DISCOVERY
ANNUAL REPORT 2019-2020
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.
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At Rutgers School of Dental Medicine (RSDM), we make discoveries every day. We seek, and find, the best ways to treat patients and educate students. We also make discoveries in our research labs, gathering data that increases understanding of dental disease and using oral biology to develop promising methods of treating systemic illness. Potential therapies for cancer, Crohn’s Disease and rheumatoid arthritis are among the many findings we have uncovered. For more than a decade, RSDM researchers have explored the possibility of using predatory bacteria to fight drug-resistant pathogens.

In 2019, RSDM received an $11.7 million NIH grant to explore alternatives to opioids. As the project’s principal investigator, I’m excited by the prospect of testing a combination of ibuprofen and acetaminophen for use as an effective alternative to opioids. Because dentists are often in the business of relieving acute pain, RSDM clinics present the perfect opportunity to pursue clinical research that could reduce America’s epidemic levels of opioid abuse.

During the COVID-19 crisis, RSDM research is more valuable than ever. Dentists are on the frontlines of exposure to aerosols that transmit the virus. There is much we can reveal about how to fight the pandemic. As a result, RSDM researchers have been working with our Rutgers colleagues to develop testing and diagnostic methods, in addition to exploring ways to reduce transmission.

Along with the rest of the world, we are coping with the impact of COVID-19. But I am extremely proud of how the RSDM community has found its way through the pandemic, continuing the important work we have always done: healing others and expanding knowledge.

Sincerely,
Cecile A. Feldman, DMD, MBA
Dean, Rutgers School of Dental Medicine
The theme of Rutgers School of Dental Medicine’s annual report, Discovery, is a timely tribute to one of the most crucial elements of our mission as a university. Rutgers’ research has been a beacon of hope amidst the worst pandemic in more than a century and illustrates the value our academic health center offers the world. The university’s work has already yielded findings that led to a more rapid and accessible diagnosis of COVID-19, and our continued efforts will produce valuable insights and applications for treatment and prevention.

RSDM shares this mission of discovery and innovation, and has made critical strides to deliver on its promise despite the challenges of the past few months. Providing essential support in Rutgers’ fight against the novel coronavirus, faculty in the Department of Oral Biology collaborated with university institutes and schools within Rutgers Biomedical and Health Sciences on research involving point-of-care testing, antibody testing, and reduction of transmission.

Additionally, RSDM’s researchers have continued to make life-changing discoveries that contribute to the understanding of oral disease and how microorganisms within the oral cavity can be used to fight drug-resistant bacteria and treat systemic illnesses, such as cancer and autoimmune diseases. RSDM’s clinical exploration of the combined use of ibuprofen and acetaminophen as an alternative to opioids was supported by an $11.7 million grant from the National Institutes of Health. This important work was headed by Dean Cecile A. Feldman as the grant’s principal investigator and builds upon RSDM’s legacy of inquiry into the nature and alleviation of pain.

All of these accomplishments were achieved during a period fraught with unforeseen challenges. Together, the RSDM community quickly adapted to continue to deliver high-quality training and academic programming via remote methods in addition to providing clinical care while protecting patients, providers and staff against COVID-19 transmission. Remarkably, RSDM’s faculty, staff, and students rose above these challenges and continued to pioneer breakthroughs, care for patients, and prepare the oral health care providers of the future.

I am thankful for all that RSDM has done this past year and am eager to see what it will yet accomplish in the months to come.

Sincerely,
Brian L. Strom, MD, MPH
Chancellor, Rutgers Biomedical and Health Sciences Executive Vice President for Health Affairs, Rutgers University
Resilience

When COVID-19 gripped the world in March of 2020, RSDM adjusted—and readjusted again. Faculty shifted to virtual instruction. Clinical services were paused except for emergency care. On June 15, clinics reopened for non-emergency care with new protocols in place to protect students and providers. Students also began returning to campus for clinical and preclinical lessons, in addition to online learning for didactic instruction. At the height of the pandemic, we were there for each other, our patients and the community. We will continue to adapt as the future unfolds.

KEEPING THE FAITH

As statewide lockdowns began in the spring, DaeJin Kim had the same response as many other New Jerseyans. “At first I was a little bit afraid. I kept reading about rising COVID-19 death rates,” said Kim, a fourth-year student.

But he wanted to find a way to support others. DaeJin is one of a handful of predoctoral students who have volunteered at University Hospital during the COVID-19 outbreak. He helped outfit staff with PPE and has performed the daily screenings they must undergo before treating patients.

When asked why it was important for him to volunteer during the outbreak, he replied that it’s a matter of faith. He is a devout Christian and loves to learn about the history of the religion. Reading the New York Times bestseller “The Triumph of Christianity,” by Rodney Stark, an acclaimed religious and social historian, inspired him.

“In second century Rome, there was a plague going on. Corpses were in the streets and things were brutal. But Christians chose to take care of their neighbors at a time when that wasn’t really done. I thought that was really honorable of them. Although I was scared, and I’m pretty sure they were too, it’s worth helping out in dire situations,” he says. “It’s one of the reasons I went into healthcare.”

POOLSING RESOURCES

To help cope with the statewide influx of COVID-19 patients, Rutgers School of Dental Medicine (RSDM) converted two of its clinics to treatment areas for University Hospital patients in April.

The Newark hospital faced an overwhelming number of patients seeking treatment for the novel coronavirus, leading to a shortage of beds for COVID-19 patients and others. To make room for more, RSDM transformed the school’s pediatric and special needs clinics, which are interconnected, to a 24-bed treatment facility. “This is a time when we must work together and pool our resources to save lives,” said Dean Cecile A. Feldman.
In addition to the removal of dental chairs and the addition of beds, the renovation, completed in two weeks, involved work on the air filtration system to ensure that air from the temporary hospital patient area didn’t circulate through other parts of the building.

