

ANNUAL REPORT 2018-2019

next generation



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Our mission

...to improve oral health and quality of life through the education of oral health professionals and scientists, the conduct of research, the promotion of health and disease prevention, and the delivery of oral health care to communities throughout the state and beyond.

A message from the dean

What can RSDM students tell us about the future of oral healthcare? Plenty. Every day, they learn to offer treatment in new ways, mastering technological and other advances while gaining the profession's foundational knowledge.

More than any other generation of dentists, they are keenly aware that it's their responsibility to look beyond a patient's mouth and consider their entire well being. They are trained to provide help for conditions that might seem unrelated to dental needs: diabetes, hypertension, mental health issues and domestic violence, among many other health factors.



At Rutgers School of Dental Medicine (RSDM), they learn how cultural differences have an impact on oral healthcare and are taught the best ways to convey respect and sensitivity to a diverse spectrum of patients.

But like dentists everywhere, past and present, they want to help people lead better, healthier lives. First, however, they must graduate from dental school. And dental school students

have some of the highest debt loads in the nation. That's why, in 2019, we are making a special effort to support them with the Chancellor's Scholarship Challenge, which will double or triple all RSDM scholarship donations until December 31, 2019. This will help promising state students stay in New Jersey for their education and provide new opportunities for those whose dreams of pursuing dentistry seem out of reach.

For many donors, investing in our students is a way to give back and share the rewards of successful careers. Often, it is an act of empathy and a show of faith. Alumni, especially, know that dental school is filled with challenges, but also, deep gratification.

In the months ahead, we know that we can rely on our extended RSDM community, as well as others who might not have considered giving before, to invest in this very worthy and important effort.

Sincerely,

Cecile A. Feldman, DMD, MBA

Dean, Rutgers School of Dental Medicine

A message from the chancellor

This past fiscal year, as always, the Rutgers School of Dental Medicine (RSDM) has continued to exemplify the mission of Rutgers Biomedical and Health Sciences (RBHS). Students and faculty are joining with others across campus to further develop interdisciplinary programs, providing a model for tomorrow's holistic, patient-centered care.

New treatment programs at RSDM emphasize the importance of overall wellness, including an effort to screen dental patients for signs of diabetes, which will begin this year. Last fall, RSDM unveiled new lab facilities totaling 25,000 square feet, including an expansion of the Center for Oral Biology, where researchers are working on treatments for cancer, systemic illnesses, and drug-resistant pathogens, in addition to oral health diseases.

This year, I am making a special effort to invest in the next generation of oral healthcare providers. I chose RSDM for the 2019 Chancellor's Scholarship Challenge, which will double or triple all RSDM scholarship donations until December 31, 2019. As with my first Chancellor's Challenge last year—which increased scholarship gifts at Robert Wood Johnson Medical School (RWJMS) from \$1.4 million to \$2.4 million—this year's challenge has a special focus. Our goal is to engage new and returning donors, and individuals who have never before made a philanthropic gift to Rutgers University but choose to give to RSDM.



In light of this campaign, the theme of RSDM's 2018–2019 annual report is especially important to me. We know it's imperative to make education more accessible and affordable for our students—and for potential students who dream of a career in dental medicine but are daunted by the cost.

RSDM has so much to offer students. I know that our generous donors, past, present and future, recognize that supporting them supports the future of the profession—and all of the patients who will some day be placed in their care.

Sincerely,

Brian L. Strom, MD, MPH

Chancellor, Rutgers Biomedical and Health Sciences



nextgeneration • education

Today's students, tomorrow's professionals

The future of dentistry belongs to students. They are the next generation of practitioners, embodying the field's evolution.

At RSDM, we are preparing students to be leaders, ready to excel in an oral healthcare landscape where technology is essential and holistic, interdisciplinary care is the wave of the future. It is also a world where shifting demographics and social norms require providers who can successfully treat patients from many different cultures and backgrounds, including those with special needs and complex medical histories. It's crucial that they have the knowledge and sensitivity to provide the best care.

As one of the most diverse dental schools in the nation, RSDM values its multifaceted student population. Half of the Class of 2018, which totaled 112 members, are from minority groups, according to those who disclosed their ethnicity. For 48 percent of the Class of 2018, English is a second language. Our Internationally Educated Dentist Program, which enrolled 31 students last year, prepares dentists who are licensed overseas to meet standards required to practice in the U.S.

RSDM is multicultural and multinational, but diverse in other ways, too. Of the Class of 2018, 16 percent are the first generation in their families to attend college. Some enrolled in dental school to pursue a second career, including a CEO, an investment banker and a platoon leader.

Those who graduated in 2018 were called from a pool of 2,000 applicants, many of whom were drawn to RSDM because of

our rigorous, competency-based curriculum, which requires students to complete a multitude of patient cases, in contrast to other dental schools, which have less stringent requirements. The result is students with top scores on the National Board Dental Examination tests and clinical licensing exam. In 2018, 98 percent of our students passed Part I of the board exam on the first try, compared to 87 percent nationally.

Our digital dentistry initiative continues to expand as we move forward with a three-phase effort, started in 2017, to add more resources, such as 3D printers and intra-oral scanners. Computerized self-assessment technology helps preclinical students learn by precisely measuring student tooth preparations against a digitally rendered ideal. So far, the feedback has been overwhelmingly positive. Students can now visualize precisely how they are deficient and make corrections.

RSDM students also gain a thorough knowledge of cultural competency, which includes a program where they practice communicating with actors posing as patients. Scenarios include those who don't speak English, domestic violence survivors and patients who are resistant to taking certain medications. The exercise helps students gain greater insight into how a patient's culture, experiences and beliefs can affect treatment. It also helps them develop the skills to think on their feet in clinic.

As we educate dentistry's next generation, interdisciplinary care moves to the forefront. In the past, RSDM students have worked



Bracelets given to first-year students

Our Foresight Leaders program enables second-year students to mentor incoming first-years, a relationship that lasts through graduation.

with Rutgers students from other disciplines—such as pharmacy, nursing, social work and nutrition—on hypothetical case studies. But we’re laying the groundwork for a program that will require students across disciplines to treat underserved patients at Rutgers health clinics, with a focus on mental health.

Meanwhile, we continue to offer student support programs that foster a collaborative approach to learning, with an emphasis on forming strong, inclusive bonds within and among classes. Our Foresight Leaders program enables second-year students to mentor incoming first-years, a relationship that lasts through graduation. With over 25 different student clubs and activities, including one of the first LGBTQ dental student groups in the U.S., today’s RSDM students are encouraged to explore their interests, cultural heritage, and organized dentistry on a local, state and national level.



A student pauses to listen during a day in clinic

Student Foresight Leaders



We also work to expand students’ perspective on professional life after graduation. Today’s students know that private practice is only one career path available. In our New Horizons in Dentistry program, they learn that they can pursue work in research, public health, and the insurance industry. After graduation, they can enter the military or work at a federally qualified health center as part of federal debt forgiveness programs. Many have expressed a desire to give back, whether it’s volunteering in their communities or continuing to volunteer on RSDM dental missions after graduation. With their compassion, dedication and commitment to quality care for everyone, RSDM students ensure that the future of the profession looks bright.



Andrew Wildeman

Big decision

“These two years I learned I was capable of more than I thought. It makes you tap into your true potential. It allowed me to see endless possibilities.”

