SPRING/SUMMER 2020

Columbia Medicine

Columbia University Physicians & Surgeons

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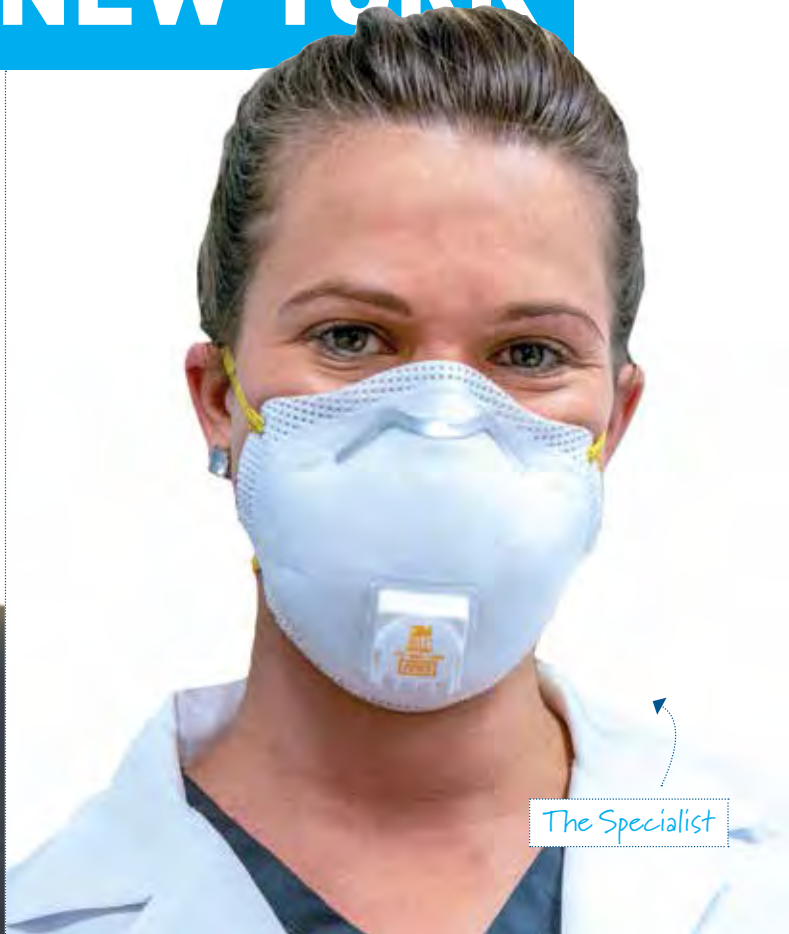


The Specialist

JÖRG MEYER

Dear Readers,

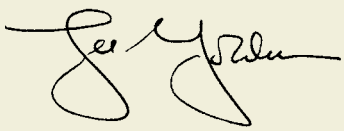
For my last "From the Dean" message for *Columbia Medicine*, I want to devote this space to thanking the groups and individuals who have made the medical school so successful these past 14 years.

The growth and progress of these years represent a true team effort of our faculty, staff, students, and philanthropists, as well as the leadership of Columbia University, NewYork-Presbyterian Hospital, and Bassett Healthcare. We especially appreciate gifts of almost $3 billion from alumni, grateful patients, and faculty since 2006. These gifts, ranging from small amounts to hundreds of millions of dollars, have transformed the medical school and medical center. Together we are doing our best to make the world a healthier place by delivering outstanding patient care, conducting groundbreaking research, educating the next generation of health care professionals, and extending our resources into the neighborhood around us, where we improve the public's health as well as take care of one patient at a time. Nowhere has our mission been more evident than in our response this year to the COVID-19 pandemic. Our faculty, staff, and students have worked heroically to treat patients; conduct research into diagnosis, treatments, and vaccines; and offer our graduates opportunities to enter their training early to make an immediate impact on patient care.

Our success is inextricably tied to the success of our hospital partner, NewYork-Presbyterian, and to the greatness of Columbia University. Sharing a campus with a truly great hospital—for local residents as well as patients who could go anywhere for their care—is a reminder that a top hospital and a top medical school go hand in hand. Being part of a great university is also critical to our success, especially as the Morningside campus has expanded northward to Manhattanville and a number of our faculty have moved to its Zuckerman Mind Brain Behavior Institute, thereby blurring the distinction between "uptown" and "downtown." The greatness of Columbia reflects on us, and vice versa.

As I said back in 2006 when my term as dean began, "No one wants anything less than the very best, and I'm proud to become part of that commitment." When I step down from my executive leadership roles at the end of June it will be with enormous gratitude for the faculty, staff, students, patients, donors, and alumni who have trusted me to be the temporary steward of this great school, which, hopefully, has become even stronger. Thank you for joining us to build on the greatness of those who preceded us and for all you have done to make these past 14 years so successful. Your continuing excellence and dedication will ensure that our outstanding medical school remains among the very most preeminent in the world.

With best wishes,



Lee Goldman, MD, Dean
lgoldman@columbia.edu

ON THE COVER: Planning for the Columbia response to COVID-19 began in January. By mid-March, many of the nonclinical faculty and staff in the medical school started working from home. A few of the many researchers, clinicians, public safety officers, cleaners, and others who reported to work every day are shown on the cover. Read about our COVID-19 response on Page 18. Photos by Jennifer O'Rourke.

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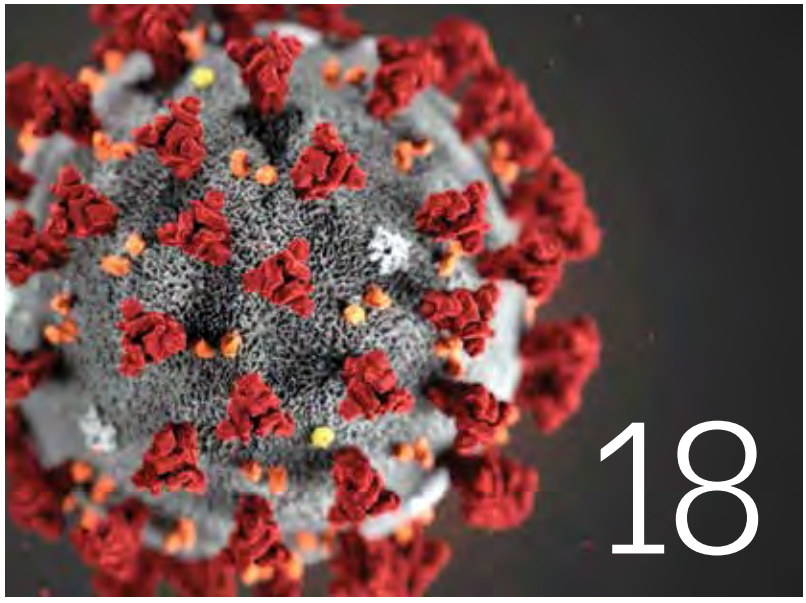

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Faculty and staff should contact their departmental administrators to update their addresses, which are obtained through the Columbia University personnel system.

All others with address changes should contact VP&S Communications at 212-305-3900 or columbiamedicine@columbia.edu.

Editor's Note

Adding a Fast-Moving Virus to a Slow-Moving Magazine Production

A typical issue of *Columbia Medicine* involves months of preparation: development of assignments; research, interviews, and writing; photography; page layout; proofreading; approvals; printing; and mailing. This issue was well along in that process when COVID-19 cases started appearing in New York City and at NewYork-Presbyterian Hospital. Articles had been approved by sources, and the design process had begun. Some photo shoots were completed before the city went into work-at-home and social distancing mode, but other photo shoots were cancelled. The editorial staff was deployed to other communications needs, but work continued on the magazine's design so we would be prepared to complete the magazine's production once the worst of the COVID-19 pandemic had passed.

We are still in the process of returning to some semblance of normal and are proud to present this belated issue of the magazine. The issue includes some of the content planned and completed in February but we have added an article that, we hope, conveys the response to the pandemic by Columbia University Irving Medical Center and NewYork-Presbyterian. In the News section, articles describe how the traditions of the graduating class—Super Night, Match Day, and graduation—were anything but traditional as members of the Class of 2020 graduated early to support the clinical front lines of the pandemic.

In the next issue, we will shine a light on the COVID-19 research efforts that were ongoing during the height of the pandemic and continue now in hopes of creating new diagnosis, treatment, and prevention options.

With the American epicenter of the pandemic in New York City, the spread of the illness changed daily operations at the medical school and medical center, upended the daily lives of all clinical and administrative staff, and altered the graduation memories of the newly minted members of the Class of 2020. What did not change and will not change is the school's commitment to leadership in education, patient care, and research. In all three missions, we showed our city, state, and country during the pandemic that VP&S remains among the best medical schools in the world. *Columbia Medicine* magazine is proud to be part of the efforts to share our successes and to remind you that we are doing our best to make the world a healthier place.

— Bonita Eaton Enochs, *Editor*

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News from around the Vagelos College of Physicians & Surgeons

VP&S news

Columbia Names Interim EVP and Dean

Columbia University President Lee Bollinger has named Anil K. Rustgi, MD, director of the Herbert Irving Comprehensive Cancer Center, as interim executive vice president and dean of the Faculties of Health Sciences and Medicine, effective July 1, 2020.

Shortly after Lee Goldman, MD, EVP, dean, and chief executive of Columbia University Irving Medical Center, announced his plans in May 2019 to step down from his executive roles, President Bollinger named a committee to begin a search for Dr. Goldman's successor. Dr. Goldman has agreed to serve as a special advisor to Dr. Rustgi and the dean's office after July 1.

"I and the rest of the University administration will be deeply involved and supportive as well, even more so during this difficult time, with the challenges that confront us with COVID-19," President Bollinger said. The search committee, which President Bollinger chairs, will continue to review candidates for a permanent successor to Dr. Goldman.

"I want, again, to take this occasion to thank Lee Goldman, an exceptional leader, physician, investigator, educator, and mentor," President Bollinger said. "If we use the measure of leadership that the institution is better now than it was at the outset, Lee has done an outstanding job. The several schools—both individually and as a whole—are clearly stronger than ever (even at this moment of crisis). I and we are deeply grateful to Lee for his remarkable dedication and service these nearly 14 years."

Dr. Rustgi joined VP&S Jan. 1, 2019, as Irving Professor of Medicine, director of the Herbert Irving Comprehensive Cancer Center, and associate dean of oncology. At NewYork-Presbyterian/CUIMC, he is chief of cancer services. He will retain these titles and responsibilities while serving as interim EVP and dean. A leading cancer researcher, Dr. Rustgi joined Columbia from the University of Pennsylvania's Perelman School of Medicine, where he spent 20 years as the T. Grier Miller Professor of Medicine and Genetics and chief of gastroenterology. He also co-led the Tumor Biology Program.

Dr. Rustgi, who has received the prestigious American Cancer Society Research Professorship, studies the intrinsic cellular processes and tumor microenvironment that lead to the development, progression, and metastasis of gastrointestinal cancers, including cancer of the esophagus, pancreas, and colon. Using mouse models and 3D culture models, Dr. Rustgi is investigating the role of cancer-causing genes and tumor suppressor genes in the pathogenesis of GI cancers.

BARBARA ALPER

Dr. Rustgi graduated summa cum laude from Yale College with a bachelor's degree in molecular biophysics and biochemistry and earned his medical degree at Duke University School of Medicine, where he was elected to Alpha Omega Alpha national medical honorary society. He completed an internal medicine residency at Beth Israel Deaconess Medical Center and a GI fellowship at Massachusetts General Hospital. He also served as associate professor of medicine at Massachusetts General before joining the University of Pennsylvania in 1998.

Dr. Rustgi has been elected to the National Academy of Medicine, the American Society for Clinical Investigation, and the Association of American Physicians and is a Fellow of the American Association for the Advancement of Science. Previously, he was president of the American Gastroenterological Association, editor-in-chief of Gastroenterology, and president of the International Society of Gastroenterological Carcinogenesis.

He is president of the American Pancreatic Association for 2020.

(Virtual) Match Day 2020

It was a Match Day like no other in VP&S history. In recent years, Match Day has been a rite of passage not just because it determines the future for graduating medical students, but also because family and friends have come together—in Bard Hall in recent years—to share the occasion with food, hugs, and selfies.

This year the rite of passage was moved online because of the spread of COVID-19 and the widespread cancellation of events that bring people together in dangerous proximity.

On March 20, the 136 members of the Class of 2020 who participated in the residency match were invited to tune in via Zoom from home for an event co-hosted by Lisa Mellman, MD, and Jonathan Amiel, MD, interim co-vice deans for education, who offered greetings along with Lee Goldman, dean.

"We are all adapting to the rapidly evolving changes related to coronavirus, and we are extremely proud of our students and how they are managing the many changes," said Dr. Mellman, who as senior associate dean for students affairs at VP&S customarily hosts the Match Day gathering. "Although everyone is disappointed that we aren't able to celebrate in person together, we are really pleased that they are with us for a virtual match celebration today."

At noon, students received their match letters via email. After the official event, nearly 60 students tuned in for an "after party" on Zoom and shared messages of congratulations.

Despite the unusual match event, the tradition of VP&S students matching to stellar residencies held strong. The most popular residencies were internal medicine (35 students), psychiatry (18), obstetrics & gynecology (10), pediatrics (10), orthopedic surgery, (7), ophthalmology (6), and urology (6).

Columbia Medicine asked a selection of alumni about their Match Day memories.

Karen Antman'74 recalls: "I was terrified. I was dating a classmate, Elliott Antman, and there was no couples match so we could easily have ended up 3,000 miles apart. I took my envelope into the ladies room close by and opened it in private. I was delighted to have matched to CUMC! I then went to find Elliott who had also matched to CUMC, so everything turned out fine."

Elliott Antman'74: "Boy, was I glad to see we matched at CUMC together. I was not sure if my 10-year-old Volvo would hold up during potential trips to visit Karen. Now we could 'walk to work' together; the rest is history for our family!"

Martha Stitelman'78: "I remember almost nothing about the match. Being headed for family practice and tied to the New York metro area, I had very few choices, so I threw myself on fate's mercy, matched at Overlook (without, I think, even a visit there), and it all worked out pretty well in the end. I dimly remember some senior resident telling us that no matter where we matched, if things didn't work out, we could eventually move on elsewhere, and I have found that good advice for just about every life decision then and since."

After participants in the 2020 residency match event learned their residency destinations via email at noon, an "after party" on Zoom allowed students to share messages of congratulations with each other.

Elyse Seidner-Joseph'86: "The night before our Match Day, we had a show and a party. Afterwards, a bunch of us drove to an all-night diner in New Jersey. I went straight from there to the auditorium in Hammer, where Dean Lewis handed out envelopes. No spouses or parents were there, no photographs or flowers or balloons. I was glad to match at my first choice (CPMC in internal medicine) along with several close friends in the class."

Peter Budetti'70: "I don't recall any major ceremony. I remember only a crowd of students milling about in an auditorium/

classroom and tearing open their envelopes. Reactions ranged from glee to sullen withdrawal. Some were delighted and started talking about getting married and beginning their careers, others were less enthusiastic but placated, and a few were dismayed. The one reaction that has stuck with me was from one of my classmates who had matched in exactly the same position as I had. I was pleased, since the internship was exactly what I wanted and I thought it would be cool to have the two of us together; however, as I recall, my classmate was seriously displeased and immediately set out to make a change and find a different appointment."

Barbara Wirostko'91: "I honestly do not remember much. I recall getting into P&S and screaming. This was now 30 years ago. My husband [Joseph Morelli'90] and I were in different years so he matched first. We could not do the couples match and as such we chose to only try to match in New York. I was ecstatic to stay and match at Edward S. Harkness Columbia. Given my dad was an ophthalmologist there, I had worked in the lab there since high school and basically it felt like home. Joe had started his residency in anesthesiology and staying at Columbia with him, I could not have asked for more. The quality and caliber of the teaching, professors, clinicians was—and is—one of the best in the country."

Super Night Tradition Preserved

Since 1978, the eve of Match Day has been a night for costumes, community, and celebration among VP&S students. Founded by the late Michael Kesselbrenner'78, Super Night has traditionally brought members of the graduating medical class together the night before the residency match for dinner, skits, performances, and videos. Each year's event features a theme, which ranged in recent years from the Olympics to the Oscars and from superheroes to Super Nintendo.

The Class of 2020 planned a celebration featuring their favorite childhood cartoons, but as with all other events scheduled for the first half of 2020, Super Night was cancelled. "It was about two weeks in advance of the event that we found out that Super Night was cancelled," says Jenna Lanz'20, who was working with classmate Kyle McCormick to produce the evening's video.

"We had maybe 60% of the video done when the event was cancelled. At that point, Kyle and I had a meeting to decide, 'Do we want to take some time to refocus and maybe present the video at a later date closer to graduation?'" she recalls. But amidst the uncertainty and mounting anxieties of the pandemic, the two decided that some traditions are too important to delay.

"The whole purpose of Super Night is to give us something to do when we would otherwise be sitting at home, very nervously thinking about our future and what's going to happen the next day when we get our envelopes," Dr. Lanz recalls. "We wanted to give the class something that would serve a similar purpose, even though we couldn't be together." With two weeks until Super Night, the pair decided to hunker down and finish the video.

The night before Match Day, the video's final cut came together as the Class of 2020 gathered on Zoom to watch, laugh, and reminisce. The video opened with a mock teaser trailer set to an iconic Disney score. "Coming to your apartment," the title card read, "with 25 or less of your closest friends."