RSDM’s Facilities team worked with crews from Rutgers Institutional Planning and Operations, Environmental Health & Safety and the Office of Emergency Management, in addition to other units, to complete the project, finished within two weeks. The clinic was restored to its regular use in June.

“Within a very short time span, the team was able to prepare the space in order to fill a dire need,” said Dean Feldman. “They did a tremendous job and we’re very proud of the results and thankful for their hard work.”

CALL OF DUTY

After a day at work in RSDM’s emergency dental clinic, faculty member Dr. Patricia Tordik had another job during the peak of the pandemic. She volunteered in the “PPE canteen,” helping University Hospital doctors and nurses find the right personal protective equipment.

Tordik stepped up as soon as she heard the call for volunteers at the hospital, which was overwhelmed with COVID-19 patients. “I said, I’ll go wherever you need my services,” says Dr. Tordik, who is also an RSDM alumna (Class of 1990).

For Dr. Tordik, an important part of the job was boosting staff morale. “I tried to chat with them to say thank you, and keep up the good work. Every little bit helps. Sometimes they just wanted people to ask how they’re doing.”

Tordik attributes her attitude, in part, to years spent in the military, serving as a dentist in the Navy and supporting the Marines for more than two decades. She felt the same sense of duty treating dental patients this spring. “A dentist is important during times of tension or conflict. Some patients were suffering from pain and infection. Some played essential roles in their workplace and needed to get back to work. Others just need to be reassured that they are going to be OK.”

VOLUNTEERING TO HEAL

As oral surgery residents, Roman Mogilevsky and Christina Gory never expected to be treating critically ill patients during a global pandemic.

But when University Hospital faced a staff shortage during the peak of the COVID-19 outbreak, they were among a group of fellow residents who volunteered for shifts in the Emergency Department. Trained as surgeons, Gory and other residents from the Oral and Maxillofacial Surgery Department are well qualified to care for hospital patients. They have worked in emergency situations when patients were admitted for facial trauma. But during 12-hour shifts at the hospital last month, they found themselves screening patients for COVID-19 symptoms, taking patient histories, drawing blood and comforting those who were critically ill and alone.

Mogilevsky described his experience as “mentally taxing and emotionally complicated.”

But both he and Gory said it was gratifying, too. “I felt like this was a time where my knowledge could help people,” said Mogilevsky.

Added Gory, “It was a strange feeling finding myself there but I was proud to tap into my education amidst the chaos to make a difference.”

Clockwise from left: DaeJin Kim; RSDM’s pediatric clinic after conversion to COVID-19 treatment area; Christina Gory and Roman Mogilevsky; Dr. Patricia Tordik
Research at RSDM is multi-faceted, encompassing clinical studies on oral health and dental disease to discoveries related to cancer treatment, predatory bacteria, HIV, the nature of chronic pain and alternatives to opioids. The field of dental medicine is fertile ground for studies that can improve systemic health and increase our understanding of genetics and public health. Over the past decade, RSDM has received more than $20 million in funding from the National Institutes of Health (NIH), private foundations and industry, including Colgate, a long-time collaborator. Since March of 2020, RSDM has also been working with researchers at Rutgers and other academic institutions in the battle against COVID-19. Studies have centered around treatment, testing and methods of containing the disease. Researchers are always moving forward with new discoveries that can improve health in a myriad of ways worldwide.

DEAN’S RESEARCH BACKGROUND CULMINATES IN STUDY ON OPIOID ALTERNATIVES

Dean Cecile A. Feldman’s love of research began when she was a predoctoral student, working on a study of oral health programs in rural Pennsylvania.

“I discovered that I really enjoyed it and, through research, you can ask some important questions,” recalls the dean.

Her interest in the field culminated last year with the announcement that Feldman had received $11.7 million in funding from the National Institutes of Health (NIH) as principal investigator of a project that will help fight America’s opioid addiction.

Her research team will explore whether a combination of ibuprofen and acetaminophen is an effective alternative to opioids, decreasing pain while lessening the amount of side effects.

Study participants will be dental school patients prescribed analgesics after molar extractions and will be followed for up to seven days post-surgery. “We want, as much as possible, to duplicate real-life conditions in the clinic,” said Feldman.

According to Feldman, dental clinics are an ideal setting for opioid research because dentists and oral surgeons prescribe the drugs at higher rates than many other medical practitioners. “A large part of our job is managing acute and chronic pain,” she explained.

For the study, half of the patients will be receiving a compound of acetaminophen and hydrocodone, known as Vicodin, while others will be treated with acetaminophen and ibuprofen. For seven days, they will keep a log tracking their level of pain, self-dosages, and common opioid side effects such as nausea and sleep quality. Future opioid use will also be tracked to see if subjects who received opioids were more likely to use or abuse them over time.

In pilot studies at RSDM, patients who received the ibuprofen and acetaminophen reported fewer side effects than patients who received opioids, and their levels of pain...
EXPLORING A TREATMENT FOR CROHN’S DISEASE

Dr. Scott Kachlany has spent more than a decade researching a potential treatment for both leukemia and autoimmune diseases. Last 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.

Kachlany, an associate professor in the Department of Oral Biology, works to identify the types of white blood cells that trigger inflammation in patients with Crohn’s Disease. He also plans on testing to find if a new drug candidate he has been studying in his lab can reduce, or even eliminate, the inflammatory white blood cells.

Called Leukothera, the drug is based on Kachlany’s discovery that an oral bacterium which can cause periodontal disease, produces a protein that kills diseased white blood cells. His company, Actinobac Biomed, is developing Leukothera as a potential treatment for leukemia and lymphoma, as well as numerous autoimmune and inflammatory diseases such as psoriasis, rheumatoid arthritis, and multiple sclerosis.

