

# INSIDE Medicine

May 18, 2020

The Newsletter of the Department of Medicine

## ***Telescopic Era of Medicine and Science***

*A message from the chair, Dr. Steve Abramson*

This issue of *Inside Medicine* highlights the spectrum of the NYU COVID experience, including a superb essay, which recently appeared in *New York Magazine*, by Dr. Gabriel Redel-Traub. Gabe was among the 52 extraordinary early graduates from the NYU Grossman Class of 2020 who joined the fight against COVID in April of this year. The leadership of Frank Volpicelli, Chief of Medicine at NYU Langone—Brooklyn, and Mark Mulligan, Director of the NYU Vaccine Center, are also highlighted, as are important historical perspectives by David Oshinsky on smallpox, and the remarkable photographs of the Chinese Plague of 1910-1911, from the extraordinary archive of Dr. Stanley Burns, Research Professor of Medicine & Psychiatry.

Despite the historical comparisons to prior epidemics without cure, we should recognize distinctions. Namely, we are amidst an unprecedented and explosive *Telescopic Era* of medicine and science that bodes well for our success in the treatment of COVID-19.

*Telescopic events* in Medicine are defined as *the “compression” or overlapping of clinical or pathologic features of a disease that is normally subdivided into chronological stages of progression*. With COVID-19, knowledge of the clinical and pathophysiological features, accompanied by novel treatment strategies have been compressed, or telescoped, into three months of the hectic unfolding of a previously unknown disease. Clinical observations and autopsy findings by NYU faculty have rapidly characterized for the world the extra-pulmonary vascular, thrombotic and renal manifestations of COVID. Bioinformatics

and data analysis teams have been able to mine extensive clinical and laboratory data from over 5,000 patients in the EHR to provide rapid-fire characterization and predictive models of COVID-19. Thus, we witnessed the rapid emergence of insights into clinical and pathologic features of a novel disease, taking advantage of biomedical informatics and the intensity of efforts across disciplines, which in ordinary times would have emerged over years, not weeks.

Journals have enabled the dissemination of knowledge by accelerating the peer-review process. More importantly, COVID manuscripts have bypassed traditional peer review and have quickly appeared online as *preprints* that precede formal peer review. This process avoids the archaic and cumbersome traditional peer-review process, which hinders the flow of new knowledge. The preprint model quickly makes the information public, prompts debate and accelerates the publication of efforts that ultimately validate or refute the initial observation.

With this rapid appearance of new knowledge, we have entered an unprecedented era of COVID-19 “*Telescopic Science*,” led by numerous physicians, university scientists and industry researchers around the globe. With extraordinary rapidity, multiple vaccine trials have been launched, including those led by Dr. Mark Mulligan’s team. Novel treatments using anti-COVID monoclonal antibodies and combined anti-viral/anti-inflammatory protocols have or are about to begin. Clinical trials for other novel treatments are on the horizon.

We all expect and hope that a future *Burns Archive* will not feature historical photographs of COVID-19 patients surrounded by powerless and disheartened physicians. Rather, cautious optimism suggests that global “*Telescopic Medicine and Science*” will soon compress the timeline to effective treatment and prevention – and future photos will be those of triumph!



## **'We Have No Superpowers': A New Doctor's Lessons From the Pandemic**

Graduating early from NYU Grossman School of Medicine to join the front lines of New York's battle against the coronavirus offered a crash course in medicine's limitations, writes Gabriel Redel-Traub: "The hospital has been a lonely place for patient and provider alike. With patients wearing oxygen masks and providers covered head-to-toe in PPE, the ability to have real conversations has been difficult.... But amid the isolation, the hospital has still had moments of genuine human connection and joy."

[Continue reading in New York Magazine](#)



Above: Click to watch Dr. Mark Mulligan discuss the clinical trial for a Covid-19 vaccine on [TODAY](#).

## The Expert Is In: Dr. Mark Mulligan

Perhaps the biggest issue at this moment is the development of a COVID-19 vaccine. A lot of numbers are being thrown around regarding the time it will take. What, in your opinion, is a reasonable estimate for producing a safe, effective vaccine?

**Dr. Mulligan:** COVID-19 vaccine development and testing are proceeding at a fast pace. Within only a couple of months of the publication of the viral sequence (on January 11, 2020) the first human vaccine trials began. This is amazing.

Beginning a human vaccine program is just the start. Initially the focus is vaccine safety and tolerability, in tens of study participants. Safety is paramount at this stage: vaccines are given to many healthy people to keep them healthy — they have to be safe. The immune response produced by the candidate vaccine is also studied. If, in this first stage of study, a vaccine candidate is safe and tolerated well, and produces an immune response that might be protective, the vaccine advances to the next stage in a few hundred subjects, to gather additional data. In the speeded up world of COVID-19 these first two stages might be accomplished in about 4-5 months.

