

TOO

GET

HER

While the pandemic forced physical distance, it also catalyzed collective efforts to find answers—and prepare for a new future.

SPECIAL ISSUE





Advancing the **GLOBAL GOOD**

The Case School of Engineering is extraordinarily proud of our students, alumni and faculty for the positive impact they have on our world.



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Creativity, Commitment and Compassion

As I write this message on Independence Day, surging COVID-19 cases dominate national headlines, while Cleveland's mandate to wear masks in public fills local ones.

After all of the collective efforts to slow the pandemic's spread, Ohio's daily case count on July 3 more than doubled the number on the day Gov. Mike DeWine lifted the state's stay-at-home order. On July 2, the new one-day total of U.S. cases reached 55,595, their single-highest tally yet.

Now weeks into planning for the fall semester, we are revisiting one of the spring's most difficult lessons: With COVID-19, little is certain. We must be prepared to adapt at any moment—and to do it well.

Fortunately, as you will see in the pages that follow, last semester taught us that the Case Western Reserve community can and will respond quickly to constant change. From the ways faculty and students turned remote courses into engaging educational opportunities, to the contributions they and staff made to protecting health care workers and the public, to the extraordinary gifts alumni and others made to the student emergency fund... people came together again and again to support each other—as well as the public good.

With regard to research, collaborations crossed the entire campus. A COVID-19 task force launched in the medical school, for example, drew more than 260 faculty and staff and involved every school. Topics included identifying effective treat-

ments and reducing transmission risks, as well as assessing pandemic-related trauma and how individuals' perspectives on the disease affect their behaviors.

Our community also came together in the wake of George Floyd's death and the national protests that followed. Hundreds

participated in our online Day of Dialogue June 10, with sessions ranging from race and campus safety to health disparities nationwide. This summer, university groups will examine additional ways that Case Western Reserve can advance anti-racism and live our core values of diversity and inclusion.

None of these examples mean the months ahead

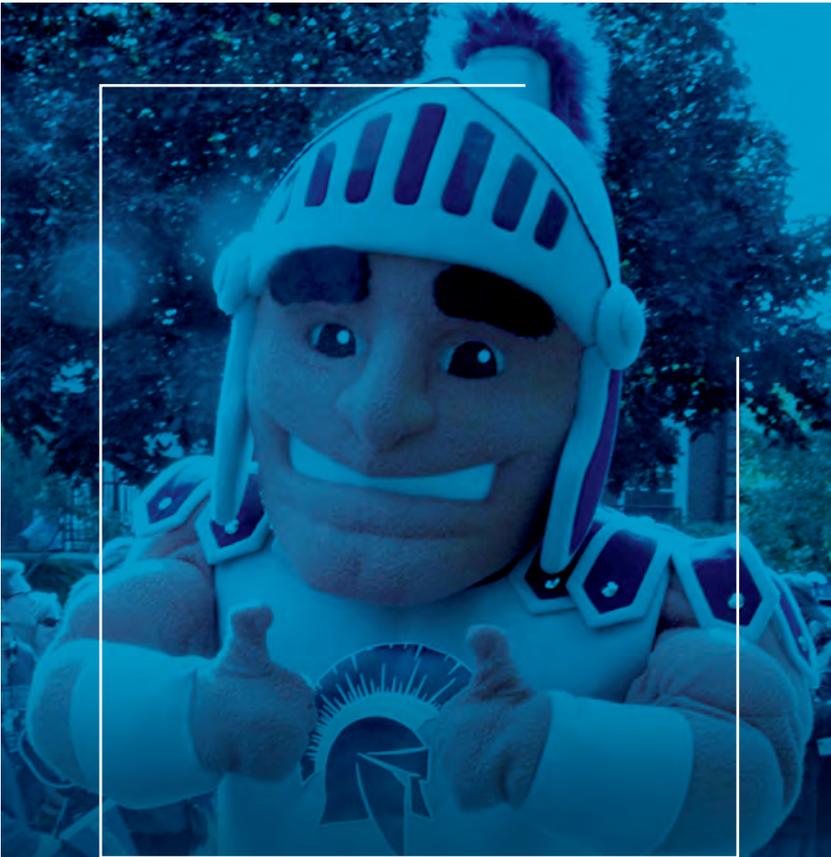
will be easy for our campus. Even the most promising estimates say a vaccine is months away, and major testing labs recently warned that demand soon may outpace their supply. We cannot control the pandemic's spread in Ohio, much less the other states and countries our students call home.

Even so, our experiences since March give great cause for hope. They showed this community's ample creativity, commitment and, perhaps most of all, compassion. Those qualities served us enormously well then. I have no doubt that, this fall, they will do so again.



Barbara R. Snyder

Barbara R. Snyder
President



Homecoming & Family Weekend

Oct. 8–11, 2020

**Especially amid the pandemic,
we understand the importance
of reconnecting.**

*Details of our 2020 homecoming
weekend are coming soon.*



case.edu/homecoming

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Designing Solutions

As on-campus operations slowed, staff in the university's Larry Sears and Sally Zlotnick Sears think[box] ramped up their efforts to transform the innovation center into a pandemic problem-solver.

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WRITE TO US

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News and updates from around the university

The 2019–20 academic year can be sharply divided between the pre-pandemic world and our new reality. Through it all, the Case Western Reserve University community continued to make scientific advances, enhance the campus environment and gain recognition for its top-caliber faculty and academics. A few highlights follow.

Interim president announced

Scott Cowen, DBA (HON '11), who gained national acclaim for his leadership at Tulane University in the wake of Hurricane Katrina, will become Case Western Reserve University's interim president Oct. 1. He will succeed Barbara R. Snyder, who will become president of the Association of American Universities that month.

Cowen served as Tulane's president for 16 years, ensuring the university's survival and developing a plan for it to advance significantly in the years post-Katrina. Previously, he spent 23 years at Weatherhead School of Management, the last 14 as its dean.

"Scott's extensive knowledge of our campus and extraordinary experiences as president of Tulane University make him uniquely well-prepared to lead Case Western Reserve at this critical time," said Board of Trustees Chair Fred DiSanto (WRC '85, MGT '86).

Cowen has stepped down from his role as a CWRU trustee and will return to the board after his term as interim president.



Scott Cowen, DBA (HON '11)

U.S. Medical School Research Funding*

20

World Ranking of Utility Patents, National Academy of Inventors/Intellectual Property Owners Association

21

***Prelaw magazine:* School of Law, Practical Training**

9

**Blue Ridge Institute for Medical Research; includes Cleveland Clinic Lerner College of Medicine*

Leadership Changes

Robert Solomon, JD, is the new vice president of the Office for Inclusion, Diversity and Equal Opportunity. Prior to his arrival in February, he was assistant



Solomon

provost for diversity and inclusion at The Ohio State University, where he also served for 14 years as the inaugural chief diversity officer at the Moritz College of Law.

In his most recent role, Solomon supported inclusive hiring approaches and increased engagement among racial and ethnic minority students, LGBTQ students, women, veterans and students from faith-based affinity groups.

"Rob brings deep experience and a profoundly thoughtful perspective on diversity and inclusion in higher education and across society," **President Barbara R. Snyder** said when announcing his appointment. "His accomplishments at Ohio State speak not only to his commitment to these issues, but also his ability to achieve meaningful progress."

Solomon earned his bachelor's degree from Lipscomb University and his law degree from Ohio State.

Joy K. Ward, PhD, began her role as dean of the College of Arts and Sciences July 1.

Previously an associate dean for research and dean's professor at the University of Kansas, Ward led multiple initiatives at the university and served in advisory and leadership roles for federal agencies and other organizations.



Ward

Internationally recognized for studies on how plants adapt to changing environments, she earned a Bachelor of Science in biology from Penn State University and a doctorate at Duke University, and has published 40 peer-reviewed articles.

"Joy's career demonstrates a long and consistent commitment to supporting and advancing the efforts of others," **Provost Ben Vinson III** said at the time of her appointment. "Her effectiveness in those efforts stems from an inherent passion for the work, as well as an impressive understanding of the complexities of leadership."

Honors and Appointments

Ronald Hickman, PhD, RN (CWR '00; NUR '06, '13; GRS '08, nursing), associate dean for research and the Ruth M. Anderson Professor at the Frances Payne Bolton School of Nursing, has been selected by the National Academy of Medicine as one of 10 Emerging Leaders in Health and Medicine Scholars. Hickman is the second nurse scientist appointed to the three-year program, which connects early and mid-career health professionals with leaders in the National Academies of Sciences, Engineering and Medicine.

Elina Gertsman, PhD, a professor of art history and the Archbishop Paul J. Hallinan Professor in Catholic Studies II, received a 2020 Guggenheim Fellowship. The John Simon Guggenheim Memorial Foundation selected 175 writers, scholars, artists and scientists from a group of nearly 3,000 applicants. Fellows were appointed "on the basis of prior achievement and exceptional promise," the foundation said. The award will support Gertsman for a year as she works on a new book, *Withdrawal and Presence: Visualizing Medieval Abstraction*.

The Veale Institute for Entrepreneurship selected 10 faculty and staff members for its inaugural Veale Fellows program, through which they will work for a year to build new courses, develop digital solutions to solve problems, cultivate social entrepreneurship and pursue other initiatives. "This isn't only about new company creation but also about helping to increase opportunities for our CWRU community to experiment with new entrepreneurial programming," said **Michael Goldberg**, executive director of the institute and an associate professor at Weatherhead School of Management.

Academic Programs

In recent months, the university has created or enhanced a number of programs and educational opportunities.

Last fall, the **Master of Nonprofit Organizations** became one of just nine graduate programs in the world accredited by the Nonprofit Academic Centers Council, and the only one accredited in Ohio. Established in 1989 as one of the first two nonprofit graduate degree programs in the

Continued on page 8

U.S. News and World Report's Best Graduate Schools rankings*

24

School of Medicine

19

Case School of Engineering: Biomedical Engineering

9

School of Law: Health Law specialty

19

Weatherhead School of Management: Part-time MBA

9

Jack, Joseph and Morton Mandel School of Applied Social Sciences**

Frances Payne Bolton School of Nursing:

11

Master's degree

12

Doctor of Nursing Practice (DNP)

5

DNP leadership specialty and Master of Nursing Administration

*Issued in March 2020.
** Issued in 2019.

The magazine did not issue rankings for social work schools this year, and does not rank dental programs.

Continued from page 7

U.S., it is now the second accredited master's program at the **Jack, Joseph and Morton Mandel School of Applied Social Sciences**.

Case School of Engineering launched a **Department of Computer & Data Sciences**, thanks to a \$5 million gift from **Kevin J. Kranzusch** (CWR '90) that also



Kranzusch

funds an endowed professorship.

"Computer sciences, especially [artificial intelligence] and machine learning, are the future," said Kranzusch, vice president at NVIDIA,

a Santa Clara, California-based company he helped build, "and I hope this can play a part in helping our students to excel in those areas." At the same time, the school announced a newly named

Department of Electrical, Computer and Systems Engineering.

Weatherhead School of Management is expanding its MBA programs. Last fall, it became one of the first in the U.S. to add a STEM track to its full-time program, and this fall will offer a hybrid option for part-time students to take both online and on-campus courses.

This summer, the **College of Arts and Sciences** and **School of Medicine** announced a joint effort for a bachelor's degree in neurosciences, led by faculty in biology and neurosciences.

Research

A medical device based on technology developed by three researchers at the university and University Hospitals (UH) Cleveland Medical Center won a silver Edison Best New Product Award, which recognizes innovative products worldwide. **EsoCheck** is a swallowable balloon-based device that, during a five-minute outpatient exam, can collect cells from the lower region of the esophagus to help detect precancerous changes. The device and its companion, **EsoGuard** DNA test, were co-invented by **School of Medicine** faculty and UH clinicians **Amitabh Chak**, MD; **Sanford Markowitz**, MD, PhD; and **Joseph Willis**, MD. **Lucid Diagnostics**, a subsidiary of

New York-based PAVmed Inc., licensed **EsoCheck** and **EsoGuard** through CWRU's **Technology Transfer Office**.

The university received a federal grant of up to \$3.7 million to assess emerging genome editing-based therapies being tested for curing sickle cell disease (SCD) at leading U.S. research universities and hospitals. The funding is part of the **Cure Sickle Cell Initiative**, an effort led by the **National Heart, Lung, and Blood Institute** to accelerate the development of genetic therapies for SCD, a group of inherited blood disorders that affects about 20 million people worldwide. **Umut Gurkan**, PhD, the Warren E. Rupp Associate Professor at **Case School of Engineering**, leads a university team that developed micro-engineered tools to assess blood samples from patients before and after gene therapy treatment for SCD.

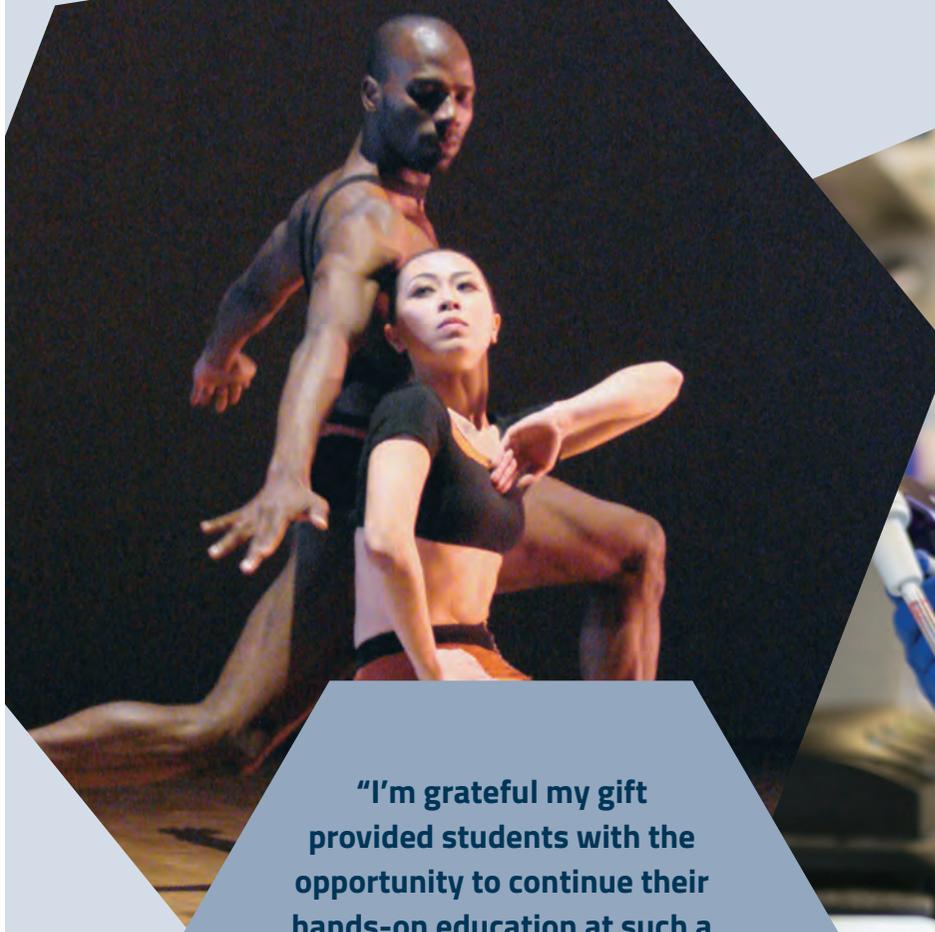
Aaron Weinberg, DMD, PhD, a professor in and chair of the **School of Dental Medicine's biological sciences department**, developed a screening method to test lesions in the mouth for malignant oral cancer. Weinberg and his colleagues previously found that such cancers produce an abnormally high level of a protein called beta defensin. The new screen, slated to be pilot tested this summer, allows dentists to gently scrape surface cells from the lesion and compare the protein levels to cells in healthy areas of the mouth. If the pilot is successful, researchers hope to conduct a larger study to validate the system.