UNCOVERING ORIGINS OF A PAINFUL AFFLICTION

The causes of Trigeminal Neuralgia, a rare orofacial condition that results in sudden debilitating pain, are mysterious.

But RSDM researcher Dr. Scott Diehl received $350,000 last year to explore a possible genetic basis for the disease.

The funding, awarded by the Facial Pain Research Foundation, supports Diehl and a team from Oregon Health and Science University and the University of Toronto, who are studying whether the origins of the disease, which affects one in 10,000 people, could be genetic. It is the second $350,000 grant Diehl has received.

The most recent round of funding allows Diehl, who specializes in genetic research, to continue work he began in 2015 with an earlier grant from the foundation.

Trigeminal Neuralgia (TN) affects the trigeminal nerve, which spans from below the jaw to above the eye, and leads to episodes of debilitating pain. The onset of Trigeminal Neuralgia is often sudden and random, beginning with an episode of severe pain that reoccurs. “The nerve will just start firing uncontrollably and they’ll experience one to two minutes of severe facial pain where they feel like they’ve been hit with a baseball bat,” says Diehl, a professor in the Department of Oral Biology.

He hopes that the discovery of genetic mutations that cause TN will allow researchers to develop new cures or more effective treatments.

NEW ARRIVAL

RSDM welcomed epidemiologist Dr. Modupe Coker to its research team last year.

Dr. Coker, a faculty in the Department of Oral Biology, has studied the link between dental caries and HIV for more than five years, drawing samples from Nigeria, which is among sub-Saharan Africa nations with the highest prevalence of HIV-infected individuals, including perinatally infected children. She has also served as a Research Associate for the monitoring and evaluation component of the President’s Emergency Plan for AIDS Relief (PEPFAR) program, which provides HIV/AIDS treatment, care and prevention in Nigeria. Coker uses her work involving dental caries to explore genetics from a broader perspective that moves beyond oral health.
With funding from Colgate, Emi Shimizu is working to find a method for replicating the human oral environment in vitro, which could replace animal studies for periodontitis drugs with an effective and quicker procedure.

Shimizu is providing primary cells harvested from an extracted tooth to help create an “organ-on-a-chip” that could be used for potential diagnostics and testing treatment methods. “If treatments or drugs can be examined on the organ-on-a-chip, companies may abolish the need for animal studies for drug developments,” said Shimizu.

Last year, she received $56,000 from Colgate to work on this project.

In another project, Shimizu has been working on regenerating dentin pulp complex and investigating the mechanism of repairing-dentin formation with $2 million in funding from National Institutes of Health (NIH). She focuses on developing the new therapy based on pulp biology and improvement of the endodontic regeneration system.

**BECOMING A LEADER**

Dr. Narayanan Ramasubbu was appointed Associate Dean of Research at RSDM last year. Dr. Ramasubbu, known as “Subbu,” is a recognized authority in biofilm research who in 2018 received a $437,250 grant from the National Institutes of Health (NIH). An expert in X-Crystallography, Ramasubbu is part of an RSDM team that has been researching a bacterium that can lead to periodontitis and is associated with heart disease.

**PREDATORY INSTINCTS**

After a decade of research, RSDM oral microbiologist Dr. Daniel Kadouri has found evidence that two types of predatory bacteria which kill drug resistant pathogens don’t harm human cells and can successfully treat infections in animals.

“The main thing we found was that predators are safe to use in vivo,” said Kadouri. “And they showed efficacy.”

Kadouri studies two types of bacteria in nature: *Bdellovibrio bacteriovorus*, which penetrates prey and kills from within, and *Micavibrio aeruginosavorus*, a vampirish organism that devours germs from the outside. In addition to eradicating bacteria that cause lung disease and germs that are found in wounds and burns, the microorganisms also prey on food borne pathogens like *E. coli* and *Salmonella*.

Kadouri’s research, which resulted in 17 published manuscripts and several more to come, has been funded through an $8.2 million cooperative agreement with the U.S. military Defense Advanced Research Projects Agency (DARPA) Pathogen Predators program and the Army Research Office (ARO).

**BUILDING A BETTER TOOTHBRUSH FOR SPECIAL NEEDS PATIENTS**

The task of toothbrushing can be challenging for those with disabilities, compromising oral health. That’s why Dr. Maxine Strickland is working on a special toothbrush that will help make it easier.

Last year, she 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. It can also be used for children and the elderly. This year, she was awarded an additional $50,000 from the National Science Foundation to begin phase two of prototype development.

While volunteering at the Matheny School for the developmentally disabled in Peapack-Gladstone, Strickland, a faculty member in RSDM’s Department of Diagnostic Sciences, noticed that oral health was a problem for many residents. “Many were aspirating when they brushed their teeth. They can’t spit out the liquid, so the liquid goes into their lungs because of poor muscle control.”

Strickland is developing an electric toothbrush that suctions liquid during brushing. “The power toothbrush is superior to the manual toothbrush at removing plaque. If we can combine a suction method with an electric toothbrush, that would change things.”
RSDM RESEARCHERS ARE COLLABORATING WITH COLLEAGUES AT RUTGERS AND NATIONWIDE TO FIGHT COVID-19

Since March, they’ve played a role in developing fast, accurate testing for the disease and its antibodies, as well as ways of reducing transmission.

Researchers at RSDM have been exploring the efficacy of rapid, point-of care testing that could yield results in as little as 20 minutes. Working with New Jersey Medical School’s Public Health Research Institute, RSDM is administering point-of-care tests procured by dental and medical equipment supplier Henry Schein.