The video chronicles the weeks leading up to Match Day in a series of scenes that parody the match process and the anxieties that come with it. Apropos of this Super Night's place in history, the pair added a skit featuring COVID-19. In it, Dr. McCormick parodies a mid-March announcement that the university expects no interruptions to medical education, until an impromptu update arrives via email. "Okay, so it turns out that *nothing* will be proceeding as normal!" she says with a clap of her hands. With each successive cut from the email to the podium, Dr. McCormick dons more and more personal protective equipment (PPE), reaching head-to-toe coverage just as the message notes that hoarding PPE is absolutely not necessary.

"It made a lot of people laugh," recalls Mary Raddawi'20, class president. "I think students were excited and relieved to have something to look forward to. It's a strange time to be graduating. I think there's this extra feeling of eagerness to be helpful, an eagerness to start. At the same time, COVID-19 adds a lot of anxiety to starting residency on top of the normal Match Day anxiety that we all already feel."

As the video neared its end and faculty members offered recorded words of congratulations, thanks, and encouragement, Drs. Lanz and McCormick began receiving grateful messages from their classmates.

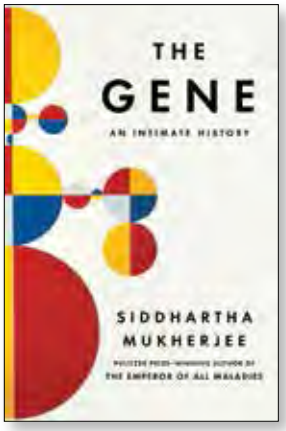
"I felt like I connected with a lot of students I wasn't able to see that night, which was what we wanted to accomplish with sending the video out that night, despite not having the event," Dr. Lanz says. "It was a total highlight of the year for me, even though I couldn't be with Kyle or any of my fellow medical students watching it. It was still one of the best memories I'll have of medical school."

For Dr. McCormick, the virtual Super Night was the perfect prelude to Match Day. "Jenna is one of my best friends, and we have known each other since first year. We've been through a lot of chaos. For me, it was one of the happier things to be able to do this video with her. It was super fun." — *Danny McAlindon*

PBS Airs "The Gene" Documentary

Several VP&S faculty members were featured in a new Ken Burns documentary based on Siddhartha Mukherjee's 2016 bestseller, "The Gene: An Intimate History."

Mr. Burns earlier produced a documentary based on Dr. Mukherjee's Pulitzer Prize-winning book, "The Emperor of All Maladies: A Biography of Cancer," published in 2010. That documentary was a six-hour series shown on PBS over three nights in March and April of 2015.



Both documentaries were executive produced by Mr. Burns and directed by Columbia journalism alumnus Barak Goodman.

The latest documentary was shown on April 7 and 14.

"The Gene: An Intimate History" discussed today's revolution in medical science through present-day tales of patients and doctors at the forefront of the search for genetic treatments, interwoven with a compelling history of the discoveries that made this possible and the ethical challenges raised by the ability to edit DNA.

Dr. Mukherjee is a cancer physician at NewYork-Presbyterian and a researcher at VP&S, where he is assistant professor of medicine. His research focuses on discovering new cancer drugs using innovative biological methods.

VP&S faculty members who appear in the documentary, in addition to Dr. Mukherjee, are Wendy Chung, MD, PhD, the Kennedy Professor of Pediatrics (in Medicine); David Goldstein, PhD, the John E. Borne Professor of Medical and Surgical Research and director of the Institute for Genomic Medicine; Samuel Sternberg, PhD, assistant professor of biochemistry & molecular biophysics; and Nancy Wexler, PhD, the Higgins Professor of Neuropsychology. The documentary also lauded the seminal contributions of two other legendary Columbians, Erwin Chargaff and Thomas Hunt Morgan.

Revisit Day 2020

Letters of acceptance for the VP&S Class of 2024 were sent in early March, and about 130 of those accepted applicants participated in this year's online Revisit Day.

The two-day event offered virtual information and breakout sessions and gave accepted students an opportunity to talk with current students who served as revisit leaders.

April 2 started with a welcome session hosted by the Office of Diversity and Multicultural Affairs. An information session about the P&S Club was followed by small group discussions with revisit leaders. During the revisit leaders' sessions, current students were assigned to a small group of accepted applicants who could ask questions about the student experience, extracurricular activities, research, curriculum, and other topics of interest to them. Those small group discussions also gave accepted students an opportunity to meet other accepted students—their future classmates.

On April 3, welcome remarks were offered by Lee Goldman, dean; Anne Armstrong-Coben, MD, senior associate dean for admissions; Donald Quest, MD, assistant dean for admissions; Lisa Mellman, MD, interim co-vice dean for education and senior associate dean for student affairs; Jonathan Amiel, MD, interim co-vice dean for education and senior associate dean for curricular affairs; Hilda Hutcherson, MD, senior associate dean for diversity and multicultural affairs; and Elizabeth Shane, MD, associate dean of student research.

Breakout sessions were offered on research/scholarly projects, student support, and clinics/service-learning opportunities. Additional information sessions focused on the Asian Pacific American Medical Student Association, the Black and Latino Student Organization, and the First-Generation and Low-Income Partnership.

"Revisit Day is typically a highlight of our admissions cycle and important for our recruiting efforts. Year after year, we hear from our first-year class that meeting our current VP&S students is what drew them to us as a school. They love the community of students and get a sense of our prioritization of student wellness and balance as they embark on this journey from student to doctor," says Dr. Armstrong-Coben.

"Although the format was unusual this year, our current students and faculty truly extended themselves to give these applicants a sense of who we are to help them make their final decisions about our school. Even virtually, the school's values and culture remain a strong selling point, and we are confident that the Class of 2024 will match the excellence of the classes that preceded it."

Early Graduation for the Class of 2020

Graduation for the Class of 2020 at VP&S was early and nontraditional. When it was over, most graduates did not have the usual breather before the start of residencies. Instead, they reported to NewYork-Presbyterian Hospital to support the COVID-19 front-line workers before beginning their residencies.

The virtual ceremony on April 15 brought together 139 graduates for a Zoom celebration. Of the 139, 88 were expected to join workers at NewYork-Presbyterian in roles ranging from medical scribes to telehealth guides.

"The challenges you've faced here in the last couple of months are unlike any the classes before you have faced," said Lee Goldman, MD, dean. "A number of you have decided to volunteer at NewYork-Presbyterian. It's heartwarming. You'll be joining faculty and staff who have been truly heroic, awe-inspiring."

Graduates showed off their creative flair with a musical performance and poetry reading and some shared brief speeches reflecting on their time in medical school and on the current pandemic.

A more formal graduation ceremony, also conducted online, was held May 6 ahead of the previously scheduled May 20 ceremony.

COURTESY OF THE COVID-19 STUDENT SERVICE CORPS

Members and advisers of the COVID-19 Student Service Corps at an online meeting

Students Start COVID-19 Volunteer Group

After in-person classes and clinical rotations were suspended for VP&S students, several decided to form the COVID-19 Student Service Corps, or CSSC, to lend a virtual hand to fellow health professionals. The medical students were joined by students from Columbia's Mailman School of Public Health, School of Nursing, and College of Dental Medicine.

Through service-learning projects, the students are supporting health care systems, patients, and communities. They staffed a community information line and created a task force to organize procurement, donation, and manufacturing of personal protective equipment. Student researchers remotely volunteered in CUIMC laboratories that are engaged in COVID-19 projects.

The group has released a toolkit for other academic medical centers interested in building their own CSSC chapters. More information is available by writing to cssc@cumc.columbia.edu or by following the group on Twitter @ColumbiaCSSC and @CSSCNational.

An Epic Launch for a New Medical Record

Less than a week after Columbia launched a new integrated electronic medical record—Epic—the work that required years of preparation was summed up in the subject line of a congratulatory email: "Thank you! Live, From New York – It's Epic."

The email was sent by Donna Lynne, DrPH, CEO of the faculty practice, ColumbiaDoctors, and chief operating officer of Columbia University Irving Medical Center, and George A. "Jack" Cioffi, MD, president of ColumbiaDoctors. "The moment Epic was fully launched across Columbia in the early hours of Feb. 1," the email said, "represented the culmination of countless hours of planning, training, and preparation."

The launch began with more than 60,000 patient charts with more charts expected to be added. More than 18,000 health care professionals and staff members are using Epic to document inpatient and ambulatory clinical visits for hospital and professional billing and to provide patients with a single integrated record across all NewYork-Presbyterian sites, Columbia, and Cornell. The new medical record promises to improve the continuity of care among the institutions. All parts of NYP, Cornell, and Columbia will be fully integrated into Epic by Dec. 31, 2021.

Once fully implemented, Columbia, Cornell, and NYP patients will join more than 200 million people worldwide who have an electronic medical record in Epic. The company, which has been in business since 1979, provides electronic medical record software for most of the nation's leading hospitals and academic medical centers.

The new system will ensure that physicians and other health care professionals have access to patient data where and when they need it to provide care. It gives patients access to a secure portal, called Connect, that allows them to communicate with their physicians and office staff and to manage their overall medical record.

Class of 2022 Transitions from Classroom to Clinical Care

Second-year medical students marked the start of their patient-centered training with the Jan. 3 Steven Z. Miller Student Clinician's Ceremony, the traditional rite that helps students shift from classroom education to seeing patients in hospital and ambulatory settings.

Joseph Cornett'22 received the Greg Grove Award, which is given to a student who is generative and well-liked, has contributed to his peers and his school community, and enjoys the outdoors, reading, and music. Mr. Cornett is a representative on the Dean's Advisory Committee and a leader of the Musicians' Guild and Bard Hall Players.

Other members of the class received Karl H. Perzin Excellence in Pathology Awards: Michael Calavano, Lucy Colville, Haley Davis, Patricia Ho, Todd Jones, Margaret Kelly-Gross, Andrea Lifrieri, Amber Parker, Ariel Pourmorady, Maggie Schaedick, and Yu Wang.

Teachers who were honored:

• Stephen Canfield, MD, PhD, associate professor of medicine, received the Fundamentals Outstanding Teacher Award, which recognizes classroom teaching.

• Olajide Williams, MD, associate professor of neurology, received the Major Clinical Year Outstanding Teacher Award from the Class of 2021.

• Teaching awards were presented by the Class of 2021 to these NewYork-Presbyterian residents: Emily Avis, MD, pediatrics; Richard Greendyk, MD, medicine; Benjamin Kuritzkes, MD, surgery; Rebecca Leeds, MD, primary care; Ruth McCann, MD, psychiatry; and Sierra Seaman, MD, obstetrics & gynecology.

The ceremony is named for the late Steven Z. Miller'84, who founded the first transition ceremony at VP&S. A national leader in humanism in medicine, Dr. Miller died in a plane crash in 2004.

"I remember the energy and enthusiasm Steve Miller brought with him every day," said Steven A. Lee-Kong, MD, assistant professor of surgery, who delivered remarks to students from the clinical faculty. "It's important to go through every rotation of major clinical year with this same outlook."

New Academy Recognizes Community and Public Service

The longstanding commitment VP&S faculty have made to public service in the community was formally recognized this year with the induction of 21 faculty members into the new Academy of Community and Public Service.

The academy recognizes faculty whose work has promoted and improved community health, particularly among residents of Washington Heights and Inwood, other parts of Upper Manhattan, and parts of the Bronx.

Members of the academy will serve as a corps of advisors and mentors who can support colleagues who have an interest in community service.

The academy joins other VP&S academies that recognize the contributions of educators (the Virginia Apgar Academy of Medical Educators) and clinicians (the Academy of Clinical Excellence). VP&S is the first medical school in the country to establish an academy for community and public service.

The Academy of Community and Public Service was created through the new Office of Community Service Programs, which builds upon the medical center's ongoing community service efforts to improve the health and education of adults and children in local communities. The academy is under the direction of Rafael Lantigua, MD, professor of medicine at CUMC and associate dean for community service in VP&S.

New devices, procedures, guidelines for clinicians

Clinical advances

By Jeff Ballinger

Fetal Surgery for Congenital Heart Defects

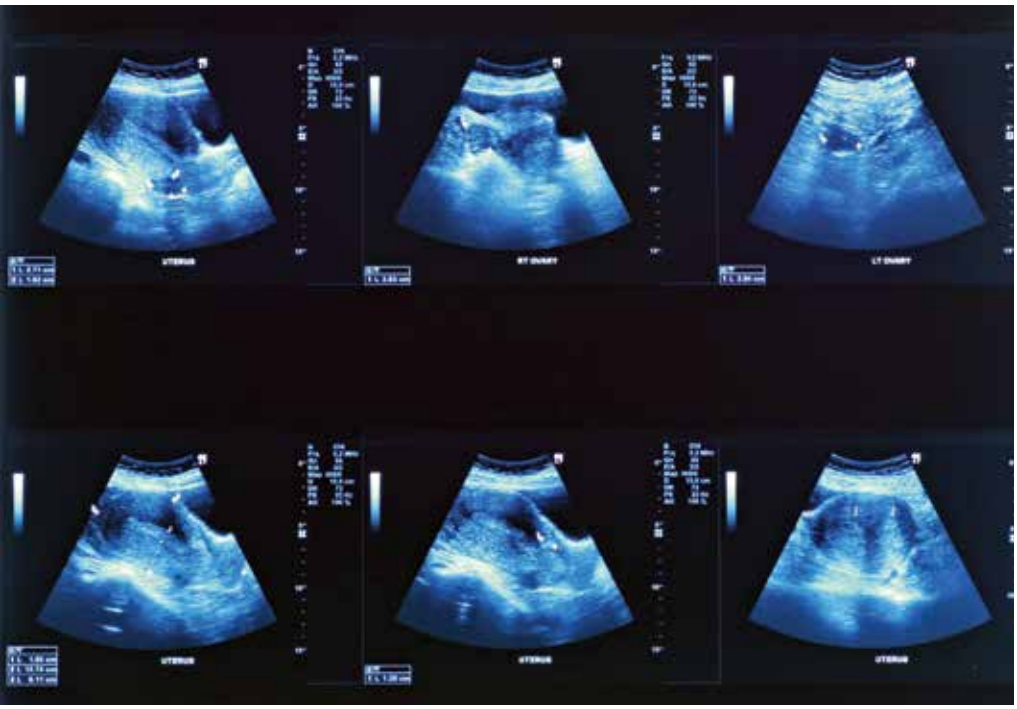
Even before they are born, infants with some congenital heart defects may be eligible for surgery with fetal interventions at Columbia.

The Fetal Cardiac Intervention Program, the first of its kind in New York state, opened last year within the fetal cardiac program.

"For most cases of congenital heart defects, fetal interventions are not feasible because of anatomical limitations or because the diagnosis was made too late," says Stéphanie Levasseur, MD, assistant professor of pediatrics, who directs the fetal cardiac program. "The patients are seen by the fetal cardiologist and maternal fetal medicine team to assess candidacy for the procedures."

Fetal interventions may be an option if a patient has aortic stenosis evolving to hypoplastic left heart syndrome, pulmonary atresia, or some forms of hypoplastic left heart syndrome. For these cases, Columbia pediatric cardiologists can modify the fetal heart with balloons or stents delivered via a catheter through the womb and into the fetus. "The goal is to improve outcomes and minimize invasive interventions after birth," says Dr. Levasseur.

The most common fetal cardiac procedure–aortic balloon valvuloplasty–is used for patients with an obstructed aortic valve that causes further heart damage. Physicians expand the valve with an inflatable balloon in an effort to prevent the development of hypoplastic left heart syndrome, when the left side of the heart weakens and cannot pump blood properly.



Similarly, an inflatable balloon also can open an obstructed pulmonary valve that is not working properly in fetuses with a condition called pulmonary valve atresia. However, the condition is more variable than its counterpart on the left side of the heart, and fetal pulmonary balloon valvuloplasty is reserved for select patients.

While balloon valvuloplasty is used to prevent heart damage from developing, the goal of the third procedure offered by the team is to improve survival. Fetal atrial septal stent implantation is for patients who have already developed hypoplastic left heart syndrome and whose foramen ovale has closed prematurely. In such patients, birth causes a circulation crisis and mortality is high even at experienced centers that are prepared to perform immediate surgery.

Implanting a stent to create an opening between the two atria may increase the odds of survival. "The success of invasive fetal interventions requires the collaboration of an experienced, multidisciplinary team," says Matthew Crystal, MD, associate professor of pediatrics and director of the fetal cardiac intervention team at NewYork-Presbyterian. "This includes high-risk obstetrics, fetal and interventional cardiology, and anesthesia, which were well-established at Columbia when we began the program.

"As the field progresses, we hope to be able to offer procedures earlier and with greater success," says Dr. Crystal.

More information is available at www.columbiaobgyn.org/services/fetal-cardiology. Referrals can be requested by calling the Center for Prenatal Pediatrics at 212-305-3151.

Hip Specialists Seeing More Hipsters

Hip pain typically occurs in the aging patient, but Columbia's physicians who focus on hip injuries and hip preservation are seeing greater numbers of Gen X and millennial patients.

"We've seen an explosion of hip injuries in young adults that's not related to arthritis," says T. Sean Lynch, MD, associate professor of orthopedic surgery, who oversees the Center for Athletic Hip Injuries & Hip Preservation at NewYork-Presbyterian Hospital.