Anita Aminoshariae, DDS (DEN '99), co-authored **American Dental Association** clinical practice guidelines recommending that dentists, emergency room doctors and primary care physicians ease up on prescribing antibiotics for dental issues in patients. "What we know is that there are too many dentists and physicians giving patients antibiotics when the patients just do not need them," said Aminoshariae, a professor and director of the **School of Dental Medicine's Predoctoral Endodontics Program**. The guidelines conclude that antibiotics should only be used for systemic issues, such as

fever and swelling, when an infection is clearly present and worsening. They also advise that patients receive dental treatment instead and manage pain with over-the-counter medications.

Last fall, an **International Criminal Court** decision to authorize the pursuit of crimes against humanity in Myanmar cited—more than a dozen times—a report prepared by **School of Law** professors and an alumna. **Margaux Day**, JD (LAW '09), then vice president of the global pro bono law firm **Public International Law & Policy Group** (PILPG), and **Gregory Noone**, PhD, JD, an adjunct faculty member, led the team creating the report, *Documenting Atrocity Crimes Committed Against the Rohingya in Myanmar's Rakhine State*. In 2018, the **U.S. State Department** commissioned PILPG to investigate the atrocities. The team interviewed more than 1,000 Rohingya refugees in Bangladesh and concluded that the Myanmar military's mass murders of the Rohingya minority should be labeled genocide. "It is extremely rare for a report prepared by law professors to be cited in the decision of an international court," said **Michael Scharf**, JD, co-dean of the law school and a PILPG co-founder who helped draft the report, along with **James C. Johnson**, JD, director of the school's Henry T. King, Jr. War Crimes Research Office.

The **Begun Center for Violence Prevention Research and Education** at the **Mandel School** developed a 22-question assessment tool to quickly and reliably identify young children who either have been exposed to, or are victims of, violence and trauma, and could benefit from social services. Because such children can struggle with emotional and behavioral issues, Begun Center researchers developed the screening to assess—not diagnose—children 7 or younger within a few minutes. "The idea is that it can be completed quickly and administered by minimally trained staff in public systems and community-based agencies, who can then refer children and families to necessary assessment and treatment services," said **Daniel Flannery**, PhD, the Dr. Semi J. and Ruth Begun Professor and center director.



"I'm grateful my gift provided students with the opportunity to continue their hands-on education at such a crucial moment in their lives. Alumni who are able to give will help ensure today's students continue to have an outstanding CWRU experience."

—Bruce Rakay (ADL '70)



How One Alumnus Made A Difference

COVID-19 upended students' summer plans, making programs like Support of Undergraduate Research and Creative Endeavors (SOURCE) even more crucial. That's where alumnus Bruce Rakay (ADL '70) stepped in to make a difference.

With a \$100,000 gift, Bruce funded the work of 26 students this summer, ensuring their continued professional and scholarly development amidst an ongoing global pandemic, and he's challenging fellow alumni to do the same. Your gift, no matter the size, provides opportunities that will shape students' education and, ultimately, their careers.

Contact Brian Browne (CWR '10, MGT '14), senior director of alumni engagement and stewardship, at 216.368.3549 or brian.browne@cwru.edu to learn more about Bruce's challenge and how you can contribute to students' ongoing success.



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TRACKING COVID-19

Media turn to university faculty as experts on everything from handwashing technique to economic impact.

Jan. 24

"It's normal to feel anxious when something is well publicized and is something new and potentially dangerous."

—Jane Timmons-Mitchell, School of Medicine, in The Verge

Dec. 31, 2019

The government in Wuhan, Hubei Province, China, releases the first official report stating that multiple cases of pneumonia are being treated in the region.

Jan. 12

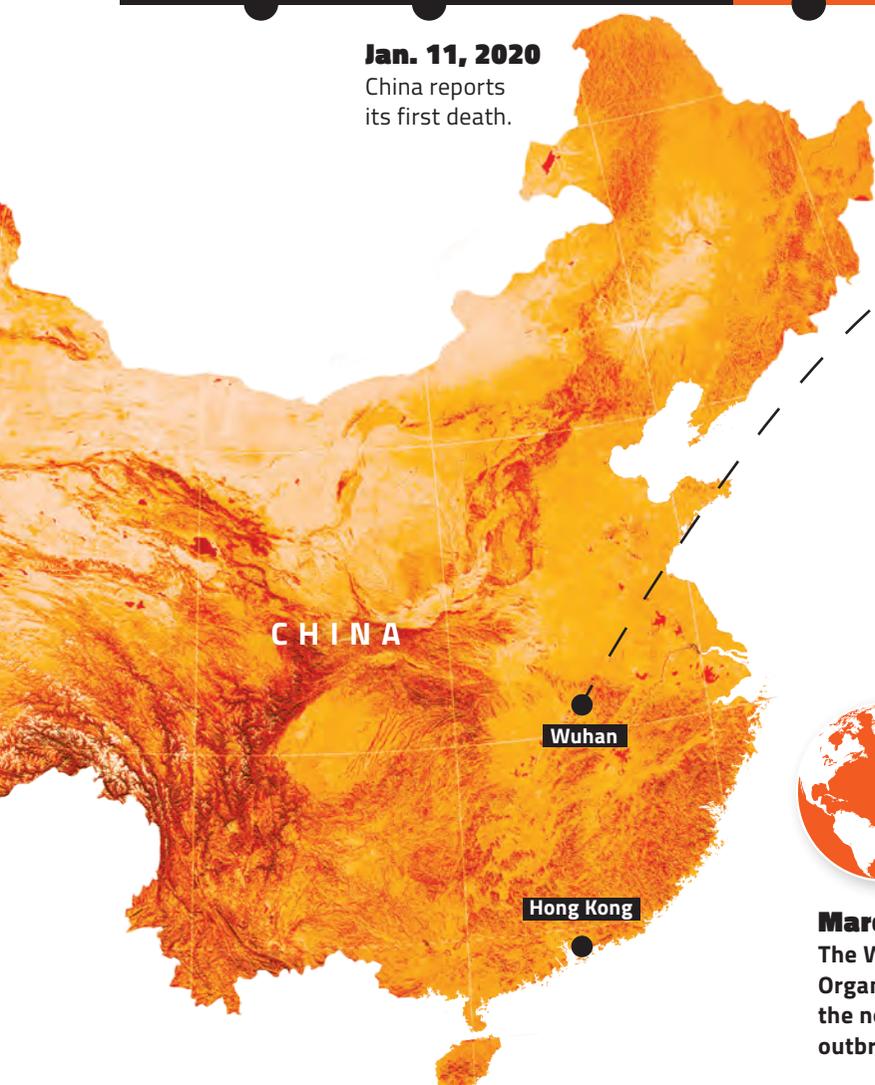
China shares the genetic sequence of what becomes known as the novel coronavirus, aka SARS-CoV-2, a new virus not yet seen in humans. In the coming weeks, scientists will begin to form a theory that the virus originated in a Wuhan market where live fish and animals were sold. They theorize that from there the virus jumped from animal to human.

Jan. 11, 2020

China reports its first death.

Jan. 20

The United States confirms its first case of the virus in Washington state in a man who recently traveled to Wuhan. Cases are also confirmed in Japan, South Korea and Thailand.



March 12

The U.S. stock market sees its largest single-day drop since 1987. The crash began Feb. 20 amid pandemic fears and an oil price war between Russia and Saudi Arabia. By the end of March, Wall Street experiences a more than 25% decline.



March 11

The World Health Organization declares the novel coronavirus outbreak a pandemic.

March 16

CWRU begins to shift nonessential faculty and staff to work-from-home status. In-person classes switch to remote learning on March 18.

For a history of pandemics, see p. 26.

Ohio Gov. Mike DeWine bans gatherings of more than 50.

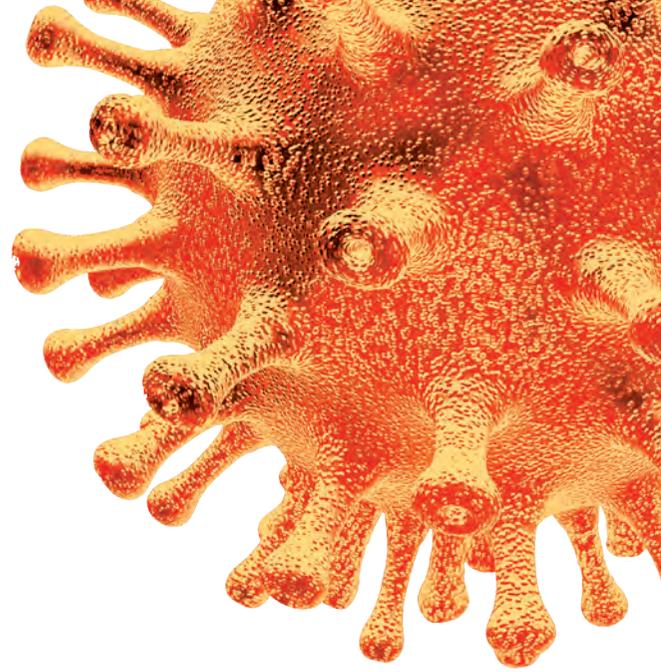
Sources: World Health Organization; National Institutes of Health; The New York Times; Johns Hopkins University & Medicine; Centers for Disease Control and Prevention; Ohio Department of Health; Photos: Donald Trump by Michael Vadon/CC BY-SA 2.0; Mike Dewine/By Eric Porter/CC BY-SA

WHAT'S THE DIFFERENCE BETWEEN THE NOVEL CORONAVIRUS AND COVID-19?

Coronaviruses are a family of more than 100 viruses most commonly found in animals. In the rare instance that a coronavirus jumps to humans, it frequently causes respiratory illness.

The novel coronavirus, aka SARS-CoV-2, is the specific strain in the coronavirus family that caused the 2020 pandemic.

COVID-19 is the illness caused by the novel coronavirus.



Feb. 3

As the coronavirus spread within China, concerns arise about the impact on the global supply chain.

"We're talking about a potentially vast swath of a country that the whole world depends on as a manufacturing workshop. The effects will be unexpected."

— Susan Helper, Weatherhead School of Management, in The New York Times



March 6

Officials begin to believe the virus can be spread by individuals with no symptoms.

"That's how all those people in Washington got it. It was from the community, and the problem is that ... 80% of the people who get coronavirus have either mild illness or no symptoms. But you can still transmit it to each other, so you're still contagious."

— Irena Kenneley, Frances Payne Bolton School of Nursing, on Fox 8 News

March 9

Ohio's first three cases are reported in Cuyahoga County. Ohio declares a state of emergency.



March 24

Gov. DeWine and Amy Acton, then director of the Ohio Department of Health, issue a stay-at-home order that takes effect on this day, joining New York, California, Illinois, Connecticut and New Jersey. The order requires that residents, with the exception of essential workers, shelter in place until April 6. Travel for emergencies and life necessities, such as groceries, is allowed. All nonessential businesses are to close until the order is lifted.



March 22

In response to a severe national shortage of personal protective equipment (PPE)—masks, gowns, gloves and more—the FDA issues a letter to health care workers that includes recommendations on how workers can conserve products. Fears continue to grow that the medical industry will not have what it needs to safely treat the expected windfall of COVID-19 patients. As a result of public pressure, President Donald Trump invokes the Defense Production Act on April 2, which gives the government authority to clear supply chains and require that companies produce necessary goods.

"...American history shows that in times of crisis, one of the most vital powers of the federal government is precisely to coordinate resources and ensure critical needs are met. Today, the Defense Production Act remains one of the most potent legal tools—maybe the only tool—to help the government serve that obligation and make sure our medical professionals have the tools they need."

—Peter Shulman, College of Arts and Sciences, in an opinion piece in The Washington Post

TRACKING COVID-19

March 24

During the 1918 influenza pandemic, Cleveland officials also stepped up with a series of measures to protect public health.

"They were doing then exactly the same thing we're doing now. It's somewhat an eerily similar situation."

—John Grabowski, College of Arts and Sciences, in The Plain Dealer/cleveland.com

March 27

President Trump signs into law a \$2 trillion stimulus package, the largest in U.S. history, with the hopes of curbing the sharp economic downturn caused by the coronavirus. The package provides a \$1,200 check to each citizen who falls within a specific income range and billions to struggling small businesses.

APRIL 10

New York sees its coronavirus-related deaths peak at 935 on this day. New York City, which became the epicenter of the U.S. outbreak, has been on an unprecedented mandatory lockdown since March 20 as ordered by Gov. Andrew Cuomo.

March 28

"We are not our best selves at this moment. The global pandemic we are living in and through, the mass uncertainty it is bringing, the grief we are sloppily navigating, the strong faces we are putting on for others, it is taking a toll. Many tolls."

— Jennifer King, Jack, Joseph and Morton Mandel School of Applied Social Sciences, in an opinion column in Medium

April 20

Higher rates of some types of domestic violence, child abuse and suicide are being reported.

"The risk factors that are increasing for family violence and family murder during the current pandemic are many, including poor coping, financial strain, medical issues, substance use and ready access to guns."

— Susan Hatters-Friedman, School of Medicine, in an opinion column in The New York Daily News

March-April

The Health Education Campus of Case Western Reserve University and Cleveland Clinic is converted into a 1,006-bed surge hospital. The temporary facility is called Hope Hospital and is part of preparation for a worst-case scenario coronavirus outbreak in Ohio.

May 11

Hospitals take a hit as normal revenue streams cease and they focus on the pandemic.

"Virtually all hospitals in the U.S.—large and small, urban, suburban and rural, nonprofit and investor owned—will face a financial crisis by fall unless there is a bailout on the order of what we did for our banks in 2008."

— J.B. Silvers, Weatherhead School of Management, in an opinion column in MarketWatch



Protest photos by by joadanielper, Fibonacci Blue, 5chw4r7z, 2C2KPhotography and Mike Shaheen licensed under CC BY-NC-SA 2.0 and CC BY 2.0.



May 25

George Floyd dies when three Minneapolis police officers pin him to the ground, rendering him unconscious. One officer placed his knee on Floyd's neck for 8 minutes and 46 seconds. Peaceful and violent protests erupt across the U.S. and around the world in the weeks that follow, condemning police brutality and demanding changes to combat systemic racism. The movement gains momentum and supportive legislation.

In response, CWRU holds a "Day of Dialogue" June 10 that includes conversations about racism and ways to enact change in the community.

It was initially believed that the U.S. reached its peak of COVID-19 cases on April 25, when 36,001 were reported in a single day. However, as states reopened, numbers increased again, reaching multiple new peaks in late June and early July.

April 10

COVID-19 hits some harder, including communities of color and older individuals with underlying health issues, such as diabetes, heart disease and lung disease.

