins. The establishment of hCMV as an oncovirus (a virus that promotes and causes cancer) for MEC is of particular importance because MECs currently have no viable treatment options. MECs are resistant to chemo-radiation and do not respond well to traditional cancer therapies, while surgical removal of the tumor is not ideal because of the inevitable damage to the delicate facial nerves surrounding the area.

Therefore, Drs. Melnick and Jaskoll have been exploring possible treatments for hCMV infection to prevent further growth and spreading of MECs. Ideally, the treatment must exhibit anticancer properties by reverting tissue morphology back to normal conditions, while also exhibiting antiviral properties with low toxicity. A new treatment option is needed because the current recommendation of antivirals for hCMV infections tends to be more harmful than beneficial due to the eventual drug resistance and high toxicity over prolonged treatment times.

Based on these concepts and the limitations of current treatments, our research focuses on the use of natural compounds to treat hCMV infection, and in turn, to prevent and treat MEC proliferation and metastasis. The treatment of interest is baicalein, a natural phytochemical that is part of the flavonoid family, which has shown low toxicity with very effective antiviral and anticancer properties. Baicalein has been popular in Chinese herbal medicine, although the mechanisms of action and effects on MECs have not been extensively studied. Our team is trying to analyze the various cell signaling pathways that are being utilized by the virus, as well as the change in gene profile of the cancer that appears with time and the addition of baicalein.

Cancer essentially has one goal: to proliferate. When inhibited, it will attempt to find a way to continue to proliferate by utilizing other cell-signaling pathways that are not being inhibited by said treatment. With this notion in mind, it is important to use a multi-targeting treatment. This makes baicalein even more appealing because our data has shown that baicalein targets multiple cell signaling pathways, such as the AREG/COX2 pathway, which has been seen to be highly utilized in CMV-induced cancer cells, as well as inhibiting the cell cycle itself. Our laboratory is currently working on identifying all of the key signaling pathways, as well as experimenting with the possibility of combination treatments such as baicalein with acyclovir (an antiviral). With increasing excitement, our research is getting closer to finding an ideal combination of treatments using baicalein that eradicates the virus and promotes cell death with differential toxicity, meaning cancerous cells are killed, but healthy cells remain.

Although composed of a small team, the Craniofacial Developmental Genetics Laboratory has been one of the most influential, challenging and rewarding educational outlets that I have had the opportunity to partake in. I have gained invaluable skills and knowledge outside of the required curriculum, including a better understanding of infectious disease progression and mechanisms of cancer. I have also been able to hone in on critical thinking skills to fully evaluate the limitations of drugs, what needs to be considered for the most ideal outcome and to constantly expand my knowledge through current literature. These are skill sets that create a strong foundation for me to provide the best clinical care for my future patients and become the dental health care provider that I aspire to be.

MOUTHPIECE

SECRET LIVES

Michael Meru

Semi-Professional Snowboarder

BY BRYAN KANG MA '18

At sea level, Michael Meru DDS '09, ORTHO '12 is a USC-trained orthodontist, working at a Salt Lake City, Utah practice, where he aims "to treat each patient the way he would want his daughters to be treated."

But atop some of the world's tallest and most remote mountain peaks, the 36-year-old Ostrow alumnus is an adrenaline-fueled adventurer, risking life and limb to carve up the snow- and ice-covered mountainsides on his snowboard.

In his "secret life," Meru is a semi-professional snowboarder, who travels all around the globe looking for unexplored mountain runs to intrepidly break in on his board. Meru has sponsorship deals from several companies, including Kind Snacks, NSP Surf and Paddle Boards and My Medic. Every year, he designs a new splitboard (snowboards that split apart into skis, allowing boarders to ascend mountains easier) for OZ Snowboards.

We caught up with the part-dentist/part-daredevil before he headed to Alaska's Mt. Denali to learn more about his part-time pastime.

continued on page 10 »

PHOTO BY MICHAEL AASHEIM

Q&A

Follow Meru on Instagram at ***@hukesnow***.

PHOTO BY MICHAEL AASHEIM

SECRET LIVES

Michael Meru

« cont. from page 9

HOW DID YOU FIRST GET INTERESTED IN SNOWBOARDING?

Having grown up in Los Angeles with a father who was a surfer, I was on a board from the time I could walk. In grammar school, I went on my first trip to Big Bear to try snowboarding, and I was hooked. I loved the feeling I got riding what felt like an endless wave!

WHAT MADE YOU WANT TO START CLIMBING SOME OF THE WORLD'S TALLEST MOUNTAINS?

I find that the solace and serenity of climbing mountains and skiing the backcountry provides an almost surreal experience of peace mixed with adventure. Combine that with the fact that any mountain I see, whether on Google Earth, in a magazine or while driving, is now within bounds for me. One of my favorite things to do is to drive to little-known ranges across the globe, see a *couloir* (a rock-lined ski descent), and find a way to the top to snowboard it.

YOU HELIBOARD TOO, RIGHT? FOR MOST PEOPLE WHO HAVE NEVER JUMPED FROM A HELICOPTER ONTO A SNOWY SLOPE, CAN YOU DESCRIBE WHAT IT'S LIKE?

It's the best feeling in the world. It's like a roller coaster at Magic Mountain, without the constraints of a track. The mountain becomes your canvas, and it's up to you to put your signature on it.

WHAT'S THE WORST INJURY YOU'VE SUFFERED WHILE SNOWBOARDING?

The most significant injury I've had was four years ago when I shattered vertebrae in my lower back. I jumped off an 18-20-foot cliff, landed on my feet and hit something below the surface too hard, causing a burst fracture of my L1 vertebra and leaving me completely paralyzed from the waist down for an hour and 15 minutes. Eventually, I could slowly start moving my toes, and I knew I would be OK. Once help arrived, I was rushed to the emergency room and underwent surgery where a cage was placed, fusing my back from T11-L3. The recovery was difficult, but I'm so grateful to be back stronger than ever.

HOW DOES SNOWBOARDING PROVIDE A PROPER WORK-LIFE BALANCE FOR YOU?

Giving patients the smile they've always dreamed of is the best feeling in the world! But so is ripping down a 5,000-foot mountain face. I love them both and, for me, each brings a completely different kind of satisfaction that balances out my life. Throw in my two daughters and wife, and I feel that I have a great work-life-family balance.

YOU DESIGN SPLITBOARDS AS WELL. WHAT IS YOUR FAVORITE PART OF THAT PROCESS?

OZ Snowboards allows me to design a board each year from the ground up. All dimensions, graphics, flex patterns, etc. It's a blast. This past season, the board won awards from *Splitboard Magazine*, *Backcountry Magazine* and *Backpacker Magazine*. It feels great to see an idea, turn it into reality and then see people excited about it. It's a similar feeling I get when I treat patients from our initial plan to seeing the appliances come. The look on their faces when they see their new smiles for the first time is the greatest high.

Don't Stop Flossing

There was a collective groan heard around the dental world last year when news outlets reported the lack of scientific evidence regarding flossing's health benefits, giving the public a new excuse to skip the arguably least-popular dental hygiene act. But not so fast, says Clinical Assistant Professor Alexandre Aalam PERIO '03, who shared with the *Los Angeles Times* what many dental professionals have long known. "Brushing can't get between teeth to remove 'bad' bacteria. Flossing gets at least four times deeper into gums than brushing does," Aalam told the *Times*, likely causing a secondary collective groan — this time from the public who had hoped their flossing days were behind them. Read more at **tinyurl.com/ostrowfloss**

Quinn Daley and Jihee Won DDS '18

PHOTO BY DAVID SPRAGUE

LISTEN

SOUND OF HOPE

What does hope sound like?

