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MESSAGE FROM THE
Dean and CEO

Dear Friends,

In response to the unprecedented obstacles we faced during the COVID-19 pandemic, NYU Langone Health has redefined resilience and courage. We have been given the opportunity to fulfill our trifold mission to serve, to teach, and to discover, like never before. Throughout this crisis, our priority has remained to provide the highest-quality healthcare in the communities we serve. Our rapid and innovative response to the COVID-19 pandemic in communities throughout New York City and Long Island achieved one standard of care for all patients within the NYU Langone system and saved thousands of lives.

We involved the community in the mission to vaccinate all New Yorkers by enrolling diverse volunteers in landmark vaccine clinical trials and providing vaccines to our patients as they became available. We continue to deliver vaccine education and on-site vaccination to our patients and the communities we serve. This work is a proud extension of our long legacy of supporting New Yorkers through deadly epidemics, from tuberculosis to the 1918 influenza pandemic, to polio and beyond. In addition to our innovative work in COVID-19 testing and treatment protocols that led to some of the best health outcomes for COVID-19 in New York, we have leveraged technology to better serve patients within and outside our hospital walls. Further, we adapted numerous education and social support programs to continue reaching local communities safely.

Through this challenging time, NYU Langone has remained on the front lines of creating a healthier New York. Our institution is emerging from the COVID-19 pandemic stronger than ever and with a reaffirmed commitment to achieve better health outcomes for all New Yorkers. Our community benefit expenditures for this year are at their highest level ever, demonstrating the value of our commitment to the communities we serve. We take great pride in partnering with members of our community and so value the deeper connections we have formed throughout this crisis. As we look back over the past year, we also look forward to our work ahead.

Sincerely,

Robert I. Grossman, MD
Dean and CEO

MEASURING
Our Impact

$1.4 BILLION
IN COMMUNITY BENEFIT CONTRIBUTIONS

NYU Langone’s total community benefit contribution of $1.4 billion in investment equates to nearly 23% of the health system’s total expenditures for our fiscal year September 1, 2019, through August 31, 2020. The substantial increase in community benefit expenditures from the previous year demonstrates our commitment to our community in unprecedented, challenging times. Further, the largest component of our investment is in charity and underfunded care.

NYU Langone’s substantive and generous charity care policy ensures that patients do not have to delay or forgo critical medical treatment due to the inability to cover the cost.

$875.9 MILLION
CHARITY AND UNDERFUNDED CARE +
• Unreimbursed cost of care for Medicaid beneficiaries: $300.9 M
• Charity care: $59.2 M
• Other subsidized care: $102.5 M
• Medicare shortfall: $413.3 M

$537.3 MILLION
PHYSICIAN TRAINING AND RESEARCH SUPPORT +
• Health profession education programs: $295.5 M
• Medical research funding: $241.8 M

$32.4 MILLION
COMMUNITY HEALTH CONTRIBUTIONS +
• Community health improvement: $32.2 M
• Cash in-kind: $0.2 M

$1.4 BILLION
CHART OF GIVING

Robert I. Grossman, MD
Dean and CEO

Message from the Dean and CEO

Measuring Our Impact: Community Benefit Contributions
NYU Langone coordinated a virtual town hall for the Bangladeshi community to provide vaccine education in attendees’ preferred language and better understand community perspectives.

NYU Langone was among the first centers to dose patients in a Pfizer-led US COVID-19 vaccine trial. Following emergency use authorization for the Pfizer-BioNTech and Moderna vaccines by the FDA, NYU Langone began distributing the COVID-19 vaccines to our patients, based on federal and state eligibility guidelines and the available vaccine supply.

Mayor Bill de Blasio and NYC Health Commissioner Dr. Dave Chokshi observe the first vaccination at NYU Langone Health.

In April 2020, NYU Langone became a member of an elite national network of 10 specialized Vaccine and Treatment Evaluation Units (VTEUs), led by the National Institute of Allergy and Infectious Diseases (NIAID). Under the leadership of Mark J. Mulligan, MD, director of the Division of Infectious Diseases and Immunology, NYU Langone joined the NIAID COVID-19 Prevention Network (CoVPN) and the global race for a COVID-19 vaccine. The Vaccine Center at NYU Langone began to enroll healthy, diverse volunteers from across the New York metropolitan area for vaccine trials at the hospital campuses in Manhattan, Brooklyn, and Long Island.

By making strong efforts to enroll people with a higher-than-average risk for COVID-19 infection, including racial and ethnic minorities, frontline workers, first responders, and essential workers who could not stay home when many people did, the Vaccine Center was committed to reducing healthcare disparities that have contributed to a disproportionate toll of infection among underserved communities. Alongside the priority to ensure access and equity in vaccine development, the Vaccine Center also focused on enrolling those who are at risk for the highest levels of complications, such as older adults and those with chronic conditions. These priorities guided multiple vaccine clinical trials at NYU Langone, with the goal of developing a safe, effective vaccine that would be accessible to populations most at risk of infection.

The Vaccine Center’s work is ongoing, with the goals to ensure vaccines are accessible to all people, regardless of background or health condition, and to guide vaccination policy moving forward. Studies are in progress to determine if pregnant and breastfeeding mothers are able to transfer antibodies to their infants. Research also includes long-term follow-up of participants in past vaccine clinical trials, and trials of new vaccine candidates to address emerging COVID variants.

