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Momentum

Research & Innovation

THE
UNIVERSITY
OF RHODE ISLAND
DIVISION OF RESEARCH
AND ECONOMIC
DEVELOPMENT



OUR SCIENCE NEVER STOPS

FALL 2020

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From shuttered museums and galleries to vacant theaters and silent concert halls, the COVID-19 pandemic has vastly changed the face of the arts. The impact of shutting down the vital in person aspect of the industry means more than the loss of income for artists. The coronavirus is affecting the quality of life for audience members and the community.

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CHECK THESE ARTICLES OUT ONLINE

PLAYING POKER FOR PUBLIC SAFETY

During a spring poker game, members of the URI Chinese Culture Club brainstormed how they could assist Rhode Island health care workers obtain personal protective equipment to help them survive the COVID-19 pandemic.



POLARIS MEP: BULLISH ON MANUFACTURING

Rhode Island manufacturers are collaborating and even thriving as they develop PPE at a rapid pace with the assist of URI's Polaris Manufacturing Extension Partnership.



HELPING SMALL BUSINESSES WEATHER THE COVID-19 CRISIS

The Rhode Island Small Business Center State Director Edward Huttenhower knows firsthand that for small business owners the last several months have been more challenging than any other time. There's a resiliency of small business owners who really want to keep going and thriving into the future. The RISBDC is here to help them succeed.



ACKNOWLEDGEMENTS

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Photography:
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Momentum: Research & Innovation is published by the Vice President for Research and Economic Development with editorial, graphic design, and production by the Office of University Research External Relations.

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FROM THE UNIVERSITY OF RHODE ISLAND SENIOR LEADERSHIP TEAM



From left: Anne Marie Coleman, Kelly K. Mahoney, Louis J. Saccoccio, Thor D. Bjorn, Elizabeth O'Rourke, David M. Dooley, Karlis Kaugars, Peter J. Snyder, Kathy M. Collins, Michelle S. Curreri. Seated: Donald H. DeHayes, Abigail Rider, Mary Grace Almandrez. Photo by Nora Lewis.

We will remember 2020 as one of tremendous societal stress and a test of the limits of human perseverance. Systemic racial and ethnic inequities have been laid bare, with tensions heightened – rather than soothed – by political leaders. We felt the full raging impact of the COVID-19 global viral pandemic in 2020, and we experienced dramatic changes in virtually all aspects of our life as a result of this scourge. While we have seen a rise in job losses, home and food insecurity, and poverty in this country, we've also experienced the importance of community, scientific inquiry and discovery, and higher education's role in helping to combat these injustices and health crises.

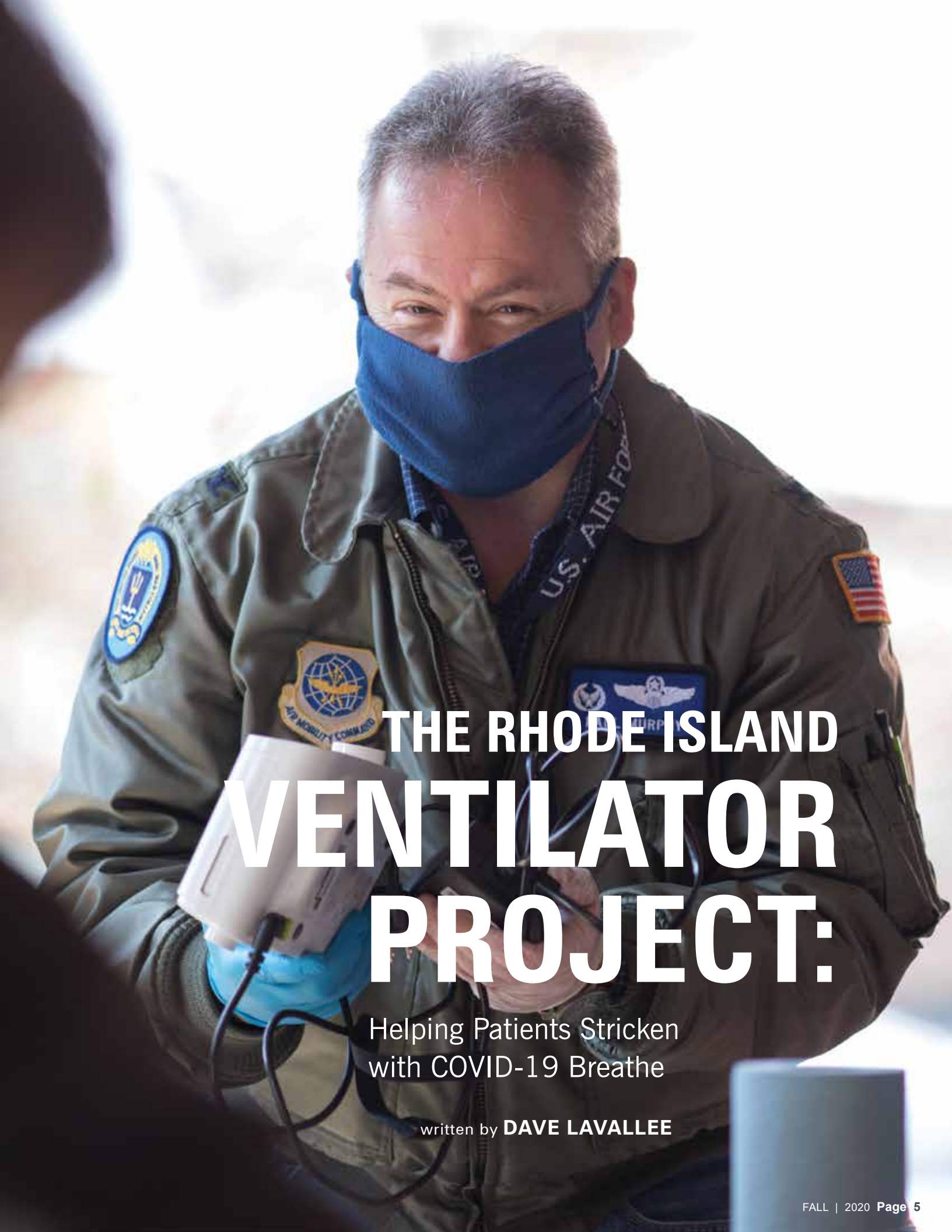
As the senior leadership team for the University of Rhode Island, we have been working hard with our faculty, staff, students, and alumni to safely maintain our environment for learning; and, to make new discoveries that will lead to improvements in, and protections of, our fragile world. This fall our University opened to students who are now about to leave for Thanksgiving break. After the holiday season, we are planning for a safe return for the spring semester. Because of our collective actions and caring for each other, our percent positivity rate for the virus remains low and manageable.

We know that this is a truly difficult time and that 2020 will become an historical moment that we will remember. With the development of more affordable, rapid and sensitive testing (like the test URI is developing and that you will read about in this issue), and with more effective treatments and eventually vaccines for the coronavirus, we are optimistic that far better days await us in the near future.

As your senior leadership team, we are committed to protecting this vital institution for the public good, and to supporting students in as safe an environment as possible that respects and celebrates diversity, and encourages us all to continually learn from each other. We hope that you will find the stories in this special issue of *Momentum* to be a source of pride in URI. Our doors never closed when the pandemic hit last winter. Our laboratories never shut down, and our faculty and students rose to assist others in a time of need. There are many volunteers whose names are mentioned throughout this issue, and many more whom we were unable to name, and we are deeply thankful to each for their generous efforts.

Senior Leadership Team
THE UNIVERSITY OF RHODE ISLAND

Momentum
Research & Innovation



THE RHODE ISLAND VENTILATOR PROJECT:

Helping Patients Stricken
with COVID-19 Breathe

written by **DAVE LAVALLEE**

You could see it in their eyes, even though the dozens of volunteers wore face coverings on the loading dock at the University of Rhode Island's (URI) Memorial Union. They knew they were engaged in a potentially life-saving effort to combat the coronavirus pandemic. You could feel their energy and know that those were smiles behind the masks of the volunteers from URI, local businesses, the military, and other groups from around the state as they unloaded sleep apnea machines collected from 30 fire stations across Rhode Island.

Their purpose was to collect and refurbish sleep apnea machines to serve as supplementary breathing equipment for hospitals treating patients affected by COVID-19, caused by the novel SARS-CoV-2 virus that as of mid-November has killed over 1,290 people in Rhode Island, at least 250,000 in the United States and infected more than 30 million people around the world.

As hospitals around the country dealt with a shortage of ventilators and Rhode Island prepared for a potential spike of cases in late March, a group of innovative, driven and caring people formulated a novel solution to help fight this virus – refurbish unused home sleep apnea (CPAP and BiPAP) devices to serve as non-invasive backup breathing machines.

The project materialized through the efforts of URI, the VentilatorProject.Org, the Rhode Island Commerce Corp., the Rhode Island Department of Health, fire stations, hospitals and local industry partners. Alex Hornstein, director of the VentilatorProject.org, described the effort as an endeavor that could only happen in a small,



Volunteers for the URI Ventilator Project.



Volunteers for the URI Ventilator Project.

They knew they were engaged in a potentially life-saving effort to combat the coronavirus pandemic.

connected state like Rhode Island, where talented and creative people work and live closely together.