Outcomes will be correlated with a new diagnostic test developed at Rutgers that uses saliva samples and delivers results within 24 to 48 hours. “We need independent validation of the tests to make sure there’s some consistency in their accuracy,” said Dr. Daniel Fine, Chair of the Oral Biology Department.

Oral Biology faculty are also contributing to leading research on COVID-19 antibody testing. Faculty members have been in the lab to support Dr. Maria Laura Gennaro of New Jersey Medical School, who is developing an antibody test, drawn from subjects who are either recovered from the illness or want to find out if they contracted it. The testing is a potential means of indicating whether those who are infected develop immunity and how long it lasts.

This month, researchers in the department of oral biology department began working with a virologist from the Rutgers Public Health Research Institute to determine if anti-microbial mouth rinses might curb COVID-19 transmission by reducing viral load in the mouth.

They have been using saliva samples to test rinses with various active ingredients, including one containing povidene iodine. In previously published in-vitro studies, an oral rinse with the povidene ingredient has shown efficacy against SARS-CoV, in addition to H1N1, and rotavirus.

The rinse that yields the best results will be tested clinically. “The goal is to detect whether the virus dies and how long the effect lasts,” said Dr. Fine.
BY THE NUMBERS: 2019

Match Rate 80% of our students who sought placement were matched, compared to the national average of 66 percent.

Diversity 65% of our incoming first-year students were minority students, including 18 percent who are from underrepresented groups.

NBDE First-Time Pass Rates
Part 1: 91%
Part 2: 96%

HIGH MARKS ON ACCREDITATION

RSDM successfully passed the accreditation process with “flying colors” in the fall. For the fourth time in 21 years, the school was accredited with no recommendations for improvement, said Dean Cecile A. Feldman. “We have now achieved what I believe no other dental school has achieved: four consecutive accreditation site visits over 21 years with an absolutely perfect track record,” she said. The Commission on Dental Accreditation reviewed more than 1,000 standards and RSDM met all of them, she said. Staff, faculty and students prepared for accreditation for more than two years, and their hard work paid off, said Feldman.

DIGITAL DENTISTRY

Milling machines and digital complete dentures are the latest additions to RSDM’s state-of-the-art digital dentistry curriculum.

The machines, which use CAD-CAM technology to create crowns from digital impressions, will dramatically reduce the turnaround time it takes to deliver the restorations to patients, said Dr. Heba Elkassaby, assistant professor and Director of Digital Dentistry in the Department of Restorative Dentistry.

The new technology, which arrived at the school last year, marks the final installment of a three-year phase to add new digital dentistry resources to the clinic floors and preclinical classrooms. These include intra-oral scanners, computerized self-assessment technology and a digital education center with laboratory scanners and 3D-printers.

Although the process of milling dental restorations has been standard for several years, few private-practice dentists have the technology in house. But faculty expect that to change. “It’s the wave of the future,” said Dr. Steven Morgano, chair of the Department of Restorative Dentistry.

The technology of CAD-CAM dentures has many advantages such as reduced clinical chair-side time and number of visits as well as digital archiving.

EDUCATION

Learning

An RSDM education offers one of the most rigorous clinical programs in the nation. Residency directors consistently describe our students as more prepared than their peers because of the breadth and volume of experience they gain at RSDM. Rutgers, one of the most diverse universities in the nation, also has one of the most diverse dental schools. Sixty-five percent of RSDM students are from minority groups, including many in the Internationally Educated DMD program for providers from overseas who want to attain a degree in order to practice in the United States. RSDM’s patient pool is also one of the most diverse in terms of nationality, culture, ethnicity and case complexity. Its low 8 to 1 student faculty ratio means that every student has a chair in clinic. Another quality that distinguishes RSDM is its close-knit atmosphere. Although Rutgers University offers all the resources of a large state university, including premier research programs, each incoming class at RSDM is normally about 100 students, who benefit from a climate that fosters support from peers, faculty and leadership.
CELEBRATING STUDENTS

JAMES AMIR When he started dental school, fourth-year student James Amir discovered that dentists use many of the same tools as his father, who owns a jewelry shop. “When my dad makes an engagement ring, he has to wax it up and then use a gypsum mold. He has the same lathe, the same polishing machine,” said Amir. Although he respects his father’s profession, patient care has been even more rewarding. “With jewelry making, if I make something good, they’ll maybe smile for a week or two. In dentistry, you’re caring for someone’s health and life, and helping them appreciate how to take care of themselves. If you can do something chairside, like relieve pain, people really remember you.”

ONYOYOM ONYILE Before enrolling in dental school, Onoyom Onyile, Class of 2020, worked as a grade school teacher. His students included many children on the autism spectrum. Often, the key to connecting with them was through laughter. “If you can make someone smile or laugh, you gain their trust,” he says. It’s a skill he puts to use on the clinic floor, where he treated one reluctant child by allowing him to play with his dental mirror. “After that, he let me look in his mouth,” said Onyile. This fall, Onyile began a residency in RSDM’s Department of Pediatric Dentistry.