For many, it's the sound of Ostrow's mobile dental clinics pulling up to their neighborhoods to provide free dental care.

USC News sent a reporter to the mobile dental clinic at a recent stop in Pasadena, Calif., to capture the sounds of faculty, staff and students providing care to underserved children for an audio profile published in March.

"I'm unemployed and starting my own business, and my husband doesn't have benefits through his employer," said Floralyn Daley, parent of 7-year-old Quinn, in the audio piece. "So this was a great option in between."

Quinn was one of more than 100 underserved kids — half of whom had never seen a dentist — to receive care from USC dental students under the supervision of faculty members.

While Quinn had seen a dentist before, it had been more than a year — during which time she had developed four caries infections.

She said that once her teeth were cleaned and sealed, she hoped they would look "so good that you can see somebody's reflection in them!"

Hear more at **tinyurl.com/soundofostrow**

A HERO COMES ALONG

Fresh off a day-long CPR certification course, Diana Sedler DDS '16, PERIO '19 never expected to have her lifesaving skills tested just hours later while dining at a sushi restaurant.

"Can someone call an ambulance?!"

The man's desperate plea rang through an otherwise empty sushi restaurant in Sherman Oaks, Calif., where Diana Sedler DDS '16, PERIO '19 and her friends had been dining on a recent Sunday evening.

Startled, Sedler and her friends turned around to find a frightened man standing over a woman in her late 50s/early 60s, lying on the ground.

Without thinking twice, Sedler sprang to action and ran to the woman's side.

"I tried right away to check for a pulse, check for breathing, but she wasn't breathing, and there was no pulse," Sedler says. "I asked the man if I could start CPR on the woman, and he said yes."

With CPR fresh in her mind from an advanced cardiac support class she had taken *that day* (what luck!), Sedler provided chest compressions while the man puffed air into her lungs — eventually bringing the woman, who had been unresponsive for nearly two minutes — back from the brink.

"I really didn't think about it in that situation," says Sedler, whose friends remarked how quick and calm she had been. "I knew what I had to do. It was as if the protocol was there, written in front of me."

Like all Ostrow DDS students, Sedler had been certified and recertified (required every two years) in basic life support during her first and third year in dental school.

At the beginning of her fourth year, Sedler had also become certified in advanced life support. The continuing education course that Sedler had attended that day had been part of her licensure requirements for her periodontic residency at Ostrow.

"It was just such a coincidence that it all happened together, and I told the story over and over again and each time I wondered did it really happen," Sedler says.

By the time, the woman regained consciousness, the paramedics had arrived to take over for Sedler. "They hooked her up to the monitors and I saw her heart beat," Sedler says. "It was just surreal to think that her heart was beating because of me."

—John Hobbs MA '14

PHOTO BY HANNAH BENET

ODD Jobs

TroDent asks our readers:

What was the most peculiar way you made ends meet during dental school?

Leon Unterman DDS '63

I graduated from San Diego State in 1959, with a bachelor's degree in microbiology, which made me eligible to go into a six-month program to become a licensed medical laboratory technologist.

This was the job I held throughout dental school, working no more than 20 hours a week.

As a medical laboratory technologist, it was my job to do complete blood counts and blood chemistry tests as well as standard tests like urinalysis, bacterial cultures and glucose tests. One of the odder (by today's standards), though rare, tests that I had to run was a pregnancy test using a rat.

You see, long before we had the over-the-counter pregnancy tests common today, we would determine whether a woman was pregnant using all types of animals, such as a rabbit, a frog or, in my case, a rat.

When a woman of childbearing age came in, before we could schedule her for surgery, we would need to run a pregnancy test. There were times, like when I was on-call, that I might get a call at 10 p.m. I would have to stop studying and go down to the hospital to conduct the test, which consisted of injecting a urine specimen collected from the young woman into a rat.

From there, I would have to wait six hours to "read" the results, which often meant chauffeuring rats from the hospital to my apartment. After six hours, I would examine the ovaries of the female rat. If a woman is pregnant, the pregnancy hormones in her specimen would cause the rat's ovaries to turn bright red. If the ovaries were slightly pink or white, it was a negative result.

All told, I probably did about 15 or 20 late-night pregnancy tests throughout my medical laboratory technologist career. I even conducted a pregnancy test using a rat for one of my classmates.

He and his wife of six years had been trying to have a child. One day, he said to me, "I think my wife might be pregnant. Can you check?" So they gave me a specimen, and then I ran the test. Sure enough: They were pregnant. Eight months later, they had their first baby.

All in all, the job as a medical laboratory technologist was really interesting. I definitely enjoyed doing it.

—Leon Unterman DDS '63

Did you have an odd job during dental school? Email us at **ostrow.communications@usc.edu** for a chance to be featured in an upcoming issue of *TroDent*.

WATCH

The Ortho Initiative

Earlier this spring, the Trojan dental community celebrated orthodontics' more than 80 years' legacy at USC and officially launched a fundraising initiative to continue the specialty's prominence well into the future. "We need to recommit ourselves to USC Orthodontics in a new effort," said the USC Orthodontic Alumni Association Executive Board in a prepared message. "We need the support of the first generation to help ensure our core values are passed to the next generation, [and] we need our second generation to continue to set the example that application of our fundamentals and core values in a changing environment can create clinical excellence." Watch the fundraising initiative's kick-off video at **tinyurl.com/orthoinitiative.**

MISSING

Class of 1957 Tontine

In 1994, the late Eugene Lindsey DDS '57 crafted a shrine for USC Dentistry's Class of 1957, after a good-spirited discussion at the class' 35th anniversary regarding a tontine agreement. The shrine came with a bottle of brandy, two snifters and a plaque that read, "This tontine shrine is dedicated to the illustrious Class of 1957 USC School of Dentistry. The last two surviving members of the class are assigned the honor of raising a glass to toast the memory of their departed classmates."

Bruce Schutte DDS '57 joked in a letter to his class: "This should add some spice to our future meetings and some incentive to be among the surviving two."

Sadly, that toast may never occur because the piece has been lost in time.

If anyone has information on the Class of 1957's missing memento, please contact the Office of Communications at **ostrow.communications@usc.edu**.

Thanks A Latte!

Coffee Bean & Tea Leaf barista James Augspurger is smiling a lot easier these days, thanks to dental work provided at the Herman Ostrow School of Dentistry of USC.

BY YASMINE PEZESHKPOUR MCM '16

PHOTO BY HANNAH BENET

Imagine hearing a funny joke, meeting someone new or posing in photos with friends without being able to smile for fear of exposing your less-than-perfect teeth.

That's exactly what James Augspurger did for most of his life — a particularly tough feat when you're an affable, joke-cracking barista who works at the Coffee Bean & Tea Leaf (CBTL) at the USC School of Cinematic Arts, directly across the street from the dental school.

Augspurger's oral health issues were a product of both his genetics as well as his environment. He says he mostly avoided the dentist's office while he was growing up.

"Other than cleanings, I would see a dentist maybe once a year because of the amount of work I was told I needed to get done," he says.