One reason for the increase is a better understanding of hip pain in this younger and athletic population through the use of MRIs and ultrasound for injuries that were previously diagnosed as groin or muscle injuries. Another reason is the growing trend in sports of young people following professional-level training regimens.

"Many young adult patients with hip problems today trained year-round as teenage athletes–practicing far more hours per day and week than their parents did–with many focusing on a single sport," says Dr. Lynch, who specializes in the nonoperative and operative treatment of hip and knee disorders in athletes of all levels.

Dr. Lynch says such intense and narrow training increases the potential for major stress on the hips, particularly on the growth plate of the femoral neck. It is hypothesized that the body's natural reaction is to lay bone on the femoral neck adjacent to growth plates to offload this stress. This can cause a condition called femoroacetabular impingement (FAI), which can cause the hip joint to fit like a square peg into a round hole. This incongruent fit can cause injury to the cartilage and the labrum which can lead to pain and, potentially, osteoarthritis.

Femoroacetabular impingement can occur at any age, but it is typically symptomatic in patients ranging from teenagers to weekend warriors in their 30s and 40s. This is the predominant condition among the patients Columbia orthopedics specialists see.

The first treatment effort typically involves the least invasive measures, including rest, activity modification, and physical therapy to strengthen the core, lower back, and hips. Dr. Lynch has overseen the creation of best practice guidelines for the management of patients with FAI and labral tears.

Jakub Tatka, MD, a U.S. Ski Team physician, has joined the center. He specializes in hip preservation procedures such as periacetabular osteotomy and surgical hip dislocation.

Appointments can be made by visiting columbiaortho.org/appointments or calling 212-305-4565.

New Strategy for TIA and Minor Stroke Patients

Columbia University Irving Medical Center is among the first centers in the country–if not the first–to adopt a new approach to evaluate patients with minor stoke in the emergency department.

Common practice in U.S. hospitals is to admit patients with minor stroke or transient ischemic attacks (TIAs), but Columbia instead sends many patients home with an appointment for the following day at the new Rapid Access Vascular Evaluation-Neurology (RAVEN) outpatient clinic.

People who experience a TIA or minor stroke have a 10% chance of having a major stroke in the next 90 days, so patients need to be evaluated for appropriate preventive measures. In the United States, the medical community has not reached a consensus regarding the best evaluation approach for patients who come to the emergency department with TIA and minor strokes.

"Should they be admitted to the hospital and evaluated there because of the risk? Or is it safe to send them home to have an evaluation the next day as an outpatient?" says Mitchell S.V. Elkind, MD, professor of neurology and epidemiology (in the Gertrude H. Sergievsky Center), who led the creation of the clinic.

An outpatient approach could have benefits for both patients and hospitals: reducing patients' psychological distress and exposure to hospital infections, preserving needed hospital beds for sicker patients, improving flow through the emergency department, and saving money.

Inspired by studies in Europe that show an outpatient approach is both safe and cost-effective, faculty in the VP&S and Weill Cornell neurology and emergency medicine departments collaborated with NewYork-Presbyterian to create the outpatient clinic and protocols for deciding which patients are eligible.

The first study of the RAVEN clinic, published last fall in the Annals of Emergency Medicine, showed that the approach is a safe and feasible strategy for select TIA and minor stroke patients.

The study found no differences in outcomes between RAVEN patients and historical published data of patients evaluated as inpatients. An editorial on the study said that if the results were confirmed in a larger trial, the approach has "the potential to result in a change in current clinical practice and practice guidelines."

In the three years since the clinic opened, Dr. Elkind said patients continue to report satisfaction with the approach, which shows no increase in the risk of stroke.

"Patients with TIA and minor stroke who meet several criteria indicating low risk can be safely referred for outpatient evaluation," he says. "This is an example of a study idea borne out of a very common clinical scenario that we face every day. And we think the approach could be adapted for other acute medical conditions."

JÖRG MEYER

A 14-YEAR PARTNERSHIP

‘HONORED AND PRIVILEGED — TO BE THE — TEMPORARY STEWARD’

LEE GOLDMAN, DEAN SINCE 2006, DISCUSSES GOALS REACHED THROUGH COMMITMENT, PARTNERSHIPS, AND INVESTMENTS

SHORTLY AFTER ARRIVING AT COLUMBIA IN 2006 as dean of what has since been renamed the Vagelos College of Physicians and Surgeons, Lee Goldman sat down with *Columbia Medicine* and outlined his vision for working with faculty, students, staff, alumni, and other supporters to pursue multiple goals: “have a curriculum that everyone else emulates,” “change the way the place looks,” “make substantial investments in the academic mission,” “build new strengths,” and “aggregate talent.”

An interview this year gave Dr. Goldman an opportunity to reflect on his 14 years as “temporary steward” of VP&S. What follows is a condensed version of the conversation. →

When I started medical school in 2004, Columbia was already a powerhouse. Lee's stellar leadership in the past 14 years has led Columbia Vagelos College of Physicians and Surgeons to grow and progress to, in my honest opinion, the best medical school in the country.

— Thomas Lo'08
President, VP&S Alumni Association

Lee Goldman has been an extraordinary dean. Not only because he moved our school out of a blood-red deficit in a matter of years. Not only because he threw open the doors of innovation in our medical curriculum. Not only because he offered to build a new Department of Medical Humanities & Ethics and invited me to chair it. But because he has the rare-to-vanishing leadership capacity to birth great visions and then make them happen.

— Rita Charon, MD, PhD
Professor and Chair, Medical Humanities & Ethics; Professor of Medicine; and Executive Director, Columbia Narrative Medicine

From the moment I met Dean Goldman, I knew he would be an outstanding leader for our medical school, our campus, and the northern Manhattan community. Lee was always cognizant of persistent health disparities in the community and the role of the institution in improving the quality of life and social determinants of health of our neighbors. He came to be known in our community as a trusted leader and supporter of the community's health agenda.

— Rafael Lantigua, MD
Director, Office of Community Service Programs

COLUMBIA MEDICINE: Much of the success during your tenure started with building a financial model that provided financial security.

LEE GOLDMAN: It is very important to emphasize that financial stability is not an end in itself but a means to an end. We are not a publicly traded entity whose success is largely linked to its profit margin, but we have to be prudent and responsible. Our greatness is not based on the size of the margin but rather on how we prioritize our resources. If we always lose money, we cannot make the investments needed for greatness. Financial stability has fueled investments that have stimulated rapid growth in both research and our clinical programs and made us much more attractive to students and philanthropists.

You also have referred to campus improvements as a means to an end.

Poor facilities are a disincentive for good people to join us and, frankly, even for good people to stay. We don't need fancy facilities, but we do want to have a campus that is a draw for students, faculty, patients, and staff who are proud to be here. Many of our buildings are old, but even they can be appealing if they look good and function well. Part of the appeal is our historic position of being among the very first places where a medical school and a hospital came together to create an academic medical center. I am always impressed that if you look at this campus from any direction, the size and scale of the buildings are truly remarkable. Even the oldest ones have good "bones" so they can be renovated to create first-class offices and laboratories suitable for the modern era, and our financial stability has allowed us to do just that.

How have we done in terms of aggregating talent?

The real measure of how we are doing is our ability to aggregate talent, to bring terrific people here as trainees, faculty, and staff and to mentor them and help them succeed. Our people make us a great place, so everything we do is with that goal in mind. We value people who are or will become local, regional, national, and international leaders in all of our missions. We also value diversity and inclusion, people from all backgrounds. We are at the top of our peer group in terms of the percentage of women faculty, and we are committed to assuring that tenure, tenure track, and leadership positions represent our belief in diversity and inclusion. We owe a great deal to Dr. Anne Taylor, vice dean for academic affairs, for how she has helped us—she has been a real leader here and nationally.

JÖRG MEYER

How does the concept of a means to an end relate to education?

Early on, we worked on the medical school curriculum, to modernize it, to create a curriculum in which students completed their pre-clerkship requirements more rapidly and saw patients right from the beginning. The new curriculum emphasized small groups and created time needed for students to complete a scholarly project. These changes, which made the medical school experience more positive, set the stage for similar changes in many of our peer schools.

And, of course, the scholarship program is a game changer. Thanks to the extraordinary generosity of Roy and Diana Vagelos as well as matching gifts from numerous alumni, friends, and faculty, we now can provide all calculated financial need as scholarships without loans. And now we can fully cover the expenses of students who come from families that have less than $125,000 in annual income. These scholarships are making medical school affordable for people who previously would not even think about applying. Our hope is that this financial aid will allow our students to pursue careers in fields such as primary care, pediatrics, and research, where remuneration is lower, because they will not be limited by medical school debt.

Under Dean Goldman's leadership we were able to bring our medical school and medical school curriculum to the next level. The new education building with its state-of-the-art simulation center and modular classrooms has provided new, incredible opportunities for teaching and learning. I felt truly supported as a medical educator. Thanks to Dean Goldman's vision, medical students are more prepared than ever to practice medicine.

— Rachel J. Gordon, MD
Associate Professor of Medicine and Epidemiology at CUMC; Director, Curricular Innovation & Strategic Initiatives; and Course Director, Ready 4 Residency

Lee Goldman has been deeply committed to recruiting the most talented and diverse faculty in the history of VP&S. But perhaps more admirable is that he made support of faculty professional development, accommodation for family priorities, and celebration of faculty achievements a benchmark of his tenure as dean.

— Anne Taylor, MD
Vice Dean for Academic Affairs

My primary reason for accepting a faculty position at Columbia in 2008 was the exciting new 18-month basic science curriculum implemented by Dr. Goldman. This change allowed me to transform the gross anatomy course into one that emphasizes teamwork and small group learning.

— Paulette Bernd, PhD
Professor of Pathology & Cell Biology and Director, Clinical Gross Anatomy & Anatomical Donor Program

Julia Iyasere, MD, left, works with a student in the simulation center in the Vagelos Education Center.

The past 14 years have seen a revolution in structural biology with the addition of electron microscopy as a tool of molecular structure determination. The dean's decisive steps to build up a cryo-EM resource facility with the help of generous donors have propelled Columbia University to the forefront of structural biology and precision medicine worldwide.

— Joachim Frank, PhD
Professor of Biochemistry & Molecular Biophysics
and 2017 Nobel Laureate

Dean Goldman has shown exemplary support of the research mission and appreciation for the dedication and accomplishments of the faculty. He has enhanced resources for achieving excellence in fundamental and translational research, improved the environment through programs for faculty development and inclusion, and rewarded achievement at all levels.

— Donna Farber, PhD
George H. Humphreys II Professor of Surgical Sciences (in Surgery)
and Professor of Microbiology & Immunology

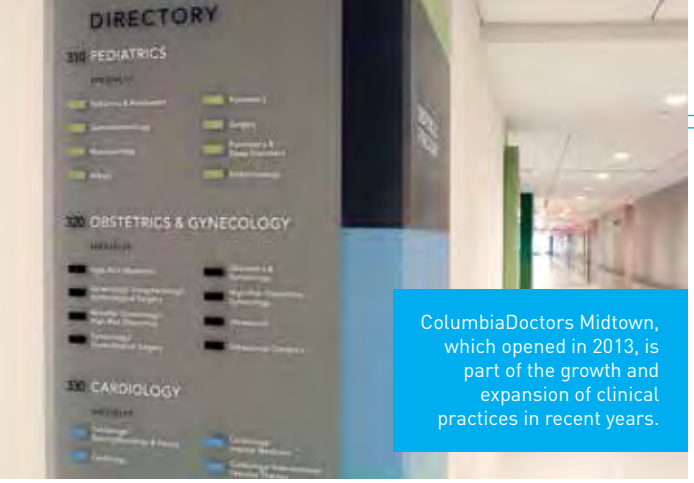
How does research measure up?

An emphasis on research is one of the things that fundamentally differentiates academic medical centers from other good hospitals and medical practices. We have made investments in both basic and clinical research, and our 2019 ranking in Nature Index, an annual calculation of research citations, is a marker of our success: Last year we were No. 1 in the United States! Another metric is the growth over the past decade of our National Institutes of Health grants portfolio, which at the conclusion of the last federal fiscal year had the third largest absolute growth of any medical school in the country and the largest percentage growth of any of the top 10 schools. We have had a number of initiatives to expand our research portfolio, including genomic medicine, systems biology, computational biology, immunology, cancer, and stem cell biology. Clinical trials continue to expand and contribute to some of the most important medical advances of our time. During the height of this year's coronavirus pandemic, we were able to pivot quickly to research that approaches COVID-19 from multiple angles. At press time, that work continues and includes the development of new diagnostic tests, the use of such tests to track the

Soon after moving to VP&S in early 2020, the Aaron Diamond AIDS Research Center pivoted to COVID-19 research projects.

By any measure—grants, philanthropy, space, practice volume, education, recruitment—Dr. Goldman has changed the face of VP&S in a very positive way.

— Thomas Q. Morris, MD
Alumni Professor Emeritus of Clinical Medicine and Interim Dean for Clinical and Educational Affairs, 2000-2001



ColumbiaDoctors Midtown, which opened in 2013, is part of the growth and expansion of clinical practices in recent years.

JENNIFER O'ROURKE

early and subsequent spread of the virus, and the identification of novel therapeutic targets. We are confident our researchers will be at the forefront of innovations in diagnosis, treatment, and prevention that will contribute to a successful response to this pandemic.

Being a part of a great university has enabled us to share resources and expertise, as well as to recruit and retain talented faculty and trainees and help catalyze research programs in other schools or campuses. The Zuckerman Mind Brain Behavior Institute is a multidisciplinary program that includes many outstanding members of the VP&S faculty. We have a wonderful relationship with the engineering school, where our faculty work especially closely with faculty in the Department of Biomedical Engineering. The same can be said of precision medicine and cancer, which are more and more Columbia-wide programs and not just based at the medical center.

Patient care?

Our faculty provide outstanding patient care and have expanded programs in Manhattan, with our major facility at 51st Street, as well as other locations. With NewYork-Presbyterian, we have also had major expansion in Westchester County, especially at Lawrence Hospital in Bronxville. The clinical growth has been driven by the fact that patients all over the New York metropolitan area want to see Columbia doctors, so it is gratifying that we can connect our terrific doctors with patients to provide truly exceptional care. This growth is possible only because of the wonderful partnership we have with NewYork-Presbyterian. The hospital has made a huge investment not only in clinical care but also in key aspects of education and research that underscore our combined ability to be a top provider of clinical care. Being associated with a highly ranked hospital reflects well on us, and our highly ranked medical school in turn helps the hospital.

More recently, our faculty, staff, and even students have risen—often with true heroism—to face the COVID-19 pandemic. With NewYork-Presbyterian, we have pioneered approaches, such as shared ventilators, have been leaders in clinical trials, and have achieved remarkable outcomes even in the sickest of patients.

Under Lee's guidance, ColumbiaDoctors has grown exponentially. His advocacy enabled the Faculty Practice Organization to fulfill its mission of providing centralized services and professional support for our clinical operations throughout the region. It is because of Lee that we've been able to enhance the quality of patient care and have ensured a more uniform patient experience for every person who sees a Columbia doctor. Thanks to Lee's visionary leadership, we successfully developed multispecialty practices from Manhattan to northern Westchester.

— George A. "Jack" Cioffi, MD
Edward S. Harkness Professor, Jean and Richard Deems Professor; Chair, Ophthalmology; and President, ColumbiaDoctors

Strange fate. I got the honor to be recruited twice by Dr. Goldman. First at UCSF, when he was chairman of the Department of Medicine, to be one of the first junior faculty recruited to the newly established stem cell program. Then, in 2017, to take the direction of the Columbia Stem Cell Initiative in VP&S. I was always attracted by Dr. Goldman's modern vision of the biomedical enterprise and joined VP&S to help place stem cell research at the center of it.

— Emmanuelle Passegué, PhD
Director, Columbia Stem Cell Initiative, and Alumni Professor of Genetics & Development

As a bioengineer with a lab at CUIMC and appointments at the Department of Medicine and the College of Dental Medicine, I benefited from the intellectually rich and highly collaborative environment for translational research. Dean Goldman deserves a lot of credit for facilitating interactions between CUIMC and engineering and for promoting research focused on real clinical needs.

— Gordana Vunjak-Novakovic , PhD
University Professor; Mikati Foundation Professor of Biomedical Engineering and Medicine; Professor of Dental Medicine; and Director, Laboratory for Stem Cells and Tissue Engineering

Dr. Goldman is a renowned clinical epidemiologist and an inspiring mentor. It is hard to overstate his impact on the extraordinary growth of clinical research programs across the schools and departments at CUIMC. As a member of the first cohort of faculty recruited to Columbia by Dr. Goldman, I feel extremely fortunate and honored to serve the institution under his tutelage. Thanks to his support and guidance, Columbia has become an academic powerhouse of perioperative outcomes research and injury epidemiology.

— Guohua Li, MD, DrPH
Mieczyslaw Finster Professor of Anesthesiology

I have had the opportunity to witness the evolution of VP&S since 1999 when I arrived as a medical student. The appearance of the school has been markedly enhanced, the resources to support research by younger investigators have increased, and there is more transparency in the promotion process for faculty.

— Richard O. Francis, MD, PhD
Assistant Professor of Pathology & Cell Biology

Dean Goldman instilled in me his goal that VP&S be "in the top 5, arguably the best." This challenge to us inspired me to make that happen in our department. I am enormously grateful for his support in making it real.