BRITTENY ZITO Since 2016, Britteny Zito has been RSDM’s reigning Tooth Fairy, presiding over the school’s annual Give Kids a Smile event each year, where Essex County children receive free screenings and preventive treatment. Britteny, a resident in the Department of Orthodontics, embodies the role with the dedication of a method actor, creating back stories for her character and an ever-evolving selection of costumes and makeup. Kids ask a lot of questions, like how she finds her way to all the children who lost teeth. Her answer? A GPS hidden in her wings. “As the tooth fairy, I have to think on my feet,” she says.
PATIENT CARE

Healing

As the largest oral healthcare provider in the Garden State, RSDM treats an enormous range of patients from all over New Jersey. Not only are they ethnically, culturally and geographically diverse but their cases are extremely varied. Some seek only routine dental care while others have complex cases that require the collaboration of multiple RSDM specialists. As dentistry evolves toward a more interdisciplinary profession with a focus on holistic treatment, RSDM has initiated programs that move beyond oral health, like an effort to screen patients for diabetes. In addition to student clinics in Newark and South Jersey—where renovations have transformed treatment areas into some of the most well-equipped, state-of-the-art dental school facilities in the nation—RSDM offers treatment at its faculty practice, Rutgers Health University Dental Associates. With offices in Newark and New Brunswick, it is home to expert faculty providers, who treat patients in a private-practice setting.

SPECIAL CARE CENTER CELEBRATES ANNIVERSARY

RSDM’s Delta Dental of New Jersey Special Care Center, which treats thousands of dental patients with disabilities each year, turned five in 2019.

Although it was established at RSDM in 1993, it was upgraded, relocated and reopened with funding from Delta Dental of New Jersey in 2014. It is one of the few clinics in the metropolitan region that treats special needs patients, including those with cerebral palsy, autism and behavioral disorders.

There is a great need for special care treatment. In New Jersey, more than 10 percent of the population has at least one disability, a figure that totals 911,300. RSDM’s special needs clinic was founded by Drs. Justin Stone and Robert Kroll, who began treating patients with disabilities at their Newark practice in the 1960s because so few dentists were willing to accept them as patients. Years later, RSDM invited them to open a special needs clinic at the dental school, where they also trained students.

In 2017, a Special Care Honors Scholarship was named for Stone and Kroll with $100,000 in funding from The Atlantic Philanthropies. But all RSDM students receive training in special needs dentistry, which is critical in meeting an overwhelming nationwide need. RSDM’s goal is for all graduates to provide at least some special care services as a routine part of their practice.

FUNDING TO BOOST TREATMENT FOR HIV-INFECTED PATIENTS

A trip to the dentist can be especially difficult for patients with HIV/AIDS, including the process of getting a dental impression. Many are immunocompromised and suffer from medication side effects. “They also have many different doctor visits and that can be exhausting,” said Nicholas DePinto, director of RSDM’s Community Oriented Dental Education (CODE) program in South
Jersey, which treats many patients with HIV/AIDS.

But time in the dental chair is now dramatically reduced, thanks to a $150,000 federal grant for digital impression scanners in the CODE clinics. These allow impressions to be completed in under a minute, as opposed to ten minutes or more for traditional putty impressions, which many find uncomfortable, said DePinto, the grant’s principal investigator.

The award also funds an additional dental chair in every CODE clinic, which increases the number of visits to a few thousand patients a year.

STUDENT CLINICS GET A MAKEOVER

Renovations to two clinics for predoctoral students were completed last year, paving the way for a more modern, attractive look and some new additions. Eighty operatories, dating back to RSDM’s opening in the 1970s, were replaced and a new dispensary was added, along with new radiography resources. The clinic was also outfitted with new furniture, equipment and refurbished ceilings and floors.

RSDM SCREENS PATIENTS FOR DIABETES

Last year, RSDM providers began screening patients for diabetes as part of an early detection program.

“Each year 27 million patients visit a dentist but not a physician. Many patients seeking care at the dental school are either diabetic or prediabetic but haven’t been diagnosed and don’t know they’re at risk,” said Dean Cecile A. Feldman.

Funded by a grant from Delta Dental of New Jersey, the two-year program will allow RSDM to screen up to 500 patients and train predoctoral students to identify at-risk patients, most of them elderly and middle-aged.

After administering rapid screening tests, those with moderate to high levels of indicators for the disease were referred to their primary care physician or Rutgers School of Nursing clinics.

Dean Feldman stressed the importance of early intervention. “Early diagnosis enables patients to manage the disease and prevent the onset or delay of serious complications.”
COMMUNITY SERVICE

Outreach

RSDM is dedicated to public health efforts at home and overseas, providing many opportunities for students and faculty to volunteer. At our student clinics in Newark, we offer free screenings and preventive treatment to local children on Give Kids a Smile Day, a national event for underserved children, and through preventative care funded by the Horizon’s Kids’ Oral Health Program. We also visit local schools and hospitals to provide oral health education to adults and children. But a centerpiece of our service work is dental missions. Trips like these leave a lasting imprint on students, who gain an understanding of global healthcare inequities and cultural differences in attitudes toward oral health. Patients have their lives transformed by procedures that end pain and disfigurement.

SMILE, BANGLADESH

Oral surgeon Dr. Shahid Aziz organizes Smile Bangladesh, which travels twice a year to Bangladesh to perform cleft lip and palate surgery. In the U.S., the one-hour surgery is commonly performed during infancy. But in Bangladesh, there is a severe shortage of qualified surgeons, so many people live into adulthood with the disfigurement. Founded in 2006, the mission has treated more than 1,000 patients. In March and November, the team, which includes RSDM oral surgery residents, travelled to Dhaka, where they held symposiums in orthognathic surgery, a corrective jaw surgery, at the Dhaka College Dental Hospital, and performed procedures for cleft lip and palate patients. In November, they also travelled to the town of Sylhet for more work, completing a total of 51 surgeries on the mission to both villages. A goal for Dr. Aziz, a native of Bangladesh, is that students find a way to continue volunteer service after graduation, whether it’s in their own communities or overseas. “I want them to be inspired to give back,” he says.