"We know these social and economic conditions have a profound effect on chronic disease, and then chronic disease has a profound effect on the mortality related to COVID. ... Communities of color, areas that are highly segregated in terms of race or income, are going to be the places where we would see, in all likelihood, clusters of illness."

— Scott Frank, School of Medicine, in The Atlantic

May 18

One hundred non-essential CWRU employees return to campus, starting a slow and closely examined process of reopening and strict social-distancing restrictions.

June 11

CWRU shares its modified academic calendar for the fall 2020 semester. Among other changes, students will not return to campus after Thanksgiving in an effort to reduce the community's infection risk.

May 19

Gov. DeWine announces an easing of the stay-at-home order, originally in place until May 29.

↑
370,226

↑
508,051

10,357,677

the number of projected cumulative COVID-19 cases worldwide as of July 1

2,573,393

the number of projected cumulative COVID-19 cases in the U.S. as of July 1

Late June

New regions of the country become hotspots for COVID-19 outbreaks as a result of poor social-distancing practices. They include Florida, South Carolina, Arizona and Oklahoma.

126,573 projected

56,848

the number of projected cumulative COVID-19 cases in Ohio as of July 1

60,632

259

2,850

1,268

2,430

2,932

Feb. 1

March 1

April 1

May 1

June 1

July 1

CUMULATIVE COVID-RELATED DEATHS

● Ohio

● U.S.

● Global



E D U C A T I O N

T R A N S F O R M A T I O N

A shift in modality leads to changes in how we teach and learn—including some lessons that may last well beyond the pandemic

By Harlan Spector

When Case Western Reserve announced its move to remote learning this spring, Professor Daniel Lacks knew it would be a challenge.

Word came in the midst of spring break, and he and his colleagues had just seven days to overhaul their courses for remote delivery.

The change meant more than uploading slides to Zoom and sending students links. It meant figuring out how to engage students via screen; conveying lessons of lab experiments without the lab; and teaching students in different time zones around the world.

It also meant making sure students felt connected to each other and to the university.

Even with all of the challenges, though, Lacks, PhD, chair of the Department of Chemical and Biomolecular Engineering, had confidence in his faculty.

But when he looked at student ratings for his department's spring courses, they weren't simply solid—they were the highest on record.

"That was pretty incredible under the circumstances," Lacks said.

The high marks did not mean students preferred remote learning, he was quick to add, but that they appreciated instructors' extra ef-

forts—including online weekend activities to help build community (see p. 43).

"Our faculty really stepped up," he noted. "Professors went out of their way to make it a good experience."

As an institution with roots in the Middle Ages, higher education is not typically known for its agility. But faced with a pandemic that upended every aspect of daily life, Case Western Reserve accepted the imperative to adapt—and, in many instances, embraced it.

From a student starting her own pandemic course, to all-star guest speakers, to alumni offering unexpected opportunities, the community demonstrated initiative, creativity, and inspiring dedication.

Even more, the success of those efforts showed the campus how quickly innovation can happen when shared purpose and necessity meet.

The pandemic as a learning opportunity

When Elisabeth Wynia, MD (MED '20), learned her last hospital rotation was canceled, she decided the cause of the disruption—the global pandemic—was exactly what she and her peers needed to understand.

Wynia's interest led her to pitch a two-week

Story continued on page 17



The HoloAnatomy curriculum allowed students to continue their anatomy education virtually from their home during the pandemic. (Photo of student by Annie O'Neill/ Photo illustration)

Story continued from page 15

elective course, Epidemiology of Pandemics and Global Response, for third- through fifth-year medical students. With the help of Charles Kent Smith, PhD, senior associate dean for student affairs at the School of Medicine, and James Kazura, MD, a Distinguished University Professor who holds the Adel A. Mahoud Professorship in Global Health and Vaccines at the School of Medicine, Wynia crafted a syllabus, and her course won approval within days.

Some 40 students signed up for the elective, which included extensive reading about roots of pandemics and reasons for their spread, as well as studies of different nations' responses.

"I could not think of anything more useful or more important in the time we are living," she said.

Shifting courses

Like most of the university's roughly 6,200 graduate and professional students, Wynia and her classmates lived off campus. But for the vast majority of its 5,400 undergraduates, Case Western Reserve's transition to remote operations involved far more than a move to online learning—they also had to move home.

While university staff collected and shipped urgently needed items like textbooks, scientific calculators and class notes, students had to establish workspaces, identify adequate Internet connections, and adapt to staring at a screen for several hours every day.

Back in Cleveland, University Technology staff worked with professors to prepare for online instruction, quickly reviewing the basics and options of Zoom while also providing information about teaching approaches best suited to engaging students on their computers. But staff had no easy answers for addressing the time zone challenges of students from all 50 states and 94 countries.

Rebecca Benard's Development

and Physiology course, for example, included enrollment from across the United States—including Hawaii—as well as countries such as Qatar, China, Vietnam and South Korea.

"I had to wrap my head around it," said Benard, PhD, a senior biology instructor, describing the transition as "a whirlwind."

She adapted the course so students could attend live collaborative work sessions on Zoom or watch recordings. She also placed a heavy emphasis on providing independent and group work, to meet the needs of her students and their schedules.

Benard noted she had to "really think about course objectives, what my students wanted to get out of class, and make adjustments."

Our new (mixed) reality

A few years ago, such a quick shift to remotely learning would have made a traditional cadaver-based anatomy class nearly impossible. But in 2016, the university piloted a HoloAnatomy curriculum, which uses Microsoft HoloLens mixed-reality devices to allow students to see digital representations of male and female anatomy, superimposed on the user's world.

When the 2019-20 academic year began, the entire first-year medical school class participated, gathering regularly in a large classroom in the new Health Education Campus—until the move to remote instruction.

Program leaders knew they could deliver the course remotely; with HoloLens headsets, students still would be able to see inside the human body—virtually—from anywhere in the world.

Except the university did not have enough devices for each of the 185 students taking the course.

Radiology professor Mark Griswold, PhD, faculty leader of the HoloAnatomy project, worked with Microsoft to secure the technology, then his team uploaded the proprietary

Hands-on Experience from a Distance

As students adapted to virtual learning in new environments, they also had to face another reality: Their plans for a resume-building summer of jobs and internships would need to change drastically.

Michael Goldberg, executive director of the Veale Institute for Entrepreneurship and associate professor of design and innovation, learned that the cancellation of hands-on experiences was prevalent. In partnership with Post-Graduate Planning and Experiential Education, the Veale Institute created the Remote Entrepreneurship Project Program.

"The more students we spoke with, the more we realized their summer plans were almost nonexistent," Goldberg said. "We really wanted to find a way to quickly make their summer months worthwhile."

Goldberg reached out to alumni, and the response was overwhelming: They quickly placed more than 110 students in internships with Cleveland-based or alumni-led startups.

"We have always worked virtually as a company," said Arnold Huffman (CWR '93), CEO and founder of marketing media company Digital Yalo and president of The Alumni Association board. "So when these bright, talented students became available due to the pandemic, we were very comfortable and ready to bring them into our team right away."

Story continued on page 18

A University of Zoom

As classes went remote, Case Western Reserve’s reliance on video-conferencing platforms skyrocketed.

Some members of campus had never used Zoom, the popular platform. But in April alone, the university logged 80,000 Zoom sessions—surpassing all of 2019’s total in a single month.

Chief Information Officer Sue Workman and her staff learned that remote learning yielded some positive outcomes, including allowing faculty members with large classes to better see students and connect names with faces.

In addition, some students more easily contributed to class discussion through the Zoom chat feature than they had done in person, she said.

“It’s exciting for faculty members to hear from students who in the past may have been reluctant to contribute,” said Tina Deveny Oestreich, PhD, senior director of Teaching and Learning Technologies.

12,073

active Zoom users

182,833

Zoom meetings

1.2 million

participants in Zoom meetings

65 million

minutes spent on Zoom

**March-June 2020*

Story continued from page 17

software to each device and shipped them to students across the United States and Canada.

Associate Professor of Anatomy Susan Wish-Baratz called the shift a “seamless transition.” Students examined anatomy from their location and interacted with Wish-Baratz on Zoom, from her home office in Cleveland.

Using HoloAnatomy remotely was “the best of both worlds because we had the body to ourselves, in a way, but we also had Dr. Wish-Baratz there to describe it,” said student Kevin Zhai. “Standing in my own apartment, I could peer into the body cavities and spend as much time in there as I wanted.”

Expanding virtual education

While some courses, such as anatomy, shifted to remote learning relatively easily, some were actually enhanced by the move.

When alumnus Rich Sommer (GRS ’04, theater) learned of the move to remote learning, he quickly recalled his days as a student. The actor from *Mad Men* and *Glow* imagined how anxious he would feel had the pandemic had struck in his final semester—when Master of Fine Arts in Theater students perform in a New York City showcase for producers, directors and casting agents.

In an instant, their best chance to gain industry representation was gone.

“To be ending your schooling and starting your artistic career in the midst of an international health crisis, when there’s even less of a guarantee of work than usual, must be terrifying,” he said this spring.

Soon after, he was meeting with students via Zoom, answering questions about auditions, agents, the industry and his own performances. Later in the semester, Tony Award nominee Elizabeth Davis (GRS, ’06, theater) joined the acting students online, while Craigslist founder Craig Newmark (CIT ’75; GRS ’77, computer science) participated in a comput-

er programming class. For alumni and others, providing support and career insight became infinitely easier—they just needed to connect online.

But when it came to guest speakers, few classes could top Michael Goldberg’s Entrepreneurial Strategy course. An associate professor of design and innovation in Weatherhead School of Management, Goldberg had already launched an in-person speaker series through his role as inaugural executive director of the Veale Institute for Entrepreneurship. But with remote events suddenly the norm, he quickly expanded his invitation list.

Between mid-March and the end of the semester, more than two dozen leaders joined the class—“visits” that Goldberg also offered to the public via Facebook. Drawn from university graduates and his own networks, the speakers included alumni founders of Scout RFP, which this year sold to Workday for \$540 million, the vice president of strategy and global development at the Walt Disney Co., the director of product for Slack, and the creator of the hit Netflix series *Outer Banks*. Plus, students served as moderators for every session.

“[The new format is] good for students, it’s good for our speakers,” Goldberg said. “They love interacting with our students. I think there’s no turning back from getting speakers remotely.”

Addressing the challenges of change

Still, for the opportunities the transition allowed, the semester represented a huge departure from expectations.

Faculty, staff and students alike had to juggle family and university responsibilities, technological challenges, and fundamental differences between in-person and online courses.

Team-based, small-group learning is an essential part of the first two years of MD students’ coursework.

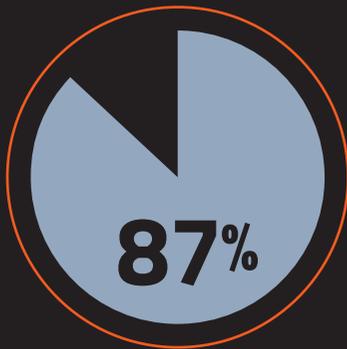
Story continued on page 20

Change of Course

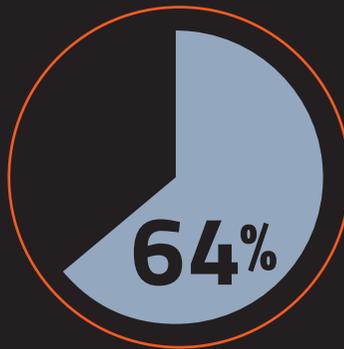
In end-of-semester course evaluations across more than 1,300 undergraduate and graduate classes, the average student assessment of whether they continued learning effectively during this time was 4.18



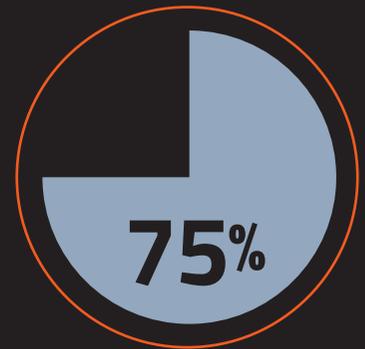
When asked if they could effectively engage with their instructor during this time, the average response was 4.27.



of students either agreed or strongly agreed that instructors did their best to adapt



agreed or strongly agreed that instructors' availability and responsiveness during remote education was about the same as earlier in the semester



agreed or strongly agreed that they were confident they had completed their courses successfully

72%
increase in undergraduates taking summer courses

49%
increase in undergraduate summer classes offered

148
new undergraduate summer courses

238
more summer classes across all levels

Testing. Testing?

The pandemic required changes to testing policies in classes across the university, with faculty using online proctoring and other efforts to ensure academic integrity.

The spring also saw a change in testing for prospective students: In mid-March, Case Western Reserve became among the first universities in the country to announce the adoption of a “test-optional” admissions policy for undergraduates entering in the fall of 2021.

Given uncertainty around when ACT/SAT testing would resume, Richard Bischoff, vice president for enrollment management, advocated for the change to alleviate stressors on prospective students, parents and counselors.

“Testing has always been just one factor in our evaluation of applications, and we are confident that we will continue to make quality admission decisions for those students who are either unable to test or who choose not to submit test scores,” Bischoff said.

The proposal was quickly approved by President Barbara R. Snyder and Provost Ben Vinson III before going to faculty leaders; in the Faculty Senate, it received unanimous approval.

“Test score or no test score,” said Peter Shulman, associate professor of history and chair of the Faculty Senate Committee on Undergraduate Education, “we look forward to meeting the class of 2025.”

Story continued from page 18

Throughout the year, students study together and lean on each other for support; they regularly have group dinners together.

“It was a big learning curve,” rising second-year student Mitchell Thom said.

Other students faced their own challenges. Hands-on labs sometimes turned into quiz-based courses. Performance-based classes moved to FaceTime. Students needed additional financial support to get the technology necessary to complete assignments. And, for some, learning took place in their family’s dining room, surrounded by siblings or parents.

“My mother recently had to proctor my physiology exam,” Mike Komarovsky, a rising fourth-year physiology student, said with a laugh during a student panel. “So add it on top of the stress of worrying about doing well, I also had to not disappoint my mother, who was looking over my shoulder.”

Preparing for the future

Nearly a month before the semester ended, officials announced preliminary plans for fall instruction. Since some students—in particular, those international students living abroad—might be unable to get to campus, the university would work to have classes delivered both in person and remotely. As planning progressed, it became clear that some select courses could not translate effectively online, so the approach changed to encouraging dual delivery whenever possible.

Until the spring, most faculty had taught only in person; now, they have to figure out how to do both.

“There are distinct differences between teaching courses in-person and online—and developing instructional strategies to promote student engagement and success for each simultaneously is a challenge,” said Tina Deveny Oestreich, PhD, senior director of Teaching and Learning Technologies.

“It is exciting to see how our faculty are meeting the challenge of providing our students with the high-quality education they expect from CWRU.”

To prepare for this new approach, Oestreich’s team, along with the University Center for Innovation in Teaching and Education, organized a six-week summer program to help professors explore new course designs and instructional techniques. More than 200 faculty took part.

Meanwhile, university administrators have collaborated with health and emergency management experts to determine classroom and lecture hall capacities consistent with physical distancing requirements. Facilities teams have developed new protocols for cleaning and air filtration to reduce infection risks, as well as Plexiglas dividers for lecterns and counters.

“The classroom experience will look visibly different,” Megan Koeth, director of resiliency in the Division of Public Safety, said, citing requirements such as 6 feet between student seats in lecture halls and wearing masks indoors. “But teams across the university have come together to help create a safer environment for students, faculty and staff.”