— Mary D'Alton, MD
Willard C. Rappleye Professor and Chair, Obstetrics & Gynecology

How has philanthropy been a means to an end?
Just as the generosity of Roy and Diana Vagelos was a game changer for our students by providing scholarships, other gifts have been "name" changers. The estate of Herbert and Florence Irving provided support for cancer, translational research, precision medicine, and young faculty scholars, and we joined NewYork-Presbyterian Hospital in renaming the medical center in recognition of the role the Irvings played in advancing what is one of the leading academic medical centers in the nation and world. And, of course, the generosity of Roy and Diana Vagelos went far beyond creating our scholarship program. Their gifts also support precision medicine and basic science research programs. Their total giving to Columbia—$310 million, including the donation they

14 YEARS OF **PROGRESS, GROWTH**

2006

Lee Goldman becomes the 23rd dean in the history of the Vagelos College of Physicians and Surgeons.

$54 million NIH grant and private funding create the Irving Institute for Clinical and Translational Research.

2007

New financial and administrative model is launched to ensure financial stability.

The Department of Neuroscience is the first of four new departments established between 2006 and 2020. Emergency Medicine, Systems Biology, and Medical Humanities & Ethics are the others.

2008

Joachim Frank, 2017 Chemistry Nobel Laureate, joins VP&S faculty.

2009

30,000-square-foot Hammer Teaching and Learning Center opens.

New curriculum is launched with the incoming Class of 2013, shortening the fundamentals, moving patient care to the beginning of medical school, and adding a scholarly project requirement.

2010

$50 million gift from Roy and Diana Vagelos supports construction of a new education building.

First students enroll in the Columbia-Bassett Program, in which students begin their studies in New York City then move to Bassett Medical Center to care for patients in a mostly rural population.

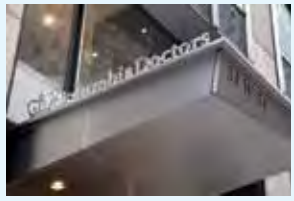
2011

Strategic planning process, "2020 Vision," begins.

2013

New outpatient facility in Midtown opens at 51 W. 51st St.

A new degree, a three-year PhD-to-MD degree, is offered.



provided for the design and construction of the award-winning Vagelos Education Center—has been transformative, particularly when added to the matching funds generated through their giving. Overall, VP&S has raised nearly $3 billion over these past 14 years.

The generosity of so many individuals and organizations—and the continuing support of our research by the NIH, the devotion of our patients, the popularity of our medical school among applicants, the wonderful pool of talent among our faculty and staff, and the devotion of our alumni—will ensure that this medical school will remain among the very best in the nation and the world for many generations to come. It has been an honor and privilege to be the school's temporary steward through these past 14 years. ❖

Lee Goldman is an amazing person. He's a scholar. He's a researcher. And he has made enormous contributions to patient health, outcomes, and systems wherever he's been. He has contributed to every aspect of the medical school and the medical center.

— P. Roy Vagelos'54
Chair, Board of Advisors

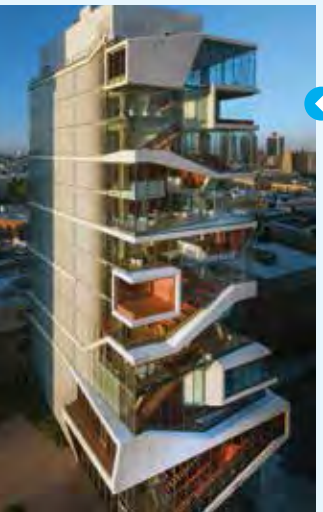
2014

Virginia Kneeland Frantz Society for Women Faculty is established.

Kenneth A. Forde Diversity Alliance is established.

2016

Gifts from Florence and Herbert Irving lead to renaming the medical center as the Columbia University Irving Medical Center.



The award-winning Roy and Diana Vagelos Education Center opens on Haven Avenue. It includes five floors of a simulation center, the medical school's first dedicated space for simulated learning.

2017

COLUMBIA
VAGELOS COLLEGE OF PHYSICIANS AND SURGEONS

Columbia University renames its 250-year-old medical school the Roy and Diana Vagelos College of Physicians and Surgeons.

VP&S, which started life in 1767 as the medical faculty of King's College (which later became Columbia University), celebrates its 250th anniversary.

2018

VP&S announces a program that provides scholarships in place of loans for all students with financial need.

2019

Haven Plaza, 60,000 square feet of space on Haven Avenue, opens to provide quality open space for the medical center community and the surrounding neighborhood.

For the past decade, VP&S has had the third largest absolute increase in NIH grants dollars and the largest percentage increase in the top 10 medical schools.

Columbia University Irving Medical Center is named the top health care institution for scientific research by the Nature Index Annual Tables.

2020

Aaron Diamond AIDS Research Center, led by David Ho, moves from Rockefeller University to VP&S.

THE FIRST 60-PLUS DAYS AT THE

Marshalling patient care, research, and educational resources, VP&S and all of Columbia University answered the call as New York City became the nation's epicenter of COVID-19

By Bonita Eaton Enochs

Tomoaki Kato, MD, is known for performing surgery no other surgeon typically attempts. Recruited to Columbia and NewYork-Presbyterian in 2008, he has performed hundreds of liver transplants in adults and children and so-called ex vivo surgery, in which he takes organs out of the body, cuts the tumor, and puts the organs back. The operations typically take hours, and as a marathon runner, Dr. Kato excels in these marathon surgical procedures.

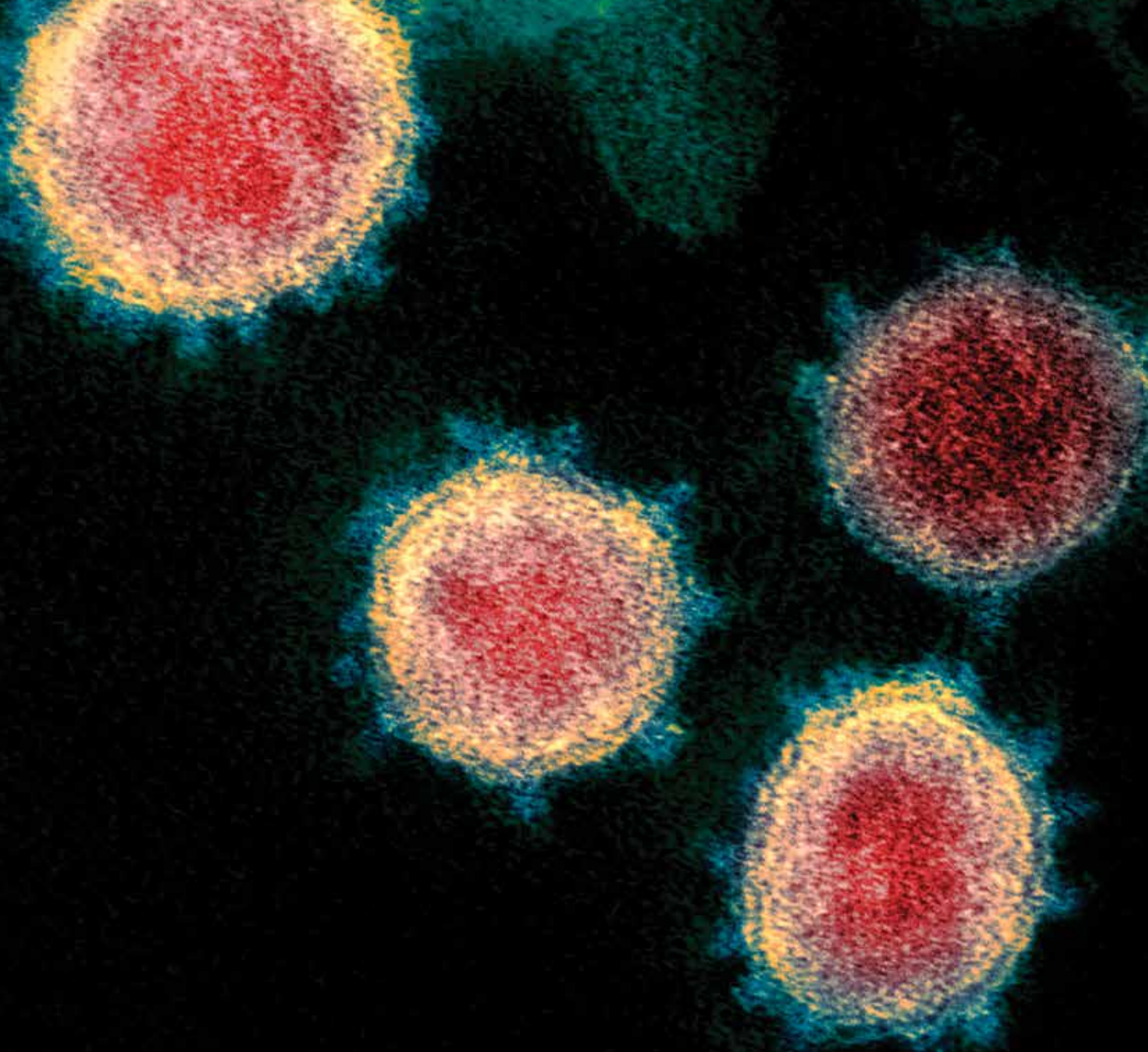
His surgical prowess took backstage on May 4, though, when he arrived in a wheelchair to a Department of Surgery concert at NYP and joined the performers in singing "A Whole New World." Still hospitalized from COVID-19 at the time, Dr. Kato explained that he was on a ventilator for a few weeks and ECMO for another few days. "Thanks to my colleagues and thanks to God, I was able to survive."

Dr. Kato is just one of many COVID-19 patients who have been treated throughout the NYP hospital system. The Columbia and Cornell campuses were the busiest among the 10-hospital NYP system.

In the 60-day period from March 2—when NYP/Columbia admitted its first COVID-19 patient—through April, the number of COVID-19 cases throughout the large NYP system grew daily until hitting the top of the curve on April 13. From then until mid-May, the number of COVID-19 patients hospitalized at the Columbia campus dropped by about 60%. Hospitals throughout the tri-state area saw similar declines.

Columbia and the hospital take pride in their extraordinary response to the crisis that VP&S

Photographs by Jennifer O'Rourke



EPICENTER OF COVID-19

Dean Lee Goldman, MD, called "the most challenging health crisis of our lives." The medical school's response touched all parts of an academic medical center's mission: teaching, research, and patient care. In addition, VP&S implemented programs to ensure the wellness and mental health of faculty and staff working on the front lines of patient care as well as those working remotely to support the ongoing response.

Each of those missions was fully engaged by the time COVID-19 appeared at the medical center in early March. Below are just a few examples of the response as of early May.

CLINICAL RESPONSE

Planning for the Columbia and NYP response began in January, and by February, protocols were in place in clinical practices to ask patients with fever and lower respiratory illness about their travel history. Patients who had traveled to China, Iran, Italy, or South Korea or had been exposed to someone with confirmed or suspected COVID-19 within the previous two to three weeks were isolated and separated from other patients, and staff interacting with those patients took appropriate precautions based on guidance from NYP Infection Prevention and Control and the New York City health department. By March 5, travel history had become less important in screening patients, as the number of COVID-19 patients in New York City—the epicenter of the U.S. spread of the virus—changed every hour.

About 1,200 clinical staff were redeployed to work in departments other than their own. This included surgeons and ophthalmologists working in the emergency department and internists working in ICUs.

Elective surgery and procedures were deferred and most outpatient ambulatory care was deferred by the time New York City ordered all nonessential workers to stay at home or work remotely on March 22. Deferral of routine or nonurgent care allowed NYP to manage the surge of cases by focusing resources—people, supplies, and space—on emergent care, particularly patients with COVID-19.

Closing most outpatient offices prompted an increase in telemedicine, and ColumbiaDoctors offered training to facilitate the use of remote visits. At one point, more than 50% of ColumbiaDoctors visits—and 60% of prenatal visits—were done virtually.

By March 20, New York City had more than 40% of the nation's COVID-19 cases. NYP increased its capacity by doubling the number of ICU beds, including creating an 80-bed ICU in an operating suite at NYP/Columbia. This required mapping out the floor plan, changing the wiring in the gas outlets, and making new work spaces. Some hospital space was transformed into a medical/surgical unit, and the conference center at Milstein Heart Hospital became a field hospital. Another field hospital was set up at Columbia's Baker Athletics Complex to accommodate patients recovering from COVID-19.

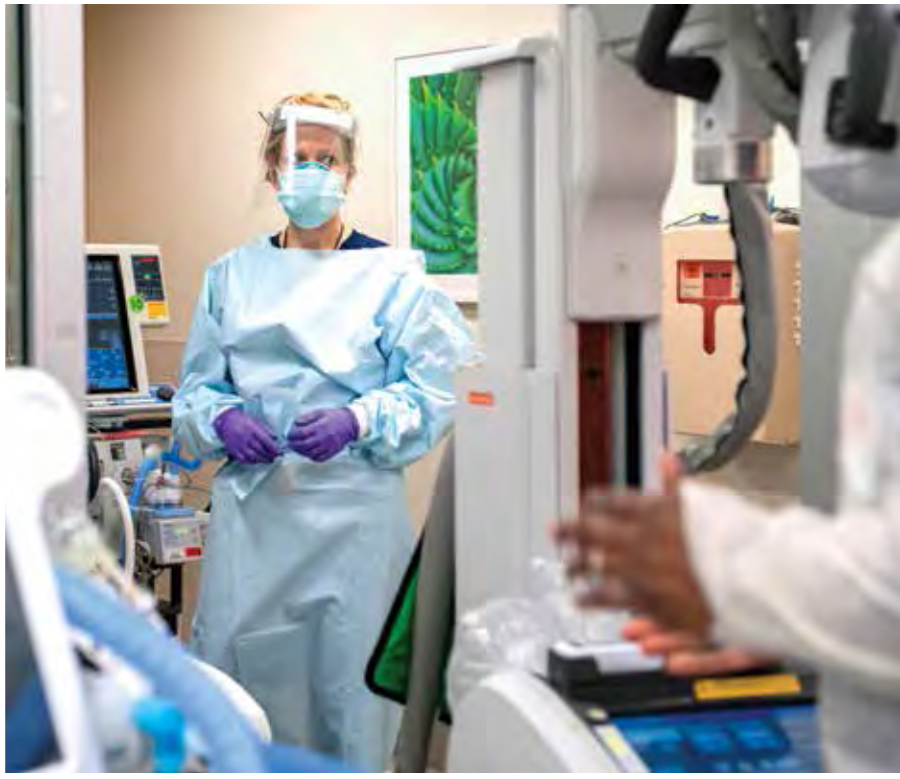
A new ICU model of care was needed to accommodate the increasing number of patients and their long ICU stays (an average of 14 to 21 days). The new model of care came together within three weeks. The hospital leadership team that described the effort in a New England Journal of Medicine article called the new ICU units *surge ICUs*—ICU beds outside of a licensed ICU setting. Teams of facilities, biomed, and IT specialists constructed surge ICUs in a cardiac cath lab, operating rooms, and medical-surgical units. Ventilator capacity was increased by using OR anesthesia machines that would provide necessary invasive ventilation. A number of specialized teams were added to the ICUs. Among them were imaging teams for bedside and portable imaging, proning teams of physical therapists trained to help turn patients in units where the technique was not routinely performed, and family support liaisons who updated families unable to be with loved ones in the hospital.

As the number of COVID-19 patients increased, VP&S leadership announced that faculty and staff could be redeployed to other areas of the medical center. About 1,200 clinical staff at Columbia—many now available because of cancelled elective care, deferred procedures, and consolidation of outpatient practices—were redeployed to work in departments other than their own: surgeons in the emergency department, internists in ICUs. Within departments, even more faculty were assigned to new roles. Nonclinical staff were redeployed to assist the clinical mission by transporting patients, distributing scrubs, assembling face shields, and answering calls to the Workforce Health and Safety hotline.

By late March, concern over ventilator supply increased. New York Gov. Andrew Cuomo announced that New York state approved a protocol developed at Columbia and NYP to use one ventilator for two patients with similar ventilation needs. The protocol was shared with other hospitals. The change prompted the Department of Anesthesiology to create a new role, the physician ventilation specialist, to monitor ventilator use and augment the role of respiratory therapist.

BELOW: COVID-19 survivor Diana Berrent was the first person in New York state to be screened for antibodies that could be used to treat other patients with the disease.

COURTESY OF DIANA BERRENT



COURTESY OF DIANA BERRENT

An April call by the hospital for volunteers—mostly doctors and nurses—drew hundreds of responses. In addition to retired NYP and New York City area medical personnel and reinforcements from temp agencies, health care workers traveled to New York from the University of California at San Francisco, Cleveland Clinic, Intermountain Healthcare in Utah, the University of Arkansas for Medical Sciences, Arkansas Children's Hospital, and Cayuga Medical Center at Ithaca, New York, among other places. In all, about 250 physicians joined the NYP medical staff, including doctors from peer academic medical centers less affected by COVID-19.