If all still looks promising, the efficacy stage of testing proceeds, involving thousands of subjects, with half receiving active vaccine and half receiving placebo. The duration of this stage could be several months or longer, depending

on how much ongoing SARS-CoV-2 transmission there is at the time the efficacy testing begins. If there is still a lot of community spread of the virus, this final stage is quicker.

So if you add all this up and everything goes perfectly — early phase testing ~4-5 months; efficacy testing ~6 months or longer (depending on level of ongoing transmission) — you end up with a minimum of about a year, or longer.

As unsatisfying as this year or longer time-frame may sound, it is actually — relative to the world of traditional vaccine development — proceeding at blazing speed, as it should, given this terrible pandemic.

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## **NYU Langone-Brooklyn, Hit Hard by COVID-19, Celebrates Milestone**

As COVID-19 spread across New York City, few neighborhoods were hit harder than Sunset Park, home to large numbers of Chinese and Hispanic immigrants, where NYU Langone–Brooklyn is located.

“People stepped up in such a meaningful way. The support from the leaders in the Department of Medicine was invaluable, as was support from outside the department,” says Frank Volpicelli, MD, chief of medicine at NYU Langone–Brooklyn. “And my residents have been just absolutely unbelievable. They’ve shown a monumental amount of maturity.”

Among the many people who deserve credit, Dr. Volpicelli was quick to recognize Drs. Daniel Sartori, Charles Okamura, Marwa Moussa, Sheetal Desai-Oghra, Adam Goodman, Tshering Amdo, and Jorge Mercado.

The hospital was able to care for patients with creative staffing from their own teams, only needing to transfer patients to Kimmel who required ECMO. “This is another marker of the way the NYU presence in this community has afforded access to world class healthcare, both on campus and across the river,” says Dr. Volpicelli.

Now the hospital is celebrating important milestones. More than 850 COVID-19 patients have been successfully treated and discharged—a significant number in a hospital that typically holds 450 inpatient beds. [Watch a video of staff at NYU Langone Hospital-Brooklyn celebrating the discharge of their 850th COVID-19 patient, just ahead of Mother's Day.](#)



*(At right: Dr. Frank Volpicelli and Jordan Solop, Vice President of Hospital Operations for Medicine, Surgery, & Emergency Medicine at NYU Langone-Brooklyn, commemorate the discharge of the hospital's 850 patient.)*

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## Healing Through the Arts: GHHS Chapter Receives Gold Foundation's "Outstanding" Ranking

Each year, students who are inducted into the Gold Humanism Honor Society (GHHS) at NYU Grossman School of Medicine inspire their peers and mentors through their innovative projects and dedication to modeling compassionate, patient-centered care. In recognition of their efforts, the Gold Foundation recently awarded the chapter with its "Outstanding" ranking. The chapter's most recent project reinforced their commitment to "keep healthcare human" — by combining their passion for service with an artistic eye, the group transformed a plain clinic space into a soothing environment.

Over two weekends earlier this year, the GHHS student chapter, under the leadership of advisor Michael Tanner, MD, and in collaboration with Richard Jordan Design, painted murals and feature walls throughout the Adult Primary Care Satellite Clinic at Bellevue Hospital. The concept of this year's mural was inspired by American artist Alexander Calder, who is best known for his playful kinetic sculptures and whimsical use of line and shapes.

Art has been shown to have positive effects on health and well-being. In the three murals the GHHS students have painted since 2018, they have endeavored to leaven with beauty and hope the spirits of Bellevue patients who are having an especially hard time.

“Painting walls with Rick Jordan and the medical students is a wonderful and heartwarming collaboration,” says Dr. Tanner. “The students are amazingly capable and focused on the work, and the final product is beautiful to behold.”

Participants included medical students Allyson Alfonso, Gwendolyn Cody, Mark Cort, Allison Horan, Keshav Mangalick, Nicholas Martin, John Santucci III, Samir Shah, Tiffany Williams, Garseng Wong, and Shirley Wu, along with nurse practitioners Ann Flaherty, NP, and Sarah Kim, NP.





*Above: New Yorkers line up to receive the smallpox vaccine in 1947.*

## **The Historian Is In: Smallpox**

*David Oshinsky, PhD*

*Professor of History and Medicine*

*Director, Division of Medical Humanities*

*The history of past epidemics can provide important perspective on the current COVID pandemic. In each issue of the newsletter, we will revisit a past epidemic, from Yellow Fever to Ebola.*

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By most accounts, smallpox is the deadliest disease on record, killing an estimated 400 million people in the 20th century alone. It also remains the only human disease to be wiped completely from the face of the earth.