Involving the Community in the Mission to Vaccinate All New Yorkers

COVID-19 Vaccine Education

Throughout many months of a rapidly evolving pandemic, NYU Langone coordinated forums for diverse communities, bringing together clinical experts to share their knowledge and answer questions about COVID-19. Experts from across the institution, including the Vaccine Center, NYU Langone Hospital–Brooklyn, the Family Health Centers, and the Department of Population Health, participated in virtual forums to educate and inform the public in multiple languages, including English, Spanish, Mandarin Chinese, Cantonese Chinese, Arabic, and Bengali. Forum topics covered general information on COVID-19 and vaccination, as well as information for population groups with specific health concerns, such as people with diabetes, older adults, and parents with school-aged children. Ultimately, the forums served as a trusted source of information about the development, safety, and efficacy of COVID-19 vaccines for hundreds of thousands of community members.

NYU Langone Health in the Community

Family Health Centers Vaccinate Communities Hit Hard by Pandemic

The School Health Program—Family Health Centers at NYU Langone provides medical, mental health, dental, and vision services, along with health education, directly to children and adolescents through clinics located in public elementary, middle, and high schools throughout New York City. A partnership with the New York City Department of Education offered vaccinations for high school students over the age of 16 for all of Brooklyn during four Saturdays in May 2021 to aid in the safe reopening of schools.

Community Medicine Program—Family Health Centers at NYU Langone offers Johnson & Johnson’s Janssen COVID-19 vaccine to homeless patients at clinical sites in Brooklyn and on Randall’s Island, with the goal to offer vaccine to all patients seen in our clinics as part of routine care with their providers. The care team at Community Medicine Program also works closely with the New York City Department of Homeless Services to quickly identify, test, and isolate patients in homeless shelters to avoid outbreaks within the congregate settings.

Enrolling Volunteers in Landmark COVID-19 Vaccine Clinical Trials

As a member of the COVID-19 Prevention Network, NYU Langone leads vaccine trials with a commitment to reducing healthcare disparities.
Transforming Our Telemedicine Services

NYU Langone optimizes Virtual Urgent Care and primary care video visits for patients in self-quarantine.

Telemedicine services became invaluable during the height of the COVID-19 pandemic. While NYU Langone Health offered virtual appointments before March 2020, the service is ideally suited to a situation that requires people to isolate and self-quarantine.

When NYU Langone Health launched Virtual Urgent Care, only a few dozen patients a day took advantage of scheduling video visits with board-certified specialists in the Ronald O. Perelman Department of Emergency Medicine. In March 2020, that number jumped to 853 visits in a single day. Virtual Urgent Care was quickly expanded to support the demand. More than 200 physicians trained in telemedicine were brought on board, making appointments available 24 hours a day, seven days a week. Many patients seen in Virtual Urgent Care appointments were not sick, but simply worried that they may have been exposed to COVID-19. By connecting virtually, patients were able to seek care safely from home, avoiding trips to the Emergency Department that risked spreading the virus in their communities. Virtual Urgent Care and video visits reduced community transmission and eased the burden on overtaxed emergency departments at a crucial time.

Isolation directives prevented New Yorkers from receiving routine medical care in person. Practically overnight, telemedicine became the primary way for patients to consult with their physicians. In response, the Medical Center Information Technology team expanded the telemedicine platform to the institution’s Faculty Group Practices, enabling patients with an NYU Langone MyChart account to “see” their doctors on a smartphone or tablet. Within three weeks of launching, more than 2,000 primary care physicians and specialists were participating in nonurgent video visits. NYU Langone’s daily volume of video visits across ambulatory practices, the Family Health Centers, and Virtual Urgent Care reached its peak in late April 2020 with 6,857 virtual visits across the institution in a single day.

Implementing Remote Mental and Behavioral Health Care

Providers and patients pivot to teletherapy and telepsychiatry, finding benefits in a virtual care format.

The NYU Langone Department of Psychiatry had been building a teletherapy program for several years, which perfectly positioned it to address the unique mental health needs that arose in spring 2020 as COVID-19 surged across New York. When COVID-19 restrictions made it no longer possible for patients to meet their mental health providers in person, telepsychiatry provided a solution.

NYU Langone Health first launched a teletherapy program at the Steven A. Cohen Military Family Center. The success of telepsychiatry delivery at the Military Family Center provided the proof of concept needed to show that video conferencing is a viable means of delivering psychological and psychiatric care. The Department of Psychiatry expanded telepsychiatry services to NYU Langone outpatient Faculty Group Practice (FGP) locations. Many providers were already trained and comfortable with virtual care delivery. Outpatient therapy allows patients and providers to build a rapport through recurring appointments. Thanks to virtual delivery, there was no lapse in treatment for already established patients after the onset of COVID-19. The department even saw an increased patient volume as people began to isolate.