Andrew D. Thomas'99 was among the volunteers. He left Minnesota, where he is a hand surgeon, to volunteer in the NYP/Columbia COVID ICU. While in NYC, he stayed in his old room at Bard Hall (Room 431). In a letter home, he shared what he said to a team he led while volunteering in the ICU: "I tell them something Coach Spencer told me during a Little League practice when I was 11. Baseball is a game of inches. Well, so is ICU care. You win because you back up the throw to third every single time and run out a ground ball every single time. People survive in ICUs because their ET tubes get suctioned on the hour, every single time, heels are kept off mattress so they don't ulcerate, every single time. Lines are flushed, sheets are changed, pumps declogged, oral hygiene carried out. We are playing a mortal game of inches and if we win, it will be one inch at time."

COVID-19 diagnostic test results took five to seven days in early March because patients' swabs were required to be sent to the CDC. That changed when the NYP-CUIMC Clinical Microbiology Laboratory was able to perform the test. By March 16, NYP and CUIMC laboratories were using a rapid test that could return results in as little as four hours, with a test capacity of over 1,000 samples a day in the entire NYP system. By the end of April, the Columbia lab had processed approximately 20,000 diagnostic tests.

Planning for blood tests to look for antibodies began in mid-March, and by early May the Columbia lab was processing upwards of 1,000 serological samples a day with typical turnaround time of approximately 48-72 hours. With additional automation becoming available, the goal in May was a testing turnaround time of less than 24 hours.

On April 7, Angela Mills, MD, chair of the Department of Emergency Medicine, reported that the number of emergency department patients had decreased over the previous few weeks, but the patients arriving were sicker, most with COVID-19. In recognizing the New York Fire Department cheering outside the ED one night, the many food deliveries, thank you signs, and personal protective equipment (PPE) donations, she says, "While this virus has spread around the world, I've seen remarkable acts of kindness that, in my opinion, have been spreading far more quickly than COVID-19."

RESEARCH

In mid-March, Columbia University announced plans to ramp down research to reduce the number of people on all campuses. Research allowed to continue included any research that could be performed remotely, research related to the coronavirus, clinical research that could directly benefit the patients being studied, and the required continuation or winding down of research that would be lost otherwise.

COVID-19 research ramped up quickly, even before the first patient was admitted to NYP/Columbia. In February, four research teams at Columbia University received a $2.1 million grant to mount an aggressive effort to identify potential antiviral drugs and antibodies for use against COVID-19. The Columbia scientists, led by David Ho, MD, founding scientific director of the Aaron Diamond AIDS Research Center, are collaborating with academic researchers in China.

Dr. Ho is leading an effort to develop monoclonal antibodies, molecules that can bind to the surface of the coronavirus and neutralize the infectivity of the virus. As a first step, antibodies from blood cells of recovered COVID-19 patients are being isolated. These virus-neutralizing antibodies will then be engineered to optimize their potency against the coronavirus.

W. Ian Lipkin, MD, the John Snow Professor of Epidemiology at the Mailman School of Public Health, professor of neurology and of pathology & cell biology at VP&S, and director of Mailman's Center for Infection and Immunity, leads a research initiative that uses samples of the live virus to develop rapid and reliable tests to diagnose COVID-19 and identify sources of transmission, particularly in individuals with the infection who have mild disease or are asymptomatic. The samples are housed in a Biosafety Level 3 laboratory.

As of mid-May, more than 250 COVID-19 research projects were underway throughout Columbia University. That includes clinical trials. As New York City became the epicenter of the COVID-19 pandemic, Columbia physicians became some of the first doctors to notice the complications of patients admitted to the hospital. Clinical trials underway at Columbia test different therapies and preventive techniques, including sarilumab and remdesivir for hospitalized patients, and optimal treatments for high degrees of clotting seen in patients. Other trials are of recovered patients to determine long-term effects.

People who have survived COVID-19 may have antibodies in their blood plasma that can help current patients, but reliable antibody tests are needed to identify potential plasma donors. "When it became clear that it would take several months for commercial companies to develop a test for antibodies, we started to develop our own," says Eldad Hod, MD, associate professor of pathology & cell biology, who is screening COVID-19 survivors to find potential plasma donors.

The ELISA antibody test was initially developed in Dr. Ho's lab. Postdocs in the basic science laboratories of Filippo Mancia, PhD, and Oliver Clarke, PhD, stepped in to produce the viral proteins needed for clinical use of the test. And dozens of postdocs organized by Columbia Researchers Against COVID worked long

COURTESY OF THE DEPARTMENT OF RADIOLOGY

shifts into the evening hours to collect hundreds of patient blood samples that were needed to validate the tests.

"These are difficult assays to develop," Dr. Hod says. "Other substances in blood samples can interfere, and we had to develop quality control agents so testing is the same from day to day. It was 24/7 for a couple of weeks to get this up in the right way."

By April 14, Columbia's assay had received approval from the New York State Department of Health and the first tests were processed. By the end of April, the assay had been semi-automated and nearly 500 tests are run each day to measure the prevalence of the disease and screen for convalescent plasma donors.

Other research has been conducted on how the virus affects the heart. In March, two teams of Columbia cardiologists published some of the first U.S.-based reviews about the effect of COVID-19 on the heart. "There were reports coming out of China about non-respiratory manifestations, and the cardiovascular manifestations were among the most important," says Sahil Parikh, MD, associate professor of medicine and director of endovascular services in Columbia's Division of Cardiology, who led one of the reviews about COVID-19 and the heart.

A study published in May that reviewed 28 heart transplant patients diagnosed with COVID-19 showed the fatality rate at 25%. "Recipients of heart transplant are at high risk for severe complications from coronavirus disease 2019 infection; management of this population is complex and should take place in a transplant center," the authors wrote.

Columbia physicians in other fields, including palliative care, organ transplantation, obstetrics, and neurology, also shared their experiences in journal articles.

Curtailing all but COVID-19 and other essential research allowed researchers to pivot to projects focused on the pandemic. Kenneth Olive, PhD, associate professor of medicine, brought together a team of volunteers—students, postdocs, staff scientists, and administrative staff—to assist with the surging COVID-19 response. More than 700 volunteers signed up and worked more than 1,500 hours at NYP hospitals, helped process more than 20,000 samples in the biorepository, processed nearly 2,000 samples in the precision genomics lab, and assisted in the serology lab.

"It is unprecedented in all of human history to have as abrupt a change in global scientific attention as we've had in this very short period of time."

Clinical trials are testing existing drugs, while other research laboratories look for entirely new compounds that will work against the new coronavirus and coronaviruses that may emerge in the future. "Over the past two decades we've seen the emergence of three deadly coronaviruses: SARS, MERS, and now SARS-CoV-2," says Dr. Ho. "We believe it is likely that new coronaviruses will emerge in the future."

Columbia researchers learn about each other's COVID research through a weekly COVID symposium, and a centralized and searchable database of COVID-related activities at Columbia, the Columbia COVID Hub, helps to coordinate efforts and avoid duplication among researchers.

Much of the COVID-related research relies on the efforts of Columbia's COVID Biobank, which has enrolled almost 800 patients and stored blood and tissue samples collected during their medical care. "When a researcher asks a question like 'How many patients who had COVID-19 had renal failure?' our biobank can provide the samples for this cohort," says Jennifer Williamson, associate vice dean for research policy and scientific strategy at VP&S. "We can help the researcher get access to the data they need."

David Goldstein, PhD, director of Columbia's Institute for Genomic Medicine, called the global attention on COVID-19 inspiring. "One thing that I have been really struck by is just how much of the global scientific community has turned its attention to work on this problem. It is unprecedented in all of human history to have as abrupt a change in global scientific attention as we've had in this very short period of time. And that is what gives me certainty. I don't know exactly when—I don't know if it's one year, two years, three years—but we are going to be in a dramatically better position in the fight against this virus in a relatively short period of time."

EDUCATION

By mid-March, all classes throughout Columbia were moved online, including those at VP&S, and medical student clerkships and clinical electives were suspended. Students in Bard Hall were required to move to reduce the density in residential housing, particularly given the hall's shared bathrooms and showers.

Fourth-year medical students graduated early—on April 15—to give them an opportunity to volunteer at NYP before beginning

COURTESY OF ADEDEJI ADENIYI'23 FOR "MASK ON, MARCH ON!" CAMPAIGN

their residencies. Of the 139 graduates, 88 chose to support the work of front-line workers at NYP.

In addition to attending online classes, medical students at all levels kept busy with service-learning projects. Several joined nursing, dental, and public health students to create the COVID-19 Student Service Corps to lend a virtual hand to the COVID-19 effort through remote service-learning. Students staffed a community information line, created a task force to organize collection of PPE, and volunteered remotely with laboratories engaged in COVID-19 projects. The group also released a toolkit to help other academic medical centers create their own chapters.

"Protective equipment goes beyond masks, gloves, and gowns to include doing our best to take care of ourselves and those around us."

Another group of students launched a GoFundMe campaign called "Mask On, March On!" that raised money for PPE. The students delivered more than 10,000 pieces of PPE to several hospitals in COVID-19 hotspots in New York City.

The Musicians' Guild lent musical support by moving its "Musical Mondays" online. The now weekly concerts feature live and pre-recorded musical pieces performed by students, faculty, and staff. The mission is to deliver musical respite and comfort during the COVID-19 pandemic to the CUIMC community at large, say first-year VP&S students and co-leaders of the Guild Erika Mitsui, Brandon Vilarello, and Huey Shih.

Vibhu Krishna'21 is founder and creative director of a website and Instagram campaign called Faces of the Frontline to share stories of front-line workers through photos and words of affirmation. Kendall Sarson'22 is art director.

And Sandro Luna'22 created a free posture and activity coach app, called ergo/. "After graduating from Stanford in 2018, I wrote down the idea but put it on hold after moving to New York for med school. With the move to online classes and more people working from home on their personal devices, I brought the idea to life and was able to finish it in addition to helping where I can in supporting our front-line workers." The app is available on Apple's App Store.

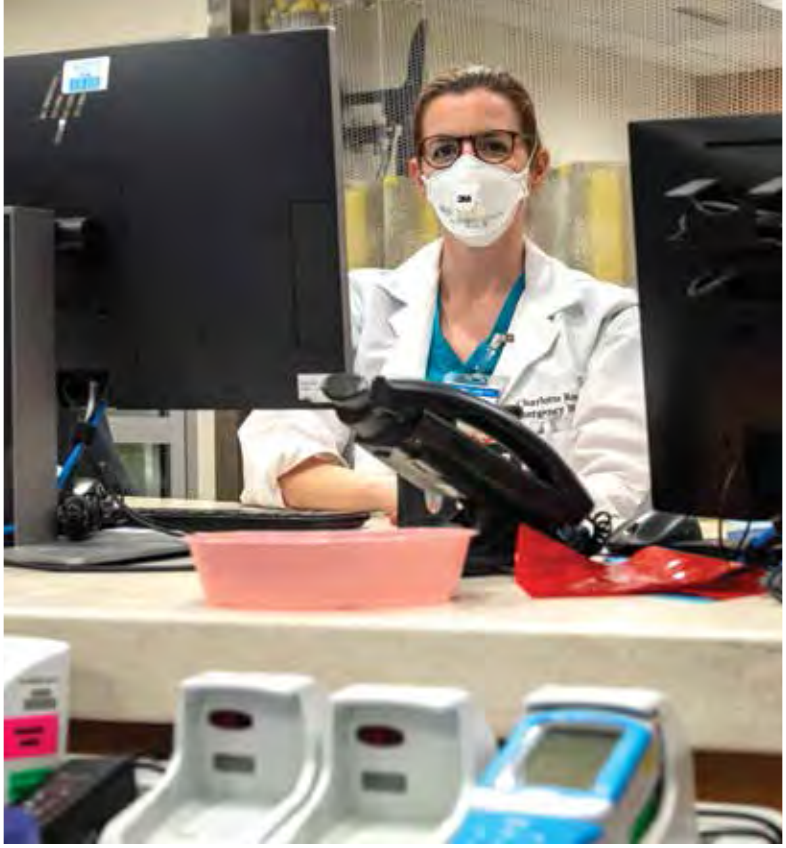
Plans are underway to return medical students to campus for clinical education as soon as training and clinical sites can assure adequate provisions for teaching, including capacity for didactic teaching, appropriate case mix, adequate PPE, and supervision.

PLANNING FOR RECOVERY

When the number of new cases of COVID-19 started to decline, Columbia, CUIMC, and NYP began planning for recovery of all medical center functions. Columbia's task force made initial recommendations in May for returning students, faculty, and staff to campuses and resuming research.

The pandemic's intangible challenges include the mental health effects produced by front-line patient care, remote work, and upended educational routines. To respond, the Department of Psychiatry partnered with ColumbiaDoctors to develop CopeColumbia, which provides resources that include individual counseling sessions, peer support groups, guided meditations, town hall meetings, suggested reading, and other tools for managing stress, fear, and anxiety.

The need for CopeColumbia was underscored in late April when Lorna Breen, MD, assistant professor of emergency medicine since 2004 and site director of the Allen Hospital Emergency



Department since 2011, died by suicide. She had treated patients since the beginning of the pandemic. "Protective equipment goes beyond masks, gloves, and gowns to include doing our best to take care of ourselves and those around us," said Dr. Goldman in announcing her death. "The loss of Dr. Breen should reinforce our collective appreciation for each other, our recognition of the emotional as well as physical toll of this crisis, and the need to take care of ourselves and of one another."

Several projects are underway to document the response to the pandemic at the medical center and beyond. Researchers at Mailman and VP&S have launched an initiative called the COVID-19 Healthcare Personnel Study to survey tens of thousands of employees on the front lines of care throughout New York state—from doctors and nurses to hospital food service workers—to document the challenges and stresses they have faced and to assess serious and persistent physical or mental health issues. In another study, researchers in the Department of Medical Humanities & Ethics at VP&S will seek to identify respondents who report high levels of moral distress, a response that arises when a person is forced to take actions that challenge or violate core ethical beliefs.

WHAT WE STILL DON'T KNOW

Physicians and researchers agree that much more remains to be learned about COVID-19. With no standard treatment and no vaccine available, front-line medical workers treat the symptoms while learning from their patients. As the pandemic progressed, the list of symptoms grew and doctors discovered new ways the coronavirus attacks the body, from inflammatory reactions to blood clots to kidney failure.

With the course of the disease so unpredictable and so many unanswered questions, clinical trials take on new importance. "We still have a lot of unanswered questions: Should we target the virus or the host response, and should combination approaches be used to target this pathogen? What determines rapidity of disease progression? What is the optimal time to intervene?" says Magdalena Sobieszczyk, MD, associate professor of medicine and chief of infectious diseases, who has been overseeing COVID-19 clinical trials at VP&S.

As New York and Columbia were recording lower numbers of COVID-19 cases, doctors in April were faced with another mystery: children who were admitted with a constellation of symptoms related to—but different from—the COVID-19 disease seen in adults. It opened a new chapter of COVID-19 patient care and research.

Among the unanswered questions in COVID-19: How long will immunity last? Can convalescent plasma effectively and safely treat the disease? Can convalescent plasma be used to prevent the disease? Do the nature and intensity of immune responses correspond to how sick people were? How many people were infected but were asymptomatic?

Mitchell Elkind, MD, professor of neurology, told the Washington Post, "The virus can attack a lot of different parts of the body, and we don't understand why it causes some problems for some people, different problems for others—and no problems at all for a large proportion."

"We don't know why there are so many disease presentations or what factors determine those different types of disease," says Angela Rasmussen, PhD, a virologist at Mailman's Center for Infection and Immunity. "Bottom line, this virus is just so new that there's a lot we don't know." ❖

More information on the Columbia response to COVID-19 can be found online at the Coronavirus Resource Center at **www.cuimc.columbia.edu/coronavirus-resource-center.**

Alumni News & notes

By Marianne Wolff'52, Alumni Editor, and Bonita Eaton Enochs, Editor

1962

Sherman Bull is a new member of the board of directors of Staying Put in New Canaan, a Connecticut nonprofit that helps seniors live safely in their homes while remaining actively engaged in the community, even as they age and cope with decreased mobility.

See Page 30 for a reminiscence by Norbert Hirschhorn.

1964

Harris Berman, dean of the Tufts University School of Medicine for 10 years, has retired. He is now dean emeritus, professor

Harris Berman'64

of medicine, and professor of public health and community medicine. He also served Tufts as vice dean of the medical school, dean of public health and professional degree programs, and chair of the Department of Public Health and Family Medicine. Before joining Tufts, he was a pioneer in the development of managed care in New England, serving as CEO of the Tufts Health Plan for 17 years. Harris will continue on a part-time basis with the University Advancement office at Tufts, fundraising for the university and the medical school.

See the 1994 class note about Jonathan Rosand for mention of J. Philip Kistler.

1965

Tom Delbanco received the John Phillips Memorial Award from the American College of Physicians in April during the college's convocation ceremony in Los Angeles, where the ACP hosted its annual scientific conference. The award recognizes outstanding lifetime work in clinical medicine that has been innovative and/or had a regional or national impact. Tom is the John F. Keane & Family Professor of Medicine at Harvard Medical School and Beth Israel Deaconess Medical Center. He is one of the founders of the Society of General Internal Medicine, which he also served as president. He created one of

Tom Delbanco'65

Ronald St. John'65

the first primary care practice and teaching programs at an academic health center and in 1979 developed and led Harvard Medical School's Faculty Development and Fellowship Program, which has prepared more than 300 general internists for academic careers. Tom and a colleague created OpenNotes, a movement that urges clinicians to invite patients to read the notes they write and to contribute to their medical records.