In middle school, Andrew Wildeman knew he wanted a medical career but wasn't sure what kind. It didn't take long to find an answer. “I Googled ‘best jobs’ and dentist was number one,” remembers Wildeman, a second-year student.

As a high school sophomore, he enrolled in RSDM's Decision for Dentistry, a three-day program for high schoolers that offers hands on experience and information on the skills and requirements needed for dental school. The in-depth program gave him the knowledge and preparation for a pre dental track in high school and college.

“It kept me focused on my goal and kept it within reach for me,” says Wildeman, who, after the program, maintained connections to Dr. Rosa Chaviano-Moran, Associate Dean for Admissions, and others at RSDM.

RSDM's pre dental immersion programs have become national models since they started in 2000. They're regarded as the first of their kind, offering unprecedented depth and exposure to dental school life when they began. Among the Class of 2018, 26 of 122 graduates participated in RSDM's “pipeline” programs, the highest number ever.

As a student at the University of Maryland, Wildeman continued on his career path, joining the 2014 Summer Medical and Den-

tal Education Program (SMDEP), designed to boost enrollment among underrepresented minority students interested in medical careers. Now known as the Summer Health Professions Educational Program (SHPEP), it helps undergraduate college students from across the U.S. learn about the skills and training needed to enter healthcare professions. Wildeman, who attended the program at RSDM and Rutgers New Jersey Medical School, learned more about what it takes to get accepted into dental school and succeed as a student.

After completing his first two years at RSDM, Wildeman says all the preparation and support has paid off. “These two years I learned I was capable of more than I thought. It makes you tap into your true potential. It allowed me to see endless possibilities,” he declares.



q&a

Portrait of the dentist as a young artist

BRANDON SMITH, a fourth-year student, has always considered himself an artist. That didn't change once he started dental school. This year, he incorporated dentistry into his artwork, creating a 3x4 foot mosaic from materials he and his fellow students used in the classroom. The mosaic, which depicts Hygieia, the Greek goddess of health, weighs 60 pounds. We asked Brandon to tell us about his unusual masterpiece.

Is your mosaic made of real teeth?

They're NOT real teeth. They're plastic teeth from preclinic. It's everything we used to practice on before we moved to patient care: fillings, amalgam, wax. Everyone was going to throw them out, but I thought, hey, I can do something cool with these. Everyone had a part in making it, which is awesome.

How many teeth did you use?

About 3,000 to 4,000.

Tell us about the process of creating it.

I drew it on the canvas and used clay and a hot glue gun. Molars filled in the bigger space and the snake was made with crown preparations. I used the straighter teeth to make the smaller lines. For the dress, I used some incisors.

What's the link between art and dentistry?

At dental school, I noticed everyone has an artistic ability. Even though they may say, "I can't draw a stick figure," I'd say, yeah, but you can draw a tooth. That's artistic. When we work on teeth, we have the ability to make these small pieces of art.

Which do you like better, art or dentistry?

I enjoy both. Art calms me down after a day of being a dentist and dentistry allows me to do the art that I love. It's kind of a symbiotic relationship.

Student Brandon Smith made this mosaic of plastic teeth from preclinic.



Tools of the trade

Second-year student **Mahira Tamboo** graduated from preclinic this year, where students practice their skills on manikin heads before working with patients. One thing she's learned is the importance of precision. "Half a millimeter can make or break a case," says Tamboo. "It's hard to train your hand and mind to work together, but practice really does make perfect." We asked her to describe the tools of the trade.



ARTICULATOR ■ We use it to replicate how a patient's jaw aligns outside of their mouth. One thing we sometimes lose sight of is that everything in preclinic is under ideal circumstances, and hardly anything in life will be as ideal.



SURVEYOR ■ This is used to locate undercuts on a tooth when planning a removable partial denture design. Your patient needs to bite and chew. Preclinic isn't about something that just looks great, it's about function, too.



TYPODONT ■ I named mine Eddie, because my friend named her's Freddie. So they were Eddie and Freddie. You spend so many hours with it, it's like your friend. The classic sign of a preclinical student is their trusty typodont. Whether it's learning anatomy or a root canal treatment, no matter what you're practicing, you'll need a typodont to get there.



BURR BLOCK ■ There's nothing like the feeling of opening that box. They're called diamond burs because the surface of the tips are coated with diamonds. You use them to drill. They have different sizes and functions, depending on the shape and contours of the tooth.

Scholarship Challenge

Supporting students

In 2018, 61 students received scholarships from 38 donors. This year, RSDM kicked off the Chancellor's Scholarship Challenge, which offers matching funds for all donors, with double and triple matches for alumni and faculty until December 31, 2019. Here are some past RSDM scholarship recipients.

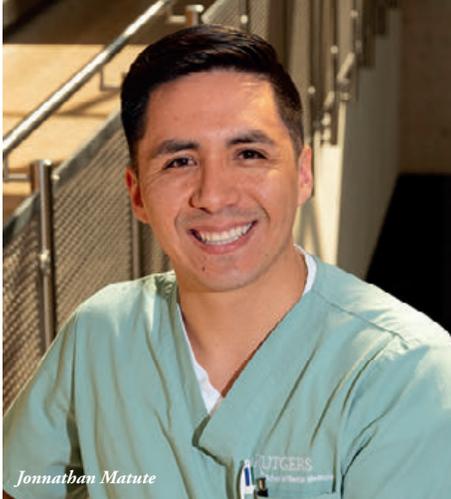
"Dental school can be a big burden. Not a day goes by when I don't think, how will I ever repay those loans? Any help I can receive is very beneficial and I'll forever be grateful. It takes the stress off so I can focus on school, patient care and lab work."

MARY KILEDJIAN

recipient of the Helen and Rita Laurie Scholarship



Mary Kiledjian



Jonnathan Matute

q&a

No more fears

Third-year student **JONNATHAN MATUTE** was awarded this year's Professionalism Scholarship, funded by Alumni and Friends of RSDM.

Why did you want to become a dentist?

I had really bad experiences with dentists when I was young. Too many extractions. It created a fear and I wanted to help take that fear away.

What's the key to putting a patient at ease?

Don't allow the patient to see any needles. That creates anxiety. Especially when working with kids, never stop speaking. I always describe what I'm doing, and that helps them feel better.

Tell us about your dental mission to the Dominican Republic, where RSDM volunteers treated school children.

I worked on a 17-year-old who broke his front tooth when he was younger. He said, "Can you please fix this? I'm about to graduate. This is the last chance I have to see a dentist." I reconstructed the tooth and he started tearing up, he was so happy. That's one of the pleasures of what we do. It might seem minor but it has such an impact.

What does your scholarship mean to you?

Dental school is not cheap. This helps a lot. And it's encouraged me to think about giving back. That's my philosophy—always be willing to help somebody.



Steven Vassell

Dream becomes reality

During his first two years at RSDM, Steven Vassell worked as a landscaper to support his wife and two children, volunteered at a soup kitchen and served as a deacon of his church.

Through it all, he managed to juggle the heavy academic load of dental school. "It's difficult sometimes, but I try to make it work," he confessed.

As a child growing up in Jamaica, Vassell didn't imagine himself pursuing a medical career. "Being from a family without much money, you might have certain ambitions, but realistically, you probably won't be able to reach them," he said.

But for him, that wasn't the case.