Teletherapy benefits include improved provider access and the ability to reach patients who are isolated or unable to come into the office. Providers remain open to communicating in the manner that patients feel most comfortable, such as incorporating texting into the sessions for increased privacy. Based on high patient satisfaction scores, mental health needs can effectively be addressed with a video-based delivery method. In fact, reports indicate patients have more timely arrivals and reduced cancellations with virtual visits in comparison to in-office sessions. This may be attributed to the convenience of avoiding commuter challenges and to the skill of providers who remained attuned to patients’ needs and extenuating circumstances.

Fighting Opioid Use Disorder through the Virtual Buprenorphine Clinic

Virtual Buprenorphine Clinic Fights Opioid Use Disorder

Opioid use disorder during COVID-19 has been called an epidemic within a pandemic. People with opioid use disorder face heightened stress, social isolation, and lack of access to treatment and social support. These challenges were laid bare when New Yorkers were encouraged to stay home during the height of the COVID-19 pandemic. Increased rates of substance use and relapse were seen across the United States, fueling an unprecedented number of opioid-related overdose deaths. As clinic capacity and visits to the Emergency Department were limited due to social distancing mandates, so was routine treatment for opioid use disorder.

The Virtual Buprenorphine Clinic at NYC Health + Hospitals/Bellevue is a joint effort of NYU Langone, the Bellevue Adult Primary Care Clinic, the Bellevue Psychiatry Addictions Service, and the NYC Health + Hospitals Office of Behavioral Health. The clinic fills a gap in service as the first of its kind to provide citywide low-barrier access to treatment entirely via telemedicine. During its first 10 weeks, the clinic saw 83 patients with no overdose events reported. While in-person treatment has become more accessible in recent months, the clinic continues to operate as part of Bellevue Psychiatry’s Outpatient Addictions Services. The positive response and utilization of the service may be partially attributed to the role of telemedicine in circumventing factors impeding retention in New York City, such as transportation issues, termination of care due to rigid clinic protocols, family and childcare obligations, or stigma associated with traditional treatment programs. The Virtual Buprenorphine Clinic has shown that telemedicine-based opioid treatment and the use of buprenorphine-naloxone at home offers a safe and feasible approach to expand the reach of opioid use disorder treatment, primary care, and behavioral health for a highly vulnerable urban population during an unprecedented natural disaster.

Telemedicine allows people to receive urgent, routine, and mental health care while following isolation directives, thereby reducing community spread of COVID-19. At the height of the COVID-19 pandemic, NYU Langone providers across the institution conducted more than 6,800 virtual visits in a single day.
Providing Quality Care at the Family Health Centers

Patients attend well-visit appointments, receive scheduled vaccinations, and complete screenings safely during the height of the COVID-19 pandemic.

Despite facing one of the most challenging years in its 54-year history, the Family Health Centers at NYU Langone surpassed several national quality-care benchmarks in 2020, demonstrating the ability to provide high-quality care to the most vulnerable of patients throughout the height of the COVID-19 pandemic. The pandemic led to a national epidemic of delayed health screenings, worsened chronic conditions, and decreased routine vaccinations, but the Family Health Centers continued to provide routine healthcare services in a safe environment and addressed concerns patients had about coming into a medical office during the pandemic. Performance metrics indicate improvement in these specific areas of concern, as well as many others. By the end of 2020, 74% of eligible pediatric patients attended their well-visit appointments and received scheduled vaccinations, greatly exceeding the national average benchmark of 39%. The Family Health Centers also surpassed benchmarks for reducing the rates of uncontrolled diabetes (below 32%) and for cervical cancer screenings (more than average benchmark of 39%). The Family Health Centers help to remind physicians and staff about overdue or outstanding appointments for immediate follow-up. The alert is triggered when a patient is due for a series of preventive appointments, like an annual physical exam or cancer screening. This innovative system helps close gaps in care for chronic disease treatment, prevention, and wellness, and ensures that no patient is left behind.

The Family Health Centers at NYU Langone

The Family Health Centers at NYU Langone is a community-based program providing high-quality primary and preventive outpatient care to adults and children, regardless of their ability to pay or health insurance status. This Federally Qualified Health Center network serves approximately 100,000 patients each year throughout Sunset Park, Brooklyn, one of the highest Medicaid-concentrated communities in the United States, and other parts of New York City.

The Community Health Workers at NYU Langone

Community health workers are frontline health workers who are trusted members of their communities and play a critical linkage and support role for patients throughout various clinical and community-based settings at NYU Langone Health. Programs across NYU Langone that utilize CHWs seek to enhance care, link services, improve community health, address social determinants of health, and build community leadership and capacity. Because of their shared life experiences with the communities they serve, CHWs are well positioned to provide culturally relevant care and health coaching for community members who face significant health disparities and barriers to care.

Community Health Workers Connect to Care

The COVID-19 pandemic demonstrated the invaluable role that community health workers (CHWs) play in connecting communities to the care and services that are critical to maintaining health. CHWs help clients address a wide array of urgent needs: applying for unemployment insurance, rental assistance, or SNAP benefits; accessing food pantries and food delivery; and navigating immigration issues, domestic violence, and ongoing health concerns, including cancer care and diabetes management. Crucially, in addressing these needs, CHWs provide emotional support and help with stress management.