The pandemic has changed the way learning and teaching can, and will, look in the future. Zoom classes can happen when needed. Engaging discussions can occur in online chats. In-person meetings can be supplanted by virtual. And even remote exams, with proper proctoring, can be effective.

The flexibility of remote learning provides more options for students from diverse backgrounds to be able to obtain a Case Western Reserve education, faculty and students said.

Students “learn in different ways and they have different responsibilities. Some have jobs or they are caregivers,” biology’s Benard said. “The demographics of students in college are changing.”

This semester has helped Case Western Reserve adapt to those changes—and others yet to come.



Leadership Looks Like **YOU**

**Thank you to our nursing alumni
for your resilience and heart
during the COVID-19 pandemic.
We're proud to be
FPB Nursing: Strong Together.**

Rising BSN seniors Madeleine Paolucci (left) and Alissa Kato (right) learn how to scrub-in during orientation day in the NURS 339 peroperative nursing lab. (Photo courtesy of Alissa Kato)



FRANCES PAYNE BOLTON
SCHOOL OF NURSING

CASE WESTERN RESERVE
UNIVERSITY

THE MATTHEWS-NORTHRUP
HANDY-MAP OF

SCALE
0 500 1000 20'

LEVELAND, OHIO. LAKE

MEMBER-BREAKS-TEER

1 Mile
SUF. ER.
DODGE
36
OWA NUT
CHESTNUT
51



'Of course she wouldn't sleep.
Of course she would take on a pandemic.'

LEADING IN CRISIS

School of Medicine's Heidi Gullett 'a force for good' in the region's coronavirus pandemic response

By Ginger Christ



On a cold Saturday in March, Ohio's then Department of Health Director Amy Acton, MD, MPH, took to the podium at the daily COVID-19 briefing that had quickly become must-watch television across the state.

She told reporters they needed to look at local efforts against the pandemic, starting with Northeast Ohio.

There, Acton noted, Cuyahoga County health leaders like Case Western Reserve's Heidi Gullett, MD, MPH, had created an "amazing five-layered triage system" to investigate cases and gather the data to know how and where infections were spreading.

"You *need* to tell the stories of these innovators on the ground," Acton told reporters. "We have to take the recommendations of these modelers."

No one in the university's medical school nor her colleagues across the region knew Acton would high-

light Gullett, the county's medical director, that day. Yet the acknowledgment of her leadership in crisis was of little shock to those who know her.

"Zero percent of us who interact with her on site are surprised" by Gullett's coronavirus response, said Chad Garven, MD, MPH, assistant medical director of medical informatics at Neighborhood Family Practice, a community health center near Cleveland where Gullett is a clinician. "Of course she wouldn't sleep. Of course she would take on a pandemic."

In Cuyahoga County, Gullett leads the incident command for the local coronavirus response, overseeing a team of 50 people. Under her guidance, the Board of Health has developed a complex system of contact tracing and cluster identification of COVID-19 cases using board staff and Case Western Reserve University students (see sidebar).

Story continued on page 24

Story continued from page 23

And in recent months, it's a model that has been replicated throughout the country.

"If there ever was a time for public health to rise to the occasion, it's now," said Gullett, who holds the Charles Kent Smith, MD and Patricia Hughes Moore, MD Professorship in Medical Student Education in Family Medicine at Case Western Reserve.

Novel leadership

Before the pandemic, Gullett already was a leader in the public health community. In 2011, she joined the faculty at the School of Medicine, where she teaches and conducts research on interventions in primary care. She also is the population health liaison between Case Western Reserve and the county Board of Health; co-chair of Health Improvement Partnership-Cuyahoga, a consortium of 100 community partners to improve health and wellness across the county; and holds positions locally, statewide and nationally to promote the critical importance of public health, with a key focus of her career working with underserved, low-income and vulnerable populations.

But for the past few months, Gullett has focused primarily on the pandemic, working nearly nonstop to curtail the spread of the virus.

"In every part of Heidi's life, everyone wants her to do more because she's such a force for good. She's a hero for me," said Kurt Stange, MD, PhD, director of the Center for Community Health Integration at the School of Medicine. "Even as the work keeps growing and growing, she's the one who always gets called and always is the first up."

Stange likened running the county's coronavirus response to driving a car down the road and building it as you go. Because the novel coronavirus is, by definition, a new virus, the response has been unprecedented and has had to adapt and change as more is learned.

Gullett helped with the county's response to the Ebola outbreak a few years ago but said the work fielding calls and monitoring travel was incomparable to today's coronavirus pandemic.

"It seems like child's play compared to what we're doing now," Gullett said.

Yet her approach has been lauded by health officials and served as a model for other health departments.

Ohio Department of Health Medical Director

Mark Hurst, MD, called Gullett "a leader in public health in Ohio," whose "proactive efforts during the COVID-19 pandemic are an example for others in the state and have undoubtedly saved lives in Cuyahoga County and elsewhere."

Gullett, though, is quick to note that the local response is a team effort—one that wouldn't be possible without a group of committed people working together.

"There's just this amazing culture here of people wanting to save the community," Gullett said.

Everyone is stressed. Everyone is tired. But they all remain immensely committed "to ensuring the public's safety. ... Even on the hardest days, that's what gets us through."

At Gullett's urging, her team pauses to focus on gratitude twice a day—at 9 a.m. and at 3 p.m.—to remain grounded amidst the upheaval in their world.

"We remember it's OK to be sad; it's OK to be stressed. The only way to survive is together," Gullett said. "Our interdependence has never been more on display than now."

For Gullett, there has been a personal toll. She's missed out on time with her two children—ages 8 and 11—and, for a long time, her husband, an emergency room physician, lived separately from the family as a precaution until he received proper personal protective equipment.

"It was awful," Gullett said.

She shared her personal situation during one of the county's regular press conferences because she wanted people to "understand the gravity" of the pandemic, and how seriously health officials and medical workers are taking it.

An eye toward the future

Now, the Board of Health is creating a long-term plan to handle the pandemic. As more testing is done and people are less cautious about physical distancing, the number of new cases—and deaths—is expected to climb, said Cuyahoga County Board of Health Commissioner Terry Allan, MPH, who created with Gullett the county's COVID triage system.

"Deaths keep coming. This is not a time to take your foot off the gas," he said. "We're planning for the possibility of a very tough fall."

For her part, Gullett plans to "stay focused on the big picture" and make sure no one gets left behind in the response, especially vulnerable populations.

"There are moments where the gravity of the situation is a lot," Gullett said. "I try to stay level headed and mindful."



Heading the Call



Case Western Reserve University School of Medicine students have faced a pandemic in a classroom.

Now, they're responding to one in real life.

In one of their first exercises as medical students, each incoming class faces a mock flu pandemic. They assume roles as government or health officials, members of the media and civilians, and figure out how to manage the outbreak.

Then, in March, as classes moved remote and clinicals were cut short, more than 175 medical, public health and physician assistant students stepped up to help manage COVID-19 hotlines at the Cuyahoga County Board of Health, Neighborhood Family Practice and University Hospitals (UH) as part of a new telemedicine elective.

"This is a crash course in being flexible ... realizing medicine is a lot of unknown—and [then] figuring out how to be comfortable with it," said Anastasia Rowland-Seymour, MD, an associate professor of medicine in the School of Medicine and an internal medicine physician at MetroHealth Medical Center.

At the Board of Health, medical students performed contact tracing, answered COVID-19 hotline calls and managed clusters of positive cases.

"It's been really rewarding to be part of the experience—to see how things are run, how successful we've been and how hard-working everyone is," said Andrea Szabo, a third-year medical student who worked at the Board of Health 60 hours a week supervising students and calling

people with their diagnosis. "I've learned how to say things better and more clearly, comfort people, and build a rapport over the phone."

Their work was recognized by former Ohio Department of Health Director Amy Acton, MD, MPH, during Gov. Mike DeWine's daily press briefings.

"Most of them have done far more hours than they have needed for their electives," said Heidi Gullett, MD, MPH, associate professor at the School of Medicine and medical director for the county Board of Health. "This has expanded our understanding of what our residents and medical students can do for the community in the midst of this crisis."

Faculty member Debra Leizman, MD, also a general internist at UH, brought students in to UH after trying to connect with the hospital system's internal hotline, which was flooded with doctors trying to find information about COVID-19 or get patients tested.

Before students started staffing the hotline, wait times were more than an hour. By the end of the students' first day, callers waited just one minute, said Jacqueline Wang, a third-year student.

"It definitely gave us a sense of agency that was missing for a while," Wang said, "wanting so badly to help but not knowing how."

Their assistance was critical for both wait times and the overall experience. "The medical students have such great energy," Leizman said. "They're in health care, and they wanted to give back and help. It was really phenomenal to watch." —*Ginger Christ*

"This is a crash course in being flexible ... realizing medicine is a lot of unknown—and [then] figuring out how to be comfortable with it."

—*Anastasia Rowland-Seymour, MD*

LEARNING FROM HISTORY

Alumnus's research into a 1918 pandemic helps shape public understanding today

As the COVID-19 pandemic began overwhelming health care systems and disrupting industries worldwide, daily life suddenly felt like uncharted territory.

News outlets provided the framework for this sensation: In a matter of weeks, coverage in the United States shifted from occasional features on the virus abroad to an onslaught of stories reporting “unprecedented” phenomena.

But the truth is, we've been here before. More than a century ago, the Spanish flu of 1918 worked its way across the globe, prompting many of the same public health measures government officials have implemented in 2020.

And, amid today's pandemic, the work of an undergraduate history alumnus turned medical student has helped engage and educate the public.

“Social distancing, canceled events—it all looked similar,” explained Tarun Jella (CWR '17), a rising second-year student at Case Western Reserve University School of Medicine.

As an undergraduate history major at Case Western Reserve, Jella, who also holds a Master of Public Health degree from Dartmouth College, wrote his senior capstone project on the Spanish flu. Specifically, he focused on how the virus impacted the trajectory of public health and medicine in the midst of World War I.

His research has helped inform media coverage—and, in turn, public understanding—of the coronavirus.

Though the COVID-19 pandemic is still evolving, its parallels with the Spanish flu are already abundant. Jella pointed to the similarities in media coverage as

an example, noting outlets in both crises held a bias toward sensationalism.

“One of the biggest pressures on the press in 1918 was to report positive stories that kept morale high for American soldiers,” he said. “Outlets initially reported only German soldiers were succumbing to the Spanish flu, when in reality it hit American soldiers equally.”

Then, the tone of news coverage changed dramatically as the flu took hold of East Coast cities, shaking Americans of their misconceptions that the virus was solely a problem overseas or a simple three-day cold.

Trends in containment of the virus stand as another clear parallel.

“The case numbers really tell the story,” said Jella, pointing to cities like St. Louis and even Cleveland that were most successful in flattening the curve. “Cities that were too focused on lessening the economic impact, like Philadelphia, ultimately faced incredible waves of cases that their health systems couldn't handle.”

Jella has urged today's public to learn from our past and pay close attention to the sources of the information they read, remembering media outlets are incentivized to attract viewers and keep people engaged.

“A historical mindset is essential when contextualizing the public health problems we face today,” said Jella, who, in addition to sharing his insights, has volunteered with fellow medical students to field phone calls at the Cuyahoga County Board of Health (see p. 25).

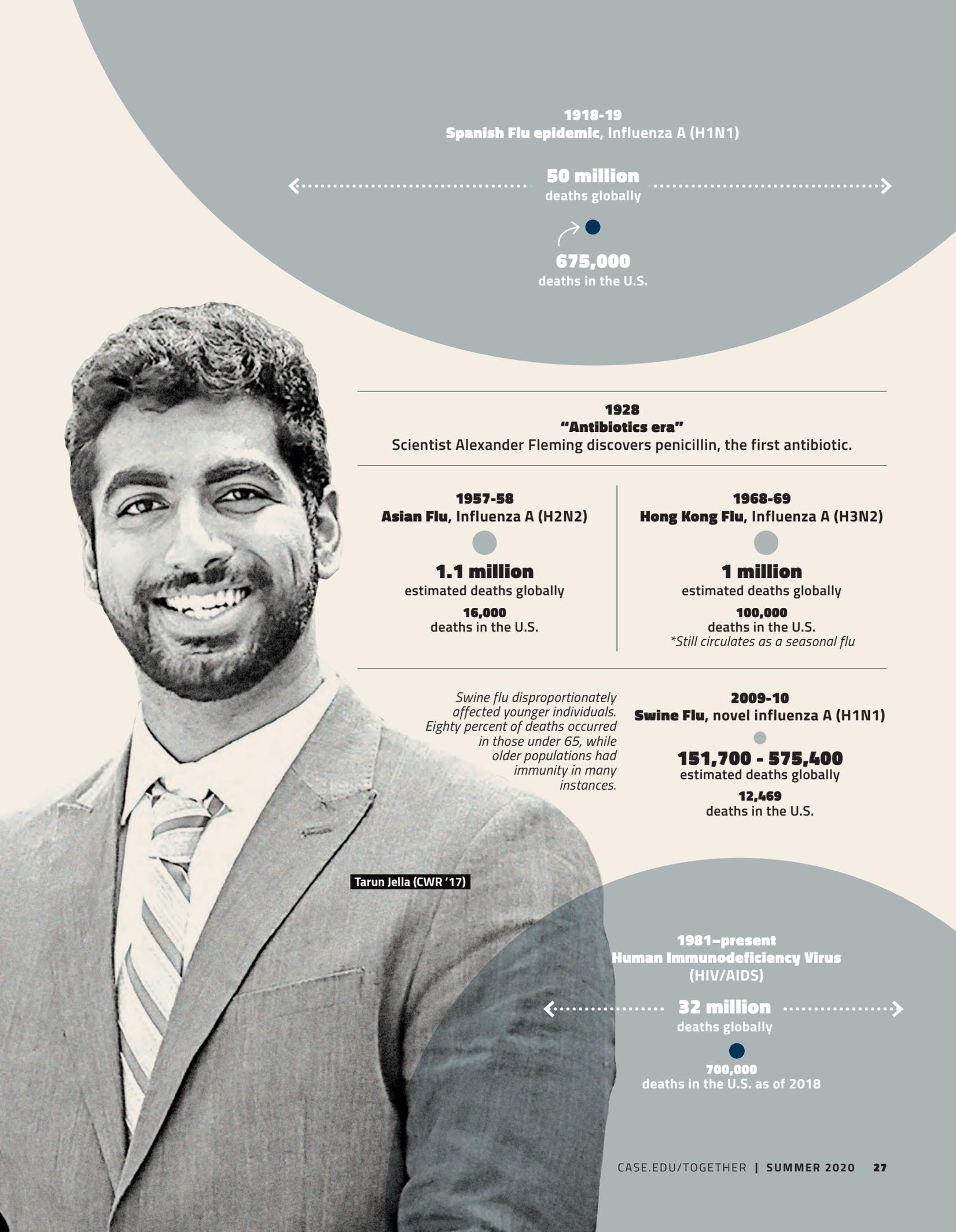
“Understanding why our systems look the way they do is the first step toward positive change.”

—Michelle Kolk

**2019-present
Novel
Coronavirus
(COVID-19)**

508,051
estimated deaths
globally

126,573
projected deaths
in the U.S.