Hornstein said that 442 units were requested by doctors, while additional units were set aside for outreach to new hospitals. He added that at many field hospitals around the world, without ICU-level supplies, ventilators, and highly trained staff, intubation is simply not an option. Once the project team met the emergency needs for the State of Rhode Island, it worked with foreign governments and medical institutes, private corporations, hospital leaders, the U.S. Navy, the Rotary Club International, and the National Guard to coordinate the distribution of units to 11 countries around the world. This was a massive and complex effort, led by Hornstein and the Ventilator Project, with the URI Provost's Office, the URI Division of Research and Economic Development, the URI Division of Student Affairs, and the shipping facility at the Graduate School of Oceanography, each playing key roles as needed.

"We sent out evaluation kits to doctors around the world — packages with a CPAP, air tubing and connectors, oxygen treatment hoods and viral filters," Hornstein said. "The goal is to work with doctors to confirm that they can use these to treat patients while



Donated CPAP and BiPAP devices arrive at URI.



URI Printing Services' Ed DeLeiter laminating instructions for people receiving the donated CPAP and BiPAP devices. Photo by Amy Joy Davis.

protecting health care workers from exposure to the virus, and big picture, to delay or alleviate the need to intubate patients. In addition, each unit has been packaged with detailed instructions, which were printed by URI's Printing Services, on how to use it. These units could also be used in U.S. hospitals as a way to delay or prevent intubation."

Doctors and hospitals were extremely receptive to this effort, and many of the distributed systems now are saving lives around the world.

As for the speed with which URI was able to offer and prepare the Memorial Union, Professor Peter Snyder, the University's vice president for Research and Economic Development, said many people played a role in making the operation a success.

"The fact that the planning, setup, operation and breaking down took place in a matter of weeks was impressive," Snyder said. "Kathy Collins, vice president for Student Affairs, was essential in making the building available to us, and URI Dining Services responded immediately. VP Collins' senior leadership who oversee dining services and the Memorial Union, notably Pierre St.-Germain, Carl Stiles, and Brad Irish, all responded to our needs immediately and with tremendous generosity and enthusiasm."

Snyder said the partners came together quickly to make the project happen. He called Pete Rumsey, director of Rhode Island Innovation Campuses for the Rhode Island Commerce Corp., as well as George Nickolopoulos, formerly of URI's Business Engagement Center, who became the two quarterbacks of the effort; Air Force Col. Erik Brine, the logistical director; and backbone, Alex Hornstein, a brilliant MIT-educated entrepreneur,



Alex Hornstein, director, VentilatorProject.org.

the genius who came up with the concept; and Tao Wei, URI associate professor of electrical, computer and biomedical engineering, the critically important quality control expert. This team was supported by Patricia Correia, from URI's research division, and with process design advice from Christian Cowan, the then director for the Polaris Manufacturing Extension Program at URI and the chief operating officer for the URI Research Foundation.

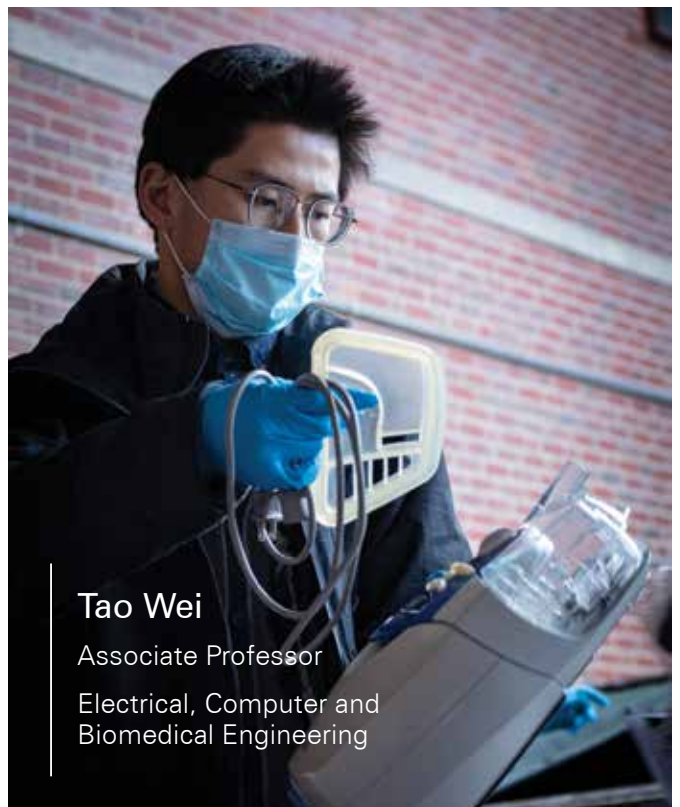
"We had a common goal – first to find a way to help the state if the spread of the disease outpaced its supply of ventilators and then help other states and countries with great need. This was a home run." Rumsey said, "It couldn't have been more successful." Rumsey was tapped by the state's leaders to come up with ideas, and chased down every lead to keep infected Rhode Islanders

breathing. States around the country were running out of ventilators and Rhode Island needed to be prepared.

Having worked with the University on a number of projects Rumsey reached out to Vice President Snyder knowing that URI would be a great resource. And in the meantime, Hornstein discovered through his connections that Mount Sinai Hospital in New York was using CPAP and BiPAP machines as backup ventilators.

"The lightbulb went off," Rumsey said. "I called George, who quickly gathered Erik, Alex, and Peter on a call and we asked, 'Can we do this?' They all jumped on board immediately. Dr. Snyder promised that URI could make this great plan happen, and he delivered."

The team talked about collection points. Nickolopolous, as a volunteer firefighter in West Greenwich, suggested fire stations and called his chief, Raymond Kelley of the Hiantland Fire Department, who connected Nickolopolous to the Rhode Island Association of Fire Chiefs and through Executive Director Rick Susi, and soon established 30 fire station collection points.



Tao Wei

Associate Professor

Electrical, Computer and
Biomedical Engineering



Volunteers inspecting the donated CPAP and BiPAP devices.

“At a time when it was easy to stay home and be scared, all of our volunteers, including many students and faculty, were part of a team that required ingenuity.”

- Erik Brine

“The thing that makes Rhode Island amazing, is that you can get all the right people in the same room at the same time,” Rumsey said.

Brine, a battle tested colonel and U.S. Air Force reservist, executive director of the National Institute for Undersea Vehicular Technology (based at both URI and UConn) and former state emergency preparedness liaison, is one of those people.

“The Rhode Island ventilator project came together within a couple weeks,” Brine said. “We all thought the end of April would be the critical time when the state would need these machines.”

Brine stated that the project would not have succeeded without the support of Joe Schoenbeck of the Perduco Group, a subsidiary of LinQuest, who provided operations and logistics support; Air Force Col. Paul Murphy, military professor and senior service advisor at the Naval War College, who helped manage all of the volunteers; Dana Lesperance, director of Absolute Respiratory Care, who came to URI every day to make sure the team had the components it needed and to help us decide which machines were useful; Jim Owens, principal of Nautilus Defense, who built the ozone sanitation unit in a room at the Union; Chrys Shea, owner and founder of Shea Engineering Services,



A volunteer inspecting the donated CPAP and BiPAP devices.



From left: George Nickolopoulos, former assistant director, URI Business Engagement Center, Erik Brine, Air Force Colonel, and executive director, National Institute for Undersea Vehicular Technology, Pete Rumsey, director, Rhode Island Innovation Campuses for the Rhode Island Commerce Corp., Tao Wei, associate professor, electrical, computer and biomedical engineering, Alex Hornstein, director, VentilatorProject.org.

ULTIMATELY, HERE IS WHAT THE COLLABORATION AND ALL OF THE VOLUNTEERS ACCOMPLISHED:

- ▶ They developed in just a matter of days a just-in-time manufacturing operation at URI's Memorial Union to collect, sanitize, sterilize, re-program, test, refurbish and prepare the units for shipping.
- ▶ Collected 850, mostly used CPAP and BiPAP machines from generous Rhode Islanders and others around the country.
- ▶ Refurbished 650 machines, and placed them into inventory,
- ▶ Provided 50 machines to the Rhode Island Department of Health,
- ▶ Provided 42 machines to the Rhode Island National Guard, and
- ▶ Shipped 519 units, now in clinical service, to countries in need such as Nigeria, Indonesia, Peru, Nicaragua, Haiti, Bolivia, The Philippines, East Timor, The Bahamas, Iraq and Mexico.

“To pull a project like this together, with no budget and almost total reliance on volunteers, and have this kind of success is unheard of.”
- Erik Brine

who played a major role in process engineering for the project.

“At a time when it was easy to stay home and be scared, all of our volunteers, including many students and faculty, were part of a team that required ingenuity.” Brine said the University’s response was amazing. “When I asked for one thing, I got 10. And when we got hungry, the URI Ram’s Den was there with food and beverages. I can’t tell you what a morale booster that was.”

Making sure non-profit organizations, educational institutions, and industries mesh well on a single project can pose great difficulty. And, with academic and government units, procedures often take longer, according to Brine.

“To pull a project like this together, with no budget and almost total reliance on volunteers, and have this kind of success is unheard of,” Brine said. “To put these units on planes and get them out in under two months is just phenomenal. You can only do something like this at a place like URI.”