Throughout the pandemic, the NYU Langone Health CHW Research & Resource Center (CHW-RRC), led in part by a committee of CHWs who constitute the CHW Learning Community, hosted webinars on topics of interest to CHWs to address the changing needs and concerns of their clients during the COVID-19 crisis. The Center drew on experts across NYU Langone Health and from community and government partners to inform its webinars, whose topics included Communicating about COVID-19, COVID-19 Vaccine Safety and Distribution, Strategies for Outreach and Engagement, Nutrition and Chronic Disease Management, Mental Health, and Death and Dying.

The CHW-RRC also supported CHWs themselves by hosting events, trainings, and workshops to build a strong community, foster social support, and provide professional development opportunities. In response to COVID-19, the Learning Community shifted its professional development and social support functions fully online to build a stronger virtual community for CHWs.
Adapting Community Programs

Project SAFE Pivots to Virtual Format for Teens

Project SAFE offers virtual programming, training peer educators and providing youth with essential sexual health services.

For young people, COVID-19 restrictions meant separation from many critical services and sources of social support they received in school and during after-school activities. After the stay-at-home order was implemented in March 2020, the Project SAFE Program was able to pivot nearly all program activities to a virtual format and provide continuous support for young people.

Peer education groups quickly transitioned to Zoom, allowing participants to continue learning and connecting with one another while staying home. Peer educators across Project SAFE met weekly to address emerging topics relevant to young people, such as physical fitness, meditation, creative expression, and the Black Lives Matter movement.

During this period, the Project SAFE website continued to provide sexual health information and shared updates for families impacted by COVID-19. In addition, social media platforms were critical for sharing sexual health information and resources about COVID-19 testing, vaccination, and support.

Offering “PEP Talks” in Online Classrooms: Prevention and Education Partnership

NYU Langone physicians engage teens in conversation about COVID-19 risk reduction.

Motivated by the conviction that doctors have a critical role to play in preventing illness and injury, the Ronald O. Perelman Department of Emergency Medicine founded the Prevention and Education Partnership (PEP). Since 2016, PEP has trained hundreds of NYU Langone Health doctors and medical students to provide high-quality health expertise via “PEP Talks” in classrooms throughout New York City. During PEP Talks, NYU Langone physicians translate their knowledge and experiences on the front lines of healthcare to engage in conversations with young people about harm, risk reduction, addiction, mental health, and more. With topics ranging from prescription drug misuse to marijuana edibles, to vaping, PEP has kept up with the pace of emerging and evolving health threats faced by today’s teens. In the spring of 2020, when NYU Langone Health mobilized its doctors system-wide to diagnose, research, and treat thousands of critically ill patients within the epicenter of a global pandemic, PEP also mobilized its doctors and medical students to educate the community about COVID-19. Pivoting from the bedside to the new virtual classroom, PEP instructors reached thousands of young people and their families, translating rapidly evolving information on COVID-19 transmission, symptoms, and protective measures.

By sharing their stories working on the front lines, PEP instructors were able to combat misinformation about the virus and its impact. As some of the first recipients of a COVID-19 vaccine, PEP instructors also helped educate and inspire community members to overcome vaccine hesitancy. In a year of unprecedented misinformation and mistrust, the opportunity for doctors to share their stories and real-world experience makes PEP Talks particularly impactful and engaging for students.
Across the country, the COVID-19 pandemic has exposed weaknesses in our healthcare system and social safety net. The health, housing, and social services providers that constitute the Brooklyn Health & Housing Consortium (Brooklyn Consortium) have worked together to bridge the divide between the healthcare and housing sectors to improve care for the most vulnerable New Yorkers. The challenges that already existed within and between these systems were exacerbated as the COVID-19 crisis hit New York City.

The population that Brooklyn Consortium members serve—those experiencing homelessness or housing instability—are particularly vulnerable. Their inability to “stay at home” or isolate put them at greater risk of exposure to COVID-19 and of spreading it to others, and their high rates of chronic medical conditions and lack of access to healthcare put them at further risk of complications from the virus. The healthcare, housing, and homeless services systems were all under unprecedented strain, and the need to communicate and coordinate across these sectors was more important than ever during the peak of the COVID-19 pandemic.

The Brooklyn Health & Housing Consortium

The Brooklyn Health & Housing Consortium is a collaborative network of healthcare, housing, homeless, and social services organizations, and government partners with the shared goal of improving health equity and housing stability. The Brooklyn Consortium, supported by NYU Langone Health’s Community Service Plan, fosters cross-sector relationships, informs policy, and builds the capacity of frontline workers to support people with unmet health and housing needs. The Brooklyn Consortium is modeled after and partners with the Bronx Health & Housing Consortium.

One area of focus for the Brooklyn Consortium is providing trainings, events, and activities to educate and build the capacity of frontline workers to improve outcomes for Brooklyn residents with overlapping unmet health and housing needs. While face-to-face interaction across sectors was previously instrumental to the Consortium’s work, during the COVID-19 crisis the Consortium shifted to relaying information and providing trainings to members through e-mails and webinars. Prioritizing the needs of frontline staff continued to be salient, as they were under significant stress, struggling to keep up with the rapidly evolving crisis and the guidance issued from multiple agencies in response to it.

The Brooklyn Consortium serves people with overlapping unmet health and housing needs. One of the most vulnerable groups served by the Consortium is the population experiencing or at risk of homelessness.