"When I was about 16, I finally came to USC's dental school clinic for a full exam through a referral," says Augspurger, 28, who wouldn't begin his job on campus for another five years. "I was recommended implants or dentures but was told to wait until my 20s after I stopped growing and my teeth stopped shifting."

He was also diagnosed with severe hypodontia, a condition in which up to five permanent teeth fail to develop at all. He says his sister has the condition as well.

A TIP FROM USC DENTAL STUDENTS

By the time Augspurger reached his 20s, he had taken a job, working as a barista/cashier at the brand new CBTL in the USC School of Cinematic Arts, which opened in 2009.

He found himself face-to-face with many Ostrow faculty, staff and students, who would stop by and grab a cup of joe throughout their busy days.

"I made close acquaintances with many of the dental students here," he says. "In fact, it was a few dental students that pushed me to come in and get my dental work at the school's clinic."

Augspurger began the process of restoring his smile, working with then-Ostrow student Wai Mei Nham '10, MS '11, DDS '15, who provided his treatment with faculty oversight.

Augspurger's hypodontia case was severe.

"James was missing almost all of his front permanent teeth. So we decided to give him removable partial dentures, which were the best option for him at the time because procedures with his condition are pretty costly," Nham says.

"I explained that ultimately though, he would want to get implants because implants will help the bone stay in place."

Augspurger saw Nham for a year, fitting in appointments where he could before and after his shifts, until his partial dentures were complete.

"The whole process was really seamless and comfortable with Dr. Nham," he says.

Though his appearance had dramatically changed as a result of the dental work, he had a surprising reaction upon seeing his new smile.

"I know it's hard to believe, but I hated it at first!" he says, explaining that the dentures got in the way of his speech.

"The partial dentures felt weird in my mouth, and I was speaking with a lisp. I was feeling very frustrated about that," he says.

"But really, all it needed was some getting used to," he concedes. "I learned how to speak with them, and people even noticed I wasn't covering my mouth when I smiled anymore. It was really cool!"

> **"I used to be self-conscious but thanks to [Dr. Nham's] work, I find myself smiling more, and that's quite a gift."**
>
> **—James Augspurger,**
> **Coffee Bean & Tea Leaf Barista**

A SHOT OF CONFIDENCE

Augspurger plans to take Nham's advice and get the implants when he is able to save enough money for the procedures. In the meantime, he's enjoying his new smile and the shot of confidence that comes with it.

He hopes that the confidence might even come in handy in his professional endeavors.

Outside his work as a barista, Augspurger is an avid writer who enjoys reviewing and blogging about movies. He also works as a bartender at a nightclub in Downey, Calif.

But his biggest goal actually hits a little closer to home.

"I want to open a mobile coffee shop with specialty coffees and items," he says. "My friend and I are actually working pretty hard on it right now so hopefully that will be next for me," he says.

Augspurger believes the students are as big of a part of his day-to-day routine as he is to theirs.

"We develop friendships with a lot of the customers," he says. "I have seen people here from day one until their graduation. In fact, when they leave I never know how to say goodbye."

Still, he's grateful to know them while they're here — especially Nham, who really changed his life. "I used to be self-conscious, but thanks to her work, I find myself smiling more, and that's quite a gift."

Their Moment to Shine

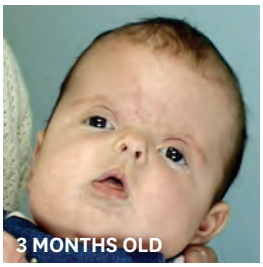
They each faced challenging birth defects that could have held them back from living out their dreams. But thanks to the efforts of a team of USC maxillofacial/ oral and plastic surgeons, Madison Carmenate and Kacey Azucar are ready to take on the world.

BY STEPHANIE CORRAL

PHOTO BY HANNAH BENET

Madison Carmenate, 19, is a sophomore at Pasadena City College, majoring in film production and communication. She hopes to use her education to tell her own story and inspire others.

PHOTO BY HANNAH BENET


3 MONTHS OLD


3 YEARS OLD


8 YEARS OLD


12 YEARS OLD

Madison Carmenate can easily call Children's Hospital Los Angeles (CHLA) her second home.

Born with Apert Syndrome, a rare genetic disorder that affects one in 65,000 to 88,000 newborns, the 19-year-old has spent her whole life in and out of the hospital, undergoing more than 30 surgeries and follow-up care.

"I jokingly say that I can walk around blindfolded and know where everything is," Carmenate says of the hospital.

When Carmenate was born in 1997, very little was known about the syndrome, which is characterized by the premature fusion of the skull's bones. Because the head cannot grow normally, infants born with the syndrome can have a sunken facial appearance, underdeveloped upper jaw, crowded teeth and webbed toes and fingers.

"They weren't really sure what it was at the time," says Carmenate of the syndrome whose cause remains unknown. "They were pulling out books, looking at pictures because there wasn't a definite answer. My fingers were [webbed] together. My face wasn't quite right. My head wasn't quite right. My toes were [webbed] together. It was a lot to take in."

Fortunately, Carmenate and her family had the support of CHLA's division of plastic and maxillofacial surgery, which, like Ostrow's division of oral and maxillofacial surgery, aims to surgically correct birth defects to significantly improve a child's health, self-esteem and overall life trajectory.

CHLA's division of plastic and maxillofacial surgery is led by Ostrow Professor of Clinical Surgery Mark Urata '85, DDS '89, OMFS '93, MD '96, Plastic and Reconstructive Surgery '02, Craniofacial Surgery '03, who is also chair of Ostrow's division of oral and maxillofacial surgery and the Audrey Skirball-Kenis chair and chief of the division of plastic and reconstructive surgery at the Keck School of Medicine of USC. He is also a craniomaxillofacial surgeon at the Cedars-Sinai Medical Center.

Despite his many responsibilities, Urata makes every effort to go the extra mile for his patients, Carmenate says.

When Urata performed Carmenate's major craniofacial surgery in 2011, he visited her home on Christmas Day and New Year's Eve to see how she was recovering from the 12-hour procedure.

"I would give him a 10 out of 10," she says. "He really went above and beyond what a normal doctor would do."

Urata even gave Carmenate's mother, Diane, his cell phone number to help monitor her daughter's recovery.

"I could send him messages at 12:30 in the morning with photographs," recalls Diane Carmenate. "I'd say, 'I think she's infected. What do you think of this?' And he'd say, 'Take a picture at this angle and that angle.' I could wake him up in the middle of the night. He's extremely amazing."

Watching them grow up

It was as an oral surgery resident at LAC+USC Medical Center that Urata had the opportunity to work with children with birth defects, which is where his love for the discipline began.

"One of the things that was attractive to me was the capacity of being able to take care of these kids from the time that they were infants until the time many of them were in college or beyond," Urata says. "I enjoyed the possibility of being able to have that longitudinal contact with patients, which you don't typically have in a private practice oral surgery setting."

Because the majority of U.S. birth defect cases are handled by plastic surgeons, Urata decided to specialize in both oral and maxillofacial surgery as well as plastic surgery to provide more comprehensive care to his patients.

Urata's unique qualifications allow him, for example, to look at a patient's dentition and jaws to achieve optimum results in cleft lip and palate cases.

Currently one of the most common birth defects in the U.S., cleft lip and cleft palate occurs when there is insufficient tissue in the lip or mouth area of a developing fetus. Without enough tissue to create a full lip or palate, a gap appears in the upper lip or in the roof of the mouth, respectively, causing facial deformity.