VOLUNTEERS FOR VENTILATOR PROJECT

URI's Memorial Union being prepared for the ventilator project.

Nick Akers, College of Engineering, Undergraduate Student
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 Meg Bradbury, College of Engineering, Undergraduate Student
 Sarah Brent, College of Arts and Sciences, Ph.D. Student
 Delaney Burke, College of Engineering, Undergraduate Student
 Noah Burke, College of Engineering, Undergraduate Student
 Lynne Butler, Graduate School of Oceanography, Marine Technician
 Jessica Carney, Graduate School of Oceanography, Graduate Student
 Geoff Carnignan, East Greenwich Family Dental, Dentist
 Marissa Ciano, College of Engineering, Undergraduate Student
 David Defastov, Graduate School of Oceanography, Graduate Student
 Nella Dougal, College of Engineering, Undergraduate Student
 Maksym Fatyga, Contract Engineer, Middletown
 Victoria Fuller, Graduate School of Oceanography, Graduate Research Assistant
 Christine Gardiner, Graduate School of Oceanography, Graduate Student
 Celia Gelfman, Graduate School of Oceanography, Marine Research Specialist
 Laura Glastra, Graduate School of Oceanography, Graduate Research Assistant
 Jared Hayes, College of Engineering, Undergraduate Student
 Justin, Hayes College of Engineering, Undergraduate Student
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 Aaron Hertzler, College of Engineering, Undergraduate Student
 Laura Holland, College of the Environment and Life Sciences, Ph.D. Student
 Kira Homola, College of Engineering, Undergraduate Student
 Julia Iacono, Division of Research and Economic Development, Staff
 Fatima Issa, College of Engineering, Former Student
 Ryan Ivone, College of Pharmacy, Ph.D. Student
 Noah Johnson, College of Engineering, Masters Student
 Cathy Johnson, National Park Service, Northeast Region Coastal Ecologist
 Tim Jonas, College of Engineering, Graduate Student
 Ben Jones, College of the Environment and Life Sciences, Undergraduate Student
 Alberto Juarez, Brown University, Undergraduate Student
 Roger Kelly, Graduate School of Oceanography, Marine Research Associate
 Jeff Kimmerlein, College of Engineering, Undergraduate Student
 Timo Kuester, College of Engineering, Ph.D. Student
 Stephen Licht, College of Engineering, Professor
 Ming Liu, College of Engineering, Graduate Student

Steven Lucier, College of Engineering, Undergraduate Student
 Basia Marcks, Graduate School of Oceanography, Graduate Research Assistant
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 Phoebe McCaffrey, College of Engineering, Undergraduate Student
 Melissa McCarthy, Director, Research External Relations
 Mary-Kate McGear, College of Engineering, Undergraduate Student
 Mary McKenzie, Graduate School of Oceanography, Marine Research Assistant
 Heather McNair, Graduate School of Oceanography, Post Doctoral Fellow
 Susanne Menden-Deuer, Graduate School of Oceanography, Professor
 Beth Mendenhall, College of the Environment and Life Sciences, Professor
 Amanda Missimer, College of the Environment and Life Sciences, Assistant Professor
 Alexandra Moen, College of the Environment and Life Sciences, Lecturer, Dive Instructor
 Veronique Oldham, Graduate School of Oceanography, Professor
 Jaimie Palter, Graduate School of Oceanography, Professor
 Jeremy Peacock, College of Engineering, Undergraduate Student
 Matthew Ramsey, College of the Environment and Life Sciences, Professor
 Laura Reed, Graduate School of Oceanography, Marine Research Specialist
 Rick Rhodes, NERA, Executive Director
 Sam Rosengarden, Graduate School of Oceanography, Graduate Student
 Cecilia Scheider, College of Engineering, Undergraduate Student
 Anna Schrecengost, College of Engineering, Graduate Research Assistant
 Lydia Sgouros, Case Western University, Undergraduate Student
 Russell Shomberg, College of Engineering, Graduate Research Assistant
 Carolyn Silva, College of Engineering, Undergraduate Student
 Isabella Silverman, Graduate School of Oceanography, Undergraduate Student
 Dennis Skidds, College of the Environment and Life Sciences, Biologist at National Park Service
 Jacob Snyder, College of Engineering, Undergraduate Student
 Molly Snyder, McGill University, Undergraduate Student
 Jack Spigel, College of Engineering, Undergraduate Student
 Raymond Tabares, College of Engineering, Undergraduate Student
 Eric Tattre, College of Engineering, Undergraduate Student
 Tricia Thibodeau, Graduate School of Oceanography, Post Doctoral Fellow
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 JP Walsh, Graduate School of Oceanography, Professor
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 Zhenyu Xu, College of Engineering, Ph.D. Student
 Zheyi Yao, College of Engineering, Ph.D. Student
 Yiwen Zhao, College of Pharmacy, Graduate Student
 Zhoufan, College of Pharmacy, Graduate Student



CRITICAL THINKING AND EXPERTISE TO SOLVE PROBLEMS:

HELPING COVID-19 PATIENTS BREATHE

written by **DAVE LAVALLEE**

Laura Glastra, doctoral student at URI's Graduate School of Oceanography, discovered that using ozone gas could safely and effectively sterilize the donated devices. Photo by Nora Lewis.

“I HAD HEARD THAT THE PLASTICS IN THE MACHINES WERE NOT REACTING WELL TO THE AUTOCLAVE’S HEAT AND PRESSURE.”

- Laura Glastra

CPAP and BiPAP sleep apnea machines were being donated and delivered to the University of Rhode Island (URI) Memorial Union by the hundreds this past April as part of a project to address the growing problem of ventilator shortages.

However, a critical problem arose early in the process. An autoclave, which uses pressurized steam or heat for sterilizing medical equipment, was melting the plastic components during the sterilization process.

That’s when volunteer Laura Glastra stepped in with her expertise in plastics. A Seattle native and doctoral student at URI’s Graduate School of Oceanography, Glastra joined the ventilator project because she wanted to contribute in a positive way in the midst of the global pandemic that was unfolding.

Glastra was well prepared to help, armed with an undergraduate physics thesis on microplastics and how they break down, and her research with URI Associate Professor of Oceanography Brice Loose analyzing microplastics found in ice core samples taken from the Arctic during the recent Northwest Passage project.

“I had heard that the plastics in the machines were not reacting well to the autoclave’s heat and pressure,” she said.

On close inspection, she found plastic identifying numbers on the machines. And even though manufacturers did not have information related to those numbers, she determined that the materials would be less likely to break apart if they switched from using high heat and water pressure to using ozone gas to sterilize the donated devices. Her insight and recommendation worked perfectly.

Meanwhile, Tao Wei, URI associate professor of computer, electrical and biomedical engineering, was across campus in the Fascitelli Center for Advanced Engineering, examining the CPAPs and BiPAPs.

“Basically, what I did was open up the machines, look inside and determine if some models could be converted to full ventilators,” Wei said. “The pumps, the hardware, the sensors that measure air flow and the controllers were identical to a real ventilator.

“About 60 percent of the machines could be converted. When they were packaged for shipping, we provided a link to our lab’s website so doctors and other health care workers could download

complete instructions for the devices.”

In the midst of final exams and grading, Professor Wei volunteered to oversee technical and quality control operations. Wei said the entire team looked at a variety of options because in the early stages no one knew how great the demand for ventilators would be.

“I am glad that I participated and had the chance to work with many, many excellent people from around the state,” Wei said.

He added that much of the credit for a job well done goes to the volunteers. “We had an interesting mix of URI undergraduate and graduate students, faculty, staff, international students, and professionals from around Rhode Island, many of whom worked more than 20 hours a week. It just shows how much we love our state and the University of Rhode Island.”