The Table Food Pantry

The Table Food Pantry of the Family Health Centers at NYU Langone provides emergency food to approximately 5,200 households each month through a client-choice model, providing a variety of shelf-stable foods, fresh produce, and dairy products. Since the onset of the pandemic in NYC to date, The Table has seen a 200+% increase in the number of people seeking food assistance.

State Senator Zelnor Myrie, Council Member Carlos Menchaca, and Brooklyn District Attorney Eric Gonzalez (not pictured) helped distribute Thanksgiving meal kits with volunteers at The Table Food Pantry at the Family Health Centers at NYU Langone.

Caring for the Whole Person: Brooklyn Health & Housing Consortium

The Brooklyn Consortium serves people with overlapping unmet health and housing needs.

The Brooklyn Health & Housing Consortium (Brooklyn Consortium) have worked together to bridge the divide between the healthcare and housing sectors to support people with overlapping unmet health and housing needs. The Consortium’s work, during the COVID-19 crisis the Consortium shifted to relaying information and providing trainings to members through e-mails and webinars. Prioritizing the needs of frontline staff continued to be salient, as they were under significant stress, struggling to keep up with the rapidly evolving crisis and the guidance issued from multiple agencies in response to it.

As the first cases of individuals infected with COVID-19 in homeless shelters and supportive housing residences started to emerge in New York City, the Brooklyn Consortium joined forces with its sister organization, the Bronx Health & Housing Consortium, to organize COVID-19 town hall Q&A webinars. The town halls provided interactive opportunities for frontline staff to learn from government agency representatives and health experts about New York City’s evolving response to the COVID-19 pandemic, particularly as these policies affected those experiencing homelessness and housing instability. To date, the Consortia have hosted town halls on substance use treatment, isolation hotels, mental health among essential frontline workers, policies designed to keep New Yorkers housed during the pandemic, food and rental assistance, caring for homeless patients during COVID-19, and vaccinations for individuals experiencing homelessness. These town halls have brought together more than 1,000 participants across over 170 organizations.

The Family Health Centers responded to this crisis by launching Community Connections, a program providing access to technology for in-need seniors, with the goal of reducing social isolation and increasing social connection. Participants are engaged in a variety of virtual programming, including arts, recreation, health and nutrition education, and exercise. Seniors receive training and mentorship from a tech-buddy, a trained mentor who assists in technology utilization and access. The program also provides training for geriatric professionals to build their capacity to develop engaging virtual programming. Preliminary surveys show that feelings of loneliness among participants, a prime predictor of mortality, reduced dramatically from 75% to 36% over the course of the program. Additionally, feelings of connectedness with family increased by 56% and connectedness with medical providers increased by 17%.

Supporting Seniors through Technology

Community Connections combats isolation and loneliness through access to technology for in-need seniors.

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Supporting Seniors through Technology

Community Connections combats isolation and loneliness through access to technology for in-need seniors.

The Family Health Centers at NYU Langone provides comprehensive wellness, education, and social support programming to over 1,000 older adults in South Brooklyn each year. During the peak of COVID-19 in New York City, seniors were advised to self-isolate, and congregate services they depend upon for food, socializing, and engagement were suspended. Older adults who were independent and socially connected before the pandemic became homebound due to social distancing recommendations. Isolation is one of the greatest predictors of poor health, depression, functional decline, and death among older adults.

The Family Health Centers responded to this crisis by launching Community Connections, a program providing access to technology for in-need seniors, with the goal of reducing social isolation and increasing social connection. Participants are engaged in a variety of virtual programming, including arts, recreation, health and nutrition education, and exercise. Seniors receive training and mentorship from a tech-buddy, a trained mentor who assists in technology utilization and access. The program also provides training for geriatric professionals to build their capacity to develop engaging virtual programming. Preliminary surveys show that feelings of loneliness among participants, a prime predictor of mortality, reduced dramatically from 75% to 36% over the course of the program. Additionally, feelings of connectedness with family increased by 56% and connectedness with medical providers increased by 17%.
**Reducing Air Pollution in Our Communities**

As a member of the US Health Care Climate Council, NYU Langone became the first and only hospital in New York City to join a leadership body of health systems committed to protecting their patients and employees from the health impacts of climate change.

One key way to improve our local communities and the environment is to reduce carbon emissions. NYU Langone Health has recognized that the care of our patients and communities extends to our care for the environment. We have an ambitious 50% carbon emissions reduction goal by 2025 as a participant of the NYC Carbon Challenge. Because air pollution and greenhouse gases are often released from the same sources, this goal directly reduces air pollution.

Air pollution emitted from transportation contributes to smog and to poor air quality, which has negative impacts on the health and welfare of communities. Residents of NYC are exposed to high levels of air pollution in the form of fine particulate matter (PM2.5) from combustion activity, including the burning of fuel in vehicles. A major source of PM2.5 in NYC is traffic, with 17% of all emissions coming from traffic. Recent studies link ambient PM2.5 and ozone specifically caused by vehicle exhaust emissions to premature deaths. In addition, long-term air pollution increases vulnerability to experiencing the most severe COVID-19 outcomes.