A SMILE TO ERASE THE PAIN

Tiffany Yau will never forget the 14-year-old patient whose front teeth were fractured by physical abuse. They met during RSDM’s annual dental mission to the Dominican village of La Romana, where students and faculty treat pediatric patients from a local school and orphanage, and where oral healthcare is often inaccessible. “Most of the time, these types of injuries are sports-related but her injury happened when she had an object thrown at her face,” Yau recalls. “I really wanted to do right by her and give her a smile that would help erase that. Every time she looked at her smile, it was a reminder of what she had been through.” Although it was Yau's first esthetic case, treatment was a success. When she showed her patient the results, her
smile conveyed only happiness. “It showed me how dentistry can help someone reclaim their smile after a traumatic experience,” says Yau. Last year, the team treated more than 150 patients, performing everything from fillings to root canals and extractions.

**OUT WEST**

In the Black Hills of South Dakota, oral health care for Native Americans is limited. On an RSDM dental mission to an Indian Health Services (IHS) clinic last year, students and faculty cared for members of the Lakota tribe and found that many had missing teeth because restorations weren’t affordable. “People don’t have money for dentures and replacements,” said Dr. Robert Shekitka, an RSDM faculty member who led the trip. “They have fillings and extractions but not much else. We made dentures for them.” The team of seven students and two faculty treated about 50 patients and made 20 sets of dentures, said Shekitka.

During the annual mission, RSDM students fill in for IHS staff dentists, who take a week-long vacation in August. Before the trip, they learn about Native American culture and customs to gain a better understanding of patients.

**MISSION TIMES TWO**

Led by Dr. Pam Alberto, the Cheerful Heart Dental mission has grown dramatically since it began in 2011. Back then, it treated 200 patients. Last year, the group of 10, plus nurses from University Hospital, treated 1,030 patients over five days and screened patients for hypertension and diabetes. “We saw about 20 patients a day. There were patients from all age groups. We did anything that could be done in one day: restorations, a lot of extractions and cleanings,” said student Mary Kiledjian. Over time, Dr. Alberto has seen the results of their work. Children who had sealants and other preventive care on earlier missions have remained cavity-free and older residents have also benefited from preventive care and education.
Thanks to our donors, RSDM was able to create 17 new endowed student scholarships as part of its year-long match campaign, which ended in December of 2019. RSDM’s donations were matched by the Rutgers Biomedical and Health Sciences (RBHS) Chancellor’s Challenge. RSDM and the School of Nursing were joint recipients of the 2019 challenge, which offered matching funds for all dental and nursing scholarship support. This initiative engaged new and returning donors, and created new scholarships that will continue to support dental students in perpetuity. Including donations and the Chancellor’s match money, scholarship support for RSDM will total more than $1.5 million.

SUPPORTING TOMMORROW’S MENTORS

Miriam Furlong and Elisa Velazquez were RSDM students in the 1990s, when the great majority of faculty were men. For them, female faculty were a vital source of support and mentorship.

“All of our female instructors were very inspiring to us,” said Dr. Furlong. After finding success with their own practices, they’re supporting present-day RSDM students. It’s their hope that the Elisa J. Velazquez, DMD and Miriam T. Furlong, DMD Endowed Scholarship can be awarded to a student interested in pursuing pediatric dentistry who has also been active in organized dentistry. Both alumna want to encourage women and other students from underrepresented groups to assume leadership roles. “It’s important that they become leaders so they have a voice,” said Dr. Furlong, Class of 1995. Dr. Velazquez graduated in 1999. The two work together at Ocean Pediatric Dental Associates, Dr. Velazquez’s practice.

MAINTAINING A BOND

The Fauchard Dental Society of New Jersey has had a long-standing bond with RSDM students. It helped fund preclinical laboratories, held pizza parties at the school and invited students to sit in on board meetings. “We prided ourselves on how actively we engaged student participation,” said former Fauchard Dental Society of NJ President Dr. Tom Rossi, who is the current president of the New Jersey Dental Association (NJDA). The society found a new way to strengthen its connection this year by endowing a student scholarship. When members learned that gifts would be matched throughout 2019, they didn’t hesitate to offer support. “We thought that by far, providing scholarship funds for a student in their third year has a greater impact than anything else we could do,” explained Rossi, a member of the Class of ’77. Along
with Dr. Rossi, past Fauchard presidents Dr. Peter De Sciscio, an RSDM faculty member, and Dr. Renee Arace, current secretary of the NJDA, were also involved in making the decision for establishing the scholarship. “We’re proud to continue our support of students embarking into the profession of dentistry,” said Arace.

**HONORING MOM AND DAD**

Dr. Josh Bryan’s parents gave him the kind of support many middle class kids take for granted. They encouraged him to keep his grades up. They ferried him to swim team practice. When he was accepted to RSDM, they bought him a car so he could get around. To show his gratitude, Dr. Bryan, Class of 2014, established the Rosemary and Todd Bryan Endowed Scholarship. “I was lucky enough to get scholarships when I was at dental school, but my mom and dad also helped out a lot,” says Dr. Bryan. He urges recent graduates to consider funding a scholarship, too. “It’s important to make sure you can help out other people once you get a leg up, and if you can do it later on, that’s great as well.”

**SPEAKING FROM EXPERIENCE**

Dr. Christopher Emma credits the success of his practice, Encore Dental, with the clinical skills that he and his colleagues learned at RSDM. “It prepared us very well for the real world of dentistry,” said Dr. Emma, head of Encore, which has five offices throughout Monmouth and Ocean counties. When he learned that scholarship donations would be matched in 2019, Dr. Emma (Class of ’01), and two of his partners at Encore, wanted to give back by supporting present-day RSDM students. In addition to financial need, the fourth-years student receiving the Encore Dental of NJ endowed scholarship will also have outstanding clinical skills and the ability to work well with other dental students. Dr. Michael Massaro, an alumni partner in the practice (Class of ’06), is also one of the donors, along with Dr. Ryan Pannorfi.