Babies born with a cleft lip or a cleft palate can also have trouble eating, with liquids and foods often passing from the mouth to the nose. While some babies are born with either a cleft lip or a cleft palate, some children are born with both.

Empty waiting rooms?

Aside from a small scar above her lip, it is hard to believe that Kacey Azucar, 18, was born with a cleft lip and cleft palate.

Azucar's cleft lip and cleft palate were corrected through seven surgeries, six of which were performed at CHLA.

"I like the outcome of everything," says Azucar, who lives in North Hollywood, Calif., and is a dance major at Los Angeles Valley College. "My jaw felt a lot more comfortable; it felt different."

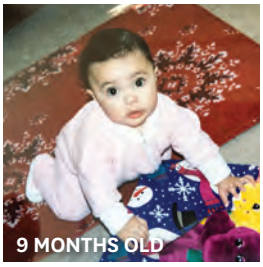
continued on page 23 »

Kacey Azucar, 18, is now a sophomore at Los Angeles Valley College, studying dance.

PHOTO BY HANNAH BENET

« continued from page 21


3 MONTHS OLD


9 MONTHS OLD


3 YEARS OLD


5 YEARS OLD

Azucar's jaw surgery was performed by Ostrow Clinical Assistant Professor Jeffrey Hammoudeh, who, like Urata, is board certified in both plastic surgery and oral and maxillofacial surgery. He holds faculty positions at both the Keck School of Medicine of USC as well as Ostrow and practices at CHLA.

For Azucar's mother, Elisa, the experience of being a first-time mom to a child with a birth defect was overwhelming, especially because her prenatal ultrasounds had not revealed any problems.

"I had never seen a baby born with cleft lip and palate," says Elisa Azucar, who was especially concerned by her daughter's inability to eat properly. For two months, Kacey Azucar could only eat blended food with the help of a special bottle and straw.

"We have been blessed to have CHLA on our side and especially the team," Elisa Azucar says. "They are very supportive. I am very thankful for all these 18 years that we have been going back and forth."

The cause of cleft lip and palate remains unknown, but Urata, along with Yang Chai PhD '91, DDS '96, Ostrow's associate dean of research, were awarded an NIH grant to look at tissue engineering created in the oral cavity and craniofacial skeleton with the goal of being able to replace some of the parts that are missing in kids with cleft lips and palates.

"I think we are all hoping one day to have an empty waiting room in my office at Children's Hospital Los Angeles because we solved the problem," Urata says. "But until that day, we have to keep doing what we are doing on a daily basis."

A unique opportunity

Established in 2013, Ostrow's division of oral and maxillofacial surgery was created to provide unique research, educational and clinical opportunities in oral and maxillofacial surgery to students and faculty.

With Urata at the helm of Ostrow's oral and maxillofacial division and Keck's plastic and maxillofacial surgery division, a one-of-a-kind alliance has been struck between the two disciplines, much to the benefit of students and birth defect research.

"I think any way that you can have an opportunity to join two world-class divisions, it creates a think tank where you can learn from one another because each discipline might approach the same problem differently," Urata explains. "This gives us an opportunity to surround ourselves with literally five times as many faculty as would normally be available to a typical residency in oral and maxillofacial surgery."

USC rotates one oral and maxillofacial surgery resident along with two plastic surgery residents and a craniofacial fellow at any given time at CHLA, a Keck affiliate, which Urata considers a unique byproduct of the collaboration.

"There's no other program in the country that has this unique collaboration under one administrative structure," he says. "So all surgery residents function on a daily basis, side by side, with their plastic surgery resident colleagues. It's really created a unique atmosphere for learning, which allows them to look at things with different academic goggles."

Urata believes the collaboration also gives Ostrow access to a greater number and diversity of cases than any other oral and maxillofacial surgery program in the country.

No two cases alike

That variety of pathology and cases that residents are exposed to during their training is what attracted Lauren Odono OMFS '17 to Ostrow's four-year oral maxillofacial surgery program after graduating from the Arthur A. Dugoni School of Dentistry at the University of the Pacific.

"There is no one case that is exactly like another, which allows for continual learning and a constant evolution towards becoming a surgeon," says Odono, who is Ostrow's fourth oral maxillofacial surgery resident to rotate at CHLA. "Many of the patients receive care at CHLA from birth into adulthood, and amazing transformations can be seen in the patients with craniofacial malformations. Through residency and rotating through CHLA, I have learned to care for people, not patients."

Odono, whose father is a dentist, knew she wanted to follow in his footsteps when she grew up, but it wasn't until she was in college that she knew she wanted a career in oral and maxillofacial surgery. While shadowing an oral surgeon, Odono witnessed how a patient's jaw surgery dramatically improved her life.

"The patient was ecstatic about the surgical results, the improvement in her bite and aesthetic facial profile," Odono says. "She discussed how the surgery changed her life, improved her self-confidence and that she finally felt comfortable smiling. I thought it was incredible that a single surgery could have that effect on a person's life, and I instantly knew

continued on page 24 »

« continued from page 23

it was a field of dentistry that I had to be a part of."

Having just finished her last year in residency, Odono says she enjoyed the variety of operations that are performed at CHLA on a daily basis and appreciated how "residents are afforded the opportunity to actively operate side-by-side with attendings" instead of just observing.

"Through graduated autonomy, we were able to enhance our clinical and surgical knowledge," says Odono, who believes that being the only oral and maxillofacial surgery resident at CHLA afforded her a unique experience.

> "Even though you may be different, you have the same desires, hopes and dreams as everyone else. You want to be like everyone else. And you can do it too. I know because I am proof of this."
>
> —Madison Carmenate

"We were able to learn in parallel with the plastic surgery residents, allowing for comprehensive discussions and a profound learning process," she says. "We were all forced to think outside of our surgical skillset and attempt alternative approaches to surgery. One would think that there is a huge dichotomy between the two services, however, you form a unique bond, create a new family and truly realize the necessity and merits of teamwork."

A resilient spirit

Carmenate has come a long way since her first surgery at 2 months old when her thumbs were separated.

"Seeing how far I've come in the process, from the minute I was born when they didn't know how I would do things or what my life would be like, to what I've done now, look what I've been through and I'm still here," she says. "I'm still going to go on and do more amazing things."

Living with Apert Syndrome has its challenges, says Carmenate, who sometimes has trouble opening a water bottle, tying her hair into a ponytail or wearing flip-flops. Still, she doesn't let her condition stop her.

A sophomore at Pasadena City College, she is majoring in film production and communications with hopes of telling her own story and inspiring others.

"No matter what you go through, you always come out of it," she says. "Even though you may be different, you have the same desires, hopes and dreams as everyone else. You want to be like everyone else. And you can do it too. I know because I am proof of this."

Now that Carmenate is an adult, Urata consults with her to discuss her future.

"We have a really good relationship," Carmenate says. "He's really nice and respectful. He'll ask me, 'What do you want to do?' Now that I'm 19, it's up to me to decide."

Urata credits Carmenate's family for her overall progress and positive outlook.

"I think she has turned out to be a fantastic human being," Urata says. "She spent a lot of summers having big operations while other kids were out swimming and going to camps. For these kids to still come out of the other side of all that with the type of spirit she has, I think is a credit to their families and to them."

On any given day, Urata can be found crisscrossing the city, to perform procedures at CHLA, teach at USC or sit with a recovering patient in their own living room. This often means a long commute home, but he doesn't seem to mind.