1918-19
Spanish Flu epidemic, Influenza A (H1N1)

←..... **50 million**→
deaths globally

↗ ●
675,000
deaths in the U.S.

1928
"Antibiotics era"
Scientist Alexander Fleming discovers penicillin, the first antibiotic.

1957-58
Asian Flu, Influenza A (H2N2)

●
1.1 million
estimated deaths globally
16,000
deaths in the U.S.

1968-69
Hong Kong Flu, Influenza A (H3N2)

●
1 million
estimated deaths globally
100,000
deaths in the U.S.
**Still circulates as a seasonal flu*

Swine flu disproportionately affected younger individuals. Eighty percent of deaths occurred in those under 65, while older populations had immunity in many instances.

2009-10
Swine Flu, novel influenza A (H1N1)

●
151,700 - 575,400
estimated deaths globally
12,469
deaths in the U.S.

Tarun Jella (CWR '17)

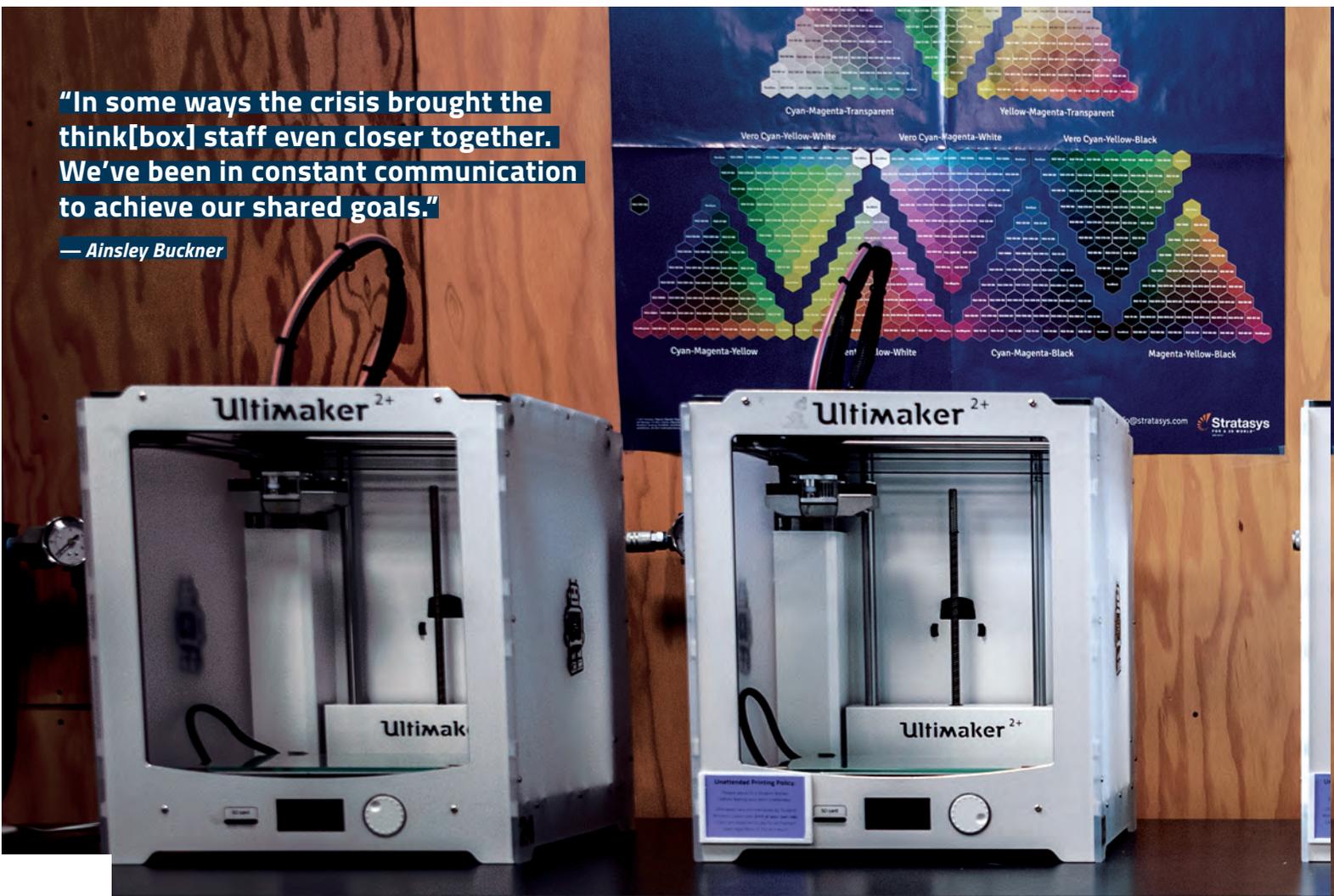
1981-present
Human Immunodeficiency Virus (HIV/AIDS)

←..... **32 million**→
deaths globally

●
700,000
deaths in the U.S. as of 2018

"In some ways the crisis brought the think[box] staff even closer together. We've been in constant communication to achieve our shared goals."

— Ainsley Buckner



DESIGN SOLUTIONS

How the university's innovation center transformed into a pandemic problem-solver



ING

Ainsley Buckner directed the production of around 300 IV hooks per day using the innovation center's fleet of 3D printers with the help of a dozen staff members and volunteers. (Photo by Matt Shiffler)

By Michelle Kolk

On an average day, the university's seven-story Larry Sears and Sally Zlotnick Sears think[box] is the site of bustling activity. But life during the COVID-19 pandemic looks anything but normal. As Case Western Reserve's on-campus operations came to a halt, its 50,000 square-foot innovation center suddenly stood empty of students and visitors. So the team at Sears think[box] did what it does best:



DESIGNING SOLUTIONS

In a matter of days, staff members turned their focus exclusively to pandemic-related projects, building critical partnerships with health care systems and manufacturers and designing prototypes to meet their needs.

For example: As health care systems around the world faced a shortage of personal protective equipment (PPE), the Innovations team at nearby Cleveland Clinic turned to Sears think[box] to find an immediate solution for creating the clear plastic face shields that provide an extra barrier of protection for health care workers.

“The problem with most 3D-printable face shields, though,” explained Ian Charnas (CWR ’05), director of innovation and technology at Sears think[box], “is they’re difficult to sterilize.”

So, on March 22—less than a week after the university shifted to mostly remote operations—the think[box] team got to work. Having partnered with Bill Rabbitt (CWR ’03; GRS ’06, mechanical engineering), engineering project manager at Nottingham Spirk Design, and Jason Williams, assistant teaching professor of engineering at Penn State Behrend, their prototype of an easier-to-sterilize shield went into production April 10 with companies in Akron, Cleveland, and Erie, Pennsylvania, at a rate of 5,000 parts per day—resulting in more than 125,000 units to date.

In seeing these efforts, manufacturers including Procter & Gamble and MAGNET, a state-supported manufacturing network in Ohio, realized the prototypes and designs from Sears think[box] were “several weeks ahead of theirs,” said Charnas. So their teams used the think[box] design as a starting point, and produced more than 1 million shields within the first month alone.

The urgency that prompted face-shield production in record time has led to nearly a dozen other projects. These range from hygienic hooks that pull doors open hands-free, to the Cleveland Intubation Box, a collaboration with researchers at University Hospitals (UH) spearheaded by design and manufacturing engineer Mandeep Bansal; director of design and manufacturing Jason Bradshaw (CWR ’02); and graduate student Umit Erol (CWR ’18). The device serves as a barrier between medical staff and COVID-19 patients who are receiving intubation, further reducing the chance for viral particles to spread.

“At the outset of the crisis, the Sears think[box] team immediately offered to partner with us to solve a number of emerging challenges,” said David Sylvan (MGT ’95), president of the hospital’s innovation team, UH Ventures. “They worked tirelessly with us and jointly developed solutions [like the Cleveland Intubation Box] that are being deployed throughout our system on a daily basis.”

In addition to increasing safety, many of the projects simplify processes—often on an incredibly quick turnaround time. Such was the case with the High-Line™ cradle system for IV tubing; in hospitals, health care practitioners must replace their



Charnas

“Our device is a point-of-care solution that aims to enable clinicians to sterilize their own masks in the time it takes to remove the rest of their PPE.”

Badar Kayani



Top: Badar Kayani, a BS/MS student in electrical engineering, assembles a prototype of the SUDS device from home during the pandemic. (Courtesy photo)

Above: Ainsley Buckner holds face shields designed by the Sears think[box] team. (Photo by Matt Shiffler)



PPE each time they enter and exit certain units, even for tasks as simple as checking IVs. By using color-coded hooks along the wall, IV lines and control panels can extend into the hallway, reducing risk to medical staff and the need to change out PPE.

Cleveland Clinic Nursing and Innovations staff members brought the design for the IV cradles to the Sears think[box] team, who, under the lead of director of prototyping, art, and community engagement Ainsley Buckner, quickly 3D-printed hundreds of the cradles as a short-term solution until Cleveland Clinic's mass system arrived.

Most recently, the Sears think[box] team partnered with researchers at Cleveland Clinic to create a new device that aims to decontaminate N95 masks in under a minute. The device, known as the Synchronous UV-C Decontamination System (SUDS), is being studied to determine its effectiveness, though preliminary

results look positive. While other companies offer large-scale services that sterilize thousands of masks at a time, the innovative design is suited for small- and medium-sized medical centers that aren't able to safely manage this time-consuming process.

"Companies have not been able to meet the demand for PPE, so in some situations, health care providers have needed to reuse masks," said Badar Kayani, a BS/MS student in electrical engineering who works at Sears think[box]. "Our device is a point-of-care solution that aims to enable clinicians to sterilize their own masks in the time it takes to remove the rest of their PPE."

Behind each Sears think[box] project lies hundreds of hours of effort, as staff members have worked tirelessly in the center or from their homes. Their approach resembles that of makerspaces across the country, each stepping up to fill a crucial gap in the national response to COVID-19.

"Those of us in makerspaces are fortunate to be in a position that we have a lot to offer," said Charnas. "Facilities like think[box] are great spaces to prototype and iterate designs to make workable products that can go to manufacture."

The best part of the Sears think[box] team's response? The intellectual property for every prototype they create is shared as open source, allowing anyone to produce the products for just the cost of materials.

"People's lives are at stake, and the university did not hesitate to prioritize this," Charnas said. He credits the staff in the offices of general counsel and research administration for the speed with which they've put agreements in place, allowing Sears think[box] to get its products to market as quickly as possible, as well as the support of donors such as Miguel Zubizarreta (CWR '90), whose \$100,000 gift launched Sears think[box]'s COVID response fund.

Above all, Charnas is grateful to the Sears think[box] team for dedicating themselves to this process without a second thought.

"It would be easy to see this as someone else's job," he said, "but our university has the type of people who say, 'We can do this.'"

RESEAR



Combatting COVID-19—and its many ripple effects—first requires understanding.

So as the urgency of the pandemic became apparent, Case Western Reserve University School of Medicine quickly assembled the COVID-19 Task Force. Within days of its inception, more than 260 faculty and staff from across every school volunteered for the effort, led by Professors Jonathan Karn, PhD, and Rafick Pierre Sekaly, PhD.

In less than two months, task force members submitted nearly 50 research proposals related to the development, control and biology of the novel coronavirus, and connected with top researchers from across Northeast Ohio to enhance and unify the region's efforts.

Here is a peek into just a small portion of the multifaceted work being done across campus to better understand the science related to COVID-19—and its effects on everything from mental health to the economy.



CH

Yanfang (Fanny) Ye, a faculty member in the new Department of Computer and Data Sciences, recently earned her second National Science Foundation COVID-19 RAPID award. The new grant supports work developing artificial intelligence approaches to detect COVID-19-themed malware; read more about her first award, for alpha-Satellite, at right. (Photo by Annie O'Neill/ Photo illustration)

Apps for Mapping

Two systems help track the spread of novel coronavirus



It's impossible to know precisely where the novel coronavirus lives. But two tools created by CWRU faculty aim to track its prevalence to slow the spread.

alpha-Satellite

A team led by **Yanfang (Fanny) Ye**, PhD, the Theodore L. and Dana J. Schroeder Associate Professor in the **Department of Computer and Data Sciences** at **Case School of Engineering**, developed alpha-Satellite, an online risk-assessment tool (covid-19.yes-lab.org) and mobile app that gives users information about the relative risk of going to any location in the United States.

The program is driven by artificial intelligence and up-to-date, publicly available data, including county-based COVID-19 statistics; demographic data from the **U.S. Census Bureau**; mobility data from **Google Maps**; and user-generated data from social media. The **National Science Foundation** awarded the team a one-year grant.

Ye and **Kenneth Loparo**, the Arthur L. Parker Professor and faculty director of **Institute for Smart, Secure and Connected Systems**, said alpha-Satellite should automatically provide community-level risk estimates to help people protect themselves while minimizing disruptions to their daily life to the extent possible.

ShareTrace

Case Western Reserve and the research organization HAT-LAB will launch in July the ShareTrace app, which provides privacy-protecting contact tracing and offers personalized infection risk-management tools to reduce the spread of COVID-19.

The app, originally called Health Traffic Light, won the Hack from Home global hackathon, which brought together (virtually) 822 participants from 62 countries to create technology-based solutions to fight the coronavirus. The winning team included faculty from **Weatherhead School of Management**, **Case School of Engineering** and **School of Medicine**.

"We needed to bring bright minds together to address the complex and rapidly evolving problems our world is facing," said **Youngjin Yoo**, PhD, the Elizabeth M. and William C. Treuhaft Professor of Entrepreneurship at the Weatherhead School, who helped coordinate Hack from Home and is on the ShareTrace team. "I am so proud of and humbled by the global response to the hackathon and our project."
—Mike Scott and Amanda Knauer

ATTERS

Studying the Spread

Case School of Engineering, Cleveland Clinic earn funding from National Science Foundation

➔ A team of Cleveland Clinic and Case Western Reserve University researchers is analyzing COVID-19 patient data to better understand how the virus spreads and where various strains originate.



Li

Supported by a special COVID-19 fund from the National Science Foundation, the team is conducting an epidemiologic analysis using data from patient samples collected at Cleveland Clinic.

The work will be led by Case Western Reserve researcher **Jing Li**, PhD, interim chair of the newly created **Department of Computer and Data Sciences** at **Case School of Engineering**, and **Frank Esper**, MD, a specialist in the **Center for Pediatric Infectious Disease** at Cleveland Clinic.

Li and Esper will sequence the genome from about 400 of the 2,000 samples to study mutations and use computational algorithms to mine patterns from the genetic sequences of the RNA of the novel coronavirus, SARS-CoV-2. Once the “letters” of the sequence are determined, computational algorithms can be used to mine patterns from the sequences.

Coupled with epidemiologic data from each affected individual, such as demographic information and diagnosis date, the information will provide new insights into transmission patterns of the novel coronavirus, SARS-CoV-2. —Mike Scott

Understanding the Emotional Effects

Study looks at ‘unprecedented’ levels of trauma caused by the global pandemic

➔ The U.S. has the largest COVID-19 outbreak in the world. And while physical health can be tested, little is known about the



Holmes

pandemic’s impact on mental health.

“There are some valid concerns that this coronavirus pandemic could cause emotional trauma and PTSD at a level we’ve never seen before,” said **Megan Holmes**, PhD, an associate professor of social work and the founding director of the **Center on Trauma and Adversity** at the **Jack, Joseph and Morton Mandel School of Applied Social Sciences**.