See Alumni in Print to read about a book written by Anthony Horan. Anthony retired in 2018 from a solo private practice of urology in Delano, California. His highest academic rank was associate clinical professor of urology at UCSF at the Fresno VA hospital. He retired from the VA in 2002. He is working on a medical-scientific biography of his grandfather, John Rogers Jr., an 1892 graduate of P&S.

Ronald St. John, who also has an MPH, began his public health career at the Centers for Disease Control and Prevention, followed by 10 years with the World Health Organization, where he was responsible for infectious disease control programs in the Americas. Subsequently, he worked in Canada's Department of Health and was appointed as the first director-general for the Federal Centre for Emergency Preparedness and Response. During his tenure, he was the federal manager of the SARS epidemic in Canada. After retirement, he co-founded Sitata, an internet/web-based company that provides international travelers with accurate up-to-date health and safety information to help them remain healthy and safe while traveling. He consults frequently with the World Health Organization on the management of emergency responses to infectious disease outbreaks.

1975

See Alumni in Print to read about a book written by David C. Aron. Dave, who graduated

David C. Aron'75

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from Columbia College in 1971, is professor of medicine and epidemiology and biostatistics at the Case Western Reserve University School of Medicine and an adjunct professor of organizational behavior at the Weatherhead School of Management. He also is director of clinical program research and evaluation at the Louis Stokes Cleveland VA Medical Center.

1977

Gary A. Shangold has been named chief medical officer of Enteris BioPharma. Gary has held positions in the biopharmaceutical industry for nearly 30 years. He also is CEO of InteguRx Therapeutics, a company he founded to develop

Gary A. Shangold'77

transdermal pharmaceutical products, and president of Convivotech, a consultancy to life sciences companies. Gary also served on the faculties of the University of Chicago medical school, Massachusetts General Hospital, and Harvard medical school. He has served as president of the American Academy of Pharmaceutical Physicians and chair of the Association of Clinical Research Professionals.

1978

Calvin Roberts has been appointed president and CEO of Lighthouse Guild, effective April 1, 2020. Cal had been

Calvin Roberts'78

senior vice president and chief medical officer for eye care at Bausch Health Companies and clinical professor of ophthalmology at Weill Cornell Medical College. Throughout his career as an ophthalmologist, Cal performed more than 10,000 cataract surgeries and 5,000 refractive and other corneal surgeries. He co-founded a specialty pharmaceuticals company, led the development and commercialization of pharmaceuticals, and is a frequent industry lecturer and author.

1981

See Alumni in Print to read about a book co-written by Angela Diaz, who earned a PhD in 2016. Angela is the Jean C. and James W. Crystal Professor in Adolescent Health in pediatrics and environmental medicine and public health at the Icahn School of Medicine at Mount Sinai. She is also director of the Mount Sinai Adolescent Health Center.

Angela Diaz'81

See Alumni in Print to read about a book written by David S. Younger. David is the author of several medical textbooks and more than 200 peer-reviewed articles, book chapters, and abstracts. He donated copies of his 2015 textbook, "Motor Disorders, 3rd edition," to the VP&S Alumni Association for distribution to medical students.

1987

George D. Yancopoulos, who also earned a PhD in 1986, received the Alexander Hamilton Medal, the highest honor given to a member of the Columbia College community for distinguished service and accomplishment. George, a 1980 Columbia College graduate,

George D. Yancopoulos'87, right, with James Valentini, Columbia College dean

received the honor in November at the 72nd annual Alexander Hamilton Award Dinner held in the rotunda of Low Library. George, co-founder, president, and chief scientific officer of Regeneron Pharmaceuticals, was recognized for his biotech leadership. He is the principal inventor of several important new medicines, including the leading treatment for age-related macular degeneration and diabetic eye disease as well as the leading biologic treatment for asthma and other atopic/allergic conditions, and he is also the principal inventor of the VelocImmune "genetically humanized immune system" mouse that was used to develop a treatment for Ebola and is now being used to develop a treatment for the COVID-19 coronavirus. At the dinner in November, George pledged $10 million to create a Beginner's Mind Institute at Columbia, with the goal of fighting back against increasing polarization and divisiveness in society by inspiring students to approach new people as well as new challenges with a Beginner's Mind—lacking in preconceptions and biases.

1989

Judith Hellman received the 2019 Excellence in Research Award from the American Society of Anesthesiologists. She was recognized for her research developments regarding sepsis and other forms of inflammatory critical illness. Judith is the William L. Young, MD, professor and vice chair for research in the Department of Anesthesia and Perioperative Care at the University of California San Francisco.

Judith Hellman'89

Jose A. Rodriguez was among 96 fellows inducted into the New York Academy of Medicine at its annual meeting in November. Jose is an attending orthopedic surgeon at the Hospital for Special Surgery in New York City. He also maintains an active research program.

Brian Toolan joined DuPage Medical Group in Illinois as an orthopedic foot and ankle surgeon. He also is on the medical staff of Silver Cross Hospital, Edward Hospital, and Advocate Christ Medical Center.

1990 + 1991

Joseph Morelli'90 and Barbara Wirostko'91 completed residencies at Columbia, he in anesthesiology, she in ophthalmology. After the loss of their oldest son in a car accident in 2014, they started a nonprofit that awards scholarships to young adults with learning challenges, such as dyslexia. Since 2014 they have received hundreds of applications from around the country and have awarded over $150,000 to 77 students in 23 states. The nonprofit's scholarship is recognized by many organizations as one of only a few scholarships that support young adults who have learning challenges. Barbara writes: "Upwards of 20% of the population can struggle with dyslexia and often it can go undiagnosed. It is a very common cause of anxiety and depression and also for young people failing out of school." Barbara was invited to give a TedX talk in Montana last year about her son Joseph's story and struggle. Learn more about the project at www.morelli.foundation.

1994

Dineo Khabele has been named head of the Department of Obstetrics & Gynecology at Washington University School of Medicine in St. Louis. "Her research on the pathobiology of ovarian cancer and molecular targets for novel therapies has the potential to help many women with this devastating disease," says David Perlmutter, executive vice chancellor for medical affairs. Dineo has been an active mentor and teacher for young physician-scientists,

Dineo Khabele'94

recently starting the first gynecologic oncology fellowship in the state of Kansas.

Jonathan Rosand has been elected to the Columbia University Board of Trustees. Jonathan holds the J.P. Kistler Endowed Chair in Neurology and is a faculty member in the Center for Genomic Medicine at Massachusetts General Hospital, where he is appointed professor of neurology at Harvard, and associate member of the Broad Institute of MIT and Harvard. (His endowed chair honors J. Philip Kistler, a 1964 VP&S graduate who was director of the Mass General stroke service from 1978 to 2004 and is now professor of neurology, emeritus, at Harvard.) Jonathan is a critical care and vascular neurologist with expertise in the genetics of complex diseases. The focus of his research is discovering the role of genetics in cerebrovascular disease and using those discoveries to speed up the development of new treatments. Jonathan has served as program director for Harvard's clinical training programs in stroke and neurocritical care and is principal investigator of the NIH investigator training program Recovery and Restoration of Central Nervous System Health and Function After Injury. He founded the International Stroke Genetics Consortium and launched the NIH-funded Platform for Accelerating Genetic Discovery for Cerebrovascular Disease. After establishing Mass General's Division of Neurocritical Care, Jonathan stepped down as chief to establish the Henry and Allison McCance Center for Brain Health. The mission of the center is to identify and study the indicators of brain health, discover and develop the interventions that can prevent brain disease, and convene a borderless community of knowledge and tools essential for implementing and integrating these indicators and interventions into primary care.

Jonathan Rosand'94

2009

See Alumni in Print to read about a book written by Jacob M. Appel. Jacob teaches bioethics at the Icahn School of Medicine at Mount Sinai, where he is director of ethics education in psychiatry and a member of the Institutional Review Board. He is also an attending psychiatrist in the Mount Sinai Healthcare System. Jacob is the subject of a 46-minute documentary titled "Jacob" that is streaming on Amazon Prime.

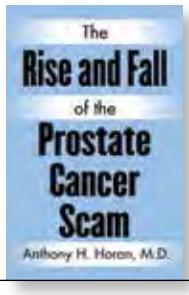
On the COVID-19 Front Lines in Singapore

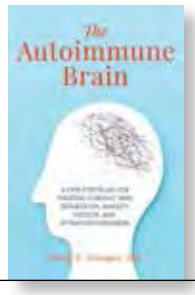
Poh Lian Lim, a 1991 graduate, directs the High Level Isolation Unit of the National Centre for Infectious Diseases and is a senior consultant in the Communicable Disease Division of the Ministry of Health in Singapore. During this year's COVID-19 outbreak, she has been involved in direct patient care and the development of clinical, research, and public health protocols.

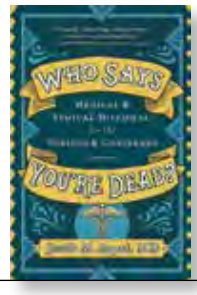
She also was in Singapore during the SARS outbreak. "In 2003, I had just moved from Seattle to Singapore as a young infectious disease attending physician. I was diagnosing SARS cases and managing critically ill cases in the ICU at Tan Tock Seng Hospital, which was Ground Zero for the outbreak. Because we were caught in the first wave, we had no diagnostic testing for the first six to eight weeks. We had to make decisions about whether someone had SARS based on the clinical presentation and the epidemiologic risk factors. When you discover a new pathogen or virus in an outbreak, it is a bit like an astronomer discovering a new black hole, star, or planet; there is so much to discover about the new virus, but you don't have the luxury of time—or complete facts."

Poh Lian Lim'91

Alumni writer Julia Hickey interviewed Dr. Lim about Singapore's response to the new coronavirus and her advice for physicians. Read the full Q&A—and all other COVID-19 news articles—in the CUIMC Newsroom at https://www.cuimc.columbia.edu/news.







alumni *in print*

By Tim Gahr

The Rise and Fall of the Prostate Cancer Scam (Revised and Expanded Third Edition)

Anthony Horan'65

On the Write Path Publishing, 2019

In the early 1970s, urologists had prostate cancer screening just about right: no screening, no radiation, and no radical surgery. By the 1980s, Dr. Horan writes, radical surgery was revived without new evidence, and an unproven new blood test was introduced. This revised edition of Dr. Horan's book delves into why these changes were implemented and why more recent recommendations have concluded that they were ineffective or even harmful. "Dr. Horan's book, written with verve and passion, presents a compelling view of the prostate cancer story," writes Dr. Laurence Klotz.

Complex Systems in Medicine: A Hedgehog's Tale of Complexity in Clinical Practice, Research, Education, and Management

David C. Aron'75

Springer International Publishing, 2020

Dr. Aron's book explores how knowledge of complex systems can be applied to four key roles in academic medicine: clinical practice, education, research, and administration. Written conversationally, and including illustrative anecdotes from the author, the book aims to be a valuable resource for medical professionals while still remaining accessible to a nonmedical audience. Unlike other books on complexity in medicine, which tend to focus on one aspect of managing patients, this book deals with the multifaceted roles of a physician, exploring the elements of patient care that make medicine both a science and an art.

Preventing Child Trafficking: A Public Health Approach

Jonathan Todres, JD, and Angela Diaz'81/PhD'16

Johns Hopkins University Press, 2019

Child trafficking is a critical issue that demands an effective, comprehensive response, from the national level down to the local. But it's unclear whether current strategies and tools used to combat this exploitation have succeeded in reducing the prevalence of trafficking. In their new book, Dr. Diaz and Mr. Todres (a Columbia Law School graduate) explore how the public health field can play a role in identifying, preventing, and responding to child trafficking. The authors use their years of experience to recommend how professionals and organizations can take action to find and help at-risk and trafficked children.

The Autoimmune Brain

David S. Younger'81

Rowman & Littlefield Publishers, 2019

Millions of people experience issues related to brain health—including depression, anxiety, forgetfulness, attention issues, fatigue, or even chronic pain—but many have a hard time figuring out what's causing their problems and what can be done about them. Dr. Younger aims to provide relief to patients and families who are frustrated, scared, or confused about their brain health. Based on his own research, Dr. Younger's book examines how common brain health symptoms connect to changes in the immune system, particularly bacterial, viral, and parasitic infections. He also looks at how traumatic stress (physical or emotional) and genetics affect health, noting that a change in personality, behavior, and emotional state might be the first sign of a health problem elsewhere in the body.

Who Says You're Dead?

Jacob M. Appel'09

Algonquin Books, 2019

Dr. Appel has written a timely, thought-provoking book about some of the most challenging—and shocking—medical ethics dilemmas doctors have faced. The book presents scenarios to the readers, allowing them to put themselves in the doctor's role, before revealing what happened in the real-life cases on which the scenarios are based. Covering everything from fertility to end-of-life issues, Dr. Appel's book is a compelling read for anyone looking to better understand the complex ethical decisions that underlie modern medicine.

Return to Bard Hall

By Norbert Hirschhorn'62

Alumni remember Bard Hall as a lovely art deco building, 11 stories high, erected in 1932. Inside the doorway is the bronze floor plaque dedicated to Samuel Bard, founder of the medical school in 1767. Beautiful wrought iron gates (a gift from the Class of 1953) guard the entrance. Visitors are now requested to enter next door through Tower One, a residential hall that doubles as a kidney dialysis center.

I was a guest in Bard Hall last fall, renting a vacant dorm room while researching my diaries that are archived at the medical center's library in preparation for writing my memoir. Compared with any Airbnb, the price was right, even if the room was somewhat austere, not to say monkish. I shouldn't have been surprised; we were recluses while in medical school. Except for a lightweight wood armoire and matching chest of drawers, nothing seems to have changed. The same hard levers opening the same iron-clad awning windows; the same clanking, paint-chipped radiator; the same kind of plain wood-frame bed, hard pillow, polyester sheets, and coverlet. Outside, the long corridor carpet looked as I remembered it although I was assured it had been renewed 10 years ago. Eighty percent of freshman are now required to live in Bard Hall to "promote class bonding." The rest take up rooms in residential towers along Haven Avenue or live off campus.

JENNIFER O'ROURKE

Dr. Hirschhorn in front of Bard Hall

My room had a spectacular view of the Hudson River, with morning sunrise glinting off the columnar high-rise condominiums on the Palisades. It was one of the few rooms without a sink, but, as before, all residents use common toilets and shower rooms. The taps, ceramic sinks, tiles, and shower heads are possibly antique. It might cost too much to retrofit the building but one would hate to lose it to another high-rise. Perhaps it should be listed in the National Register of Historic Places.

The fourth and ninth floors are for women only, the seventh just for men. The rest are what is now termed "gender inclusive."

A new gymnasium has taken the place of the old basketball court where some of us played volleyball. The swimming pool is still there. I once worked as a lifeguard for pocket money and the attendant was surprised to hear this. He didn't think the pool was *that* old.

We used to take all our meals in what is now the Ballroom, cliques of classmates at round tables. Now, buffet suppers are served there only on Mondays and Thursdays. I asked some students where they eat at other times. They mentioned a couple of fast food grills nearby; two take-out hole-in-the-wall Chinese eateries; a Thai restaurant; pizza and pasta at Famous Famiglia; a McDonald's; and a decent hospital cafeteria. Fresh food and produce

are available at Super Foodtown at 160th and Broadway; the nearby Gristedes grocery store closed for good while I was visiting.

Coming out of Bard Hall today is like flying out of Kansas into the Land of Oz. Take a look at the map from about 1965 compared with the present map. Decades of wealthy benefactors have created a fabulous biomedical research complex, spreading out and rising high. Buildings are now named after their donors. Who among the young would know of our medical professor Dana W. Atchley? His namesake pavilion is now the Herbert Irving Pavilion. If you graduated before 2017 your diploma read *Columbia University College of Physicians and Surgeons*. Now it's *Columbia University Vagelos College of Physicians and Surgeons* (after Roy Vagelos, president and CEO of Merck). Out of the munificent $250 million gift from Diana and P. Roy Vagelos'54, $150 million is being used to provide scholarships for students who would otherwise go into long-term debt to get through school. The scholarship funding is important. My tuition was $1,500 a year, which is about 13,000 in today's dollars, but tuition now far exceeds that.

Just south of Bard Hall is the New York State Psychiatric Institute's Kolb Research Building. Lawrence Kolb was one of my professors in psychiatry when the institute occupied what is now the Mailman School of Public Health. Same building, totally revamped. I had worked there for room and board in my last year at P&S as a psychiatric attendant on a locked ward. Several young staff in the Mailman communications office were amazed to hear that I might have bunked down in their space.

At the curved entrance to Haven Avenue, and for a full city block, a new pedestrian space has been created. The entrance from Fort Washington Avenue is set off with white, color-decorated concrete cubes, and a grassy patch rises in front of the Neurological Institute. *Columbia Medicine* describes it as "a public outdoor plaza shared by the medical center community and our Washington Heights neighbors." In the past, the medical center had an uneasy co-existence with a neighborhood that includes the mammoth Armory, which now houses the New Balance Track and Field Center and a small homeless shelter. In the 1980s, Washington Heights was a retail center for the cocaine trade, and Broadway a border Columbia people seldom crossed. The medical center has now made the crossing itself, with buildings on St. Nicholas Avenue and further east.