"It always seems to me to be a pretty good drive when your day's work has been pretty fulfilling," Urata says. "I don't know that anybody else has a better job, and if they do, I don't know that it would be a better job for me."

Giving Nature a Hand

Ostrow researchers strive to prevent and manage birth defects.

While Ostrow's division of oral and maxillofacial surgery is working to correct common birth defects in the operating room, Ostrow's researchers — led by Associate Dean of Research Yang Chai PhD '91, DDS '96 — are busy in their labs, searching for solutions to better manage and even prevent congenital abnormalities. Here are some of the birth defects Ostrow investigators are currently studying:

CLEFT LIP/CLEFT PALATE

Cleft lip/cleft palate occurs when tissue forming the roof of the mouth and/or lips does not fuse fully. Ostrow researchers hope to gain a better understanding of the condition's genetic and environmental causes — discoveries that could eventually lead to earlier diagnosis and better treatment options as well as the possibility of in utero interventions.

CRANIOSYNOSTOSIS

Craniosynostosis is the premature fusion of cranial bones due to the loss of the soft tissue joints between them, which impedes brain growth. Chai recently received a $3.3 million grant for research that could one day allow for a biological intervention (using 3-D scaffolds and stem cells to recreate biological sutures).

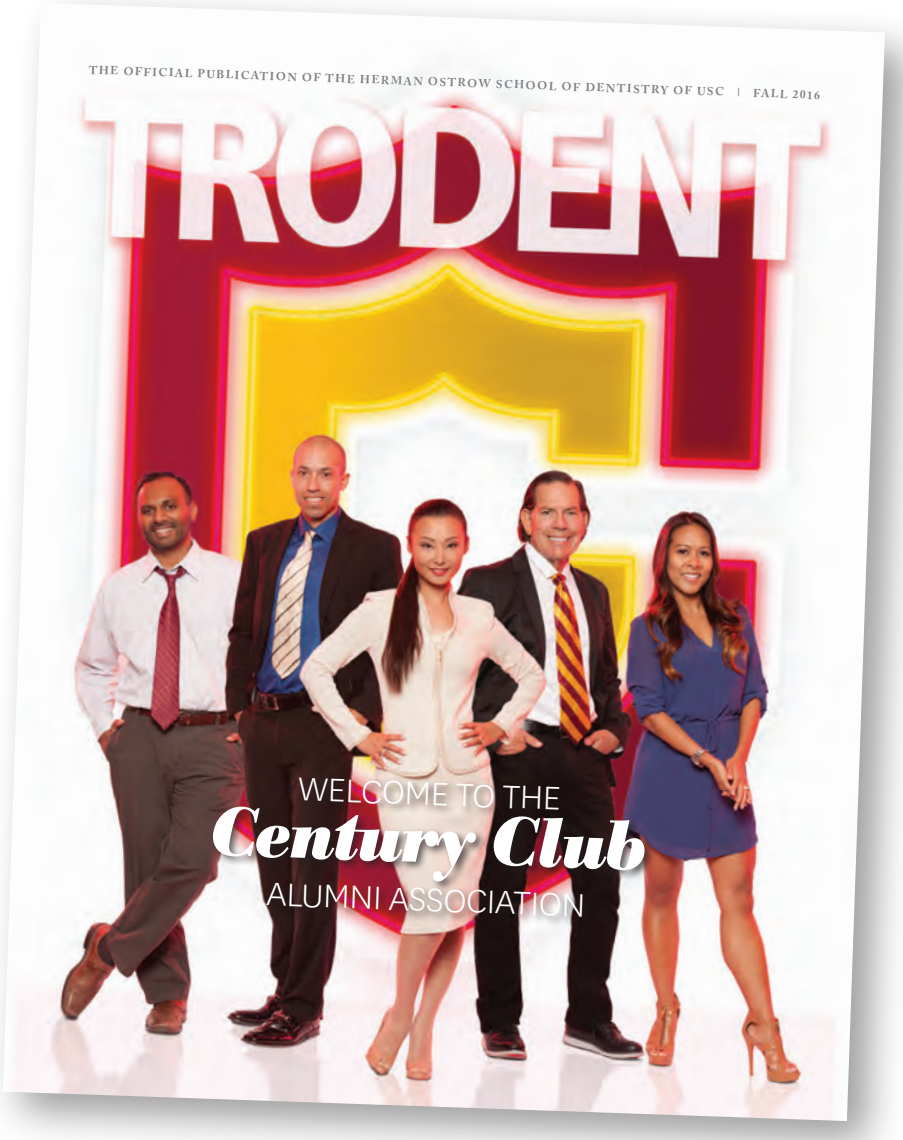
AMELOGENESIS IMPERFECTA

Amelogenesis imperfecta is a tooth development disorder in which enamel does not form properly. Ostrow Professor Michael Paine's research has focused on developing a better understanding of the genetic, physiological and molecular processes underlying enamel formation. By understanding the conditions necessary for enamel to develop properly, researchers could eventually restore enamel, which cannot regenerate on its own.

BE SEEN BY MORE THAN

10,000 USC DENTISTS

TRODENT, THE OFFICIAL PUBLICATION OF THE **HERMAN OSTROW SCHOOL OF DENTISTRY OF USC** NOW OFFERS ADVERTISING OPPORTUNITIES.



Find out how to get the attention of some of the profession's best at
dentistry.usc.edu/alumni/newsletter

Something to Smile About

BY JAMIE WETHERBE MA '04

Thanks to early detection and intervention by her Trojan dentist, Joana Breckner survived oral cancer. Now she's dedicated herself to raising public awareness about routine oral cancer screenings, which only take minutes but could mean the difference between life and death.

A routine visit to the dentist saved Joana Breckner's life.

While in the chair 17 years ago, her dentist Phillip Sacks '66, DDS '70 discovered abnormal white spots on Breckner's tongue. "He pointed them out," says Breckner, a non-smoker who rarely drank. "But they were so small, I couldn't even see them."

While a biopsy came back benign, Sacks and other specialists continued to monitor Breckner closely over the next several years. "I had a lot of eyeballs on my mouth, and I was also very vigilant about my health," Breckner says.

In 2007, Breckner felt something unusual inside her mouth. "My doctor took one look and said that I didn't even need a biopsy. It was cancer and had to be removed," Breckner says.

During the next six years, she underwent several procedures and treatments as her cancer went in and out of remission — including a surgery to remove part of her jaw and half of her tongue, followed by months of intense radiation and chemotherapy.

A piece of Breckner's arm was used to reconstruct her tongue, and she had to learn to talk and eat again.

"This is a brutal, brutal disease, and we need to share these stories to create awareness," Breckner says. "If I can spare one person from having to go through what I went through, I will. I survived because every doctor put all their energy into me, and I feel a responsibility to repay the favor."

Early diagnosis saves lives

Nearly 50,000 Americans will be diagnosed with oral cancer this year; only about half will be alive five years after diagnosis, according to the Oral Cancer Foundation.

If found in the early stages, oral cancer patients have an 80 to 90 percent survival rate, but the majority of patients are diagnosed in later stages of the disease, often after the cancer has spread, the Oral Cancer Foundation says.

While older adults who drink and smoke are more prone to oral cancer, the disease often strikes those outside risk groups, like Breckner.

For example, HPV, the virus that causes cervical cancer, has triggered an up-tick in oral cancer among young non-smokers, making it more difficult to define those who could be high-risk.