The impact of air pollution is particularly important to the communities we serve. In the community districts where our hospitals are located in New York City, the levels of PM2.5 are higher than the borough-wide and New York City averages. By decreasing our contributions to air pollution, we will have a positive impact on the populations we serve, but in particular those residents with upper respiratory illnesses such as asthma and COPD.

As part of our commitment to the US Health Care Climate Council, NYU Langone aims to reduce carbon emissions and improve air quality by purchasing local food for the meals we serve patients and in our hospital cafes. Purchasing food from local sources reduces transport-related emissions and therefore improves air quality. Transportation of food accounts for about 11% of the greenhouse gas emissions from the food system. Purchasing local also supports the local food economy and is an investment in strengthening our community’s resiliency in future disruptions. As more money stays in the local economy, more money is spent by and at other local businesses.

An institutional benefit of local food purchasing was revealed during COVID-19, as some of our local suppliers were well positioned to continue to supply their products. Food and Nutrition Services purchases all of the fresh poultry for the main campus from FreeBird in Fredericksburg, PA. Located less than 350 miles from NYC, FreeBird is 100% antibiotic free, provides an enriched environment for the animals, and is certified by the Global Animal Partnership. The processing plant also keeps zero-waste facility standards. During the peak months of the COVID-19 surge, when NYU Langone was trying to secure supplies, and many hospitals were struggling with larger manufacturer disruptions, FreeBird had zero interruptions in service. This local supplier relationship demonstrated how effective and powerful local purchasing was in a crisis.

**Taking Action to Combat Global Supply Shortages**

In March 2020, personal protective equipment was in short supply globally. In response, students from the NYU Grossman School of Medicine and Sackler Institute of Graduate Biomedical Sciences assembled clear plastic guards to protect frontline staff from COVID-19 droplets.

During the height of the COVID-19 pandemic in India, NYU Langone donated supplies, including ventilator masks and nasal cannula, needles and syringes, hand sanitizer and wipes, and oxygen concentrators.
INNOVATION IN COVID-19

Treatment, Testing, and Recovery

COVID-19 Clinical Trials: Advancing Our Research Mission

Research scientists at NYU Langone improve health, manage disease, and advance standards of care for patients with COVID-19. When COVID-19 arrived in New York City, the medical community had more questions than answers. Where did the novel coronavirus come from? How does it spread? Which treatments work to minimize disease severity? NYU Langone researchers were determined to find out answers for patients, New Yorkers, and the global community fighting COVID-19.

NYU Langone medical researchers and clinicians simultaneously cared for ill patients, scoured reports for new information, and rapidly assembled clinical trials to learn about the virus. In less than three months, NYU Langone launched or joined 17 trials to investigate a range of potential therapies for COVID-19. A shared sense of responsibility and teamwork helped NYU Langone achieve an astonishing output of research findings, which contributed to new knowledge being used to shape treatments across the world.

Medical ethicists helped researchers think about how to prioritize the trials and expand access to care. With overlapping eligibility criteria, investigators had to decide which patients might be best suited for which trials. The extraordinary effort prioritized the care of patients who were seriously ill. Research on these patients fed directly into clinical care for patients at NYU Langone and beyond. One notable trial was for the experimental drug remdesivir. NYU Langone and Bellevue joined a group of 68 international sites that together enrolled more than 1,000 patients. NYU Langone researchers found in trials that hospitalized patients who received remdesivir recovered faster than those who did not.

Based on the data, the FDA gave remdesivir an emergency-use authorization as a COVID-19 treatment. Researchers and clinicians worked around the clock to build on existing COVID-19 research from China and understand risk factors that are associated with a more severe course of disease. Epidemiologists at Hassenfeld Children’s Hospital noticed that many of NYU Langone’s younger COVID-19 patients requiring intubation were obese. Researchers conducted a retrospective study and found that for patients younger than 60, obesity is a significant risk factor. This finding is now included in the CDC’s list of risk factors for severe COVID-19.

Researchers at NYU Langone’s Genome Technology Center took on the question of how COVID-19 spread to New York. Around the world, scientists were already sequencing the SARS-CoV-2 genome from patients to create a central database. Research from NYU Langone added more than 860 SARS-CoV-2 sequences to the international database. Results from this sequencing work suggested that the virus had been circulating in New York since at least mid-February, which was much earlier than initially thought. Data also showed that most of the circulating coronavirus in New York came from Europe, not from China.

The research undertaken thus far at NYU Langone underscores the importance of worldwide collaboration. Completing clinical trials and securing answers to pressing questions will continue to require close coordination among multiple centers in different countries. As questions continue to arise about the novel coronavirus, it is more important than ever to come together as a global research community and discover valuable answers to inform our response to the pandemic.

NYU Langone provides COVID-19 tests to the community to help trace the virus and contain its spread, offering a testing capacity of up to 2,400 tests per day across hospitals and ambulatory sites.

COVID-19 Testing in the Community

In March 2020, NYU Langone was one of only two academic medical centers in New York City with the lab equipment and expertise required for processing the first coronavirus test authorized by the Food and Drug Administration (FDA) for emergency use. Over just one weekend in March, NYU Langone created a high-volume COVID-19 testing center. The team tested hundreds of samples a day for patients and frontline employees, returning tests within 24 hours. In the first few months of the pandemic, access to testing was a challenge. This high-volume, rapid-testing center enabled infection control among patients, healthcare providers, and other frontline workers.