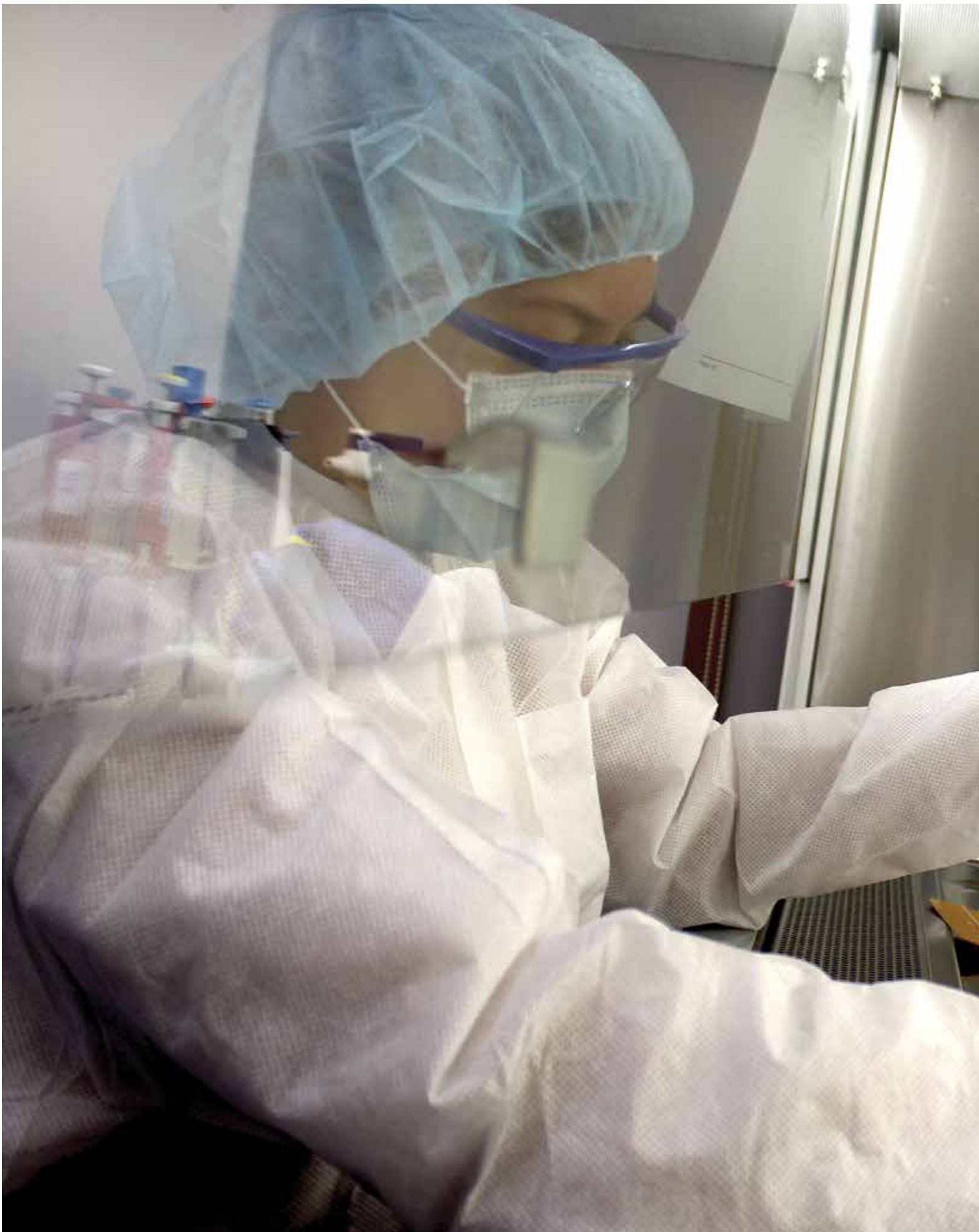
As just two examples of the dozens of undergraduate and graduate students who put their own needs aside to volunteer for this project, Jeffrey Kimmerlein of South Kingstown, RI and Aaron Hertzler of Lincoln, RI were in Germany in mid-March for what they hoped was the completion of their internships as part of the one-year- abroad portion of URI’s International Engineering Program. However, when COVID-19 cases spiked in Europe they were called home. They quarantined for two weeks, and then joined the project.

“I am extremely happy that I was able to be part of this project,” said Hertzler. “It was a great way to use my enjoyment of taking stuff apart and fixing things to be used for people in need. Just being able to serve in a time of crisis was a huge honor on its own.”

“Both of us are mechanical engineering students, so we were happy to test and repair the machines so that more could be used to help people,” said Kimmerlein.

URI Assistant Professor of Marine Affairs and Political Science Elizabeth Mendenhall helped with several aspects of the process, including cleaning the machines.

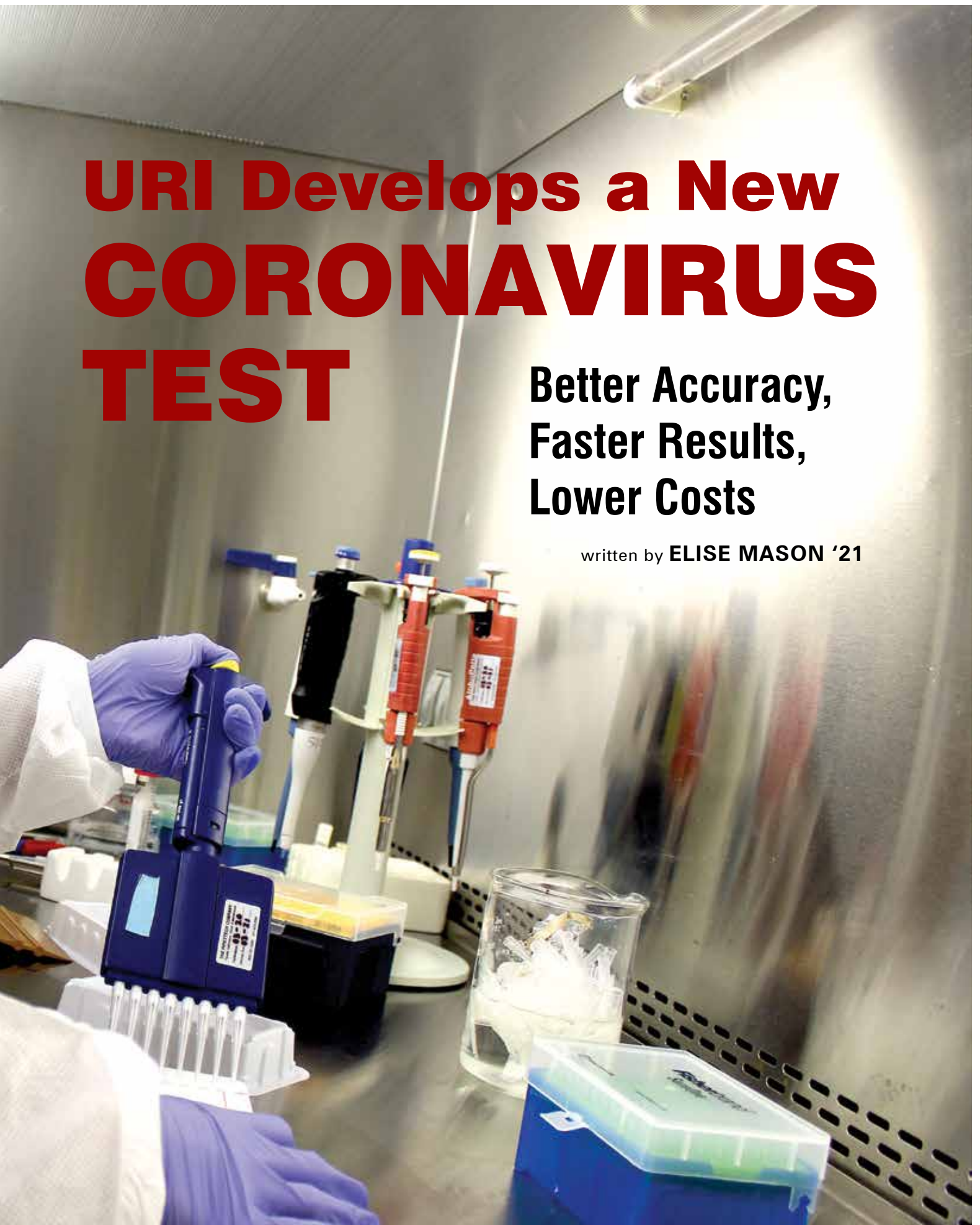
“Because I am detail oriented and not of high risk, I volunteered to clean the machines,” said Mendenhall. “I am really impressed with students and faculty who took time out of their schedules at the end of the semester to do this.”



URI Develops a New CORONAVIRUS TEST

**Better Accuracy,
Faster Results,
Lower Costs**

written by **ELISE MASON '21**





University of Rhode Island (URI) Professor of Biomedical and Pharmaceutical Sciences Angela Slitt and her team have developed a new COVID-19 test that addresses and overcomes the accuracy challenges. The URI coronavirus test can be conducted simply and easily, and process the samples quicker and at lower cost than the current tests being used.

“With minimal scientific equipment, we can increase our capacity in the United States and in developing countries and put tools in people hands that they can use,” Slitt said.

Additionally, based on experiments Slitt completed, she believes the team’s method has the potential to match and improve upon the PCR technique’s sensitivity. Her test has the potential to be able to correctly identify a positive result where the alternative test produces a false negative. The team has validated the assay in collaboration with the Rhode Island Department of Health by using standard reference materials and specimens from the health department. The team also includes a world-renowned company from Waltham Massachusetts, Thermo Fisher Scientific. The company’s role is to validate the team’s test and to provide the supply chain for distribution. With financial support from the URI President’s Office, Professor Slitt, the College of Pharmacy, and the URI Research Foundation have worked together to launch a special laboratory that will provide thousands of test results per day. This service lab will be rapidly staffed with the expertise and technology to provide reliable, valid test results, and URI Research Foundation is exploring the possibility of applying for Emergency Use Authorization through the FDA.

By now, most people have either seen or received the invasive COVID-19 test with the gigantic swab inserted into the nasal cavity. That long, thin swab collects a sample of the potentially infected cells in the area of the body where the virus has an ideal environment to invade and replicate. The sample is then transported to a lab for analysis.

The two types of COVID-19 tests approved by the FDA thus far both utilize a technique called polymerase chain reaction (PCR) to detect the virus. The PCR-based tests have been touted because of their sensitivity. However, this mechanism still leaves room for improvement. In fact, this method is susceptible to false negative results if the specimen sample is damaged before it has a chance to be amplified by the PCR test.



Professor Angela Slitt
Biomedical and Pharmaceutical Sciences



URI researcher working on coronavirus testing developments.