"That's why it's so important for everyone to have good oral cancer screenings," Sacks says. "Patients go to the dentist more than they go to a physician, so dentists are on the frontline of finding oral cancer. If you find it early, you can save a life."

Sacks says he's found about 15 cases of oral cancer during his almost 50-year career, "which is more than my [peers] tell me they have found," he says. "My father was a pathologist, and I've always had a keen interest in that field. I think I look a little harder and refer more [patients] for biopsies."

Sacks also credits his "extensive training" on the disease while he was a USC student in the late 1960s. "We had fine oral pathologists telling us what to look for," he says. "We went to a hospital to meet with MDs, oral surgeons and even cancer patients — that was a dose of reality."

Any lumps or bumps?

Oral cancer training remains a cornerstone of USC's curriculum, with screening procedures taught during a student's first trimester.

"All of our students — whether they're in the dental hygiene program, studying to become dentists or dentists studying for a specialty — learn how to do an oral cancer screening," says Mahvash Navazesh, executive associate dean for academic, faculty and student affairs. "They must demonstrate competency in this area before they have the privilege of touching a patient."

More than mastering a skill, Navazesh wants students to raise awareness about the disease, much like doctors encourage breast cancer screenings.

"We want our students to talk to patients about oral cancer," she says. "The public can do a lot to monitor their oral health conditions. They can periodically take a handheld mirror and check for lumps, bumps or sore spots."

Oral cancer can appear as a red, white or red-and-white-speckled area, according to the Oral Cancer Foundation, which suggests patients go to their trusted dental professional if they have any lump that feels hard and fixed to the underlying tissues or an open sore in the mouth that doesn't heal within 10 days.

Sacks has a sign in his office that reads, "Any lumps or bumps?" to encourage patients to ask questions. "I've had patients report lumps to me because of it," he says.

Now cancer-free for "four years, six months and 16 days," Breckner has made it her mission to ensure each patient gets "cleaned and screened" for oral cancer every time they visit a dentist.

"This is something so simple. It takes a few minutes," she says. "Your mouth is massaged, inside and out. There are no needles, no pain, nothing to be afraid of."

Sacks echoes the importance of screenings.

"For a dentist, there's no higher calling," he says. "We improve patients' smiles, self-esteem and general health, and that's great. But saving a life is something you don't get to do everyday — there's nothing more noble than that."


"If I can spare one person from having to go through what I did, I will."
— Joana Breckner, Oral Cancer Survivor

Fighting Her Way Back

OSTROW GRADUATE'S DENTAL HYGIENE CAREER HANGS IN THE BALANCE AFTER BRUTAL DOG ATTACK.

BY MICHELLE McCARTHY

PHOTO BY HANNAH BENET

July 12, 2016 started out as a typical morning for Michelle Baum DH '14: wake up, get dressed, brush her hair, see her boyfriend off to work and then take her beloved dog, Slate Dogg, for his daily walk around her Thousand Oaks, Calif., neighborhood before heading off to her job as a dental hygienist. But the usually uneventful ritual quickly turned into a traumatic experience that would change the course of her life and — quite possibly — her career forever.

What the Ostrow graduate didn't know is that there were two loose dogs roaming the neighborhood — one of them, a Rottweiler that had already killed a chicken. Her neighbor called animal control after the pair charged at him, making it impossible for him to leave the house.

"I was walking my dog and saw the loose dogs from far away," Baum recalls. "My neighbor waved me off, so I brought my dog home. Slate started complaining because he didn't get to go on his usual long walk. He's a Weimaraner and is really high energy. I thought, 'If the dogs are that way, I'll walk in the opposite direction.' Then I saw them running down the way near me, so I immediately put my dog back in the house."

Safely in her townhome, Baum, 29, spotted a different neighbor emerging from her home with an infant and felt compelled to warn the woman about the danger. Once outside, she also informed landscapers working in the area. And that's when the dogs ran past her. As she turned to walk back home, Baum noticed the Rottweiler was following her.

"I opened my door, and Slate stuck his nose out," Baum recalls. "I reached my arm to push him backward so I could slide in, and the Rottweiler powered through my door, lunged into my house and dragged me out. It's kind of patchy from there."

The Rottweiler bit down on Baum's dominant right arm and proceeded to shake her back and forth like a dog toy. "I remember seeing my bone exposed in my arm, but I didn't feel pain, so I acknowledged I was in shock." The possibility of the dog killing her went through her mind.

Fortunately, a friend had spent the night after a birthday party the night prior and heard Baum's screams. He ran out and put his hands around the Rottweiler's jaws in an attempt to free Baum from his grasp. The landscapers also heard her screaming and ran over to help.

"It took five guys to get the dog off of me," Baum says. "It had me for more than five minutes and would have definitely ripped off my arm. That's what it was in the process of doing."

Would it be career ending?

In the midst of all the pain, trauma and confusion, the realization of the ramifications the injury would have on her career was immediate. "The EMTs wanted to take my vitals in front of the house, and I was screaming at them that they needed to take me to the ambulance so I could have surgery immediately because I work with my hand," Baum says. "Work was the number one thing on my mind."

Baum was taken to Los Robles Hospital and Medical Center in Thousand Oaks, where she would stay for five days. She suffered an open radial fracture, radial nerve damage and muscle damage. "The first thing they did was debride the muscle and make sure I didn't have any infections from the dog. Then I had the first surgery to fix the bone. The second surgery involved putting a plate on my radius." In all, Baum received more than 350 stitches.

"My hand was the size of a balloon, and I couldn't move my fingers at all, so I had to relearn everything, which was horrible," she says. Hand therapy was three times a week for three-plus hours and extremely painful.

Then this past February, Baum was unlocking her door and, because the bone in her arm was still completely broken, the plate on her radius snapped. Surgery number three was performed by both an orthopedic surgeon and an orthopedic hand surgeon and involved grafting a bone from her hip to her arm, the removal of a neuroma and the placement of a cadaver nerve where hers was now missing.

While Baum has been focusing on healing both physically and mentally (the animal lover is now afraid of dogs and attends therapy once a week for post-traumatic stress disorder [PTSD]), the big question mark left by this experience is whether she will be able to return to work. She previously held positions in the banking and yoga industries but found her ideal career path in dental hygiene. "I love forging bonds with patients and improving their dental/systemic health," she says. "It's gratifying to motivate patients and see their home care improve with oral hygiene instruction."

Medical bills piling up

Currently, her long-term prognosis is up in the air, as Baum is still healing from her most recent surgery. "Hopefully, my bone graft will take. One of my main issues right now is nerve damage. I'm hypersensitive — if anything rubs against my hand or arm in certain areas, it's like hot flames and lightning going through me," Baum explains.

"The second issue is when I put pressure on my index finger in a hygiene fulcrum, it's very painful and shoots through my hand and into the muscles of my arm. It all depends on what happens with those two things. I really hope I can return, because I really love being a hygienist."

While Baum doesn't like to think about what she would do if unable to return to the profession, she says it's naïve not to have a back-up plan. "I'm considering getting a master's degree in teaching and becoming a biology teacher."

To date, Baum is out $25,000, not including the loss of income. The owners of the dog (which has since been put down) haven't offered to pay a dime, and their renter's insurance excluded Rottweilers. Baum has taken to a crowdfunding site (*tinyurl.com/fightingherwayback)* to get help to pay her bills. As of press time, she had raised only about a third of her fundraising goal.