CAMPUS MAPS: current, above, and from time Dr. Hirschhorn was on campus, top

In a remarkable coalition of town-gown and government, the Mary Woodard Lasker Biomedical Research Building preserves the Audubon Ballroom next door where, in 1965, Malcolm X was assassinated. The Columbia property is neighbor to the expanded Malcolm X and Dr. Betty Shabazz Memorial and Educational Center, which is intended to "harness the legacies of its namesakes to continue the worldwide movement to advance human rights, social justice, and education."

Gaudeamus igitur. We were young. I was happy to return even if just this once. I still remember all my classmates and can call up a face to each name. The list of the 39 classmates who have passed—one-third of our class—is available in the online version of this article. *Ave atque vale.*

Wu Family China Center for Health Initiatives Frontiers in Biomedicine 3: 2019 Joint Symposium

By Julia Hickey

The willow-lined shore of Hangzhou's tranquil West Lake, which has inspired centuries of Chinese painters and poets, was the setting for top American and Chinese minds in medicine last fall during a joint symposium titled "Frontiers in Biomedicine 3." The Wu Family China Center for Health Initiatives at VP&S brought together 23 speakers from VP&S and the Zhejiang University School of Medicine (ZUSM) and more than 90 audience members in Hangzhou, China, for a series of presentations on cutting-edge biomedical research.

Shared interests emerged among the American and Chinese investigators: genomic surgery using CRISPR technology; precision medicine and development of therapeutic targets for various cancers; and mechanisms and treatments of nonalcoholic fatty liver disease and type 2 diabetes. Indeed, obesity and related chronic diseases, long-established as American afflictions, are dramatically rising in China. As well, Chinese patients experience higher odds of co-morbidities for a given BMI, compared with Caucasians, after standardizing for age and sex, according to a presentation by Dr. Shankuan Zhu, director of nutrition and food hygiene at Zhejiang University's School of Public Health.

The symposium was the third of its kind, following joint symposia between VP&S and ZUSM at Columbia in New York City in 2018 and at the Zheijiang School of Medicine campus in Hangzhou, China, in 2017. These symposia were made possible by the endowment to VP&S of funds from the late Clyde Wu'56 and Helen Wu to create the Wu Family China Center, which builds on their legacy of support for collaborations between Chinese and American doctors and biomedical researchers. Dr. David Wu (Dr. and Mrs. Wu's son) and his wife, Dr. Bernadine Wu, represented the family at the symposium. David Ho, MD, the Clyde and Helen Wu Professor of Medicine, director of the Aaron Diamond AIDS Research Center, and director of the Wu Family China Center at VP&S, presented Columbia's opening remarks.

A few presentations addressed the technological potential for large-scale studies across populations. Wendy Chung, MD, PhD, the Kennedy Family Professor of Pediatrics (in Medicine) at VP&S, delivered a remote video presentation about the use of exome/genome sequencing to diagnose newborns with birth defects as a way to improve survival rates. She also introduced the SPARK study for Autism, an online cohort of more than 200,000 subjects who have provided saliva samples for DNA data that are freely accessible. Wei Wu, vice director of the endocrinology department of Children's Hospital at ZUSM, introduced the 2016 to 2020 PERIODIC Study (PrevalEnce for Obesity and Diabetes in Children), which uses a urine sugar test to identify Chinese schoolchildren who are at a high risk of developing diabetes. Each subject is monitored via a QR code assigned by the WeChat smartphone app.

Edward Guo, PhD, the Stanley Dicker Professor of Biomedical Engineering at Columbia's Fu Foundation School of Engineering and Applied Science, mapped differences in the bone structures of Caucasians and Chinese patients and showed that Chinese have lower bone fracture rates. He has developed a mobile medical imaging unit in an RV in China to drive across the Chinese countryside for his "Silk Road" musculoskeletal genetic research.

Susan Rosenthal, PhD, professor of medical psychology (in pediatrics and psychiatry) at VP&S, discussed leadership methods for addressing burnout in medical workplaces by identifying that workers reach sustainable "flow" when challenges are matched to their skill level. Paul Lee, MD, the Misook Doolittle Professor of Medicine at CUMC, also addressed American medical culture by outlining the impact of restrictions on resident duty hours and the subsequent development of hospitalism as the fastest-rising medical specialty in the United States.

A highlight of the symposium was the announcement of the winner of the 2019 Wu Family China Center Pilot Award, which funds Chinese postdoctoral medical students to complete research at VP&S for one year. Utpal Pajvani, MD, PhD, the Herbert Irving Associate Professor of Medicine at VP&S, and Dr. Chengfu Xu, associate professor of gastroenterology at the First Affiliated Hospital, ZUSM, will receive support for a collaborative project, "Nanoparticle notch inhibitors for treatment of type 2 diabetes."

JULIA HICKEY

Henry Shinefield, 96, at home in New York City, holds a photograph of himself as a child

ALUMNI PROFILE

Henry Shinefield'48: Disease Detective

By Julia Hickey

Henry Shinefield's first "Eureka!" moment took place in the newborn nursery at what is now NewYork-Presbyterian/Weill Cornell. The discovery, to be exact, was in the nasal mucosa of newborn babies.

It was 1960, and a virulent strain of staphylococcus aureus ("staph") bacteria called 80/81 was spreading through hospital nurseries worldwide, invisibly clinging to babies who acted as sleeper cells for their households. Weeks or months after leaving the hospital, the babies developed serious symptoms of staphylococcal disease, which in turn sickened their caregivers: mothers with breast cellulitis, fathers with septicemia, siblings with meningitis, grandparents with pneumonia. The bug was resistant to penicillin, the main antibiotic used at the time. Once 80/81 settled into someone's nose or belly button—its preferred digs—it was nearly impossible to evict.

Dr. Shinefield, a young pediatrician, had been invited to Weill Cornell to get to the bottom of this epidemic. He had already served during the Korean War in the inaugural cohort of the Epidemic Intelligence Service (EIS) of the U.S. Public Health Service, a band of disease detectives who work to investigate and prevent outbreaks. He later spent five years making house calls as "le doctore" to the largely Italian population in north New Jersey and would go on to orchestrate large-scale trials to approve vaccines for children across the globe. He knew that our skin, orifices, and entrails were always crawling with bacteria and that many bugs were harmless. Even some bad bugs were content to cohabitate with us, never activating their fullest wrath.

"There were many bugs that we got involved with and we made some bets with," says 96-year-old Dr. Shinefield as if narrating film noir, "and let me tell you, 80/81 was a bad bug." The bacteria, abscesses, and corresponding blame would bounce around the family for months or even years. "The kind of horror that went on you can't believe. People sold houses in order to get rid of the bug," he said. But little did he know, 60 years ago, that staph bacteria in its various strains would become a lifelong fascination and foe.

For the babies of Weill Cornell, it became clear that a nurse with 80/81 lodged in her nose was the initial colonizer. She was removed from the nursery, but Dr. Shinefield was on to something: When infants were handled by the infected nurse within the first 24 hours of life, some contracted 80/81 (22%). But when she cared for babies on their second day of life, none became infected. They did, however, test positive for other strains of staph, which were apparently harmless.

Dr. Shinefield developed a term as well as a hypothesis—"bacterial interference"—to suggest that staph bacteria might compete for terrain. Once one settles in, it may prevent others from colonizing or thriving. He found a particular staph in the noses of all the healthy babies: strain 502A, belonging to another nurse. The babies she held within 24 hours of birth did not get sick, and they did not infect their families. So he studied 502A, ruling out associated diseases and ensuring it could be killed with penicillin.

What came next would not be so easy in today's medical landscape: After speaking with the babies' parents, Dr. Shinefield and his colleagues tested the hypothesis by inoculating 502a into the babies' noses. And it worked. Babies with 502A were drastically less likely to be colonized by 80/81 than babies in a control group.

"It was a little audacious," says Paul Planet, MD, PhD, who revisited Dr. Shinefield's pioneering work in bacterial interference in a 2019 paper co-authored by Dr. Shinefield. In the 1960s, medicine was focused on destroying pathogens in the clinical setting, not harnessing their powers. Dr. Shinefield soon took 502A

on the road, and 80/81 began to disappear from nursery wards across the country and the world.

"I've been very lucky. In research, you can be very good at what you are doing and it won't work, and it's not your fault. Or if you are lucky, things will turn out," he says.

By 1971, 4,000 newborns across the country had been successfully inoculated with 502A. But as the epidemic caused by 80/81 waned, so did the interest in bacterial interference—at least for the next several decades.

The School of Life

"My father got off the boat and the first thing he did was kiss the ground and say, 'America, I love you,'" is a story Dr. Shinefield re-tells as vividly as if he were there on Ellis Island in 1906 to see it. His parents were Jews who fled Ukraine in their early 20s. They settled in Paterson, New Jersey, then known as America's "Silk City," and opened a small mill.

Henry Shinefield, pictured here in his uniform in 1951, was one of the first 20 members of the Epidemic Intelligence Service of the U.S. Public Health Service.

Born in 1923, Henry was the fourth child and baby of the family by more than a decade. He was initially thought to be a tumor in the belly of his 40-year-old mother, until the tumor was found to have a heartbeat. His sister, Terri, who was 17 years older, taught him to sing and tap dance and paired him up with a girl named Jane Pritchard to perform at variety shows, conferences, and parties by the age of 6. (Seventy years later he and a colleague were stopped on a New Orleans sidewalk by a boy tap dancing for change. Dr. Shinefield handed over a dime before swaying into his own soft-shoe routine. "You should have seen the look on the boy's face," he said.)

Young Henry also helped his father in the mill, running his hands across silk skeins to pick off the imperfections until 1938 and the fallout from the Great Depression brought the 20 looms to a halt.

"I was in the house when the telephone company man came in and he took our phone out of our house because we couldn't pay a $2.50 bill," he said. Despite the hardships, the Shinefields remained positive. The eldest brother, Maurice, was completing medical school to become one of the first board-certified pediatricians in the country and soon opened a practice in the front half of their home. His mother sewed clothing with the WPA and his father became a middle-man in textiles and paid back every loan for his defunct silk mill, despite their having been discharged in bankruptcy.

"I think a positive attitude is part of success in general," Dr. Shinefield says. "My father told me, 'You can do whatever you want, but the one thing you must not do is you can't hurt anybody.' I have never forgotten that."

Another favorite story from his childhood: "People would tell my brother, Maurice, 'Your family is quite poor.' He would get indignant. He would say, 'Sometimes we were short on cash, but we were never poor. We were wealthy with love.'"

At the age of 16, he was invited to a party with a "well-to-do young lady" but was contemplating canceling because he didn't have a proper jacket. His brother, Michael, gave him all his money, a total of $17. "I ran out and bought the most wonderful green jacket you could possibly imagine and went to the party with pride," Dr. Shinefield said.

He attended Columbia College and later VP&S, graduating in 1948 with plans to join his brother in pediatric practice, but not before his residencies and military service taught him to think like an epidemiologist.

As the only unmarried resident in his division at Duke University in 1949, he was sent in the heat of July to a polio outbreak in Cape Girardeau, Missouri, where, stripped down to his undershirt, he and a nurse carried out the Sister Kenny method of using moist, hot blankets on children's legs to ease their spasms. Polio is an inflammation of the spinal cord that can cause disability, paralysis, or death, and any sign of a limp or cough could send mothers into terror. When a boy was set to receive a midnight tracheostomy for suspected respiratory failure but instead coughed up an intestinal worm, "it was all smiles" for once, he reminisces.

"You are not a hero each time," he says of the losses. His message for anti-vaxxers: "You haven't seen what I've seen. Because if you have seen what I've seen, you wouldn't say you don't believe in vaccines. Vaccination is the cardinal item we have for disease prevention."

As one of the first 20 EIS officers in the nation, he was sent on a 10-hour prop flight to California. After noticing that a pregnant woman infected with Western equine encephalomyelitis (who later gave birth to infected twins) was known to sleep in a Bakersfield backyard, he chased down the neighboring chickens to test their blood. He found that they were asymptomatic carriers of the disease, which is transmitted through mosquitoes.

While investigating cases of hepatitis in the coal mining town of Harlan, Kentucky, he learned to cover the official insignia on his car to avoid the ire of moonshiners with squirrel guns. But when Dr. Shinefield eventually returned to New Jersey for 14-hour days of pediatric house calls with his brother, those tables would be turned: He couldn't get out of Italian patients' homes without ravioli, bread, cannolis, or, from Mafiosos, promises they would take care of any "problems" he had.

"Well, thank you very much. I am not sure I'll need anything like that!" he said. "It was an exciting time."

Thinking Big

In 1985, Dr. Shinefield was chief of pediatrics at Kaiser Permanente Medical Group in San Francisco, where he was on staff from 1965 to 2005. Started in California in the 1940s by ship-builder Henry Kaiser to care for his thousands of employees and their families, Kaiser Permanente is now a pre-paid, nonprofit health plan with more than 12 million members in several states.

Dr. Shinefield encountered the nascent medical group in 1950, when he visited a clinic that was "literally medical offices over a drug store" in San Francisco. Later, large hospitals were built that contracted with doctors to coordinate all aspects of patients' care. "Whatever was needed and how it was needed—prescriptions, drugs, procedures—was all done by the physicians. What Kaiser Permanente had was a tree that was planted in earth, not sand, and it was going to grow," Dr. Shinefield said, adding that he believes this is the best model for American medical care.

At a pediatrics meeting, Dr. Shinefield met a scientist named David Smith, who founded the laboratory Praxis Biologics and developed a vaccine against Haemophilus influenzae (Hib) that was tested and used in Finland. In the United States, the vaccine was only temporarily approved by the FDA on the condition that a large phase 4 clinical trial be conducted.

Dr. Shinefield's second "Eureka!" was the realization that the full Kaiser Permanente tree, with its research talents, technology, and well-monitored patient population—like a full flowering of leaves—could be used for large-scale vaccine trials.

From June 30, 1985, to May 31, 1987, 120,000 children at Kaiser Permanente were immunized in a controlled study, and four became ill with Hib meningitis during the first week following immunization. This was 6.4 times greater than could be expected when compared with a matched control group (p=0.001) and revealed what the small Finnish study had missed: The vaccine was not safe.

A 1990 photo shows Henry Shinefield and patients while serving as chief of pediatrics at Kaiser Permanente.

"This wasn't like a little pimple on the nose. This was something significant," Dr. Shinefield says. It also revealed the importance—in fact, the necessity—of such a large sample set to approve vaccines. So Dr. Shinefield and his colleague, Dr. Steve Black, developed the Kaiser Permanente Vaccine Study Center, which was soon flooded with requests. They worked with Praxis to complete phase 3 and 4 trials for new and improved vaccines for Hib and pneumococcus and with several companies to study vaccines for acellular pertussis (DTaP); adult pertussis (Tdap); measles, mumps, and rubella (MMR); nasal influenza; rotavirus; papillomavirus (HPV); hepatitis; and varicella. They also collaborated with the CDC to create the Vaccine Safety Data Link, an electronic health data project to monitor adverse events following immunization.

Dr. Shinefield and Dr. Black traveled around the globe with their vaccine work. "A lot of the world was opened up to me because of medicine, because of what we did," he said. "What I learned in medicine: Humanity is more alike than diverse. The aims and ideas and hopes are similar, and people are more similar than dissimilar. It's amazing."

Jackie and Henry Shinefield in 2006

Ultimately, the FDA gave full approval for Hib and pneumococcal vaccines that are used worldwide. These two vaccines have effectively eliminated the most prominent causes of infant and childhood bacterial meningitis. The pneumococcal vaccine is also recommended for use in adults.

"This for me was the epitome of career success," Dr. Shinefield says.

But when talking about success, he always pivots to the personal, adding that the best thing to ever happen to him was meeting his wife, psychologist Jackie Shinefield. The two were introduced in 1981 and ran up a $3,000 bicoastal telephone bill in the course of their long-distance courtship. "The phone bill is getting crazy," he joked with her. "We have to get married now."

"Love, Henry"

"Nature abhors a vacuum, of any kind, and there is always something to fill it."

Over Earl Grey tea in New York City, Dr. Shinefield is describing the invisible wilderness of bacteria and organisms that compete to live in and upon us.

Case in point: When a four-mile walk caused a small blood blister on his heel, a strain of staph settled in and bloomed into necrotizing fasciitis.

"He would have died within hours," Jackie remembers the doctors telling her that day in 2001 when his painful symptoms emerged in full force. He had six surgeries to save his foot and his life.

"Staph got even with me," he quips. But in addition to the irony that the man who once eliminated a strain of staph from hospital nurseries was almost killed by staph, he also focuses on the science. "What the factors were to make the bug invade the bloodstream under those circumstances, whether it was the heat of the foot or exactly what turned it on, well, we don't know."

Staph has evaded all attempts so far to submit to a vaccine, because it unpredictably cloaks and times its ability to become virulent. Just what causes staph strains to sometimes co-exist with, harm, or even protect their hosts through bacterial interference is a lifelong question that Dr. Shinefield is hoping a new generation of scientists will answer. Some of them are his three co-authors of a 2019 paper published in the Pediatric Infectious Disease Journal titled "Revisiting Bacterial Interference in the Age of Methicillin-resistant Staphylococcus aureus."

Paul Planet, a co-author, is working with new genetic techniques to examine how the nurse's staph strain 502a in 1963 caused bacterial interference. "If it could have been done in 1963, he would have done it," says Dr. Planet. "Now we've finally caught up to the place where we can test Dr. Shinefield's thinking."