More sensitive tests are able to detect even the smallest traces of viral material, which is critical.

When the pandemic hit the U.S., Slitt and her team began working on a method to bolster the national coronavirus response by tweaking the mechanisms already being employed by Slitt's research in the Sources, Transport, Exposure, and Effects of PFASs (STEEP) lab at URI, funded by the National Institutes of Health Superfund Research program. Since her PFAS test ultimately is used to look at changes in genetic material, Slitt reasoned that this research could be adapted to identify coronavirus in human cells.

Slitt credits one of her former Ph.D. students, Ogochukwu Amaeze, a Fulbright scholar from Nigeria, with the initial inspiration to think about harnessing the lab's technology to detect the COVID-19 virus. It was through mentoring Amaeze that Slitt realized the stark difference in scientific equipment and capacity between the United States and Nigeria. As the pandemic continued to grow and high-end equipment became sought after commodities, she thought about simpler and cheaper solutions for Sars-CoV-2 testing. She reflected on the bond between her teammates, and the hard-work, long-hours and late nights together – during the early weeks of the pandemic – to meet this huge need for the community.

"We've experienced high and lows, and really the lesson learned is that a good team perseveres," said Slitt, adding that such tenacity is foundational to the achievements made by the research team thus far.

The implications for a novel COVID-19 testing technique are far-reaching for the global pandemic.

"It would be advantageous for other parts of the



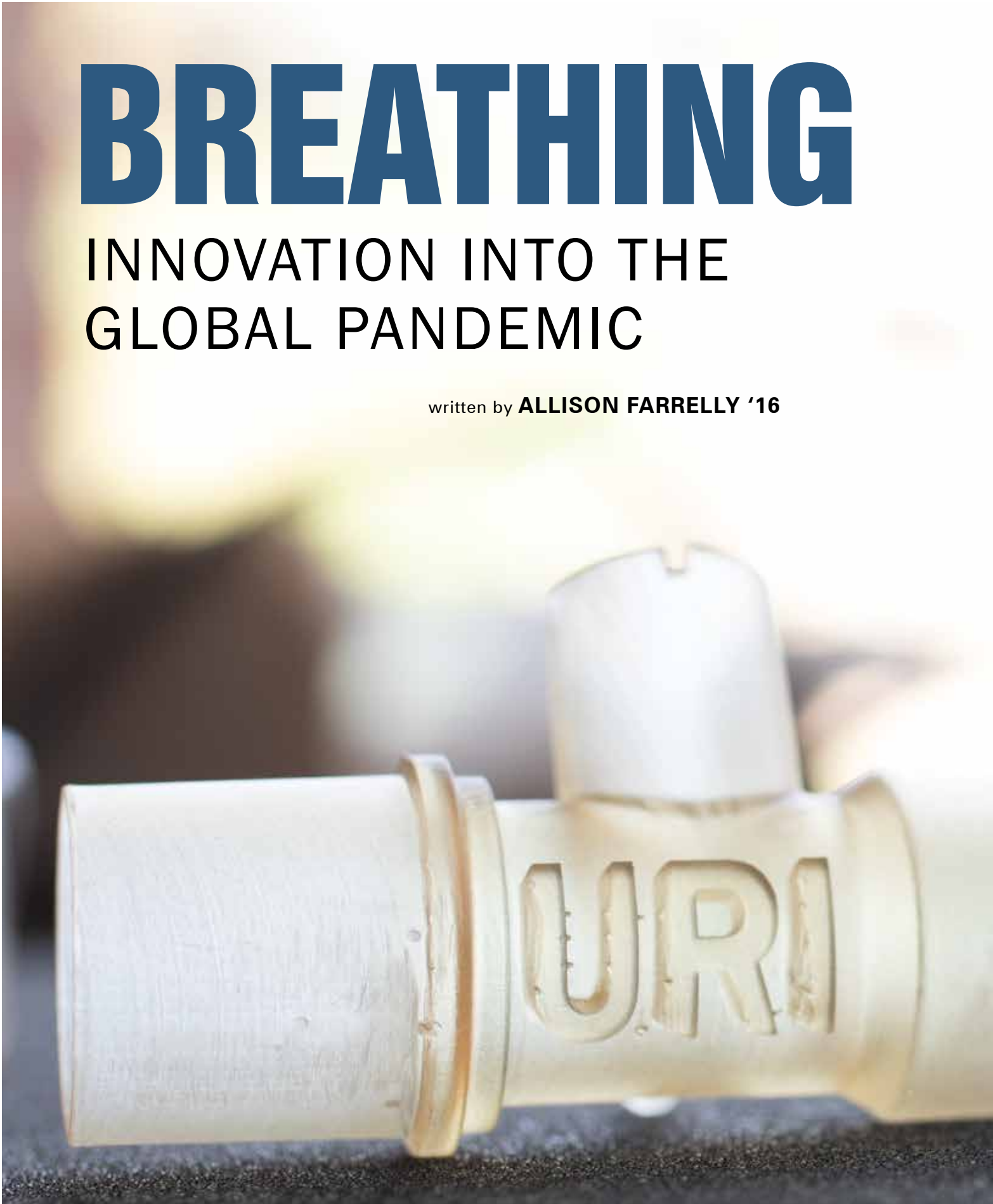
world, where PCR machines aren't so common and micropipetters are hard to come by," she said.

Increasing access to coronavirus testing for underserved countries sits high on Slitt's priority list. While the method has not yet been approved by the FDA, she remains hopeful that this will happen soon. Importantly, the University will be able – very soon – to use this test for effective risk surveillance purposes for its own students, faculty and staff. URI sees this homegrown test as a key part of its strategy to safely meet its core teaching and research missions in semesters to come.

BREATHING

INNOVATION INTO THE GLOBAL PANDEMIC

written by **ALLISON FARRELLY '16**



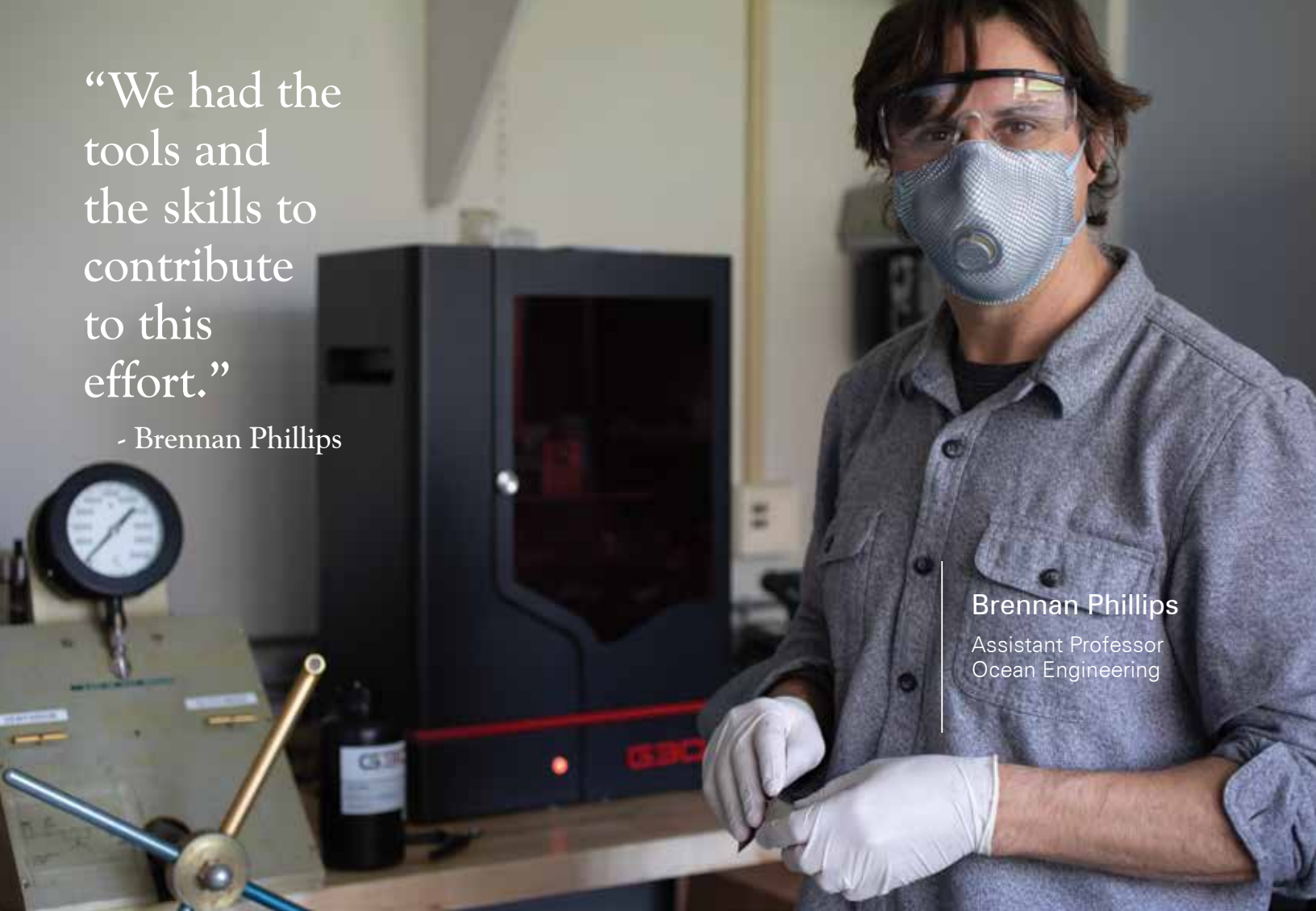
In early March, hospitals across the United States began to prepare for what was projected to become a staggering rise of COVID-19 patients. With models forecasting Rhode Island could need around 2,000 ventilators as the virus spread — a stark contrast to the 200 on hand, the state turned to researchers at the University of Rhode Island (URI) for help.