These days, Baum can only take Slate on short walks and now brings along an air horn and pepper spray. Part of her PTSD therapy is to get back to what she used to enjoy, so she's trying to expand the distance with time. Luckily, she is surrounded by a support system of family, friends and neighbors who have stepped in to take Slate on longer jaunts.

It's been a long, ongoing road to recovery, and Baum finds the strength to move on by keeping positive.

"I don't have a choice," she says. "If I weren't focused on healing and doing everything I can, that would just hinder me. It's not going to benefit me to be sad at home and not do something about it."

ORAL HYGIENE STARTS AT HOME

PHOTO BY BOBBY CURTIS

Ostrow alumnus Justin Urbano volunteers 16 hours a week, providing free oral cancer screenings and preventive care to homebound seniors.

BY KATHARINE GAMMON

Linda Peterson, a homebound senior, hadn't had her teeth cleaned in more than two years. Then she saw a flier at a health clinic with an offer that seemed almost too good to be true: free in-home teeth cleaning and oral cancer screening.

She called the number on the flier and soon had an appointment with Justin Urbano DH '10. When the cheerful, young Urbano arrived at Peterson's home, he gave her a choice: She could lie on the couch for her cleaning or use a zero-gravity camping-style chair to lean back.

"I chose the chair," Peterson says. "Justin gave me a very thorough cleaning, and he brought in all his own instruments so we didn't even need to be near a sink."

It's all part of the job for Urbano, a graduate from Ostrow's dental hygiene program, who works with the Free Clinic of Simi Valley to provide oral cancer screenings and preventive care to seniors, 60-plus years of age, for free.

A knack for dentistry

Urbano got into dental hygiene work through a regional occupational program in high school. On a whim, he decided to try dental work and discovered he had a knack for it. "I just find it really fruitful to help people," he says. When he found out USC was offering a bachelor's program in dental hygiene, he was thrilled. "Everything I've learned in school, I am able to apply to the practical work of seeing patients."

On a typical day, Urbano sees patients of all ages at the clinic in Simi Valley. Then, on weekends and Mondays, he volunteers his time to travel to adult day-care facilities, adult living centers and to the homes of seniors who can't come into the clinic. He spends about 16 hours each week on this kind of work.

The program was made possible last year when the Free Clinic of Simi Valley received a $225,000 grant from the California Wellness Foundation to sustain dental care for low-income adults and those who are age 60 and older in southeast Ventura County and nearby communities. While the grant covers the mileage he travels, Urbano volunteers his time doing these visits.

To make those house calls, Urbano, 28, has to squeeze all the equipment of a dentist's office — a chair, a stool, suction machine, water and an ultrasonic cleaning machine — into his small car. "It's like a game of Tetris," he says, with a laugh. Each week, he makes it all fit to do his work.

This service is so important because 10 percent of Ventura County's approximately 165,000 seniors cannot afford dental treatment or have unaddressed advanced oral disease, the clinic administrators say. They estimate that 85 percent of low-income seniors don't have usable dental coverage.

Urbano also sees children as part of USC's Children's Health and Maintenance Program (CHAMP), which screens children — up to age 5 — for dental problems, administers preventive fluoride treatments and provides families with oral health education. "I have the same type of compassion with the elderly patients as I do with the children," he says, adding that respect and patience are the most important.

Dental hygiene house calls

Urbano finds fulfillment in helping the community. "When I first started my career, I knew I wanted to help people, but I didn't know how," he says. "Now I know I can apply everything I have learned at Ostrow."

There are some challenges, though. In addition to the physical aspect of lugging the equipment, Urbano has to coordinate with social workers or caregivers and make sure that patients with dementia understand what he is trying to do.

Urbano is able to work in peoples' homes because he is licensed as a registered dental hygienist in alternative practice. The license allows him to provide services in places other than traditional dental offices, such as the homes of seniors or various clinics throughout the county. "Alternative practice hygiene only came into being in the late '90s/early 2000s," he says. "It's designed to help those who are underserved."

At Ostrow, he did rotations at Union Rescue Mission — along with other dental hygiene students. "Everything we have done with our classes, we really wanted to serve everyone in the community," he says. "I really look back and appreciate everything my professors have given me."

As for Peterson, the homebound senior in Urbano's care, she had nothing but high praise for the visit. "There is almost no waiting. Justin is very personable, friendly and sensitive," she said. "The program is excellent, and if you have any dental needs, they'll take care of it for free in the office."

For more information or to make an appointment, contact Urbano at **justin@freeclinicsv.com** *or call (805) 236-0125.*

Smiling for the Rest of Your Days

Ostrow students can take advantage of many opportunities to learn to better provide care to patients, aged 65 and older — a fast-growing demographic that will doubtlessly comprise a big part of their patient populations. Ostrow has two patient care sites dedicated almost exclusively to elderly patients. Both doctor of dental surgery and dental hygiene students are required to complete patient care rotations at Hollenbeck-Palms, a nonprofit retirement community in East Los Angeles. And, in the Norris Dental Science Center, students are required to complete a rotation at the Dr. Roseann Mulligan Special Patients Clinic, where patients who are medically compromised, physically and emotionally disabled and elderly can receive care. Additionally, practicing professionals can learn more about providing treatment to elderly patients by pursuing an online master of science degree or an online certificate program in geriatric dentistry. For more information about those online programs, visit geriden.usc.edu.

INSPIRED BY SARA GHAEM-MAGHAMI DDS ’88

PHOTO BY HANNAH BENET

Every moment is inspiring.

When I was a child, I used to look at the clock and wonder why the second hand moves so fast. Each day I wake up, I realize I have less time left than the previous day, and this realization inspires me to implement loving compassion to the people I encounter in my life every day and be grateful for these moments.

One of my patients — a 7-year-old girl who cannot hear or speak — touched my heart the first time she came to her appointment: She pointed to herself, placing both index fingers underneath her eyes; then she brought her fingers down her cheeks and shook her hands in a “no” gesture; she had gracefully expressed herself to me that she is brave, and she is not going to cry.

Being a pediatric dentist means spending my days surrounded by children: their energy, excitement, stories and laughter make my life full. They have a unique way of spreading joy into your life. It’s fulfilling to watch them grow into wonderful young adults with beautiful smiles and a desire to care for their oral health, which ultimately affects their overall health. As a pediatric dentist, my ultimate goal is to help children have healthy teeth for a lifetime.

The work of children is to play, learn and be active members of their families and communities. A child’s dental condition can get in the way of these activities.

Initiating dental visits when the child gets his/her first tooth is most beneficial because this is when learning and development occurs rapidly. It becomes more difficult for a child to learn particular skills after the eruption of their permanent teeth.

I love preventive dentistry; how much money would the world save on dental care, lost productivity and pain if we focused more on prevention than treatment, and where is a better place to start than when they are young? How many carious lesions and cases of gingivitis and periodontitis could be prevented by early intervention?

I work with children who have special needs and developmental delays.

A patient who really made a lasting impression on me was a 4-year-old boy with autism who was fearful of doctors and dentists. I will never forget how, through the efforts of the front and back office staff as well as his parents, we put him at ease on his first visit.

Initially, he was very anxious and could not hold the toothbrush, but through regular visits, he learned to brush by himself and looked happy during his dental check-ups. He and his dedicated parents are an inspiration to me. They taught me about the power of determination, persistence and hard work. I am inspired by their ability to surpass their goals in the midst of dealing with so many challenges. I know that many occurrences can interrupt a family’s routine, and I always consider this when creating their home oral hygiene program so that they can easily incorporate it.