Brought to the Americas by European explorers and conquistadors, smallpox devastated indigenous populations and early settlers alike. But no city suffered quite like New York. Smallpox outbreaks erupted with such deadly force that city

officials used emergency powers which seem unimaginable today, even as we battle our own pandemic. In 1901, vaccinators entered immigrant neighborhoods, backed by squads of police, to inoculate hundreds of people against their will. Dozens more were rounded up and shipped to the quarantine hospitals on North Brother Island in the East River. Homes were fumigated and boarded up; children were bathed in alcohol.

Though smallpox outbreaks in New York had virtually ended by World War 1, the memory lingered, setting the stage for the largest mass vaccination in American history. Mostly forgotten today, it began in the spring of 1947, when a tourist returning from Mexico was taken to Bellevue with a fever and rash. Unable to make a clear diagnosis, doctors sent him to the city's infectious disease hospital—Willard Parker—several blocks south along the East River. The man died a few days later from smallpox, as did an attendant on his floor.

Fearing a full-blown epidemic, the city's health commissioner recommended the vaccination and revaccination of all New Yorkers. Virtually no one protested: fear of the disease, coupled with enormous public faith in medical opinion, led to the inoculation of close to six million people in a span of weeks. City officials soon declared victory, noting that transmission had been stopped cold. Only a handful of new cases had appeared, with no further deaths.

Was this really a victory? The smallpox vaccine has a very strong kick. About a third of those who receive it miss at least one day of work. For this reason, and others, a more cautious approach seemed in order. Unlike Covid-19, for example, smallpox has no animal hosts or inapparent carriers. Because the victim shows unmistakable signs, a strategy of quarantine and containment can be employed to wall off areas where the disease has been detected. Indeed, the global campaign that successfully eradicated smallpox in 1980 used a carefully targeted strategy known as “ring vaccination” to end the scourge once and for all.

I write this as someone who received the smallpox shot in 1947. I was two years old and, according to my mother, gave the vaccinator a piece of my mind.

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*Above: Four Types of Carts for Chinese Plague Victims*

*Stretcher for Emergencies, Clothes Cart, Ambulance Cart & Death Cart*

*Fu Chia Dien, China, 1911*

## **The Burns Archive Shares Rare Photographs of Past Pandemics**

*The Burns Archive houses the world's largest private collection of early medical and historic photographs from the birth of photography to the atomic age. With over one million photographs, it is well known for providing photographic evidence of forgotten, unseen, and disquieting aspects of history. The Burns Archive was founded in 1977 by Stanley B. Burns, MD, FACS, Research Professor of Medicine & Psychiatry, Adjunct Professor of Obstetrics and Gynecology, and Professor of Medical Humanities at NYU Langone Health and is currently managed by Elizabeth A. Burns, Creative and Operations Director. Over the past forty-five years, thousands of publishers, curators, authors, researchers, artists, and filmmakers have utilized this unique source of visual documentation. Dr. Burns, Liz, and The Burns Archive served as Medical, Historical and Technical consultants to the HBO/Cinemax series THE KNICK. The Burns Archive actively acquires, donates, researches, lectures, exhibits, consults, and shares rare and unusual photographs worldwide. [www.burnsarchive.com](http://www.burnsarchive.com)*

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©Stanley B. Burns, MD & The Burns Archive

*Above: Burning Plague Houses*

*Harbin, China Plague Epidemic*

*Fu Chia Dien, China, 1911*

## Plague, China 1910-11

The photographic album of the Chinese Plague Epidemic of 1910-1911 from The Burns Archive is particularly noteworthy in the history of medicine and photography. The images vividly illustrate the range of actions taken by medical responders in the effort to confine a deadly infectious disease. The procedures enacted by a group of invited international medical specialists prevented this epidemic from becoming a pandemic. These remarkable one-hundred-and-ten-year-old photographs show some of the preventive measures being performed.

Russia, Japan, and the United States worked together to confine the disease in China by establishing strict initiatives, all of which were photographed, including lockdowns, quarantines, travel restrictions, strict border control, mass cremations, masks, and identification bands. Even hotels were burned to the ground to lower the infection rate. The scientists' stringent measures were successful in stopping a global pandemic.

The plague was traced to a Mongolian rodent, the Tarbagan marmot

(*Marmota sibirica*), valued for its fur. Rural hunters had long avoided eating diseased marmots but continued to trade their hides. The plague followed cities and towns along the Russian run Chinese Eastern Rail Line on which the pelts were transported. Originating in Manzhouli, Mongolia, it spread to Harbin, Suifenhe, Changchun, Shenyang, and the port of Dalian in China. Thanks to the safety measures enacted, the plague was contained in the northeast, with only minor proliferation to major cities.