“Y-splitters” designed by Professor Phillips and his team are used when treating more than one patient on a single ventilator.

“We had the tools and the skills to contribute to this effort.”

- Brennan Phillips



Brennan Phillips
Assistant Professor
Ocean Engineering

With in-person classes turned remote and students sent home, URI Assistant Professor of Ocean Engineering Brennan Phillips began to explore how his underwater robotics labs could use the 3D printing techniques to engineer solutions to the anticipated ventilator shortage.

“We hack stuff,” the two-time URI alum said. “We’ll get something like a camera, rip it apart, and figure out how to make it work underwater. We had the tools and the skills to contribute to this effort.”

Phillips’ lab specializes in using 3D printing to create equipment alternatives that enable “deep sea work without all the overhead.” While a traditional deep-sea research mission requires shipping containers full of tens of thousands of dollars of equipment, like high-definition cameras, ROVs, and submarines, his lab seeks to figure out low-cost alternatives to exploring the ocean. For example, Phillips’ team prints a custom waterproof case for a tiny camera that can be thrown off the edge of a boat and pulled back with a fishing reel.



3D-printed ‘exhalation ports’ used in the patient circuit of a ventilator system.



A prototype face mask mold, designed by collaborators at Brown University, is shown inside one of Phillips' 3D printers. The solid material of the part is cured by layers of ultraviolet light projected inside a bath of photopolymer resin.

While Rhode Island Commerce's "Plan A" for COVID-19 response was to purchase more ventilators, Phillips was part of an interstate team of researchers working to figure out what he calls plans B, C, D, and E, to hack a solution for the ventilator shortage.

"The sense of urgency we got from the state was very high," Phillips said.

With the help of URI doctoral candidate Russ Shomberg, and incoming master's student Nick Chaloux, a fraction of the students who normally staff his lab, Phillips began collaborating with Rhode Island hospitals to design, print, and test parts that were in short supply, and even a part that didn't previously exist — the Y Splitter. This part they designed is a small part that can be 3D printed from a biocompatible material and can safely split a single ventilator to service two or even four patients.

Since March, Phillips and his team have created a menu of six total designs for parts that can be printed on any 3D printer. In addition to the Y splitter, their menu of parts includes two different types of filter housings that mitigate the release of the virus when a patient exhales after breathing from a ventilator, an oxygen enrichment port, an exhalation port, and a one-way valve.

"I was told repeatedly that Rhode Island Commerce and the doctors felt more comfortable knowing there was this plan behind them," he said.

Though the state ultimately did not need to go into production on any of the parts, Phillips hopes to open source at least the design for the Y splitter. His lab currently is waiting on approval from the U.S.

Food and Drug Administration before the University shares the files so hospitals globally can begin printing parts. "This is where Rhode Island really shines, I think," Phillips said. "Rhode Island is small, and always punches heavier than its weight."

Phillips is looking forward to shifting his focus back to undersea research and welcoming students back to the lab, but said he's beyond grateful for the opportunity to allocate his resources to help the state's battle with COVID-19. This temporary shift in focus may even have a positive effect on his lab's ability to create underwater research tools, he said.

"We got a lot better at running our printers, I'll tell you that," he explained. "It became very serious very quickly to get things exactly right. Because the quality expected of medical grade equipment is so high, and we had to adhere to those standards, we really upped our game in terms of the quality of the parts we're able to produce, whether its medical or deep-sea work."



A batch of completed "Y-splitters" used when treating more than one patient on a single ventilator, sit packaged and ready to send to RI hospitals on request.

WHEN LEARNING GOES



written by **ARIA MIA LOBERTI '20**

How the transition from in-person to virtual classrooms during COVID-19 brought challenges, lessons, and plans for designing the future of education.

Long before COVID-19, Renee Hobbs and Julie Coiro already were helping educators adapt their instructional practices to address the changing nature of digital texts, tools, and technologies. Hobbs, a professor of communication studies and director of the Media Education Lab, and Coiro, a professor of education and co-director of the Ph.D. program in education, also serve as co-directors of the University of Rhode Island (URI) Graduate Certificate in Digital Literacy.

When they created their signature program in 2013, the URI Summer Institute in Digital Literacy they aimed to advance the knowledge and skills of an interdisciplinary group of K-12 teachers, higher education faculty, librarians, and community leaders through a week-long face-to-face professional development program. Driven by the tenet that everyone is a lifelong learner, Hobbs and Coiro helped bring digital and media literacy competencies to learners of all ages. Nearly 1,000 educators from 30 states and 15 countries have participated in the intensive week-long program since its inception.

Long before COVID-19, Renee Hobbs and Julie Coiro were already helping educators adapt their instructional practices to address the changing nature of digital texts, tools, and technologies.

When the COVID-19 pandemic hit, the URI professors knew that they could adapt their professional development program to be a fully-online learning experience — and to offer it at half the cost. After teaching online courses for undergraduate and graduate students for more than five years, Hobbs had confidence in adapting the program to be delivered fully online.

“Because our faculty team had confidence in using digital media technologies, we were able to pivot quickly to online learning, be responsive to the needs of the participants, and to demonstrate best practices designed to inspire educators,” Hobbs said.

The 2020 Summer Institute in Digital Literacy reproduced the key features of the traditional face-to-face program in an online context. Through a combination of Zoom meetings, small-group breakout sessions, time for independent “anytime” learning, and intense creative collaboration with a learning partner, educators experienced the opportunities and challenges of online instruction as learners themselves. They acquired skills that they could immediately apply in the classroom. This helped them to be more empathic and sensitive of the unique features of online education that happens in real time (synchronously via video chat) and anytime (asynchronous learning activities that include both independent and social learning experiences).

Participants described the 2020 Summer Institute in Digital Literacy as a transformative learning experience unlike any they had ever experienced.

“We were all surprised that they liked the online program even better than the face-to-face experience,” said Hobbs.

Participants designed online learning experiences that engaged learners in the genuine process of inquiry as they gained confidence in using a wide range of digital tools.

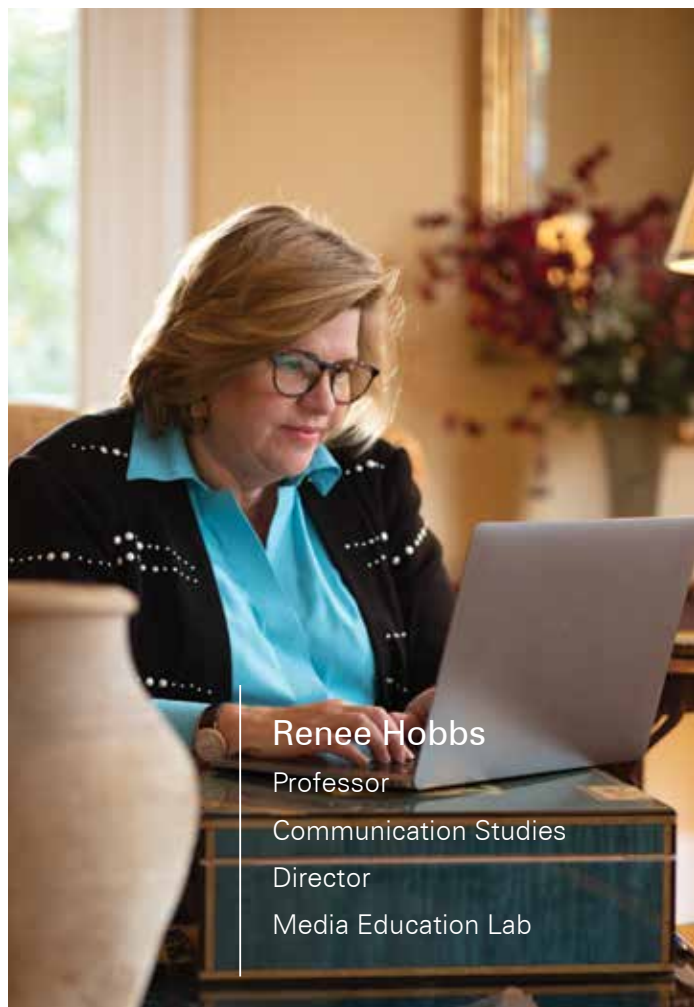
“We created an atmosphere of trust and respect,” Hobbs explained. “We offered a good mix of challenge and support that was truly energizing for all of us.”

But with many classrooms remaining remote until the virus is quelled, Coiro worked with her doctoral students to mentor the transition needed for them as well. Some had planned research projects that depended on being in a classroom.

“Teachers are not just educators, they are designers of spaces — whether in-person or online,” Coiro explained. “One of my goals is to help doctoral students appreciate that they will be one of the first groups of Ph.D. candidates to have their finger on the pulse of these changes.”