In just two weeks, a half-dozen researchers from the center, **Frances Payne Bolton School of Nursing** and **School of Medicine** gathered nearly 600 participants for a pilot study about emotional well-being and coping strategies amid the pandemic.

In preliminary results, 94% reported some levels of grief and 86% experienced at least one trauma symptom—“a rate that is much higher than reported for other traumatic events,” Holmes said, citing quarantines and ongoing physical health threats as unique stressors.

The team created a resource page (bit.ly/CWRU-coping). The next step: produce state and national estimates of the impact. —Colin McEwen

Targeting the Virus

An international team works at the molecular level to slow the novel coronavirus’s spread

➔ When **Blanton Tolbert**, PhD, learned of the new coronavirus outbreak, he realized he and his colleagues might be able to help.



Tolbert

The Case Western Reserve assistant professor of chemistry and research partners at **Duke** and **Rutgers**

universities had recently laid the groundwork to develop novel antivirals against Enterovirus 71 (EV71), a similar RNA virus that causes hand, foot and mouth disease. Since, they’ve expanded their team internationally, adding partners from the **University of Michigan**, the United Kingdom and Taiwan, and are now poised to make significant inroads into identifying vulnerable COVID-19 targets—and slow the spread of the novel coronavirus, Tolbert said.

The team has submitted a funding proposal to the **National Institutes of Health** to work on developing an antiviral.

“We’ve already shown the necessary ‘proof of concept’ with EV71, which shows we know how to get things done. ... We are equipped and ready to go,” Tolbert said, “and we can make a difference.” —Mike Scott

The Power of Distance

Social distancing has helped 'flatten the curve'—but how has it affected our behavior?



Six feet apart. It's the metric people across the U.S. have heard for months as the "safe distance" to keep when in public.

But what is the impact of public health interventions, such as social



Moore

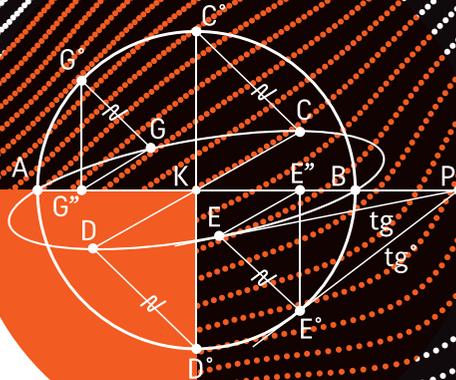
distancing, on actual human behavior?

"The COVID-19 pandemic and the resulting public health interventions intended to 'flatten the curve'

have had massive impacts on the economy and the day-to-day lives of Americans," said **Scott Emory Moore**, assistant professor in Case Western Reserve's **Frances Payne Bolton School of Nursing**. "However, not all Americans are experiencing this pandemic in the same way—or at the same time—because of the differing rates of infection, hotspot eruptions across the country, and how those factors influence local and state regulations and recommendations."

Moore teamed up with Indiana University School of Nursing Assistant Professor **Kelly Wierenga**, a former CWRU postdoctoral fellow, for a national study to understand how perceptions of and responses to the pandemic have influenced self-management behaviors and symptoms.

The online survey is the first part of a multiphase study, the results of which will help inform care and practice for future pandemics, Moore said. —Liz Lundblad



Turning Words into Action

University holds Day of Dialogue to spur movement on race and justice issues—on campus and beyond

“The relation subsisting between the white and black people of this country is the vital question of the age. In the solution of this question, the scholars of America will have to take an important ... part.”

—Frederick Douglass,
Western Reserve College Commencement Address,
July 12, 1854

In the days after the world witnessed the death of George Floyd under the knee of a Minneapolis police officer in late May, protests swept cities across the U.S., in some cases leading to looting and controversial police conduct.

Amid this time of national reckoning, President Barbara R. Snyder and Provost Ben Vinson III sent a May 31 email that concluded with the famed abolitionist’s comments (above) to graduates.

More than a century-and-a-half later, the two university leaders wrote: “As an institution of higher learning, we have a profound responsibility to the future. When it comes to this moment, how can we best begin to fulfill it?”

A dozen years after Case Western Reserve cited diversity and inclusion as core values in its strategic plan and created a cabinet-level position to focus on those issues, the university community has begun to engage in a time of deep reflection regarding how to demonstrate those values in more meaningful ways.

A week and a half after posing that question, President Snyder and Provost Vinson sponsored a campus-wide Day of Dialogue. Topics included campus police and safety, health disparities, institutional racism, along with closed sessions specifically for student discussions and support. The event ended with a panel discussion involving the president and provost, as well as Director of the Office of Multicultural Affairs Naomi Sigg and Vice President for Inclusion, Diversity and Equal Opportunity Robert Solomon, who joined the university in February.

Among the topics raised were the lack of progress in increasing numbers for Black undergraduate students (from 6% of undergraduates in the 2008–09 academic year, to 5% in 2019–20) as well as Black faculty



Zachery Cutner, 26, addresses protestors at a rally in Cleveland on May 30, following the the death of George Floyd. (John Kuntz/cleveland.com)



representation (since 2012, the number of Black tenured or tenure-track faculty has dropped from 27 to 26, while the proportion has climbed three-tenths, to 3.5%).

“It’s hard to ask for patience when we’ve been dealing with these issues for so long,” Solomon said in the day’s concluding leadership panel, “but we’re working to further develop those foundational things [already] in place.”

Snyder and Vinson charged Solomon and Sigg to analyze themes of the Day of Dialogue discussions and establish working groups and develop plans to address some of the most prominent issues. The two

expect to present action steps, timelines and metrics in August.

Another common issue centered on climate—specifically ways to make all members of the campus community feel welcome on campus. Sigg recommended building on the work of the well-regarded Diversity 360 program, which all undergraduates experience in orientation while staff and faculty can engage through departments or other organizations.

“We need to push to have a 2.o. How do we become a more anti-racist institution?” she asked. “Change the narrative by educating ourselves and each other. Stay hopeful.”

Continuing Operations

While work and learning went remote, hundreds stepped up their efforts on campus

As Case Western Reserve prepares to welcome students back to campus this fall, faculty and staff are returning in a phased approach after working and teaching remotely since mid-March.

But for hundreds of employees, work on campus never stopped.

Throughout the first months of the COVID-19 pandemic, approximately 600 essential employees continued to report to campus to maintain safe working and living conditions—caring for students in Cleveland and beyond, conducting life-saving research, cleaning and disinfecting residences and workspaces, or providing meals for students, faculty and staff who remained.

“All of this was new, so we had to work to-

gether to answer the question: How do we keep people safe?” said Sara Lee (MED ’01), MD, executive director of University Health and Counseling Services (UHCS), who helps lead Case Western Reserve’s coronavirus response. “We knew we had to make sure that all the resources and best practices that existed were available to our community, but also make sure that we—health and counseling—were available as a resource to answer questions and be there if people needed us.”

Lee and her staff turned to telehealth for student care, with virtual “walk-in” visits that led to in-person care when needed. For the rest of campus, UHCS and the Division of Public Safety’s Office of Resiliency became critical resources, working closely with departments to answer questions about cleaning and disinfection, provide guidance on what to do if someone becomes sick, and coordinate services and resources for faculty and staff.

Critically, both departments quickly shifted to focus on the safe return of students, faculty and staff. Megan Koeth, director of resiliency, and her team collaborate with departments and individuals to create safety protocols and operations plans; coordinate the distribution of personal protective equipment; and conduct site visits to ensure offices, classrooms and labs follow all health guidelines.

Across campus, custodial and facilities staff have worked diligently to limit the virus’s

“There have definitely been frustrating moments along the way, as we’re constantly adapting to new information. But there have been so many opportunities to feel part of something big.”

— Vinnie Gaikens, *Bon Appetit Executive Chef*

spread, following strict cleaning protocols to disinfect workspaces, labs and residence halls.

“The biggest challenge was having to switch modes so abruptly,” said Joe Thomas, assistant director of housing facilities. “It was a huge undertaking to go from our normal daily activities to preparing to move students out, transition some to new housing and make sure their living spaces were disinfected—all while maintaining a proper social distance.”

Staff from the Office of Residence Life delivered meals to quarantined students, checked in on residential communities and hosted virtual gatherings for roughly 400 students who remained on campus. They also coordinated the packing, storage and delivery of student belongings left on campus.

“We could not have accomplished everything without our [student] resident assistants,” said Amber Karel-Gerace, residential community director.

Karel-Gerace described those who continued to report to campus during the state’s stay-at-home order as a “small but mighty” group, and noted that the experience gave her a new appreciation for essential employees—especially those within custodial services and Bon Appetit, the university’s foodservice partner.

Thomas, whose team is responsible for both custodial services and maintenance for residential facilities, explained that in addition to keeping students safe, the health of his staff is a priority.

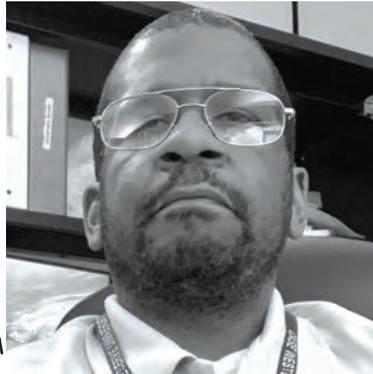
“A lot of departments worked together to make sure we had the necessary information and equipment to do our jobs confidently,” he said. “That helped [my staff] feel more comfortable being on the front lines.”

Bon Appetit Executive Chef Vinnie Gaikens and a team of about 40 chefs and managers prepare hundreds of free boxed lunches, available to all essential employees on campus, as well as the hot meals for students in residence halls.

“There have definitely been frustrating moments along the way, as we’re constantly adapting to new information,” said Gaikens. “But there have been so many opportunities to feel part of something big. The sense of community you have when you’re working together as a group toward a shared goal, and a shared experience—it’s actually been kind of special.” —*Nina Pettry*



Sara Lee (MED '01), MD



Joe Thomas



Amber Karel-Gerace



Chef Vinnie Gaikens



Cheryl Cameron, PhD

Resuming Research

Cheryl Cameron, PhD, immunologist and assistant professor in the Department of Nutrition, may have felt more prepared than most to face the challenges of a global pandemic. On the front lines of the SARS outbreak at Toronto General Hospital in 2003, Cameron ultimately helped with the research response to the disease, making her uniquely qualified to confront the research needs of COVID-19.

Cameron’s research focuses on the immune system, and figuring out what is special or unique about a person that could predict their ability to handle disease and infection.

“One of the main things we’re looking for are sets of biomarkers or an immune response signature,” said Cameron. “We’re trying to predict who will have a mild, moderate or severe course, but also identify what a beneficial immune response looks like.”

RETURN TRIP

Staff help study-abroad students find their way back home—from anywhere in the world

 Eileah Pye was on a semester abroad in Morocco when the country abruptly closed its borders. With incoming flights halted, travelers—including the third-year Case Western Reserve student—found themselves stranded in Morocco.

“Initially we weren’t sure if students were going to be able to get out at all,” said Angela Miller, EdD, director of education abroad. “After a lot of pushback from those who were advocating for Americans in Morocco, and involvement from many government officials, the U.S. Embassy was able to charter a flight to help get Eileah and other American students safely out of Morocco.”

The chartered flight took Pye to London, where she caught a flight back to the United States—though her destination was uncertain.

“We monitored her flight through the night,” Miller said. “We had a list of 10 major airports across the country where she could potentially end up.”

Miller eventually received word that Pye was headed to John F. Kennedy International Airport in New York and, from there, she returned safely to her home in Rochester, New York.

While Pye’s case may have been the most logistically challenging, it was not unlike many others the study abroad office dealt with as they helped 100 students return to their homes from around the world—within 48 hours or less.

“We were faced with real-time challenges in other cases, such as air-

space closings, border closings and stay-in-place orders,” said Miller. “Every time travel warnings changed ... we were responding not only to what was going on in the United States, but also what was happening in the various countries where our students were living.”

Miller described the situation as a “scramble,” with flights often canceled or becoming unavailable before staff could complete the booking process. When possible, they focused on finding direct flights for students, both to minimize the amount of travel and the risk of getting stuck somewhere else, all while trying to avoid areas that were experiencing a surge in COVID-19 cases.

“We basically had to live in two or three different time zones throughout the whole period,” Miller said. “We had to make sure we were maintaining communication with our students from our initial contact, through packing their things, arranging transportation to the airport, making sure they made their connecting flight, all the way to finally landing safely at home.”

Once the students all arrived safely to their destinations, the international affairs team shifted its focus to ensuring the students’ academic success.

“Nobody knew this would happen, and we certainly didn’t expect it to be so quick,” said Molly Watkins, PhD, assistant provost for international affairs. “But our students did really well and proved to be great partners in getting themselves home.”

—Nina Pettry



SUPPORTING OUR STUDENTS

As the university transitioned to remote learning, our community stepped up to help students



In the middle of spring break, sophomore Maria Luisa Bates Domenech got the news: The university would move to remote learning just days later, and students needed to return to campus to collect essentials for classes, then go home.

But on short notice—and amid a global travel frenzy—the tickets were beyond her budget.

Enter the Case Western Reserve University Student Emergency Fund, which provides immediate assistance to those in need.

Bates Domenech—and hundreds of other students—applied; after an accelerated staff review, she was among those to receive almost-instant reimbursement for expenses.

“By alleviating this big financial stress, I was able to just come home, focus on my family, get used to the new schooling [method] and all of that,” Bates Domenech said. “I’m so, so grateful to the university, to the alumni, to the faculty, and to the community members who were able to make it happen.”

The Student Emergency Fund, created in 2019 through a \$100,000 gift from university trustee Vincent Gaudiani (MED ’73) and his wife, Candace, helps students year-round with time-sensitive financial needs.

In the eight months prior to the COVID-19 pandemic, the nascent fund received about 30 submissions; between March 10 and early May, more than 400 requests poured in, allowing students to secure computers and other support needed for remote learning, such as internet upgrades or hotspots. It also has paid for travel home or to campus, storage, food and other necessities.

The university has focused on increasing this support for students, and in three

months, 1,034 donors contributed more than \$300,000, including a \$25,000 contribution from the Stephen J. McHale Family Fund at The Cleveland Foundation. This total includes support from hundreds of faculty and staff, who immediately responded when they learned they could gift some or all of their April and May parking credits to the fund.

Students also quickly stepped up to help their peers: Rising seniors Joey Kass and Hunter Stecko spearheaded the creation of a separate Student Activities Fee COVID-19 Emergency Fund, which shifted the funds allocated for the (now-canceled) spring semester activities to support students.

While the pair’s initial plan proposed using only Undergraduate Student Government’s extra funds, Kass realized there was still money that could be available. He began reaching out to student organizations on a Sunday night; by Thursday, he had successfully raised about \$350,000 for the fund.

“We knew we had to do whatever we could to get students the money or equipment they needed, and we felt this was something that could go a long way in boosting morale,” said Kass. “It works two ways: Students are helped by these donations, and at the same time, those involved in our organizations can feel good about doing something to support our CWRU community. It always feels good to help.” —*Nina Pettry*

STUDENT EMERGENCY FUND

1,034
DONORS

\$300K
RAISED IN THREE
MONTHS

Students who want to submit a request can visit bit.ly/cwru-emergency-fund

STUDENT ACTIVITIES FEE COVID-19 EMERGENCY FUND

\$350K
RAISED IN
FOUR DAYS

Students who want to submit a request can visit bit.ly/cwru-activities-fund

TO MAKE A DONATION, VISIT BIT.LY/CWRU-COVID

Stepping Up to Make a Difference

As students, faculty and staff left campus amid the coronavirus pandemic, they remained united, proving yet again what it means to be a community. Here, we share just a few of the myriad ways our campus joined together while staying apart.