Because antibiotic-resistant staph bacteria are on the rise, the days when it will fully evade treatment are on the horizon. Science also offers new understanding of the immune system and a renewed interest in the concept of a microbiome for protection, and Dr. Shinefield is hoping for the day that bacterial interference can be put to practical clinical use.

"To be alive to see that be reconsidered now, after the early stuff we did: That's what's really exciting for me." In fact, everything seems to be exciting to Dr. Shinefield, who exudes gratitude. He is in the habit of signing all his correspondence—with everyone from his wife to Dr. Planet to the president of the National Academy of Medicine—with "Love, Henry."

And he's not hungry for credit. "I am happy. I am the fourth author. I have published 260 papers. I don't need any more papers. And, let me tell you, they don't have a committee up in heaven to evaluate all this, and so I am not concerned about that," he said.

in memoriam

John A. Downey

Paul A. Marks

Margaret Morgan Lawrence'40

FACULTY

John A. Downey, MD, the Simon Baruch Professor Emeritus of Physical Medicine and Rehabilitation, died Oct. 24, 2019. Dr. Downey chaired what is now the Department of Rehabilitation & Regenerative Medicine from 1974 to 1991. He was elected to the National Academy of Medicine (formerly the Institute of Medicine) in 1991.

Dr. Downey completed a physical medicine and rehabilitation residency at Columbia in the mid-1950s and returned to join the faculty in 1963.

A pioneer in his field, Dr. Downey conducted research on temperature regulation in spinal cord injury. As chair, he expanded the department and made clinical services available beyond the campus to reach patients across the region.

Paul A. Marks, MD, dean of the Faculty of Medicine and Vice President for Health Sciences at Columbia in the 1970s and president emeritus of Memorial Sloan Kettering Cancer Center, died April 28, 2020.

Dr. Marks received his undergraduate and medical degrees from Columbia. He graduated first in his medical school class in 1949 and completed a residency in medicine at Columbia. He returned to Columbia in 1956 after postdoc training at the NIH and began his research career by studying globin genes and genetically determined anemias and thalassemias. In 1967, he became founding chair of the Department of Human Genetics. He was appointed dean of the Faculty of Medicine in 1970, "a job I took with trepidation," he told *Columbia Medicine* in an interview for the Spring 2012 issue, "since I always considered myself a scientist first." In 1973 he became vice president of health sciences and director of the Cancer Research Center, which he helped found in 1972 as principal investigator on an application for National Cancer Institute funding. It is now the Herbert Irving Comprehensive Cancer Center. He was the Frode Jensen Professor of Medicine when he left Columbia in 1980 to become president and CEO of the Memorial Sloan Kettering Cancer Center, a position he held until retiring in 1999.

His career, which spanned more than 50 years, was recognized with an honorary degree from Columbia in 2000. In 1991, President George H.W. Bush awarded Dr. Marks with the National Medal of Science. In addition to his scientific and leadership legacy at Columbia, Dr. Marks generously sponsored a scholarship for medical students, a professorship, and a scholars program for junior faculty in the basic sciences.

OTHER FACULTY DEATHS

Philip Brandt, PhD, professor emeritus of anatomy & cell biology, died Feb. 17, 2020.

Louis Z. Cooper, MD, professor emeritus of pediatrics, died Oct. 3, 2019.

Ralph Dell, MD, professor emeritus of pediatrics, died Feb. 11, 2020.

Joan Edelstein, MA, retired associate professor of clinical physical therapy and director of the Programs in Physical Therapy from 1991 to 2001, died in December 2019.

Yale Enson, MD, retired professor of clinical medicine, died Feb. 19, 2020.

Frieda Feldman, MD, professor emeritus of radiology (in orthopedic surgery), died Jan. 12, 2020.

Dorothy Dole Johnson, PhD, retired assistant professor of anatomy, died Nov. 23, 2019. See more in Alumni In Memoriam, Class of 1949.

William Johnson, MD, former associate professor of neurology, died Jan. 30, 2020. See more in Alumni In Memoriam, Class of 1967.

Margaret Morgan Lawrence, MD, retired associate clinical professor of psychiatry, died Dec. 4, 2019. See more in Alumni In Memoriam, Class of 1940.

ALUMNI

1940

Margaret Morgan Lawrence, a renowned pediatrician and child psychiatrist who was the sole black graduate in the Class of 1940 and the third black woman to attend VP&S, died Dec. 4, 2019, at age 105. Born in Harlem and raised in segregated Mississippi, she was the first African American female psychoanalyst in the United States and the first black female physician certified by the American Board of Pediatrics. In addition to her MD, she earned a master's degree in public health from Columbia in 1943. In 1949, she and her husband established a progressive, racially integrated cooperative community called Skyview Acres in Rockland County, where she lived for almost 70 years before moving to Boston. Known for her empathy

in memoriam

Richard Storer Ward'45

M. Jay Goodkind'53

toward children, she coordinated the work of school psychologists across Rockland's nine school districts. She served 21 years as chief of the Developmental Psychiatry Service for Infants and Children at Harlem Hospital and as an associate clinical professor of psychiatry at Columbia until retiring in 1984. She continued to see patients until she was 90. Dr. Lawrence is survived by three children, six grandchildren, and four great-grandchildren.

1945

Richard "Rick" Storer Ward, a child psychiatrist and psychoanalyst who taught at VP&S until 1970, died Dec. 1, 2019, at age 99. He was born in Lebanon, where his father was a pediatric surgeon and dean of the medical school at American University in Beirut. Educated in the United States at Deerfield Academy and Amherst, after VP&S he interned at Babies Hospital and finished pediatric training as head resident at Bellevue Hospital. He completed psychiatry training at Columbia and joined the faculty. In 1960, Dr. Ward moved to Atlanta, where he laid the foundation for what is now the Emory Psychoanalytic Institute. He flew weekly for 10 years to New York City to teach at Columbia. He retired from Emory in 1986 and from private practice in 2017 at the age of 97. Dr. Ward studied Chinese, played soccer and baseball, and loved classical music. He is survived by his wife, Adele, his stepson, daughter, son, and two grandchildren.

1949 PhD

Dorothy Dole Johnson, assistant professor of anatomy at VP&S until her retirement in 1961, died Nov. 23, 2019. She was 100. She was co-editor of the 13th and 14th editions of "Bailey's Textbook of Histology" and was a member of the American Association of Anatomists and the American Association for the Advancement of Science. She served as an alumni trustee of Bates College, her undergraduate alma mater. She was a longtime member of the Universalist Church of West Hartford. Following retirement, she devoted herself to family, gardening, and numerous volunteer causes. She is survived by a son and two daughters-in-law.

1952

Donald H. Gent, a psychiatrist, died Oct. 7, 2019. He was 92. He served in the U.S. Army during World War II before medical school. He completed his internship and residency in internal medicine at Robert Packer Hospital and Guthrie Clinic in Sayre, Pennsylvania. He was licensed as a surgeon and practiced for 10 years before completing a residency in psychiatry. He practiced psychiatry in Illinois, New York, New Jersey, and Pennsylvania. He retired from practice in December 1993. Dr. Gent enjoyed music, studying scripture, and fishing. He was a long time member and volunteer at the Hanover First Church of God. He is survived by four children and several grandchildren and great-grandchildren.

Anthony J. Smith, an orthopedic surgeon, died Feb 9, 2020, at age 92. Dr. Smith completed his orthopedic training in New York City in 1957 and practiced in the Coos Bay, Oregon, area for 35 years. He founded the Millicoma Orthopedic Clinic in 1972 and, following his retirement in 1991, started Tioga Orthopedic Services. He enjoyed the arts and the outdoors. Dr. Smith is survived by his wife, Del, two children, three grandchildren, and two siblings.

1953

M. Jay Goodkind, who taught cardiology as a faculty member of both Yale University and the University of Pennsylvania, died Oct. 23, 2019. He was 91. After receiving his MD degree, he interned at Bellevue Hospital and served with the U.S. Public Health Service in Bethesda, Maryland. He later practiced medicine at Philadelphia General Hospital and was the chief of cardiology at Mercer Medical Center in Trenton, which later became Capital Health System. After retiring from medicine in 1994, Dr. Goodkind pursued his love for black and white photography. He sang with the Mendelssohn Club of Philadelphia and belonged to the Frederick Delius Society. He is survived by his spouse, Vincent, two children, and four grandchildren.

George Douglas "Doug" Richards, who operated a private general medical practice for 37 years in Mattituck, New York, died Oct. 17, 2019. He was 91. Other physicians in his family include his father, grandfather, brother, and a son. He worked at hospitals in Riverhead and Greenport. After medical school, he served as a captain in the U.S. Army and commanded a MASH unit in Korea. He loved rowing and played the accordion. He volunteered with the Mattituck Fire Department and organizations supporting mental health and people with blindness. He is survived by his wife, Jean, four

Joseph Stocks'55

Thomas J. McDonagh'57

William Phelps Arend'64

children, eight grandchildren, and four great-grandchildren.

1954 PhD

William Cooper, who earned his degree in anatomy, died Dec. 28, 2019, in Hilton Head, South Carolina. Following service in the U.S. Navy as a pharmacist's mate, he taught anatomy at the University of Puerto Rico and at VP&S in the 1950s. He then joined the University of Colorado, where he was a teacher, researcher, and administrator. He invented the "Cooper Dish" and created many videos and publications in medical and science education. He also developed and operated multidisciplinary laboratories. He later worked for the National Library of Medicine and was a consultant. He is survived by his wife, Linda, two sons, six grandchildren, and two great-grandchildren.

1955

Joseph "Joe" F. Stocks, a pediatrician and pathologist, died Nov. 6, 2019. He was 90. He interned at Bassett Hospital in Cooperstown and served two years in the U.S. Air Force delivering babies at Westover Air Force Base in Chicopee, Massachusetts. He completed a residency in medicine at the Maine Medical Center and a pediatric residency at Massachusetts General Hospital. Dr. Stocks later opened a pediatric practice in Waterville, Maine. After completing a pathology residency at Maine Medical Center, he became chief of its pathology department. He later worked as medical director at the Northeast Regional Red Cross Blood Program. He taught pathology at the University of Vermont and Tufts University. Dr. Stocks played the piano every day. He is survived by his wife, Betty, four children, and five grandchildren.

1956

Howard Martin Radwin, who was passionate about access to and development of kidney transplant services, died Sept. 25, 2019, in Austin, Texas. He was 88. He was a clinical associate in the surgery service at the National Cancer Institute then completed a residency in pediatric urology at Tulane University-Charity Hospital in New Orleans. Dr. Radwin was the first chair of urology at the University of Texas Health Science Center at San Antonio and chief of urology at Bexar County Hospital, where he also led the kidney transplant program. He was an early proponent that computers and, later, the internet would facilitate databases for organ donation. In 1988, he co-founded Southwest Immunodiagnostics, a laboratory where he served as president and CEO until the age of 85. Dr. Radwin's longtime hobby was fine woodworking. He is survived by three children and seven grandchildren.

1957

Thomas J. McDonagh, a retired vice president of occupational health at Exxon Corp., died Nov. 19, 2019. He was 87. After medical school, he completed a fellowship in gastroenterology.

1958

Thomas M. Shea, retired medical director for AT&T and Telcordia (Bellcore), died Nov. 27, 2019. He was 88. He served as a lieutenant in the U.S. Navy aboard the USS Tanner before beginning medical school. After briefly practicing medicine in Ohio, he launched a long career in corporate medicine in New York and New Jersey, which allowed for more time to enjoy his growing family. He also was president of the American Heart Association chapter of Somerset County, New Jersey. He is survived by four children and five grandchildren.

Richard Timmons, a practitioner of family and occupational medicine, died Dec. 3, 2019. He was 92. He served in the U.S. Navy in the mid-1940s then traveled around the desert of the American southwest for several years before beginning medical school. He was a charter and life member of the Arizona Academy of Family Practice in Phoenix. Dr. Timmons was in private practice for 30 years before joining Honeywell Aerospace to begin a second career in occupational medicine. He was FAA-certified as an aviation medical examiner and performed many pilot physicals. Dr. Timmons retired in 2014 at the age of 87. He was an avid photographer and sang in his church choir. He is survived by his wife, Donna, three children, two stepchildren, five grandchildren, two great-grandchildren, and three brothers.

1964

William Phelps Arend, professor emeritus at the University of Colorado and former head of its rheumatology division, died Jan. 14, 2020. He was 82. Dedicated to research, teaching, and patient care, he was a pioneer investigator of the underlying biologic mechanisms of rheumatoid arthritis. In the 1980s, he discovered an anti-inflammatory protein called interleukin-1 receptor antagonist that led to a new commercial drug to treat arthritis and other diseases and a better understanding of

Justine M. Meehan-Carr'77

autoimmune and inflammatory diseases. He was an editor of the Arthritis & Rheumatism Journal and received numerous honors for his research achievements, including a Guggenheim Foundation Fellowship, a Pinnacles in Inventorship Lifetime Achievement Award from CU Innovations, a VP&S Alumni Association Gold Medal for Outstanding Achievement in Medical Research, and the American College of Rheumatology Gold Medal Award. He loved the outdoors and was a passionate advocate for the environment. He is survived by his wife, Ann Elizabeth, two sons, and two grandchildren.

1965

David J. Schurman, professor emeritus of orthopedic surgery at Stanford University and a visionary researcher, died April 2, 2018. He was 77. He served in the medical service in the Air Force and completed residency at UCLA. Following an NIH postdoctoral fellowship, he joined Stanford in 1973. During his early studies on musculoskeletal infection, he pioneered an assay technique to quantify bacterial contamination in tissues. This formed the groundwork for worldwide studies regarding the use of prophylactic antibiotics to decrease postoperative infections following total joint replacement. He also recognized that certain types of bacterial infections are accompanied by deposition of a biofilm that reduces the susceptibility of the infecting organism to antibiotic levels. Dr. Schurman had a strong interest in implant mechanics and mechanical loading and contributed to the definition of the research area of cellular mechanotransduction. He also created a postsurgical database that was an early template for current programs enabling evaluation of new devices and surgical techniques over time. Dr. Schurman was an avid golfer and caretaker of Bernese Mountain Dogs. He also read extensively about the history of medicine.

1967

William "Bill" G. Johnson, professor of neurology at the Robert Wood Johnson Medical School of Rutgers University and former associate professor at VP&S, died Jan. 30, 2020, from complications following a stroke. He was 77. Following residency at New York Hospital, he served in the U.S. Public Health Service at the NIH. In 1975 he joined Columbia as assistant professor of neurology. He became professor of neurology at Robert Wood Johnson Medical School at Rutgers (formerly University of Medicine and Dentistry of New Jersey) in 1992. As a molecular neurogeneticist, he made significant contributions to the understanding of neurodegenerative and neurodevelopmental diseases and disorders and was part of the team that identified the first gene for Parkinson's disease. At the time of his death, Dr. Johnson was involved in three studies on autism. He was active in church life and was fluent in at least six languages. He is survived by his wife, Sandra, two sons, three grandchildren, and a brother.

1971

Alfred DeCiutiis, a retired oncologist, died Nov. 9, 2018, in his home as one of three casualties of the Woolsey Fire south of Agoura Hills in California. He was 73. Dr. DeCiutiis founded the Italian American Medical Association in Los Angeles. Starting in 1981, he hosted cable television shows, working as medical editor of Cable Health Network and Lifetime Network. For his 2001 reunion questionnaire, he complimented his classmates for "their integrity, ability, humanity, character, tempered radicalism, and fierce goal orientation."

1977

Justine M. Meehan-Carr, a hematologist who became founding chief medical officer for Steward Heath Care, one of the earliest accountable care organizations under Obamacare, died Dec. 10, 2019, after a long fight with leukemia. She was 71. She received a master's degree in psychology at Columbia before earning her MD. She completed house staff training at Columbia and Massachusetts General Hospital before completing a hematology fellowship at what is now Beth Israel Deaconess Medical Center, where she remained for 27 years. In 2008, she left Beth Israel Deaconess to continue her focus on health care quality in the transformation of Caritas Christi Health Care into Steward Health Care. She retired in 2016 and took a position on the Steward board as the system grew to 36 hospitals across the United States, with others in Europe. Following her appointment by President George W. Bush, Justine served 10 years on the National Committee on Vital and Health Statistics, an HHS advisory committee. She chaired the committee and its Quality Committee. She also served on the boards of Network For Excellence in Health Innovation and the Sarita Kennedy East charitable foundation. She loved sailing, the Patriots, and Ireland. She is survived by her husband, Dan Carr'76, and three children.

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Documenting COVID-19 for Future Generations

Archives & Special Collections in the Augustus C. Long Health Sciences Library has launched an initiative, "Documenting the Experience of COVID-19," to collect materials that tell the story of COVID-19 at VP&S, the Columbia University Irving Medical Center, and beyond.

"As part of our mission to document the history of the medical center, we have created this initiative to enable students, faculty, staff, and alumni to contribute narratives, images, videos, URLs, and other digital materials that tell their stories of living through the COVID-19 pandemic," says Stephen E. Novak, head of Archives & Special Collections. "Instead of waiting for these documents to come to us many years later, we hope to capture this historic moment while it's happening so we can provide an important body of records for future generations."

The initiative can be found at https://library.cumc.columbia.edu/CUIMC_COVID-19_Stories.