Coiro said that the transition to online learning has been difficult for many teachers and students, but she tries to embody the ways in which inquiry, relationships, and collaboration can thrive in a digital world.

“I was open and honest with my undergraduate students when we transitioned to virtual learning in the spring,” she said. “I let go of some planned content to allow students to connect together more personally in small groups. With these opportunities, students shared their realizations about how much



more they had learned about each other, about teaching, and about building relationships in just two or three virtual sessions — compared to the first three weeks of class focused primarily on content in our face-to-face classes.”

As advocates for expanding the concept of literacy to include digital and multimedia forms of expression and communication, Hobbs and Coiro exemplify an important lesson for educators in the midst of COVID-19.

“Literacy is a robust set of social practices that enable people to share, create, and to understand all kinds of symbols — from poetry to policy reports to memes,” said Hobbs. “To meet the demands of our changing world, literacy must include both digital texts and virtual spaces, as well as reading, writing, speaking and listening.”

Hobbs’ and Coiro’s work allow for a firsthand glimpse at the innovative ideas that arose amidst the COVID-19 pandemic. The rise of technology in the classroom and an increased presence of online or hybrid-based classes will likely characterize post-coronavirus education. Krishna Venkatasubramanian, URI assistant professor of



Hobbs and Coiro, co-directors of URI’s Graduate Certificate in Digital Literacy.



**Krishna
Venkatasubramanian**
Assistant Professor
Computer Science and Statistics

computer science and statistics, focuses much of his work on human computer interaction.

“Technology is built with specific assumptions about its users,” Venkatasubramanian said.

Many of the technological tools used to transition to online learning, such as video conferencing software, were redesigned as it rapidly became evident that they were not specifically designed for educators or students.

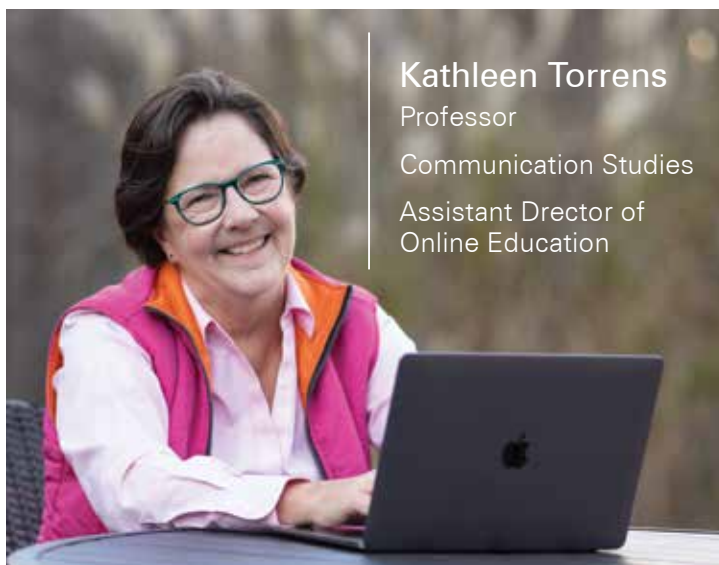
“For many people, especially those who are already marginalized in our society — those who speak English as a second language, are chronically ill, have disabilities, or are of a lower income bracket — conveying content with typical videoconferencing

platforms might not be possible or accessible,” Venkatasubramanian said.

As new technologies arise to cater to educators and students, designed for user-friendliness and accessibility takes on much greater significance. Furthermore, some individuals’ circumstances may limit access to virtual classroom spaces or online resources. For example, a student may have no internet, lack access to a certain device, or must share space or technology with family members. This demands new infrastructure to accommodate people, which takes time.

“We must use technology wisely and understand its limitations,” Venkatasubramanian said. “While technology can help us, it is not a panacea. We have to create technology that works with all people.”

Kathleen Torrens, professor of communication studies and assistant director of online education, worked to effectively transition URI to remote learning during the spring 2020 semester and prepared URI for the 2020-2021 academic year. Torrens also directs URI’s online pedagogy program, a course that teaches faculty how to effectively teach online. She has contributed to online teaching and learning at URI since 2003. During the transition to remote learning, the Office for the Advancement of Teaching and Learning provided as many resources as it could to faculty members, including training in URI’s new learning management system Brightspace. In addition to offering one-on-one support for faculty moving their courses online for



Kathleen Torrens
Professor
Communication Studies
Assistant Director of
Online Education



Julie Coiro

Professor

Education

Co-director

Ph.D. Program in Education

the first time, Torrens expanded her online pedagogy training to all who might require it.

In preparation for whatever might come next, Torrens will work with her team to develop self-paced online trainings for faculty. URI's sudden shift to online learning exposed faculty, some who might otherwise have never designed an online course, to the benefits of the medium.

"Online learning offers a whole new set of opportunities for learning and teaching," Torrens said. "It makes learning more available and accessible to different types of learners. It is an opportunity for us to think through what it means to teach for everyone — universal design for learning."

She encourages faculty to consider online teaching as a unique format, distinct from face-to-face courses, rather than as a replacement for the in-person classroom; different teaching tools, assignments, and forms of engagement can flourish in an online or hybrid space.

"If we plan strategically and intelligently, our students will graduate with the ability to communicate effectively in an online space, conduct virtual interviews or labs online, and to be more nimble when moving from the known to the unknown," Torrens said.

LESSONS LEARNED

- 1.** Use a 5-minute emotional check-in protocol to acknowledge the feelings and emotions of learners when using video chat dialogue (in Zoom or Google Meet).
- 2.** Small group breakouts (in Zoom) provide a powerful social learning experience that strengthen social bonds and increase respect for diversity.
- 3.** All learning is social learning. Collaboration can be enhanced when students get opportunities to work together to create and share media (using Google Slides or Adobe Spark Video) to demonstrate what they are learning, posting their work to a public audience.
- 4.** Online scheduling tools (like Calendly) make it easy for faculty to offer individualized coaching and support for learners who need it.
- 5.** It's okay to not do everything 100 percent perfectly. Sometimes "up and running" is enough.

RHODE ISLAND RAPID SOLVERS

A team of 75 collaborators working together to provide face shields for health care workers.

written by **CHRISTOPHER BARRETT '08**



As the coronavirus powered through Rhode Island in early 2020, URI Engineering Associate Professor Kunal Mankodiya saw an opportunity for 3D printers to produce the components needed for face shields. Through a quickly formed initiative called Rhode Island Rapid Solvers, Mankodiya and a mix of 75 URI researchers, students, and community partners assembled approximately 8,000 face shields for first responders and health care facilities.

Officials praised the initiative for filling a critical void in the supply chain. Mankodiya and his team said they are just getting started.

“This network we have created has tremendous value,” Mankodiya said. “The team learned how to communicate a technical problem with everybody in their own language so they can understand it clearly and then we can develop a plan to solve it.”

The group includes not only academic researchers but also staff, students, medical experts, fundraisers, and community partners such as FabNewport, a Newport, RI-based nonprofit that encourages the use of 3D printers for creative problem solving. At

the height of the pandemic the array of expertise meant the group was collaborating to bring a concept from drawing board to 3D printer in just two weeks.

University researchers studied obscure scientific papers on materials employed in face shield production and asked anyone they could find about the material’s properties. They heard from doctors



Valerie Maier-Sperdelozzi
Associate Professor
Industrial and Systems Engineering

75 URI RESEARCHERS, STUDENTS, AND COMMUNITY PARTNERS ASSEMBLED APPROXIMATELY 8,000 FACE SHIELDS FOR FIRST RESPONDERS AND HEALTH CARE FACILITIES.

how the virus travels in the air and from engineers and chemists what materials could filter it. Nurses offered feedback on the comfort of masks and face shields. The team phoned nursing home administrators to understand the demand. Calls went out to web experts to build a technical platform to connect supply to demand and fundraisers stepped in to assist.

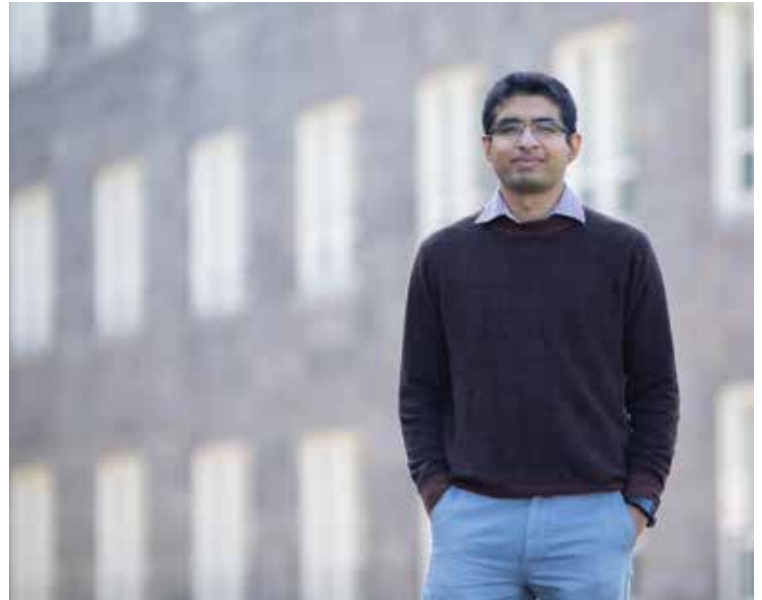
And, the team went digging in closets — lots of them. URI industrial and systems engineering Associate Professor Valerie Maier-Speredelozzi needed plastic for the shield of the mask. Since ordering large sheets of plastic and lasers required to cut them was too expensive, Speredelozzi called fiscal clerks around campus and asked for their overhead transparency plastics sheets. URI police volunteered to pick up thousands of transparency sheets and bring them to 3D printing labs in the Robert L. Carothers Library and in the Fascitelli Center for Advanced Engineering.