After graduating from Northern Caribbean University with hopes of becoming a microbiologist, Vassell worked as a dental hygienist to pay for his education. He met Nicole McGrath, director of KinderSmile Foundation, and with KinderSmile, travelled overseas to help the underserved. On the trip, he was encouraged to consider dentistry.

Despite the obstacles, he gave it a try. "I didn't see how it would be possible, but my wife said, if that's what you want, we're going to give it a shot."

He was grateful to receive the Theodore E. Bolden, DDS scholarship in November, which relieved some dental school stress and has also become a source of inspiration. "It helped me out in two ways. Obviously, it helped financially. But also, listening to the background of the individual who the scholarship is named for—he was a Black American and one of the first deans of the school. It just showed me what's possible."

Today, Vassell is well on the way to pursuing a career he loves. "Dentistry isn't just about cleaning teeth. It's about interacting with patients on a personal level. You develop a relationship with them where you almost become part of their family," he said.



nextgeneration ■ patient care

Learning how to heal

Tomorrow's dentistry is shaped each day in our clinics, where students learn lessons that will place them among the top providers nationally and internationally. They perfect technical skills and develop their chairside manner. They learn how to listen, when to dispense advice, how to soothe anxiety, ease pain and offer hope.

RSDM, the state's largest oral healthcare provider, logged 136,377 patient visits in 2018, including 7,138 pediatric visits and nearly 5,000 special needs visits. Nearly half of our patients—45 percent—are on Medicaid, which many private practices don't accept.

We treat a broad spectrum of patients, from underserved children in need of preventive care to seniors seeking dental implants. For the many complex cases referred to RSDM, faculty specialists collaborate across disciplines.

Between this year and last, we created new initiatives that go beyond dental care, using our clinics as a chance to improve overall health and wellness. In one effort, faculty and students are scheduled to begin screening dental patients who might be at risk for diabetes, one of the leading causes of death in the U.S. Early detection is vital, and the dental clinic is an effective way to reach patients since 27 million Americans have seen a dentist within the past year but not a physician. The program, funded by a grant from Delta Dental of New Jersey, will enable providers to administer a rapid screening test to up to 500 patients.

As part of an interprofessional approach, those with moderate to high indicators for the disease would be referred to Rutgers School of Nursing clinics or University Hospital. The Rutgers School of Health Professions Department of Nutrition would also be involved.

We also received funding from Horizon Foundation for New Jersey to expand access

to dental screenings and preventive care for Essex County children. Another program offers education to expectant mothers receiving federal Women Infant and Children benefits, emphasizing the importance of oral health during pregnancy and infancy.

At our Community Oriented Dental Education program (CODE) in South Jersey, fourth-year students treat many underserved patients. Since 2002, the program has received federal Ryan White funding for HIV/AIDS patients in underserved regions.



A student on the clinic floor

At our student clinics in Newark, a makeover began last year that will transform 80 operatories that date back to RSDM's opening in the 1970s. Renovations include the addition of a new dispensary, and radiography resources.

RSDM's range of patient care also includes Rutgers Health University Dental Associates, our faculty practice with offices in Newark and New Brunswick, where expert providers treat patients directly in a private-practice setting. As faculty, their care is informed by the latest research and newest treatment techniques.

At our Dental Specialty Center, faculty and resident students from across disciplines work together in state-of-the-art clinics opened in 2016.



Negar Tabari (left) and Dr. Mahnaz Fatahzadeh

q&a

Warning signs

Learning to do head and neck exams are an important part of predoctoral education at RSDM. **NEGAR TABARI** discovered just how important when she spotted signs of oral cancer during a patient's dental appointment. Because of Tabari, the patient sought treatment early enough to survive. Tabari feels indebted to Dr. Mahnaz Fatahzadeh, director of RSDM's pre and postdoctoral oral medicine training, who has led RSDM's annual oral cancer screening health fair since 1998. She has also organized fundraisers and other events to raise awareness of the disease.

How were you alerted to your patient's oral cancer signs?

I was doing a head and neck exam and asked him to stick out his tongue. I found a text book image of an oral cancer lesion, only this time, it wasn't in a text book. It was in real life. It was an angry, fiery lesion on the back of his tongue, near his tonsils. He didn't know he had it at all. But he had been drinking and smoking for many years, so he was at risk.

Why is it so important for dentists to do head and neck exams, even during regular check ups?

Even if it's a routine visit, that might be their only encounter with a healthcare provider. It's THAT important, because you don't want to miss anything. As students we tend to worry about the day-to-day activities—the crowns we have to prepare or the dentures. I never want us to lose sight of the big picture or the real role that we have—treating the patient as a whole. Otherwise, this patient's lesions could have been easily missed.

What happened to the patient after you found signs of cancer?

He was treated and had surgery. Our school helped him with smoking cessation. I still see him. He tells me, "Thank you so much, you saved my life."

A complex case

Anthony Torres had an underbite so severe it was hard for him to chew—he couldn't even bite into a slice of pizza. When he went out in public, he drew stares and became so painfully self-conscious he only felt comfortable around his closest friends.

For Leah Vernacchia, a resident in the Department of Orthodontics, his case was perfect opportunity to learn. “This was the most severe malocclusion I’ve ever seen,” she said.

Torres’ first visit to the ortho clinic was in 2015. After orthognathic surgery performed by RSDM’s Dr. Shahid Aziz, he received regular orthodontic treatment, and the results have been dramatic. “He’s so happy and so much more confident,” said Vernacchia. “He’s not afraid to meet new people and get to know them.”

Vernacchia is the third student to have Torres as a patient after the previous two graduated from the department’s residency program. Her predecessors gave her keen insight into Torres’ treatment. “Because he was such an interesting case, there were especially good records. And he has a longer history here because of the severity of his case. People

took very detailed notes and there were lots of pictures and x-rays so you could see the progression.”

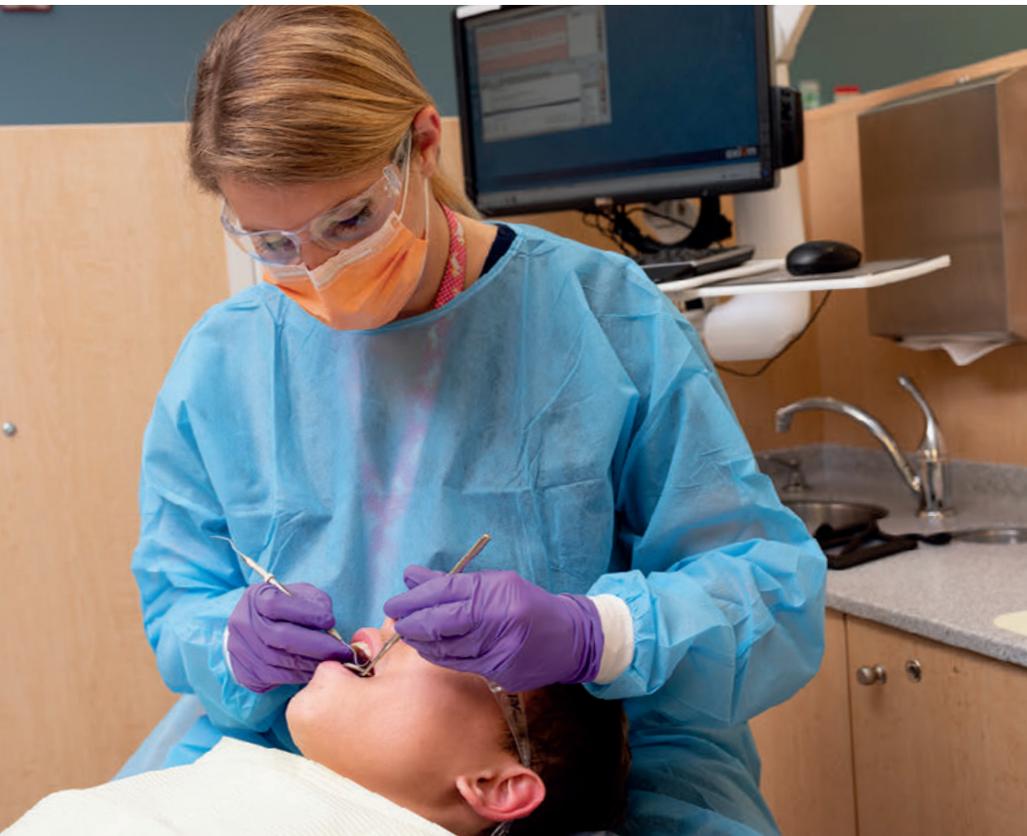
Patients like Torres are one reason why she wanted to do her residency at RSDM after graduating from dental school at the University of Michigan. “We’re lucky in Newark because we get so many diverse patients, not just culturally, but with such a range in terms of complexity,” she said.