By the end of April, NYU Langone opened the first COVID-19 testing site for the public in Sunset Park, Brooklyn, in partnership with Governor Andrew Cuomo and the New York State Department of Health. The testing center at the Augusta Center was the first testing site available to residents of Sunset Park, a neighborhood where many essential workers, including caregivers, food service workers, home attendants, childcare givers, cleaners, and delivery workers, reside. In April 2020, a record 1,400 COVID-19 diagnostic tests were performed in a single day. One week later, health officials began encouraging all New Yorkers to get tested to help trace the virus and contain its spread. In turn, NYU Langone further ramped up its testing capacity to 2,400 tests a day, providing the service to the larger community at hospitals and ambulatory sites.

As the pandemic wore on, access to testing was essential for monitoring the spread of the virus. COVID-19 testing in New York City was expanded to the community, including public sites, schools, and local businesses. NYU Langone adhered to recommendations from the Centers for Disease Control and Prevention that testing be limited to symptomatic individuals. NYU Langone joined other community organizations in New York City to distribute saliva-based COVID-19 tests to reach a broad range of New Yorkers. From early in the pandemic, the community testing program enabled residents of New York City to access testing at no cost.

Understanding the Chronic Effects of COVID-19

As a member of the National Institute of Health’s RECOVER Initiative, NYU Langone is studying the long-term impact of COVID-19 on communities with a $52 million federal grant.

Many people who have COVID-19 experience symptoms that can persist for months after their recovery from the initial illness. Lingering symptoms may include fatigue, shortness of breath, brain fog, sleep disorders, fevers, gastrointestinal symptoms, anxiety, and depression. NYU Langone was selected as the Clinical Science Core (CSC) for the National Institutes of Health’s (NIH) RECOVER Initiative to lead research that aims to understand this phenomenon. As the CSC, NYU Langone will bring together the research activities of more than 30 clinical cohorts around the country in a study of the long-term effects of COVID-19 infection. The CSC also will guide communication and engagement efforts with key stakeholders, including patients, caregivers, and healthcare providers.

A fundamental feature of the RECOVER Initiative will be the large number of patient groups included in the research, designed to be fully representative of the diversity of the US population. A SARS-CoV-2 Recovery Cohort, comprising multiple patient groups to be followed over time, will be studied to characterize the long-term effects of infection in a diverse set of people. The RECOVER Initiative aims to understand what the spectrum of recovery from COVID-19 looks like across the population. What makes some people, but not others, vulnerable to prolonged effects? Researchers also hope to determine if COVID-19 may trigger changes in the body that increase the risk of other conditions, such as chronic heart or brain disorders.

The RECOVER CSC at NYU Langone will be led by an interdisciplinary principal investigator team composed of senior faculty from the Center for Healthcare Innovation and Delivery Science and the Division of Biostatistics in the Department of Population Health. This pivotal NIH award will allow NYU Langone and researchers across the US to dive deeper into the many unanswered questions about the effects of COVID-19 on communities over time.
Our Legacy of Supporting New Yorkers Through Deadly Epidemics

Historian David Oshinsky looks back to look forward.

The COVID army called to duty over the past year is part of a tradition spanning two centuries. Crises erupt, and professionals rise to the challenge. Epidemics have long marked our history. No American city suffered more than New York, whose bustling harbor became a magnet for the world's microbes and maladies. NYU Langone's courageous frontline today builds on a long and vibrant legacy of helping New Yorkers shoulder deadly epidemics. This is our history, refreshed by each succeeding generation.

Yellow Fever

The scourge of yellow fever came to New York in the 1790s. The city bought the “Bel-Vue Estate,” a decaying mansion overlooking the East River, to house the sick and dying. A young doctor named Alexander Anderson faced the yellow fever epidemic virtually alone. He treated the sick who arrived at Bellevue by horse cart and river barge. At a time when nobody knew what caused yellow fever or how to treat it, Anderson believed in taking responsibility for society’s most fragile members. He stands as Bellevue’s first true physician.

In 1841, the NYU College of Medicine opened its doors and formed its relationship with Bellevue Hospital. A century after Anderson treated patients, Walter Reed, MD, and William Gorgas, MD—both trained and educated at Bellevue and NYU—unlocked the mysteries of yellow fever. Reed demonstrated its transmission via mosquitoes, and Gorgas provided the first blueprints for how to eradicate the disease. Many consider their contributions to be among the most significant in the history of medicine, paving the way for future discoveries.

Typhus

In 1847, typhus struck New York City. A bacterial disease spread by body louse, it likely came from Europe via ships arriving at East Coast port cities of the United States. As the sickness spread, military tents were installed on the grounds of Bellevue Hospital to house the overflow of patients. So many resident physicians fell to the disease that medical students were used to fill the void. The fatalities of this epidemic are a reminder of those who selflessly walked our halls long ago.