Helping Those on the Front Lines

➡ Students in campus health care programs joined forces to address the shortage of personal protective equipment (PPE) in local hospitals. Modeled on a program at Georgetown University, they started MedSupplyDrive@cwru and reached out to members of the university community, local businesses and clinics—including retail stores, veterinary clinics and outpatient surgery centers—to secure PPE. With more than 170 student, faculty, staff, alumni and parent volunteers, the group has distributed 16,000 face shields, 1,200 surgical masks, 800 volunteer-sewn masks, 10,400 gloves and 600 shoe covers to hospitals, social workers, a retirement community, local organizations, a team providing masks to people who are homeless, and the Ohio Department of Health. “It has been uplifting to work with so many individuals willing to offer their time and resources to support our colleagues in the hospital,” said medical student **Abby Gross**, one of the group’s organizers.

➡ In March, **School of Medicine** students **Mitchell Thom** and **Lyba Zia** wanted to help area physicians, nurses and other health care staff with errands so they could focus their time fighting the pandemic and caring for patients. In less than a week, more than 100 student volunteers signed up for **Cleveland Students Supporting Health Workers**, offering to shop for groceries; prepare meals; tutor children online; feed, walk and take care of pets; and run much-needed errands. By mid-May, the group had paired students with 49 providers at various local hospital systems, especially offering child care, Zia said. The now nine student organizers plan to continue the initiative in the summer and, if needed, in the fall. “It’s definitely felt nice to have some sort of impact in the community remotely,” Thom said.



Clare Shin has spent her summer making masks for patients at children’s hospitals.

Joining a Mask-Making Movement

➡ After her summer internship was canceled because of COVID-19, School of Law student **Clare Shin** decided to spend her time making masks for patients at Cleveland-area children’s hospitals. She aims to produce 1,000 masks, or more than 100 per week, using fabrics featuring animals, rainbows, Disney princesses and characters from *Harry Potter* and *Toy Story*. “I hope that by making masks ‘fun,’ it will help the kids feel more comfortable and excited to wear them without feeling scared,” she said. And, after learning about the need for masks to help people who are hearing impaired read lips, she began making masks with flexible clear plastic in the center.

➡ The **Jack, Joseph and Morton Mandel School of Applied Social Sciences** is collaborating with local design company **Yellowcake Shop** and the nonprofit **Lutheran Metropolitan Ministry** to make and distribute more than 8,000 face masks to thousands of people who are homeless and to staff at homeless shelters in Northeast Ohio, thanks to a \$50,000 grant from the Greater Cleveland COVID-19 Rapid Response Fund, overseen by **The Cleveland Foundation**. “This initiative really fits in with the Mandel School’s commitment to addressing issues around homelessness, so we were pleased to be involved,” said **Rob Fischer**, PhD, an associate professor at the Mandel School and the point person for the grant.

➡ When students in the CWRU chapter canceled their summer project in Cruce de Blanco, a small town in the Dominican Republic, they asked what the community needed in the midst of the pandemic. The answer: masks. So 10 students raised \$1,360 in five days—enough for **Esteban Polanco**, president of a regional farmers organization, to purchase and distribute 2,725 masks in the town and surrounding region. When Polanco learned how much students raised, he texted a joyful reply in Spanish that translated to, “My God, you are my heroes!” said **Lynn Rollins** (GRS ’95, neurosciences), program director for the university’s **Center for Engineering Action**. Rollins also separately made about 350 masks for the CWRU community and University Hospitals.

Meeting Needs

➡ **Community Meal CLE** started on CWRU’s campus to feed people facing food insecurity amid COVID-19.

In recent months, more than 50 students, alumni and community members have come together to provide healthy, warm meals to families. As of early May, the organization had made and delivered more than 550 meals and helped 80 to 100 individuals a week. “Seeing so many people get involved with mutual aid has been really exciting,” said **Riley Simko** (CWR ’20), one of the organizers. “It gives me a lot of hope for the future.”

➡ Before the pandemic began, **Satya Moolani**, a cognitive science major, worked at **Create Circles**, a nonprofit his brother created to engage with older adults and help them stay mentally active. Now with restrictions on non-essential visitors to nursing homes and assisted-living facilities, there’s heightened awareness about the need to help seniors feel less isolated. Since April, about 300 students from 32 states—including more than 15 from CWRU—have signed up to volunteer with Create Circles, where they’re paired with older adults and talk with them remotely and create projects together such as memoirs and cookbooks. “The fact that we are able to educate students about interactions with older adults [and address] the problem of loneliness feels amazing,” Moolani said.

Building Community

➡ When classes went remote, **Rekha Srinivasan**, PhD (GRS ’03, chemistry), invited students in her organic chemistry and biochemistry classes to work on a different kind of experiment: cooking sessions via Zoom. She held five Saturday classes with sometimes as many as 55 students—and, often, their families—attending. “The food we cooked emphasized the use of phytochemicals to lower inflammation and boost immunity,” said Srinivasan, the James Stephen Swinehart, PhD, Professorial Teaching Fellow in Chemistry and senior instructor in the **Department of Chemistry**. For example, when participants made a spicy cauliflower ginger curry recipe, they also learned

about gingerol, a chemical compound found in ginger that has antioxidant and anti-inflammatory properties. Rising senior **Matthew Kunas** enjoyed applying his chemistry knowledge in the kitchen as well as the sense of normalcy the classes provided. “They also served as a distraction,” he said. “Instead of sitting around worrying and twirling your thumbs, you started chopping up vegetables to create a healthy meal with fellow classmates, albeit virtually.”

➡ In March, **Daniel Lacks**, PhD, organized a virtual 5K race to connect his far-flung colleagues, students and friends. More than 50 people in 16 states and the District of Columbia took part. So began weekly events organized by Lacks, the chair of the **Department of Chemical and Biomolecular Engineering** and C. Benson Branch Professor of Chemical Engineering. They bore clever scientific names and included a yoga class via Zoom, a step challenge, a push-up challenge, and, for the grand finale, the Navier-Stokes Giga Challenge (a reference that defies explanation in our small space) requiring participants to do a mix of steps, push-ups, sit-ups and burpees to exceed a pre-set number. Overall, 130 people joined in the six events. “I’m loving these challenges,” wrote Grace Trichtler (CWR ’19). “It gives me something to look forward to during the lockdown!”
—*Sandra Livingston*

CELEBRATING FROM AFAR

2020's virtual commencement looked like no other before—but the festivities continued



Grace Moran walked across the stage to accept her diploma—at her home outside Chicago.

On the day of Case Western Reserve's commencement May 17, Moran's family decked out their garage to mark the occasion, complete with a lectern in the university's colors that her father made in his sheet metal shop. Moran's dad gave a "keynote" speech highlighting her college experience, before she took the stage to deliver her own address. And as her family presented her with a mock diploma folder commemorating her bachelor's degrees in cognitive science and dance, other relatives tuned in via Zoom.

Thousands of Case Western Reserve's newest alumni celebrated commencement around the world that day, beginning with a virtual take on the traditional ceremonies: pre-recorded speeches from President Barbara R. Snyder and commencement speaker William "Bill" Baker, PhD (ADL '66; GRS '68, '72, communications sciences), as well as typical commemorations, including honorary degrees and faculty honors. Then, each school held individual diploma ceremonies, during which slides personalized by graduates appeared on screen.

Though she missed hearing her classmates' names read aloud and seeing them walk across the stage, Liz Hanna, who earned a bachelor's degree in international studies and Middle

Eastern studies, said the situation ultimately allowed for a more relaxed day with her parents and siblings, who surprised her with decorations and brunch at home.

Shahin Pahlevani, who graduated from the School of Dental Medicine, had never participated in a commencement ceremony and looked forward to the closure the day's pomp and circumstance would bring. But instead of donning a traditional graduation gown, Pahlevani and his wife, Sara, wore pajamas as they watched the ceremonies.

Still, they celebrated with cake, flowers and messages of support from friends and family. "Everything together made that day truly special for me, and I realized I have a much larger support group than I previously imagined," Pahlevani noted. "That's a blessing that I owe to this situation."

The day's ceremonies marked a finality that many felt was missing because of the abrupt end of on-campus learning in March.

"A lot was left unfinished when we had to leave campus—a lot of goodbyes and thank yous left unsaid,

projects I was never able to complete," Moran said. "Having such a memorable and special commencement celebration helps me feel a sense of closure as I transition into the next chapter of my life." —Katie Laux



"A lot was left unfinished when we had to leave campus. ... Having such a memorable and special commencement celebration helps me feel a sense of closure as I transition into the next chapter of my life."

— Grace Moran

Advancing leadership in social work and nonprofit education, scholarship and service to build a more just world.

Our mission is a relevant reminder of the transformative change that our alumni, students, faculty and staff are working toward during these important and uncertain times.

We extend our gratitude to all social workers and nonprofit leaders on the front lines who are risking their lives during

the pandemic to help others, and to those implementing progressive changes in our communities to spur social justice.

The compassion and commitment of our community is essential to the lives of others and to the advancement of our school—a place that will always be a resource for our students, alumni and nonprofits.

Thank you to all our Change Agents!



JACK, JOSEPH AND MORTON MANDEL
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CASE WESTERN RESERVE
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A M E A S U R E D A P P R O A C H

A L U M N U S T A C K L E S T H E E T H I C A L A N D P R A C T I C A L I S S U E S O F C A R E I N A P A N D E M I C

By Sandra Livingston

➔ Physicians and nurses rush into a hospital room when a patient is in crisis or near death. It's both instinctive and engrained by practice.

But amid the pandemic, there's no dashing in. Instead there's a methodical donning of personal protective equipment (PPE) to avoid contamination and further spread of the coronavirus—"and *then* you go into a room," said Edward Warren, MD (MED '87), division director of pulmonary/critical care and sleep medicine at The MetroHealth System in Cleveland and an associate professor of medicine at Case Western Reserve.

So too, hospitals can't race to respond to an outbreak without deliberate advance action. And that includes an enormous amount of discussion and planning involving countless questions, such as: How should they allocate ventilators and other resources in the event of a shortage? How do they best care for people critically ill with a contagious and virulent virus while also protecting clinical teams who visit patients? And how should clinicians respond to

family members not allowed to visit loved ones, or other hospital workers anxious about their own health?

In recent months, Warren faced all of the above and more.

Developing an ethical framework

In March, as the coronavirus spread and overran parts of Italy and New York City, Warren brought together a group of colleagues—critical-care clinicians, emergency department physicians, bioethicists and members of MetroHealth's legal department—initially to address a potential shortage of ventilators, but eventually to discuss developing an overall protocol for handling potentially limited life-support resources.

"The goal was to come up with a way of making resource allocation decisions that were ethically defensible but also clinically workable," said Mark Aulisio, PhD, chair of Case Western Reserve's Department of Bioethics who, as MetroHealth's director of clinical bioethics, also sat on the committee. "We're usually primarily thinking about autonomy, general informed consent, shared decision-making and so on. But in the case of an overwhelming surge that demands ICU resources, you have to think about how you're going to use the limited resources you have, and that's a very different approach."

Warren had grappled with such issues before. In the wake of Hurricane Sandy, he was part of a state task force charged with developing a protocol for when natural disasters, bioterrorism, or pandemics limit the medical equipment available.

The MetroHealth committee assembled guidelines and recommended protocols from other states and medical societies. Warren and his colleagues also spoke with nearby hospital systems, as they separately worked on protocols but agreed a uniform process was needed, he said.

The committee's biggest challenge was to develop an ethical framework for a protocol that on one hand would maximize the number of people who would survive and deploy equipment to have the most impact, and on the other hand would remain fair and just and avoid hidden biases that might unintentionally discriminate against any groups, especially those with less access to health care who might suffer from underlying conditions, or those with disabilities.

A protocol was never finalized, as the number of people hospitalized with COVID-19 in Cuyahoga County hasn't reached feared projections, and MetroHealth hasn't come close to running out of ventilators or key equipment. But in those intense meetings, nobody knew how the pandemic would roll through the area.



Warren



Preparing and caring for patients with COVID-19

Warren also helped create a detailed plan for how and where to care for the most critically ill patients with COVID-19. The “where” was a dedicated intensive care unit. The “how” to provide care and “who” would provide it involved working through countless details and procedures to potentially care for as many as 140 patients at a time, and ensuring that the unit had sufficient supplies of PPE.

“What we’re seeing is increased stress from health care providers and the patients and their families,” said committee member Monica Gerrek, PhD, assistant professor of bioethics in the School of Medicine and co-director of MetroHealth’s Center for Biomedical Ethics and the Institute of Burn Ethics. “There are concerns about visitation from loved ones, of having the appropriate PPE to stay safe while treating patients or even patients delaying doctor visits because they’re afraid to come in.”

To help lessen caregiver concerns, Warren began holding virtual meetings, inviting all members of his division, whether clinical or administrative. “Things kept evolving, so procedures kept evolving,” he said. “We needed to keep people updated and discuss concerns. We started a group text so people could [share] things they learned or concerns they had.”

When patients are in an ICU, they are cared for by large interdisciplinary teams. Warren and his colleagues developed ways to limit how often each staff member went into a room—and who went in. More of the consultations with specialists on COVID-19 cases, for example, moved to video sessions and phone calls.

“The added emotional challenge,” Warren said, “is the fact that no visitors are allowed in. That’s very difficult for patients who are awake and very difficult for family members.”

Adding to the stress on families was the fact that, in many cases, patients had been healthy before the virus struck, or they lived with family members who now feared they or others might get sick. And the reality for some was that “once family members took a patient to the hospital, they never got to see them again,” Warren said. “We’ve had some deaths, but not very many.”

Still, Warren said he hasn’t felt scared. He follows the precautions, putting on all PPE—gown, mask, face shield, shoe covers and gloves—before going into patient rooms, and then carefully taking it off to avoid contaminating himself. “The risk is small,” he said, “if you are very careful.”

Alumni Perspectives

“Nothing could quite prepare you for being on the front lines of a pandemic in the hot spot of the U.S.”

➔ Across the country—and around the world—nearly every aspect of life has been impacted by the pandemic, including how and where we work and volunteer. Case Western Reserve University alumni have been on the front lines in hospitals, clinics, health departments, social-service agencies and more. But their work in other areas—such as churches, fire stations and funeral homes—also has been greatly impacted. Read just a few of the ways our alumni made a difference in the early weeks of the pandemic, in their communities and beyond.

Helping patients off ventilators

As coronavirus cases spread, a much-feared shortage of ventilators quickly became reality in cities that were hotspots for the disease. A Case Western Reserve alumni-founded company stepped up to reduce the burden on hospitals. Led by **Anthony Ignagni** (CIT '83; GRS '89, biomedical engineering), **Moustapha Diop** (GRS '99, operations research) and **Tim Crish** (CIT '80; GRS '86, electrical engineering and applied physics), the team at **Synapse Biomedical Inc.** created the TransAeris Diaphragmatic Pacing system, partnering with their alma mater and **University Hospitals** to gain emergency **Federal Drug Administration** (FDA) approval. The system uses small electrical currents to stimulate patients' diaphragms, helping wean coronavirus patients off of ventilators and potentially cutting mechanical ventilation time by more than 25%.