What has Vernacchia learned from working with Torres?

“I’ve learned just how extreme a malocclusion can be, how much time it takes and coordination between other specialties for it to be successfully treated,” she said. “But mostly, how drastically it changed his life.”



Patient Anthony Torres, left, and resident Leah Vernacchia



Just in time

During her dental clinic rotations at University Hospital, trauma cases were the norm for Caitlin Chidsey, a resident in RSDM's Department of Pediatric Dentistry. When Brayan Neres, 15, was rushed to the ER last year with his teeth knocked out from a fall, there was only a narrow window of time to reinsert them. Otherwise, the teeth would have to be replaced. Chidsey got the job done and has been seeing Brayan for follow-up treatment ever since. She credits her success to the experience she gained treating trauma patients. Her goal after graduating from RSDM's program is to work with children who are genetically or medically compromised.

Brayan | "I tripped over a book bag at school and face planted. When I got up, I was in shock. I was missing my teeth and there was blood everywhere. When I looked in the mirror, it didn't look good. We saved my teeth and went to the hospital but I didn't know if they would be able to put them back. Caitlin helped me. I was so happy that she was able to put my teeth back that I asked for a hug and I hugged her. I'm still so glad for what she did."



Caitlin | "He came into the hospital in an ambulance and we did a neurological exam. He had trauma to all four of his front teeth. He had the teeth with him, but there was only a minimal amount of time to get them back into their sockets. There was also a language barrier—his mom is from Brazil. But luckily she had a friend with her from work who spoke Portuguese and English. Everything is time-limited in trauma, but I had the trauma training, so it didn't faze me. I was able to step in and get him calmed down and we got his teeth back in. He had beautiful teeth, and they're still beautiful."





Diagnostic detectives

“The most important thing you learn here is how to take a history. It’s like detective work.”

For nearly 15 years, the patient struggled with hearing and vision problems, numbness, facial pain and joint soreness. She had been to several doctors and specialists, who gave her conflicting diagnoses and failed to treat her symptoms.

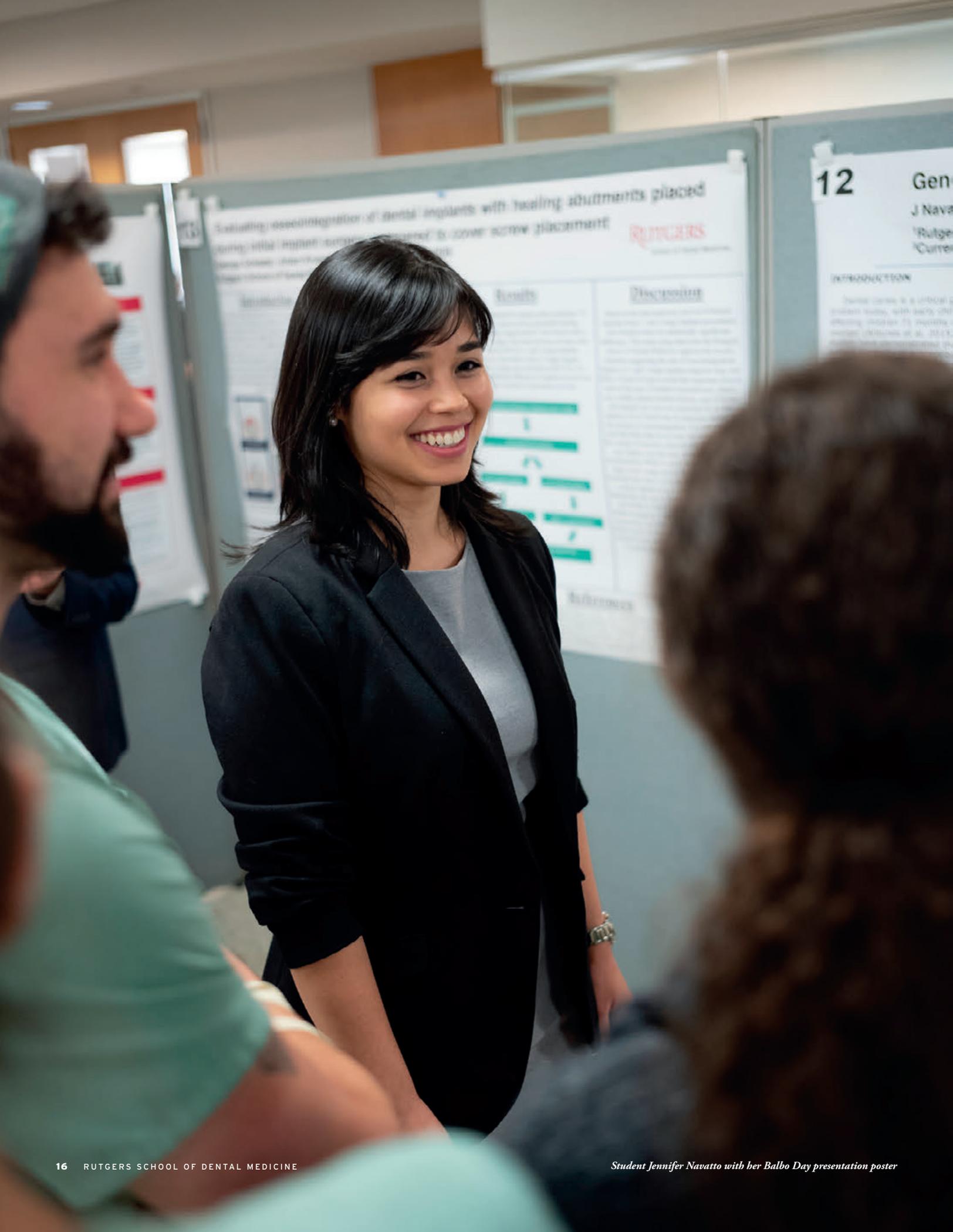
For Prutha Soni and Manvitha Kuchukulla, two residents in RSDM’s internationally recognized Orofacial Pain program, it was the perfect opportunity to solve a medical mystery.