Tuberculosis

In the late 19th and early 20th centuries, many New Yorkers fell to endemic diseases related to filth and overcrowding—in short, the plagues of modern city life. Among the deadliest offenders was tuberculosis (TB). The battle to contain TB owed its success to a cadre of NYU physicians, most notably Hermann Biggs, MD, and Edith Lincoln, MD. Guided by the microscopic isolation of the tubercle bacillus in 1884, Biggs used his funding as the head of New York City's Medical Research Laboratory to lobby for preventative methods such as quarantine, facial masks, sputum culture, and the mandatory reporting of all suspected TB cases. Today, Biggs is considered by many to be the "father of public health in the United States."

Lincoln, one of the first female intern at Bellevue and an assistant professor of pediatrics at NYU, took on the difficult job of leading a special ward for children with TB. A disciple of Biggs, she compiled data for one of the largest medical studies of that era, tracking close to 3,000 TB survivors from the time they entered her ward at Bellevue until their 25th birthday. Her conclusions reinforced the work of most social reformers: the patients "came from low socioeconomic backgrounds."

In the mid-1940s, the antibiotic streptomycin, derived from soil, showed great potential in killing the tubercle bacillus. Lincoln lowered TB mortality in the children’s ward to 1.5% by using streptomycin in combination with a second antibiotic, isoniazid. The success rate was confirmed by the US Public Health Service. Her studies on multidrug therapies would reorient the treatment for tuberculosis—and later for HIV/AIDS.

The Great Influenza of 1918

The influenza pandemic of 1918 killed more people in a shorter period of time than any event in world history. The average American life expectancy dropped by 2 years. Bellevue saw more admissions in the fall of 1918 than at any time in its history. So many nurses and doctors took sick that city officials thought seriously about refusing new patients; they decided against it, though many wound up sleeping on the floor. As the virus spread, the New York City Health Department took action. Hermann Biggs again led the active involvement of the state’s public health officials in the fight against the virus. To prevent crowding, work hours were staggered, and theaters were forced to cut their ticket sales in half. Public libraries stopped lending books, gauze face masks became regular attire, and people stopped shaking hands. Early intervention worked: so, too, did social distancing, the banning of large public events, and a layered approach to reopening the city—painful lessons that resonate to this day.

Polio

Today, the scourge of polio is a distant memory in most parts of the world, thanks to the killed-virus vaccine developed in the early 1950s by Jonas Salk, MD, and the live-virus version championed several years later by Salk’s competitor, Albert Sabin, MD. The story of the polio vaccine has deep roots at NYU. Both Salk and Sabin earned diplomas from NYU School of Medicine. Their medical education speaks volumes about NYU’s early leadership in virology, bacteriology, and infectious disease. Salk was mentored at NYU by Thomas Francis, MD, whose pursuit of a killed-virus flu vaccine deeply influenced Salk’s research agenda. Sabin’s NYU experience was shaped by the influential William Hallock Park, MD, who had introduced the lifesaving diphtheria antitoxin to American medical community in the fight against the deadly childhood disease.

As with Francis and Salk, the relationship between Park and Sabin exemplified the generational partnerships that fueled the extraordinary research occurring at NYU.

HIV/AIDS

AIDS had no history, not even a name, when it first appeared in the fall of 1980. NYU’s Fred Valentine, MD, saw his first case at Bellevue. More patients would be treated for AIDS at Bellevue, and more would die, than at any other hospital in the United States. Gowns, face masks, double gloves, and goggles became standard equipment for doctors and nurses on the AIDS floor before the mode of transmission was known. Those who worked and trained at Bellevue in those years recall a sense of bonding and accomplishment that framed their later professional lives. They also remember the feelings of futility that often overwhelmed them in early years of the epidemic. By the 1990s, two groups affiliated with NYU had begun testing a multidrug therapy designed to suppress HIV in already infected patients. Both showed promising results. The viral loads of the subjects dropped to almost undetectable levels, changing the diagnosis from a death sentence to a treatable condition.

Ebola

In the summer of 2014, with Ebola tearing through the West African nations of Guinea, Liberia, and Sierra Leone, a group of Bellevue staffers began preparing for its likely appearance in New York. Doctors and nurses trained in layers of gear including fluid-resistant gowns, knee-length booties, double gloves, and a PAPR (powered air-purifying respirator) with a face shield. Special equipment, screening procedures, and changes to procedures in patient care were tested as the clinical and other supportive staff readied themselves for potential deployment.

When the first Ebola patient did arrive in New York—Craig Spencer, MD, a volunteer with Doctors Without Borders—Bellevue staffers were ready. Spencer was brought to the isolation ward equipped to care for patients with drug-resistant tuberculosis, an outgrowth of the AIDS epidemic. These rooms had negative air pressure, ultraviolet lights to kill airborne bacteria, and HEPA (high-efficiency particulate air) filters. Bellevue staff kept Spencer hydrated and monitored his vital signs, and he received experimental antiviral drugs and plasma therapy. While it’s unknown whether these experimental therapies worked, Spencer’s medical team, led by Laura Evans, MD, MSc, and supported by 119 other doctors, nurses, technicians, pharmacists, waste managers, and security officers, helped to save his life during his time at Bellevue.

—David M. Oshinsky, PhD, is director of the Division of Medical Humanities at NYU Langone Health.
The Office of Government and Community Affairs at NYU Langone Health collaborates with city, state, and federal officials, community boards, and community-based organizations through partnerships that enhance the vibrancy of the communities our patients reside in, and that provide services, programs, and events to the community at large.

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