Midwifery during the pandemic

After the coronavirus invaded two funerals in Albany, Georgia, around late February, it overran the city, resulting in sickness, hospitalization, deaths—and national attention. “To be in a place that has been defined as a national hot spot is overwhelming, particularly when you consider Albany as a small rural community not known by many,” said

Elois Edge (NUR '03). She knew someone who became critically ill after attending one of the funerals. Four members of her extended family



Edge

died from COVID-19, as have people in her broader community of friends, past teachers and former coworkers. “The virus has saturated our Black community in particular,” she said. At the **Mirian Worthy Women’s Health Center**, where Edge works as a nurse-midwife, only one visitor

can attend a delivery, all women in labor are tested for COVID-19 upon admission, and there’s “no more sitting at the woman’s side for extended periods of time supporting, touching, coaching, and loving her during childbirth without barriers of masks, gloves and rules.” But she believes that doing midwifery in the midst of a pandemic “is like an ongoing purpose of service within the soul.”

Mathmatically modeling costs

When **Covered California**, the state’s insurance marketplace, analyzed the potential financial costs of the coronavirus, its chief actuary **John Bertko**

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My Legacy: Supporting Dental Students' Interest in Orthodontics



Photo by Steve Wagner

"The school has been my home for nearly 60 years and I have been very happy there both as a student and a faculty member. I am remembering the school in my will because it has been such a big part of my life."

— DOUG AMBERMAN '67

The lasting impact of estate bequests, both large and small, help shape the School of Dental Medicine. Including the school in your will is one of the easiest ways to create your personal legacy.

For **B. Douglas (Doug) Amberman, DDS (DEN '67)**, alumnus and faculty member in the Department of Orthodontics, including the school in his will celebrates his own personal legacy and the education that helped him in his career. Dr. Amberman's bequest intent, when realized, will support the B. Douglas Amberman Endowed Fund, which will award an exceptional graduating DMD

student with an interest and ability in orthodontics.

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To request a bequest intention form or to make a donation in celebration of Dr. Amberman, please contact Paul Wolansky, assistant dean of development and alumni relations, at Paul.Wolansky@case.edu or call 216.368.3923.

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Outstanding New Dentist

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(CIT '71) led the mathematical modeling and prepared the policy brief. Published in March, the brief was picked up by media outlets, including *The New York Times*. Among the key findings: The one-year projected costs that insurers, employers and individuals could face for COVID-19 related testing, treatment and care could range from \$34 billion to \$251 billion. And, the report noted, without decisive federal action, the public health and economic consequences could be staggering. Other analysts subsequently published similar findings, while public-health experts warned about looming infections and deaths—all contributing to shelter-in-place rules around the country that helped the nation avoid the worst of the projections. “While we still must remain vigilant, ‘good behavior’ by the general public has had an effect mitigating the COVID-19 virus effects and changed what our earlier projections assumed would happen,” Bertko said.

3D printing for emergency manufacturing

In early May, Massachusetts-based **Formlabs** announced it was the first 3D-printing manufacturer to receive emergency-use authorization from the FDA to print adaptors to convert machines used by people with sleep apnea into ventilators. It also is part of a multi-institution collaboration that created 3D-printed nasal swabs for COVID-19 testing. These efforts are personal for **John Boyle** (CWR '98; GRS '01, '03, macromolecular science), a lead on Formlabs’ materials science team. “My wife, **Dr. Tehnaz Parakh** [GRS '06, pharmacology; MED '08] is currently an emergency room doctor in Boston,” he explained. “My friends and family are on the front lines of this on a daily basis.” Boyle said his group’s initiatives include seeking expedited FDA approval to use several of its resins to produce testing supplies, medical equipment and personal protective equipment. His colleague, **Ammar Patel** (GRS '20, macromolecular science), volunteered his polymer science know-how as colleagues developed medical-device materials. Throughout the pandemic, Patel said, it has been incredible to see so many “volunteering their respective expertise to identify problems where Formlabs could help, come up with potential solutions, design models, run initial prints, approach hospitals, get approvals and set up mass-printing facilities.”

Boosting statewide testing and safety

In North Dakota’s war against the spread of the coronavirus, **Mylynn Tufte** (NUR '95)—who led the state’s Department of Health until late May—worked 12-plus-hour days as the public health leader within the Unified Command Structure of the Statewide Emergency Operations Center. In mid-May, *Politico* said the state was third in the nation in testing. “Rapidly increasing our testing capacity has had the most



Tufte

impact in our ability to identify outbreaks and protect our most vulnerable citizens,” said Tufte, a former critical care nurse. Also impactful was the state’s focus on providing timely and accurate information, which Tufte said “helped us prepare, not panic.” But, she noted, challenges remain, especially as the virus amplified health disparities in North Dakota and across the country.

Cross-discipline training

Garrison Copeland (DEN '13) was the chief dental resident at the **Bronxcare Health System** in New York when several physicians in one medicine department became ill, and volunteers were needed to provide bedside care or



Copeland

telemedicine services. “I was one of the three who chose to be in direct contact with COVID patients,” Copeland said. His duties included administering COVID-19 tests to newly admitted patients, taking vital signs, helping place IVs in veins and picking up patient medications, including one he paid for himself. In the two weeks before the physicians returned, he saw patients successfully treated; he also watched a man die. “I was completely out of my element, but the driving force behind my actions was to help in any way I could,” he said. Copeland’s most challenging experience: telling his family he volunteered. “My mother immediately broke into tears, but was immensely proud,” he said. “When [so much of] the world was running away from the virus, I ran toward it.”

Art classes go online

Denyse Carbonell (GRS '95, art education), founder of **Artist at Heart** (ArtistAtHeart.org) used to take her traveling art parties to various locations for corporate team-building and private events. “Once COVID-19 hit, all of my jobs were canceled,” said Carbonell. So she pivoted: Carbonell began offering a free daily online art class, and saw her Facebook following grow from 1,900 to 27,000, as people from around the world joined her sessions via Facebook and YouTube, sometimes coming on screen to share their work. She also started offering private Zoom parties to bring in revenue. Though Carbonell originally planned to offer the free classes for only a week as school buildings began to close, she continued as she reached more and more people of every age and ability.

Continuing care for children

Just before it temporarily closed in mid-March, Cleveland’s **Providence House** crisis nursery had 13 young children in its care. “Our social workers quickly worked with families to identify how we could safely discharge each child,” said **Annette Iwamoto** (SAS '12), strategic initiatives manager for the nonprofit shelter. Nearly all families were reunited, staying either in their own housing or with others temporarily. Throughout the pandemic, the agency’s social

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Moving the Arc of History Toward Justice

As an institution of legal education, we have the privilege of being able to hold up our laws and our institutions to a prism to analyze their imperfections. We commit to ensuring that what we teach enhances our students' capacity to learn, to grow as future lawyers and to undertake the vital work of bringing meaningful change to our laws and institutions to foster equal justice for all.

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- Trial Advocacy and Litigation (A)
- Business and Corporate Law (A)
- Criminal Law (A-)
- Human Rights Law (A-)
- Public Policy (A-)



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workers have provided support by phone and delivered food, diapers, formula, soap and hand sanitizer so families can avoid taking public transportation to grocery stores. As



Iwamoto

Providence House prepares to reopen, Iwamoto expects a huge increase in inquiries, as “families who were previously just getting by may find themselves in crisis or struggling to manage the anxiety and stress of caring for young children during the pandemic,” she said. “The onus is on us to determine how we can offer our crisis nursery and other supportive services in as safe a manner as possible to help prevent child abuse and neglect.”

Adapting funeral operations

When **Crystal Jardine** (MGT '99) meets with people suffering terrible grief, she no longer reaches out with an instinctive handshake or hug. It's part of the “new normal” for Jardine, a funeral director who co-owns multiple funeral homes and a cremation service in Northeast Ohio. While her homes haven't been overwhelmed with COVID-19 related deaths, her



Jardine

business has changed drastically—from the precautionary measures her employees must take to, most significantly, how funerals operate. Visitations are few and sparsely attended. Smaller numbers of people attend services or processions to the cemetery. Those who do attend try to abide by the 10-people-at-a-gathering rule and stay 6 feet apart. “The risk of

spreading COVID-19 has prevented families from grieving like they would normally, and that is concerning to me,” Jardine said. “We just want to ensure that families are able to receive the closure they need from the funeral service.”

Helping a theater forge ahead

Tom Parrish (CWR '01) has spent his career leading non-profit theaters out of organizational and fiscal crises. That's one way of saying Parrish—executive director of **Trinity Repertory Co.** in Providence, Rhode Island—was well-suited for this moment. On March 12, the city revoked entertainment licenses until further notice, and Trinity Rep went dark. Three days later, the theater canceled the rest of its season. It used the federal Paycheck Protection Program to keep year-round staff employed, and more than half of ticket holders donated their tickets. Trinity is offering classes and other content online and through social media; developing scenarios for the upcoming year; and collecting stories from the community to be used in a future event. “There are two types of charities: those that save lives and those that remind us why life is worth saving,” Parrish said. “When the time comes for the stage lights to turn on again, we will be there ready to remind everyone what this sacrifice was for.”

Advocating for a healthy election system

On April 7, Wisconsin voters who hadn't received a ballot by mail made a choice that **Carrie Davis** (LAW '03) said no citizen should ever face: risk exposure to COVID-19 by voting in person, or not vote. “We have [only] months to get our election plans together to ensure those problems [and others] do not happen on a broader scale in November,” said



Davis

Davis, who directs the **Joyce Foundation's** Democracy Program in Chicago. She's particularly worried that the pandemic coincides with the general election and 2020 census, which both demand enormous amounts of planning and testing. Davis said a successful election will require officials prepared for heavy use of voting by mail; in-person voting that's accessible and includes pandemic-related safety measures; and clear communications to voters about voting options and protective protocols. For the census, she said adaptability will be critical as the U.S. Census Bureau resumes field operations and outside groups shift from in-person outreach as they work to ensure accurate data is collected. “A lot is at stake,” Davis said.

Documenting this historic time

The **Western Reserve Historical Society** in University Circle is documenting the pandemic experience in Cleveland, collecting oral histories, images, documents and artifacts.

Patricia Edmonson (CWR '06), the Museum Advisory Council curator of costume and textiles, is collecting a variety of masks and the stories behind them. She's also considering



Edmonson

how fashion changes when people are stuck at home and how people turn to crafts as a coping mechanism. Collecting in the midst of the period being chronicled provides the opportunity to preserve compelling objects that might otherwise be discarded. “Who thinks that a museum might want their mask or journal or embroidered picture?” Edmonson said.

“But documenting [the lives of] the average person can be so powerful and will help future museum-goers connect with the past in a tangible and emotional way.”

Spiritual support goes virtual

In the past, **The Unitarian Universalist Church of Arlington** in Virginia ended its weekly service with a benediction as people held hands or touched the shoulder of a neighbor. “We know that, for some people, that may be the only time they touch another person each week,” said **Sarah Masters** (MNO '95), director of congregational life. On March 15, the church closed its doors and moved to online services—and felt the financial impact, as donations from the collection plate fell to about 25 percent of normal levels

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Anatomy Professor
Susanne Wish-Baratz uses the
remote-learning application of
HoloAnatomy to teach classes

Addressing the Digital Divide at the School of Medicine



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Masters

and it received federal Payroll Protection Program funds to maintain staffing. While congregants miss the communal feeling of in-person services, people who moved away are reconnecting and participating online. About 70 congregants are making weekly check-in calls to other congregant households. And the annual youth-led service became more creative when it was pre-recorded and shown online. “I’ve always said the church is not the building; it is the community,” Masters said. “This experience has illustrated that.”

Supporting a live-in at a factory for PPE

Starting in late March, 43 employees worked and slept at a **Braskem America** plant in Pennsylvania for 28 days without leaving. They produced tens of millions of pounds of raw materials for face masks and surgical gowns—all volunteering for the “live-in,” *The Washington Post* reported, to be sure nobody got the virus outside the plant. Another Braskem plant followed with a second live-in as they sought to meet soaring demand for their key product, polypropylene, a thermoplastic polymer. Meanwhile, **Joel Carr** (GRS ’13, macromolecular science) worked with his Braskem team in Pittsburgh to support the factories. “Knowing that we are making products that go into these applications that keep health care workers safe is really empowering,” said Carr, Braskem’s U.S. product team leader. Braskem also shifted products between factories in order to meet the sharp increases in demand. That move “is not trivial,” Carr said, adding that his team helped ensure “the products have the same polymer architecture and balance of properties” to meet application needs and customer expectations.



Carr

Fighting fires—and COVID-19

Doston Jones (LAW ’08) left a high-powered international law firm to fulfill a longtime dream of becoming a firefighter. “I feel honored and privileged” to be a first responder during these times, he said, even after contracting COVID-19 in mid-April. While his case was “extremely mild,” it still left Jones uneasy. “As a firefighter-medic, you become psychologically accustomed to accepting the risks you encounter yourself while on the job—but when your job suddenly involves an element of safety risk to your loved ones, then that brings about an entirely different psychological burden,” he said. Jones, who works in Cleveland, noted that he doesn’t feel any less safe than old law colleagues who worked from home during the shutdown. “In a sense, we’re all on the front lines these days, regardless of profession, as this virus is becoming increasingly ubiquitous and is not a respecter of persons.”

Nonprofit’s efforts continue

Recovery Resources, a Cleveland-based nonprofit, remained partially open as the coronavirus spread, providing a range of services for people struggling with addiction and/or mental-health issues. For **Pam Gill** (GRS ’99, bioethics), Recovery Resources’ president and CEO, the list of concerns for clients is long and heartrending, such as: “How do we make sure they can access our services? How can we assure their safety and good health when they are already challenged with basics? What about our clients who are homeless or live at the shelters?”



Gill

The difficulties are many—especially for those facing food insecurity, lacking adequate Wi-Fi or other technology to receive services remotely, or in recovery for alcoholism and needing support. Yet Gill is strengthened by the kindness of employees who continued to serve; the work of her leadership team, which implemented large scale strategic plans in just weeks; the generosity of board members who provided meals for employees and community members who provided personal protective equipment for clients; and “the sheer joy and gratitude expressed by our clients when we have delivered food or supplies.”

Health care at the epicenter

During his general practice dental residency program at **Brookdale University Hospital Medical Center** in his hometown of Brooklyn, New York, **Itamar Carter** (DEN ’19) was shifted to COVID-19-related care. “The ICU was at capacity, patient beds lined the hallways of the emergency department, different spaces in the hospital were repurposed to increase the number of beds,” Carter said, adding that he had been testing patients, “mostly symptomatic employees, every afternoon in urgent care since the beginning of March.” As a dental resident in a hospital-based program, he’d already experienced working in the ER. “But still,



Carter

nothing could quite prepare you for being on the front lines of a pandemic in the hot spot of the U.S. seeing colleagues around you out sick, the sheer number of patients to manage, an overflowing morgue, witnessing many lives lost.” Carter also had the reward of seeing people reunited with their families. “It was really exciting to see some of the first COVID patients from the ICU be discharged,” he said. “There was a whole parade of hospital staff cheering for them as they left.” —*Sandra Livingston*



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