After taking a thorough patient history, the residents decided to test the woman for Lyme Disease, which has a high rate of false negatives and can produce the symptoms described by the patient, especially as it progresses over time. Undiagnosed Lyme Disease often results in chronic facial and dental pain and is a common reason patients seek treatment at the Orofacial Pain Center.

“Patients take antibiotics and they think it’s gone, but it’s a complex disorder. It’s systemic and it needs to be treated that way,” said Soni.

Soni and Kuchukulla ordered very specific and sophisticated testing, not only for Lyme Disease, but other co-infections—tests not commonly used to detect these diseases. Their hunch was confirmed. She tested positive for Lyme and was referred for treatment. Weeks later, her symptoms began to improve.

“The most important thing you learn here is how to take a history,” said Kuchukulla. “It’s like detective work.” Dr. Gary Heir, the Program and Clinical Director of the Orofacial Pain program, who oversaw the case, added, “Diagnosis involves knowing how to ask and listen to the patient. As with these post graduate students, they were able to analyze the information given by the patient and come to the correct diagnosis because they knew the appropriate steps and proper testing techniques. As dentists, we must not lose sight of the fact that while primarily treating dental problems, our responsibility as healthcare providers is for the entire patient.”



Evaluating recognition of dental implants with healing abutments placed using a 3D printed custom designed 3D cover screw placement

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INTRODUCTION

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nextgeneration • research

Student Discoveries

Research at RSDM ranges from links between dental caries and dementia to treatment of cancer and autoimmune diseases. Students learn in an environment filled with discoveries that could vastly improve oral and systemic health.

The pinnacle of student research at RSDM is Balbo Day, an annual exhibition named for Michael Balbo, a faculty member and student advocate who started the exposition. Students are judged not only on the scientific merit of their work—was the methodology sound, the research timely and relevant?—but the clarity of their explanations.

The event is filled with poster presentations on research that includes projects on genetics and dental caries, dental health in South Africa and a plethora of patient case studies, including rare and unusual conditions.

Among our faculty, major research is being conducted in our Department of Oral Biology, which works with about 20 graduate students a year. In the fall of 2018, the department opened new laboratory space, constructed with \$16 million in state funding from the New Jersey Higher Education Bond Fund. The new facilities, totaling 25,000

square feet, include an expansion of the Center for Oral Biology, where researchers are working on treatments for cancer, systemic illnesses and drug-resistant pathogens, in addition to oral health diseases.

The project includes new space for the school's center for microbiology and immunology. Original labs, which were built during the 1970s and 1980s, have been overhauled and contain facilities for research on biomaterials and other projects. Labs for pain research and behavioral science also received a makeover and new office space was added.

This year and last, RSDM received \$5.2 million in research funding, including multi-year grants.

Department faculty Dr. Scott Kachlany is working on a therapy for cancer and other autoimmune diseases, with help from more than \$1 million in NIH funding. This year he received a two-year \$621,403 grant from the Helmsley Charitable Trust to carry out research on the cause and treatment of Crohn's disease. Clinical trials on humans are scheduled to begin next year.

Department faculty have received several multimillion-dollar federal grants, along with private investment and industrial funds. Dr. Daniel Kadouri's research for the U.S. military explores the disease-fighting potential of predatory bacteria—microbes that devour germs immune to antibiotics. Findings could help halt a global epidemic of drug-resistant bacteria that has led to a rise in untreatable illnesses.



Dr. Maxine Strickland evaluates Balbo Day posters

In 2018, Dr. Narayanan Ramasubbu received a \$437,250 grant from the National Institutes of Health (NIH) to study how a bacterium that causes periodontal disease is able to survive in the body.

Other major research at RSDM involves using stem cells to replace decayed dental pulp, studies on a rare form of periodontitis that affects African American adolescents, and research on the causes and treatment of chronic pain.

This year, Dr. Gang Yue's systematic review on the link between periodontal disease and dementia had a big impact, becoming the most widely cited research in *Gerodontology*, a journal on research about oral health and the elderly. The studies he reviewed attempted to evaluate cases of periodontitis that coincided with cognitive decline. He concluded that the criteria for periodontitis was too nebulous and a definitive connection couldn't be established.

Also this year, Dr. Maxine Strickland received nearly \$95,000 in funding from Rutgers University's Tech Advance to work with NJIT designers on inventing a toothbrush for people with disabilities.



In 2018, Dr. Narayanan Ramasubbu received a \$437,250 grant from the National Institutes of Health (NIH) to study how a bacterium that causes periodontal disease is able to survive in the body.

Learning from the best

Sera Jacob is unraveling the mystery of how the body resists infections by studying how bacteria circumvent its defense mechanisms.

She's examining a protein in the organism *Aggregatibacter actinomycetemcomitans* (*Aa*) that's responsible for Local Aggressive Periodontitis (LAP). The condition affects two percent of African American children ages 11 to 17, resulting in the disfiguring loss of incisors and molars, making it harder to chew.

Her mentor is Dr. Daniel Fine, Chair of the Department of Oral Biology, who is an expert on *Aa*. With funding from the NIH, he has been working for more than a decade to monitor adolescents with LAP in hopes of finding an early detection system.

"He's world renowned in this field, the top authority," said Jacob, a PhD student, who has been working with Fine for three years. She says that despite the demands of

his own research, he always finds time to provide guidance and advice. "He's supportive and very flexible."

With guidance from Fine, Jacob is exploring how a protein in *Aa* binds with human cells within the immune system so that they don't perceive it as a threat, enabling it to colonize and infect the body. "I'm trying to identify if there's a domain that's responsible for it to be capable of doing this," she said. Armed with that knowledge, the next step is figuring out how to prevent it.

"The ultimate goal is to find a productive approach to fight the organism's colonization and survival," she said. "I've seen how LAP is prevalent and it's really bad to see kids suffering this way."



Dr. Daniel Fine and student Sera Jacob

Researching the possibilities

Graduate student Carlos Garcia has learned that a solid background in research can open up new career paths. Garcia, a graduate student in the Department of Oral Biology, was once a high school science teacher with a love of research. “I really enjoyed teaching people, but I wanted to see if research was my passion,” he explains. He enrolled in the department’s PhD program to find out.

Since, he has been working with Dr. Daniel Kadouri, an internationally recognized expert in predatory bacteria, which can be harnessed to kill the bacteria that cause disease. “I wanted to do something different from anybody else. Predatory bacteria has the wow factor,” he declares. “I’m looking at the things that affect predation, how these predators can attack and kill.”

His research led him to discover possibilities, outside of academia, where he can combine his love of research and teaching. He’s hoping to pursue a career in medical affairs, working with pharmaceutical companies to relay clinical knowledge gained from trials to health care professionals and stakeholders.

“This work has trained me to become a better writer and investigate things,” says Garcia. “The biggest advantage has been the opportunity to give presentations and get feedback. Now that I see the research side of things, I can educate people on how these amazing findings can be turned into therapeutic use.”

Adds Kadouri, “When many students graduate they don’t take the project with them, they take the scientific tools they learned from their academic career: the ability to read through data, understand it and disseminate it. The tools he’s learned here, he can take them to whatever field he wants.”

“Now that I see the research side of things, I can educate people on how these amazing findings can be turned into therapeutic use.”