**MISSION IN LIFE**

The small clinic in India that Dr. Shanti Jain established in her rural home town grew to a 100-bed hospital before she passed away in 1993, when her sister, Kanti, began leading the facility.

Jain family members helped institute vaccination programs, clean water efforts, trash removal and basic health and hygiene education. To honor them, Dr. Narpat Jain (Class of ‘95), the nephew of Drs. Shanti and Khanti, established a scholarship in his family members’ name, which will be awarded to help fund an individual student’s dental mission trip. His hope is that recipients might some day join him on his own mission to the facility, in Khichan India, where he has also volunteered. Jain also helped establish a second scholarship as president of the New Jersey Academy of General Dentistry (NJAGD). The academy promotes learning and expanded opportunities among general dentists and advocates for their input on policy and regulations. That scholarship will be awarded to a fourth-year student or general practice resident who is a student leader within NJAGD, which has a strong membership at RSDM.
GIFTS

Tatiana Agababaeva, D.M.D.
Pamela L. Alberto, D.M.D.
Ms. Mariam B. Aldajani
Wayne A. Aldredge, D.M.D. and
Suzanne Grubowski, D.M.D.
Michael C. Alfano, D.M.D., Ph.D. and Joann Alfano
Ms. Ingy Alicea
AMB Foundation
Mrs. Ellen Meth Anolik
Anonymous Donors
Craig S. Arcidiacono, D.M.D. and Nancy M. Rizzuto
Christopher Scott Arena, D.M.D.
Kenneth Banasak, D.M.D.
Mark Barakat, M.D. and Monika A. Barakat, D.M.D.
Jody Z. Bardash, D.M.D.
Sowajnya Basireddygan, D.M.D.
Joseph A. Battaglia, D.M.D., M.S.
Demetrios Bayiokos, D.M.D.
Moshe Benarroch, D.M.D.
Nicholas Bencie, D.M.D.
Michele S. Bergen, D.M.D., M.D.
Michael J. Bixby, D.M.D.
Michele S. Bergen, D.M.D.
Michael J. Bixby, D.M.D.
Richard D. Bloomstein, D.D.S.
Jerald Blum, D.M.D. and Rochelle A. Blum
Laurence C. Breiterman, D.M.D.
Ms. Bonnie Breunig
Ms. Brenda Brower
Joshua A. Bryan, D.M.D.
Donald J. Byk, D.M.D.
Robert J. Cambria, D.M.D.
Thomas J. Cangialosi, D.S.S. and Helen J. Cangialosi
Vincent J. Castellano, D.M.D.
Frank A. Catalanotto, D.M.D. and Jane Catalanotto
Mr. Gerald Chao
Ms. Jeanne Chao
Cindy Chang Chay, D.M.D.
Mr. Jeffrey Cheng
Marlene F. Cheng, D.M.D.
Chen-Men East Broadway Dental Center, LLP and
Wei-Hsin Men, D.D.S.
Thomas Chillemi, D.M.D. and Mary Ellen Nesnay, D.M.D.
Noah Chivian, D.D.S.
Thomas Chillemi, D.M.D. and Mary Ellen Nesnay, D.M.D.
Ms. Janine Fredericks-Younger, D.M.D.
Mr. Stephen K. Fraher
Ms. Ann Cheng Fu
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Ghazwan F. Ghazi, D.M.D.
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Gilbert L. Glass, D.M.D.
GlaxoSmithKline
David A. Goldberg, D.M.D.
Mark H. Goldenberg, D.D.S. and Deborah Goldenberg
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Bryan M. Gravey, D.M.D.
Mr. William J. Green and Gina F. Green
Barbara Guenther, D.M.D.
Paul D. Haggan, D.M.D.
Nancy J. Hanna, D.M.D. and Kareem Hanna
Ms. Ellen Harrison
Mr. Michael Hayes and Gail Hayes
Elliot V. Hersch, D.M.D.
Ms. Effie Hill
Mr. Greg Hoffman
Calvin Michael Huen, D.M.D.
International College of Dentists
Narpat S. Jain, D.M.D., FAGD and Archana Jain
Shalin P. Jain, D.M.D.
Robert T. Kimura, D.M.D.
Susan A. Koenig, Elise Koenig and Tim Arem
Mr. Steven Konowitz and Diane Konowitz
Steven Koretzky, D.M.D.
Mrs. Lori Krasner, Jonathan Zackman and
Matthew Zackman
Manibeth Kresinski, D.D.S.
Mr. Peter Kwan
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Kevin J. Lake, D.M.D.
Mr. Robert M. Landolfi
Mrs. Barbara J. Lane
Donald Lapine, D.M.D.
Robert L. Lapinski, D.M.D.
Robert Laski, D.M.D. and Michele Sanzo-Laski, D.M.D.
Lisa M. Latella, D.M.D.
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Ms. Susan Luzod and Ernesto Luzod
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Mr. Wai Wai Mahr
Ms. Dorothea M. Manche
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Michael P. Marfori, D.M.D.
Stanley Markman, D.M.D.
Rafal T. Marmur, D.M.D.
Jennifer D. Marzarella, D.M.D.
Rita Mastrodromenico, Rocco Mastrodromenico,
Concetta Ceres and Frank Ceres
Ms. Adele B. Mauriello
Marianne Mauro, D.M.D.
Mrs. Ann-Marie K. McDade and James McDade, III
Michael T. McCormick, Jr. Memorial Foundation
Karen and Michael T. McCormick, Sr. and Friends
Michael M. Messana, D.M.D. and
Bernadetta F. Zabdyr-Messana, D.M.D.
Jonathan Miodowick, D.M.D.
Ms. Gloria Tramonte Mirmione
Annette I. Mitchell-Riley, D.M.D.
Madhu Mohan, D.M.D.
New RSDM Endowed Scholarships
Created during the 2019 Chancellor’s Challenge Scholarship Match