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## COVID-19 Links

[Department of Medicine intranet site](#)

[Department of Medicine COVID-19 blog](#)

[Inside Health \(atNYULMC\) home page, for daily posts and articles](#)

[Covid-19: What You Need to Know - Information Hub](#)

[Resources for Managing and Surviving the COVID-19 Crisis](#)

With thanks to Dr. Sandy Zabar and the DGIMCI team for compiling this resource guide of COVID information, complete with CME activities, mental health and emotional support, activities for parents and children, and free journal access.

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**[CLICK HERE TO WATCH: Department of Medicine Town Hall \(5/7/20\)](#)**

- Perspectives from the Hospitals - Brian Bosworth, Frank Volpicelli, Verity Schaye, David Stern
- The COVID Army - Kathy Hochman, Mark Pochapin
- COVID Marines – Patrick Cocks
- COVID Testing – Joan Cangiarella
- Research Reopening – Glenn Fishman

## UPCOMING COVID CME EDUCATIONAL PROGRAMS

- Tuesday, May 19 at 12 noon via WebEx

The **NYU HEALTH COVID-19 EXPERIENCE: MAKING SENSE OF THE**

**NUMBERS AND GRAPHS TO TELL OUR STORY** – Dr. Christopher Petrilli gives an in-depth examination of the demographics, risk factors, and outcomes of the COVID-19 patients cared for by our entire health system.

*NYUMC WebEx Toll-free 1-855-698-2663*

*Event number: 478 602 288*

<https://nyumc.webex.com/nyumc/onstage/g.php?>

[MTID=e640ab05a9c81e9f6c021dfe6481fb28f](https://nyumc.webex.com/nyumc/onstage/g.php?MTID=e640ab05a9c81e9f6c021dfe6481fb28f)

- Tuesday, May 26 at 12 noon via WebEx

**ART in the TIME OF COVID** – Dr. Michael Natter, NYU/Bellevue third year resident, will share his original works, many inspired by this COVID pandemic.

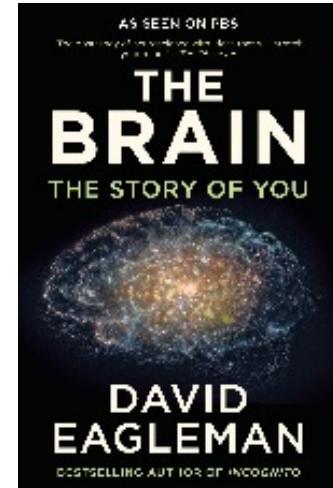
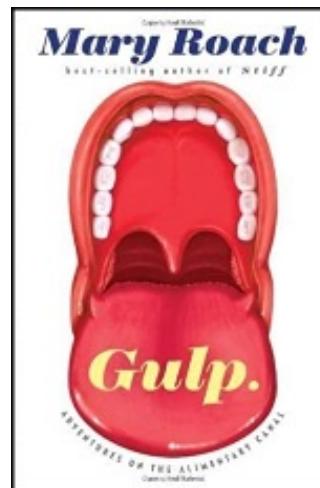
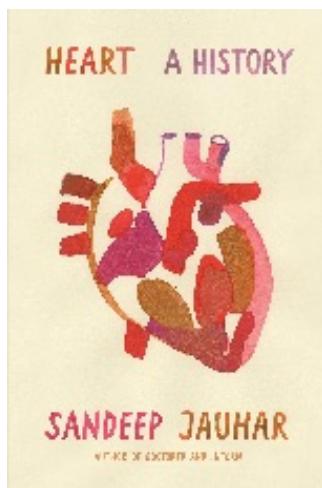
*NYUMC WebEx Toll-free 1-855-698-2663*

*Event number: 471 102 644*

<https://nyumc.webex.com/nyumc/onstage/g.php?>

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## Recommended Reading: Our Bodies



### ***Heart: A History*, Sandeep Jauhar**

Jauhar weaves his own personal history—as both a cardiologist and a patient—through this biography of one of our most vital organs. Filled with interesting vignettes about the history of cardiac care and pioneering physicians, it also looks at the heart's place in culture, its metaphors and mysteries.

### ***Gulp: Adventures on the Alimentary Canal, Mary Roach***

Roach is known for taking deep dives into unusual topics (i.e., *Stiff: The Curious Lives of Human Cadavers*), and this book does the same for the digestive system. She not only tackles questions we might not want to ask (Can constipation kill you? Did it kill Elvis?), but takes readers on a tour of sorts: to a pet-food taste-test lab, a fecal transplant, and into a live stomach to observe the fate of a meal.

### ***The Brain: The Story of You, David Eagleman***

“This is the story of how your life shapes your brain, and how your brain shapes your life.” That’s how *The Brain*’s publisher succinctly describes this book, in which neuroscientist David Eagleman explores identity, decision-making, memory, and consciousness. The book is a companion to the six-part PBS series.

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