From left, Carlos Garcia and Dr. Daniel Kadouri



Student Jennifer Navatto and her mentor, Dr. Scott Diehl



q&a

All in the genes

What's the link between childhood cavities and genetics? That's what predoctoral student **JENNIFER NAVATTO** wanted to find out in a study overseen by her mentor, Dr. Scott Diehl, a genetics researcher in RSDM's Department of Oral Biology. Navatto researched whether variabilities in a certain enzyme associated with caries could determine whether a child was at risk. As a result of her project, Navatto has gained national and international recognition for student research. She was invited to speak at the prestigious Hinman Symposium this year and the Student Competition for Advancing Dental Research (SCADA) in Vancouver.

What can genetic research tell us about cavities and heredity?

If we have this kind of information, some day in the future we could do a swab and see which children are at a higher risk. We can focus on preventive measure—more fluoride, better hygiene instructions.

How did you conduct your research?

I collected data from parents about their children's nutrition habits and used saliva samples to see if the subjects had the same variant of a DNA sequence I was studying.

What were the results?

The results indicated a possible connection but the sample size of 95 children was too small to be conclusive.

What were your greatest challenges in finding answers?

You can have a hypothesis, but the hardest thing about research is there are no fast and easy answers. You don't know where you'll end up.



nextgeneration • community service

Creating change

RSDM's service efforts make a difference in Newark, our home base, and throughout New Jersey. But they also help underserved patients in other parts of the U.S. and overseas.

Students learn how oral healthcare treatment and education has the power to make a lasting impact on the lives of patients with little access to dental care and oral hygiene information. Some lack tools as basic as a toothbrush and dental floss.

It is work that often has a profound impact on our students as well. Not only do they gain a greater understanding of local and global healthcare disparities, they hone their clinical skills and learn how to become better communicators. Many are inspired to continue volunteer work throughout their professional lives.

Annual missions include trips to provide dental care to patients from Haiti and the Dominican Republic, as well as a mission where students provide care to Native American reservations. Oral and maxillofacial surgery residents travel to Bangladesh to repair cleft lips and palates.

Students serve patients closer to home as well. In Newark and other Garden State towns, they visit local schools and community organizations, where they share information on the importance of brushing, flossing and proper nutrition. They educate patients and the public on oral healthcare for HIV patients.

For expectant moms, they provide information on oral healthcare during pregnancy and early childhood. At our Newark clinic, we offer free screenings and preventive care, such as fluoride treatment and dental sealants, to more than 1,000 children.

This year, the Horizon Foundation for New Jersey awarded us \$62,500 to fund bus

transportation from Essex County schools to the RSDM clinic in Newark for preventive care. The funding is part of Horizon's Kids' Oral Health Program, which provides support to school and community-based programs statewide.

It's a vital service for many local parents, who often have difficulty taking their children to appointments because of work schedules and lack of transportation.

Hundreds of children also visit student clinics on Give Kids a Smile Day (GKAS), an annual, nationwide event created by the American Dental Association (ADA). In addition to providing preventive care, students and faculty create a carnival-esque atmosphere, with games and costumes, that helps children view dental visits without fear or anxiety.

Since 1998, RSDM has hosted an annual oral cancer screening and health fair, where students and faculty have examined thousands of patients for signs of oral cancer and raised awareness of the disease.

Organizers of the event celebrated its 20th anniversary last year by screening nearly 250 residents of Integrity House, one of the state's largest non-profit providers for treatment of substance abuse disorders.

For many who came to the free screening, it was their only recent contact with oral healthcare providers and alerted them to signs of decay and other dental problems.



Annual missions provide dental care to patients from Haiti, the Dominican Republic, Native American reservations, and Bangladesh. Students serve patients closer to home as well.

Going west

For 15 years, RSDM students have travelled to more than 12 reservations to provide treatment to Native Americans. Last year, their patients were residents of the Navajo Nation reservation in Red Mesa, Arizona.

Many don't receive regular, if any, oral healthcare because clinics can be more than 50 miles away.

At the mission clinic, run by Indian Health Services, a federal agency, students treat patients while the IHS staff takes a week-long summer vacation. Before the trip, they learn about Native American cultural norms so they can be sensitive to patient needs. Collectively, they treat hundreds of patients each year.



Finding a universal language

For three years, RSDM students have visited the village of La Romana, where they treat pediatric patients from the local school. Many are the children of workers who labor in the fields, harvesting sugar cane. Others are orphans. Few can afford dental care. This year, they treated more than 150 patients, performing everything from fillings to root canals and extractions. Third-year student **TIFFANY YAU** describes her experience on the mission.

“This has taught me that compassion is the universal language. People in the community don’t have a lot but they really care about each other. I learned the importance of cultural sensitivity here, of getting to know where your patients come from and learning how to communicate with them as well as you can. They say dentists are in the business of making people smile, but this experience has brought **me** so much joy.”

Student Tiffany Yau holds a hand-made gift from students in La Romana, Dominican Republic.



A young patient in Bangladesh with her father.

Helping Bangladesh smile

Cleft lips and palates are not often seen in the U.S. because there's no shortage of doctors who can perform the surgery, which is normally done on infants. That's not the case in other parts of the world. In Bangladesh, many adults and older children have the defect because there aren't enough surgeons who are qualified to perform the procedure.

That's why RSDM Dr. Shahid Aziz, a professor of Oral and Maxillofacial Surgery, began the Smile Bangladesh mission in 2006. Twice a year, he and volunteers make the trip. In March, his team, which includes RSDM surgical residents, travelled to the villages of

Dhaka and Kulna, performing nearly 50 surgeries, mostly on toddlers and older children.

In 2018, students from RSDM and Rutgers New Jersey Medical School raised nearly \$9,000 to help the mission by facing off against each other in an annual ice hockey match that raises money for a worthy cause.

The Bangladesh mission makes students better surgeons, leaving them well-prepared to handle cleft lip and palate procedures after graduation, says Aziz, who was born in Bangladesh. "It gives them more exposure. They do one-on-one work for five days in a row, and they learn a lot. But it's also good for them to learn about another culture and experience a part of the world that they might never see."

Even more, it shows them the meaning and value of volunteer work. "I want them to be inspired to give back," says Aziz. "It doesn't have to be something as complicated as surgery in Bangladesh. It can be outreach in their community or doing something in a clinic in rural South Jersey."





A student examines a patient during a mission that treats patients from Haiti and the Dominican Republic.

A measurable difference

RSDM volunteers do more than provide dental care to patients on their annual mission to the border of Haiti and the Dominican Republic. They also screen villagers for hypertension and diabetes.

“We found a number of patients who were hypertensive and didn’t know it,” says Dr. Pam Alberto, a faculty member who has been leading the excursion, called the Cheerful Heart Mission, since it began in 2011. “We got them involved with a local hospital so they could see about getting treatment.”

Over five days, the team treated more than 1,000 patients this year. They also began a program to thumbprint patients, especially children, so it would be easier to record their medical histories and other information. “A lot of them don’t know their birth date, especially the children,” according to Alberto.

Alberto began tracking patients several years ago and says tooth decay has declined in the villages because of preventive efforts, such as fluoride applications and oral hygiene giveaways to citizens, who often can’t afford toothpaste or a toothbrush. “I’ve seen a huge improvement,” she says.

In addition to helping patients, the trip provides valuable experience to students.

In addition to helping patients, the trip provides valuable experience to students. “They do more operative dentistry in a week than they do all year.”

“They do more operative dentistry in a week than they do all year,” contends Alberto.