Rosemary and Todd Bryan
Endowed Scholarship
Donor: Josh Bryan, DMD ’14

Class of 1998 Endowed Scholarship
Donors: Members of the RSDM Class of 1998

Encore Dental of NJ Endowed Scholarship
Donors: Drs. Christopher Emma ’01, Michael Massaro ’06 and Ryan Pannorfi

Fauchard Dental Society of NJ
Endowed Scholarship
Donor: Fauchard Dental Society of NJ

Mitchell Gardiner, DMD and
Deborah Gardiner Endowed Scholarship
Donors: Mitchell Gardiner, DMD ’77 and Deborah Gardiner

Eileen R. Hoskin, DMD and Craig S.
Hirschberg DDS Endowed Scholarship
Donors: Eileen R. Hoskin, DMD ’84 and
Craig S. Hirschberg DDS ’83

Dr. Shanti, Kanti, Subhash Jain and
Mrs. Sarla Jain Endowed Scholarship
Donors: Narpat Jain, DMD ’95 and Archana Jain

New Jersey Academy of General
Dentistry (NJAGD) Endowed Scholarship
Donor: New Jersey Academy of General Dentistry (NJAGD)

OKU Passion for Humanities
Endowed Scholarship
Donors: OKU members and OKU-RSDM alumni

RSDM Endowed Scholarship for Research
Donors: Daniel Fine, DMD, Narayanan Ramasubbu, Ph.D and the Department of Oral Biology

RSDM Orthodontics Endowed Scholarship
Donors: Faculty members, Orthodontics Department

RSDM Pediatric Dentistry Endowed Scholarship
Donors: R. Glenn Rosivack, DMD and the Department of Pediatric Dentistry

Valerie C. Rico, DMD and
John C. Magline Endowed Scholarship
Donors: Valerie C. Rico, DMD ‘88 and John C. Magline

Elisa J. Velazquez, DMD and Miriam T.
Furlong, DMD Endowed Scholarship
Donors: Elisa Velazquez ‘99 and Miriam Furlong ‘95

Chancellor’s Challenge Scholarship donations were received January 1, 2019 through December 31, 2019.
January

Fourth-year students celebrated the annual rite of passage known as Match Day by marking the spot where they’ll be serving their postgraduate residencies.

March

During spring break, students, faculty and alumni embark on three annual overseas dental missions. The Cheerful Heart Mission reaches border towns between Haiti and the Dominican Republic. Another mission is centered in the Dominican village of La Romana. In Bangladesh, faculty and oral surgery residents repair cleft palates.

April

The RSDM Golden Crowns faced off against the New Jersey Medical School Medwings in their annual charity hockey game. Proceeds from the event were donated to Robert Wood Johnson’s Child Health Institute.

May

The class of 2019, which totaled 121 members, said goodbye at RSDM’s convocation ceremony. Among the graduates were these three students, who became moms while earning their DMDs.

June

RSDM welcomed undergrad college students to our Gateway pipeline program, where they receive an immersive crash course in dental school life.
July

RSDM hosted a visit by Thobile Mushwna, a Mandela Washington Fellow. Mushwna heads a non-profit called Dental Marathon, which educates thousands of African children about oral healthcare. He met with RSDM leaders for advice on starting a chain of dental clinics in his homeland.

August

The Class of 2022 symbolically entered the medical profession at RSDM’s white coat ceremony.

September

Dean Feldman was awarded an $11.7 million grant from the National Institutes of Health (NIH), for research on the combination of ibuprofen and acetaminophen as an alternative to opioids. The dean is principal investigator.

October

Visitors to our pediatric clinic celebrated Halloween with these RSDM superheroes.

November

Students and benefactors had a chance to meet at our annual Donor/Scholar reception. Last year, RSDM was able to create 17 new endowed student scholarships as part of the Chancellor’s Challenge campaign.

December

Students volunteered at the Special Olympics Medfest in Lawrenceville, providing dental exams, fluoride treatments and oral health tips to athletes.
## FINANCIALS FY2019

### REVENUES

<table>
<thead>
<tr>
<th>Source</th>
<th>2019 Actual</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition and Fees</td>
<td>$32,471</td>
<td>38.9%</td>
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<tr>
<td>State Paid Fringe Benefits</td>
<td>$10,761</td>
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<tr>
<td>Endowments, Investments, Contributions &amp; Gifts*</td>
<td>$1,425</td>
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<tr>
<td>Net Patient Service Revenues</td>
<td>$17,368</td>
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<td>Housestaff Recoveries</td>
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<td>Affiliate Revenues</td>
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<td>Recoveries of Direct Grant Expense</td>
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<td>Indirect Cost Recoveries</td>
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<td>State Appropriations &amp; Allocated University Support</td>
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<tr>
<td>Other</td>
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</tbody>
</table>

**TOTAL REVENUES**

$83,545 100.0%

* For FY19, RSDM received $752,000 in gift-in-kind donations and principal raised toward endowments, which are reflected in the total above.

### EXPENSES

<table>
<thead>
<tr>
<th>Source</th>
<th>2019 Actual</th>
<th>Percent</th>
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<tr>
<td>Salaries and Wages</td>
<td>$37,877</td>
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<td>Housestaff Salaries</td>
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<td>Transfers</td>
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<td>Central Costs</td>
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<tr>
<td>FY17 and Prior RU Grant Adj.</td>
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<td>0.1%</td>
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**TOTAL EXPENSES**

$82,501 100.0%