The people I meet through my job inspire me every day. How many people can say that? I could not do what I am doing without the help of the assistants, receptionists, hygienists and treatment counselors who I have worked with. My daily interactions with my patients have taught me to approach life with a fun, happy and hopeful outlook. I love being able to see my patients grow and change. I enjoy the relationships I have established with the families, and whether it is prescribing a medication or treating caries, reinforcing good oral hygiene or healthy eating habits, giving advice or just being there, nothing is as rewarding as getting a hug from my patients and a parent saying, “Thank you — what you did for us worked.” It feels wonderful to come to work every day. I am proud to be a part of this special profession.

MEMORIALS & TRIBUTES

The following are gifts made in honor or tribute to individuals who have made a lasting impact on the community of the Herman Ostrow School of Dentistry of USC:

IN HONOR OF
DR. RALPH ALLMAN
Dr. Gerald W. McClellan

IN HONOR OF
DR. WINSTON CHEE
Dr. Laureen M. Roh

IN HONOR OF
DR. GLENN CLARK
Mr. Calen Ouellette
Dean Avishai Sadan

IN HONOR OF
DR. TERENCE E. DONOVAN
Dr. George Bogen
Dr. Laureen M. Roh

IN HONOR OF
DR. DAVID EGGLESTON
Ms. Marjorie E. Cavalieri

IN HONOR OF
DR. JOHN I. INGLE
Mr. Walter J. Unger

IN HONOR OF
DR. RICHARD KAHN
Dr. Leon F. Unterman

IN HONOR OF
DR. PAUL KELSON
Mrs. Carol L. Rosen

IN HONOR OF
DR. JOHN J. LYTLE
Dr. Cherilyn G. Sheets
Dr. Derick T. Tagawa

IN HONOR OF
DR. ROSEANN MULLIGAN
Ms. Sandra Bolivar
Dr. Gayle MacDonald and
Mr. Paul L. Friedman
Mr. Calen Ouellette
Dean Avishai Sadan
Dr. Cherilyn G. Sheets

IN HONOR OF
DR. MAHVASH NAVAZESH
Ms. Sandra Bolivar
Dr. Cherilyn G. Sheets

IN HONOR OF NEWPORT HARBOR ACADEMY OF DENTISTRY
Dr. Daniel L. Burkhead
Dr. Janice C. Chou
Dr. Frank Curry
Peter T. Smrecek, DDS., Inc.,
M. A. G. D.

IN HONOR OF
DR. ALBERT SOLNIT
Dr. Sharon Gless
Dr. Kenneth J. Jacobs
Dr. and Mrs. Norman and
Romaine Jacobs

IN HONOR OF
DR. LEON UNTERMAN
Mr. David A. Eisenman

IN HONOR OF DR. MARK URATA
Dr. Eddy S. Shea

IN MEMORY OF MR. ART ASTOR
Dr. Robert E. Huntington

IN MEMORY OF
MRS. CHERYL AVAKIAN
Dr. and Mrs. Ralph and
Sigrid Allman

IN MEMORY OF
DR. JOSEPH BERGER
Mrs. Elizabeth A. Davies

IN MEMORY OF
DR. STUART BISK
Dr. and Mrs. Ralph and Sigrid
Allman

IN MEMORY OF
DR. DONALD CURNUTTE
Dr. M. Marlene Godoy

IN MEMORY OF
DR. WILLIAM E. DAHLBERG
Mrs. Theone F. Ellis

IN MEMORY OF
DR. CLIFTON O. DUMMETT
Dr. M. Marlene Godoy

IN MEMORY OF
DR. RICHARD GATES
Dr. Richard N. Gubler

IN MEMORY OF
DR. JOHN GAZARIAN
Dr. Lyla A. G. Boustani

IN MEMORY OF
DR. CHARLES GOLDSTEIN
Dr. M. Marlene Godoy

IN MEMORY OF
DR. WILLIAM HENDRIX
Dr. Richard N. Gubler

IN MEMORY OF
DR. GEORGE J. HIGUE
Mrs. Michelle H. Brenner

IN MEMORY OF
DR. GUY HO
Dahlberg Family Trust

IN MEMORY OF
MRS. ELSIE YOUNG HO
Dahlberg Family Trust
Ms. Donna S. Spaulding
Ms. Marilyn C. Tom
Mrs. Betty C. Wo
Mrs. Laureen H. Wong
Mrs. Katharine Kohler-Yap

IN MEMORY OF
MS. SIDSEL HUBERT
The Piemonte Foundation

IN MEMORY OF
DR. ROBERT IBSEN
Dr. and Mrs. Jack and
Marcia Lytle

IN MEMORY OF
DR. JAMES MCBRIDE
Dr. Warren D. Cutting

IN MEMORY OF
DR. WILLIAM MOTLEY
Ms. Carol E. Martin

IN MEMORY OF
MRS. WILMA E. MOTLEY
Ms. Carol E. Martin

IN MEMORY OF
MR. JOE SANCHEZ
Ms. Empress Coletti
Mr. Gabriel J. Sanchez

IN MEMORY OF
DR. JUNG W. SOHN
USC Korean Dental Alumni
Association

IN MEMORY OF
MRS. MARYLOU G. STROTHER
Andrea Clasen Organizational &
Operational Consulting
Mr. Gerald Burge
Dahlberg Family Trust
Mr. Drew A. Ebright
Mrs. Ronnie Feldman

IN MEMORY OF
MS. MARY UTLEY
Dr. Bruce O. Lensch

IN MEMORY OF
DR. ROBERT VITZ
Dr. Maurice Cutler

IN MEMORY OF
DR. MILAN SYDNEY "MIKE" WAKEFIELD
Dr. Robert E. Huntington

IN MEMORY OF DR. LEO WARD
Ward (Leo & Sydelle) Foundation

IN MEMORY OF
MRS. SYDELLE WARD
Ward (Leo & Sydelle) Foundation

IN MEMORY OF
DR. RICHARD WITMER
Dr. Richard N. Gubler

IN MEMORY OF
DR. GAYLE WOOD
Ms. Martha L. Andreani

IN MEMORY OF
DR. RICHARD C. ZIGRANG
Dr. Richard S. Cowan
Dr. Frank J. Enriquez

This list reflects gifts made between April 2016 and April 2017. Although every effort has been made to ensure the accuracy of these tributes, an error or omission may occur. Please contact the Office of External Relations and Student Life at (213) 740-0428 or **ostrow.development@usc.edu** *if such an error has occurred.*

Herman Ostrow School of Dentistry of USC

University of Southern California
925 W. 34th Street DEN 202
Los Angeles, CA 90089
ostrow.usc.edu

RETURN SERVICE REQUESTED

Non-Profit Org.
U.S. Postage
PAID
University of Southern California

CAREER CONNECTIONS

POST A JOB. FIND A JOB.

PHOTO BY LINDSEY NAM YIP DDS '16

LOOKING FOR A JOB? LOOKING TO HIRE A TROJAN?
LOOKING FOR A TROJAN TO TAKE OVER YOUR PRACTICE?

Career Connections is a comprehensive online job board where alumni and employers can connect.

Simply visit *dentistry.usc.edu/careerconnections*

Select the alumni or employer login. Register and create a profile. Begin posting or searching for jobs.

Questions? Call the Office of External Relations at (213) 740-0428.