For third-year student Mary Kiledjian, performing such a broad array of procedures, from simple to complex, gave her confidence and improved her treatment times. “We did anything that could be done in one day, restorations, and a lot of extractions and cleanings. And we had such a range of patients, mostly kids but I treated one woman who was 82-years-old.”

Seeing the results of her work was even more valuable. “I had one patient who had a lot of decay. Her teeth were hurting and she was very self-conscious about her smile,” says Kiledjian. “When I was done, I put the camera in selfie mode, and when she looked at herself, she just started crying because she loved it so much.”



Dr. Mitch Gardiner instructs students in clinic. As part of the Chancellor's Scholarship Challenge, he created the Mitchell Gardiner, D.M.D. and Deborah Gardiner Endowed Scholarship.

nextgeneration • alumni

Meeting the challenge

RSDM donors have always stepped up to the challenge of supporting our students. In 2018, 61 students received scholarships from 38 donors. Corporate donors and alumni have generously given funds and in-kind donations so that we can continue educating tomorrow's students and treating underserved patients in New Jersey and around the globe.

In 2019, RBHS Chancellor Brian Strom issued a new challenge that will double or triple all RSDM scholarship donations until December 31, 2019.

Today's dental students face some of the highest debt of any profession in the U.S., averaging \$260,000. Scholarships are an essential source of support. Here's how gifts will help:

New Jersey's Best and Brightest

Donors can enable more students to pursue their dream of an education and career in the Garden State. Our students treat New Jersey's most underserved populations, including thousands of children and patients with disabilities. They are a valuable resource statewide and nationally—and a great investment.

Create a Scholarship in Your Family's Name

For many New Jersey dentists, dentistry runs in the family. If you have a family practice, celebrate your legacy. Create a scholarship in your family's name by 12/31/2019 and your donation will be doubled or tripled. To discuss a new family endowed scholarship and be eligible for match money, contact Joan Liljegren at (973) 972-0307 or joan.liljegren@ruf.rutgers.edu.



Worldwide Dental Missions

Provide more opportunities for students to join national and global missions. RSDM students travel worldwide to treat patients living in poverty. Some can't afford even basic necessities, like a toothbrush and toothpaste. Over 8 years, an annual mission to the border of Haiti and the Dominican Republic has led to a dramatic decrease in villagers' tooth decay. On a separate mission to the Dominican Republic, students treat the children of local field workers. Our missions for underserved Native Americans have provided dental care to more than 12 reservations. Student residents have travelled to Bangladesh to transform patients with cleft lips and palates. They gain valuable experience on these missions, treating a large number of patients and gaining confidence in their skills.

Dr. Valerie Rico



Finding a way to give

When Dr. Valerie Rico was an RSDM student in the 1980s, a visit to the administration office was something to dread.

“A student never came down this hallway unless they were in trouble,” said Rico, RSDM’s Director for Academic Affairs and a Chancellor’s Challenge Scholarship donor. “Today, the environment is much more open and welcoming to students.”

As a member of the Class of ‘88, and someone who works closely with students, Rico empathizes as they cope with the physical, intellectual and emotional demands of dental school.

Double or triple any 2019 RSDM scholarship donation. Give to the **Chancellor’s Scholarship Challenge** by visiting sdm.rutgers.edu.

“I’ve been a part of the Rutgers family for seven years, and I’ve listened to students discuss their financial concerns. I serve on the admissions committee, and one of the things that prospective students ask is, do you have scholarships available?”

Rico wanted to help but didn’t think there was much she could do besides listen and give advice. That changed when she heard about the Chancellor’s Challenge, a scholarship match campaign that will double or triple all gifts. When she learned that gifts can be stretched over five years, she began to consider the idea. She and her husband, John Maglione, decided to endow a scholarship for incoming students. “John and I committed that afternoon,” she said. “It’s a simple process since I’ll be making my donations through payroll deductions.”

Added John Maglione, “As both my father and father-in-law always shared, education is something that no one can ever take away from you. It is an honor for Valerie and me to support our next generation of healthcare providers.”

Rico and her husband know they’ve made a difference with the establishment of the Valerie C. Rico, D.M.D. and John C. Maglione endowed scholarship. “The Chancellor’s Challenge scholarship match opened a door to help me address a need I saw and created an opportunity to do something about it,” said Rico.

q&a

Faculty pay it forward

DR. EILEEN HOSKIN and her husband, **DR. CRAIG HIRSCHBERG**, are faculty and alumni who met at RSDM and later married. Hoskin is an assistant professor in the Department of Restorative Dentistry and Hirschberg is Chair of the Department of Endodontics. Hoskin explained why the couple established the Eileen R. Hoskin, D.M.D. and Craig S. Hirschberg D.D.S. Endowed Scholarship for an incoming student.

What inspired you to endow a scholarship for the Chancellor's Challenge?

Attending RSDM Donor Scholar receptions and seeing students' appreciation for the financial help. Having our dollars doubled was the deciding factor.

What obstacles do dental students today face that they might not have faced when you were RSDM students?

I am amazed when I see the debt students hold. I am unsure whether I could focus on my studies knowing that sometime soon, these loans would come due. We were hoping to attract a student with financial need from New Jersey who might otherwise attend a school further from home that offers a financial incentive.

Why do you think it's valuable to invest in students this way?

If students are mired in debt, it is difficult for them to buy a house and raise a family. We believe it's important for all of us to pay it forward. Hopefully, one day these students will help the next generation with their debt.



Drs. Eileen Hoskin and Craig Hirschberg

Faculty and Alumni Donors

A worthy mentor

Scholarships are often awarded for academic success, but RSDM donor Dr. Mitch Gardiner sought to recognize another quality.

"I wanted them to be rewarded for mentoring and supporting their classmates and fellow students," says Gardiner, a Class of '77 alumnus and assistant clinical professor in the Department of Restorative Dentistry. "We aren't here to compete with each other, we're here to help each other. That's what matters in life."

Gardiner's gift, established with his wife, Deborah Lowe Gardiner, is



Dr. Mitch Gardiner

part of the Chancellor's Scholarship Challenge, which matches donations through 12/31/2019.

This is the third scholarship Gardiner has endowed—and also the first RSDM scholarship to recognize student mentors. The Michael D. Scotti, D.M.D. Endowed Scholarship was named in honor of his late friend and classmate, who succeeded despite having to cope with the symptoms of juvenile diabetes. Gardiner and other classmates donated to support that scholarship. "He was so well liked by everyone," Gardiner remembers. "We wanted to keep his memory alive. He left a real mark on this school."

He also established a scholarship in memory of his parents: the Alan & Trudi Gardiner and Morton and Pearl Lowe Endowed Scholarship.

Gardiner is keenly aware of the debt so many students assume to pay for dental school. "It's like having a mortgage," he declares. So when he heard about the matching Scholarship Challenge, he didn't want to waste time. "I decided I'm going to do it and get it up and going right away. These students need it now."

“I know Cassidy’s personality, values and work ethic align with those of my brother, and he would be pleased to know she is carrying on his legacy.”

Honoring a son and brother

Michael T. McCormick Jr. was just 19 when he lost his life in a car accident. Last year, his parents, Michael T. McCormick Sr. and Karen McCormick, honored his dream of becoming a dentist by establishing an endowed scholarship in his name.

“Michael was kind, compassionate and caring,” said his mother. “And he always wanted to be a dentist. Establishing this scholarship made me truly feel at peace.”

Since then, his legacy has been a family affair at RSDM. Michael’s sister Meaghan is a third-year student and Cassidy Verrier, her roommate and close friend, became the scholarship’s first awardee. She was chosen by RSDM’s Scholarship Committee, which had no knowledge of the connection when they selected her.

Verrier had heard stories about Michael from his sister and was surprised, and moved, when she learned that she had received a scholarship in his name. “It means so much



From left: Cassidy Verrier, Michael McCormick Sr., Karen McCormick, Meaghan McCormick

to me, since I can see that Michael was such a great son, brother, and friend. Living with Meaghan for the past three years, I have been able to see how generous and kind her family is. The McCormick family has done a wonderful job honoring Michael.”

Meaghan McCormick was glad, too. “I know Cassidy’s personality, values and work ethic align with those of my brother, and he would be pleased to know she is carrying on his legacy,” said Meaghan.

Meaghan is also a scholarship recipient. This year, she was awarded the William Cinotti, D.D.S. Endowed Scholarship, which is given to a student who demonstrates leadership, outstanding character and exemplary academic performance.

She is grateful for the support and recognition. “This scholarship motivates me to maintain good grades and be a leader in my class, as William Cinotti was among his peers and in the dental school.”

Verrier feels indebted to the McCormicks for the help she received. “Dental school is very consuming and can be such a stressful time. Taking any pressure off a student’s plate has a great impact,” she said. “It’s something I would love to do in the future with a scholarship of my own.”

Thank you to our generous supporters...

Donations and pledges were made between June 15, 2018 and June 15, 2019.

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Thank you to the Helmsley Charitable Trust for awarding Dr. Scott Kachlany \$621,403 to carry out research on the cause and treatment of Crohn's disease this year.

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Dr. R. Glenn Rosivack, Chair of the Department of Pediatric Dentistry, donated funds for an endowed student scholarship as part of our Chancellor's Scholarship Challenge. Thank you, Dr. Rosivack.

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Rutgers School of Dental Medicine

On **Match Day**, fourth-year students celebrated their acceptance into residency programs by marking the spot where they'd be headed. Eight-five percent of students who sought matches were successful, compared to the national average of 66 percent.

Presentation counts on **Balbo Day**, RSDM's annual student research exhibition, when participants unveiled their hypotheses.

RSDM celebrated **the 20th anniversary of free oral cancer screenings**. Students and faculty examined 250 residents of Integrity House, one of the state's largest non-profit provider for treatment of substance abuse disorders.



February

April

June

January

March

May



Tooth Fairies and Cats in the Hat filled RSDM on **Give Kids a Smile Day**, when RSDM welcomed local school children for free dental screenings and preventive treatment.



The Bitewings, RSDM's ice hockey team, faced off against the Rutgers New Jersey Medical School Medwings for an annual charity match that raised nearly \$10,000 for pediatric cancer patients. RSDM won the match, 5-1.



Undergraduate college students from all over the U.S. arrived for our **Gateway to Dentistry program**, where they learned what it takes to succeed in dental school.

2018

Students and faculty dispensed tips on the best way for kids to care of their teeth and gums at the 10th annual **Back to School Store** in Livingston. The event was sponsored by the National Council of Jewish Women in Essex County, who help children from economically disadvantaged families get ready for school.



Oral biologist **Scott Kachlany**, who has been working on a therapy proven to kill leukemia cells in animals, received approval for three patents that help pave the way for his technology to be tested as a treatment for autoimmune diseases.



RSDM's new laboratories opened for business. The new facilities, totaling 25,000 square feet, include an expansion of the **Center for Oral Biology**, where researchers are working on treatments for cancer, systemic illnesses and drug-resistant pathogens, in addition to oral health diseases.



July

August

September

October

November

December



First-year students began their journey into the dental profession at RSDM's **White Coat Ceremony**, which symbolically marks the duties inherent in patient care.



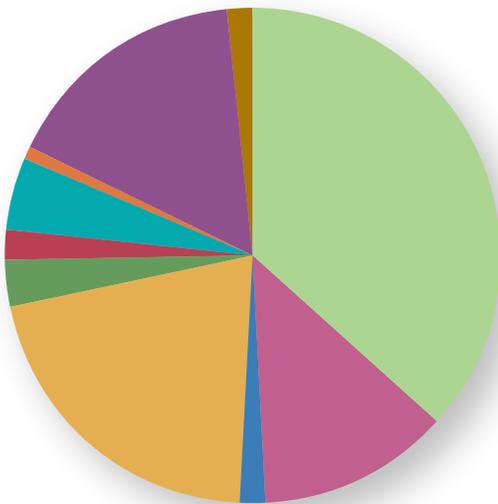
Who says dentists are no fun on **Halloween**? In our pediatric clinic, students, faculty and staff dressed up for a sugar-free celebration.



As 2018 drew to a close, we looked forward to the **Chancellor's Scholarship Challenge**, which will double or triple all RSDM scholarship donations until 12/31/2019.



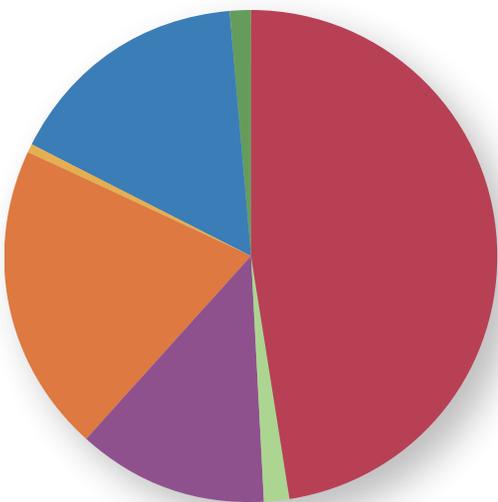
FY2018 financials



Revenues
\$78,790,291

	2018 ACTUAL	PERCENT
Tuition and Fees	\$29,088	36.9%
State Paid Fringe Benefits	\$9,798	12.4%
Endowments, Investments, Contributions & Gifts*	\$1,272	1.6%
Net Patient Service Revenues	\$16,597	21.1%
Housestaff Recoveries	\$2,178	2.8%
Affiliate Revenues	\$1,646	2.1%
Recoveries of Direct Grant Expense	\$3,599	4.6%
Indirect Cost Recoveries	\$672	0.9%
State Appropriations & Allocated University Support	\$12,740	16.2%
Other	\$1,199	1.5%
TOTAL REVENUES	\$78,790	100.0%

* For FY18, RSDM received \$691,000 in gift-in-kind donations and principal raised toward endowments, which are reflected in the total above.



Expenses
\$77,683,086

	2018 ACTUAL	PERCENT
Salaries and Wages	\$37,716	48.6%
Housestaff Salaries	\$1,467	1.9%
Fringe Benefits	\$9,958	12.8%
Non-Salary	\$16,102	20.7%
Transfers	\$425	0.5%
Central Costs	\$12,927	16.6%
FY17 and Prior RU Grant Adj.	(\$911)	-1.2%
TOTAL EXPENSES	\$77,683	100.0%



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secondary photos pgs. 11, 12;

Rene Solorzano, pgs. 23, 26, 27; Don Hamerman,

pgs. 34 and 35 (column 2); Herminio Perez, pg. 4;

Leah Raymond, pg. 27

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