Maier-Speredelozzi said she hopes that need never again arises but believes the creative solution and partnerships that have been created will be everlasting.

“URI definitely has all the expertise that is needed for these challenges,” she said. “It is just a matter of bringing the right people in.”

Often those people include students. Mankodiya said the response from students stood out. They worked from home on designs and researched best practices. Some came into the 3D printing labs — in small, socially distant groups — to print the headbands to hold the face shields.

Dominik Brysch, a graduate student in industrial and systems engineering at the time, supervised the small team of students working seven days a week



Kunal Mankodiya
Associate Professor
Electrical, Computer and Biomedical Engineering

to produce the 3D-printed headbands. The experience bestowed a crash course on leadership and shaped his philosophy.

“My engineering focus is in one specialty,” Brysch said. “But in order to make something really meaningful and powerful you have to combine knowledge and a network of people.”

The work of Brysch and other students left Mankodiya impressed and hopeful that the coming generation can respond to whatever the future holds.

“My expectation is these young minds, they have an initiative and motivation, they could take this initiative to the next level and refine it and restructure it in a way to be helpful to the community whether it is local, national or global,” Mankodiya said.

“My engineering focus is in one specialty. But in order to make something really meaningful and powerful you have to combine knowledge and a network of people.”

- Dominik Brysch

FEEDING



Rhode Island's Senior Citizens

written by **CHRISTINA DICENZO**

The spring 2020 outbreak of COVID-19 forced thousands of University of Rhode Island (URI) students to pack up their clothes, take down their dorm decorations, and return home as faculty quickly shifted gears to deliver online learning.

URI Dining Services, however, faced a completely different, yet equally challenging task — what to do with all of the pre-ordered food for the remaining semester.

Before each semester, URI Dining Services preemptively places bulk orders for nonperishable and frozen foods. This is no small task as the University expects to serve students up to 12,000 meals per day, according to URI Director of Dining and Retail Food Services, Pierre St-Germain. URI must purchase enough food to supply its two dining halls, seven retail food facilities, and newly introduced mobile food truck.

The University had just received, by St-Germain's estimate, close to \$1 million in food supplies for the 2020 spring semester before COVID-19 forced campus operations to shut down. This left almost an entire semester's worth of food destined for donation or the compost bin.

Then, the Rhode Island Office of Healthy Aging (RIOHA) reached out to URI Vice President for Student Affairs Kathy Collins with a proposition: Could the RIOHA and the University pool their resources to help feed Rhode Island senior citizens? Absolutely!

COVID-19 safety measures restricted many senior centers from offering in-person community meals to residents, which meant that this at-risk population across the state no longer had access to daily meals. Vice President Collins directed the RIOHA to URI Dining, and St-Germain jumped at the chance to take on a new project and put the spring semester food to use.

St-Germain and the dining team refocused on adapting the University's food services program for the pandemic. The team created take-away boxed meals in an effort to limit the potential for COVID-19 transmission.

St-Germain described the URI Dining Services staff members as a team of doers. They were eager to channel their energy into a new project. In conjunction with the RIOHA, St-Germain's team identified five communities — Cumberland, Providence, East Providence, Westerly, and South Kingstown/Narragansett — most in need of weekly food donations.

Once active, the URI delivery team visited one to two of those communities each weekday. In the



The University had just received close to \$1 million in food supplies for the 2020 spring semester before COVID-19 forced campus operations to shut down.

Could the Rhode Island Office of Healthy Aging and the University pool their resources to help feed Rhode Island senior citizens?
Absolutely!



The meals were packaged, labelled, and ready to be handed out by senior center staff and volunteers. URI also provided meals and assistance to low-income and disabled families and individuals.

URI Dining Services staff John Fuscaldo.

morning, as many as 20 food services staff members loaded up refrigerated trucks with prepared meals. The meals were packaged, labelled, and ready to be handed out by senior center staff and volunteers. URI also provided meals and assistance to low-income and disabled families and individuals.

In addition to assisting Rhode Island senior citizens, the project also provided employment until the end of the academic year for food services staff. Transitioning from a typical spring work schedule into prepping food for remote delivery posed no problem for URI's dining staff. St-Germain



URI Dining Services staff Rob Esquilin (L) and Billy Lynch (R) safely prepare meals for Rhode Island senior citizens.



noted that providing meals to in-need Rhode Islanders “helped the food services staff feel that they are able to, in some way, give back.”

St-Germain is quick to point out that his desire to bring this project to fruition was made possible by the dedication, enthusiasm, and ingenuity of the entire URI Dining Services staff.

He said, “Helping fellow Rhode Islanders is simply a matter of who we are as a school, and who we are as a department.”



URI Dining Services staff John Fuscaldo (L) and Director, Pierre St-Germain (R).



Bryan Blissmer

Professor
Kinesiology

Director, URI Institute for Integrated Health and Innovation

A one-of-a-kind initiative from URI and Rhode Island state government directed assistance to those at the highest risk for COVID-19.



RHODE TO HEALTH

written by **ARIA MIA LOBERTI '20**

Multiple soundproof examination rooms, patient intake and screening areas, a restroom, a medical refrigerator, a space to perform blood work — these features seem typical of a state-of-the-art physician's practice, clinic, or hospital wing.

However, these attributes also characterize the University of Rhode Island's (URI) Mobile Health Unit (MHU). The 37-foot long, \$400,000 vehicle, funded by the state through the Ryan White Foundation, originally hit the road in 2018 as a means to screen at-risk Rhode Islanders for HIV and to provide services for individuals affected by the opioid epidemic. Fueled by partnerships between the University and state partners to service the community, this clinic-on-wheels is an example of a successful, technologically advanced mobile health care unit in the country.

Kinesiology Professor Bryan Blissmer, worked with Rhode Island's Executive Office of Health and Human Service's HIV Provision of Care and Special Populations Director Paul Loberti, and a team of health care experts to develop and design the MHU.

"It began as a Ryan White grant to help vulnerable populations and morphed into so much more," said Loberti, a behavioral scientist and principal investigator of the Rhode Island Ryan White Program.

At the onset of the COVID-19 pandemic, Loberti, Blissmer, and their team worked together to equip the mobile health unit to respond to the crisis.

"In our discussions with state officials, we focused on how to staff the unit safely to respond to high-risk populations," said Blissmer, who also is the director of the URI Institute for





Integrated Health and Innovation. “Our goal was to safely administer services and COVID testing.”

With Loberti serving as a coordinator, Blissmer directed the collaboration among the University’s faculty researchers, frontline health care workers, state public health officials, government leaders, and corporate partners like CVS Health and CODAC, a Rhode Island-based behavioral health agency.

The unit currently serves as a testing and resource site in two Rhode Island cities hit hardest by the pandemic, Pawtucket and Central Falls. At times, Central Falls possessed the highest COVID-19 rate in Rhode Island and is the state’s most densely populated area, with many residents living in crowded apartments and/or lacking access to health care.

“I believe the MHU fills a gap that can assist vulnerable people who probably would not seek care in traditional brick-and-mortar places,” said Loberti.

The mobile health unit represents a rarely taken but intrinsically necessary step in the future of health care.

“The MHU literally gives us a vehicle for bringing health care to people who need it, when they need it, where they need it,” Blissmer said. “We can reach

THERE ARE ALSO PLANS TO REACH OUT TO NURSING HOMES AND TO HOMELESS SHELTERS, TO PROVIDE COVID-19 RESOURCES AND TESTING.

people that might not feel that they have access to health care. While we do not want this to be the only point of care for these people, we can start connecting people to the broader health care system.”

There are also plans to reach out to nursing homes and to homeless shelters, to provide COVID-19 resources and testing. Of course, as the pandemic eases, the unit will also continue on its original mission to provide treatment and services to those affected by HIV and by the opioid epidemic.

Blissmer expects that the next stage will involve working with CODAC and other behavioral health partners to provide services outside of the general lab operations to individuals in need.



75 YEARS of NURSING

Barbara Wolfe

Dean

College of Nursing

From the Founding of Our Nursing School to **Service During a Global Pandemic**

written by **CHRISTOPHER BARRETT '08**

When Paula Viau-Hann ('69) attended the University of Rhode Island as a nursing student in the 1960s, an orange stood in for an arm for practice injections. Students in blue pinned striped dress uniforms, white shoes, and caps squeezed into a cramped lab.

Each day an unlucky student was “volunteered” to lug a weighty pharmacy reference book to hospitals. Clinical research was reserved for medical schools. The 30 or so graduates a year expected to be employed in hospitals or visiting nursing associations.

Today, URI nursing education looks vastly different.

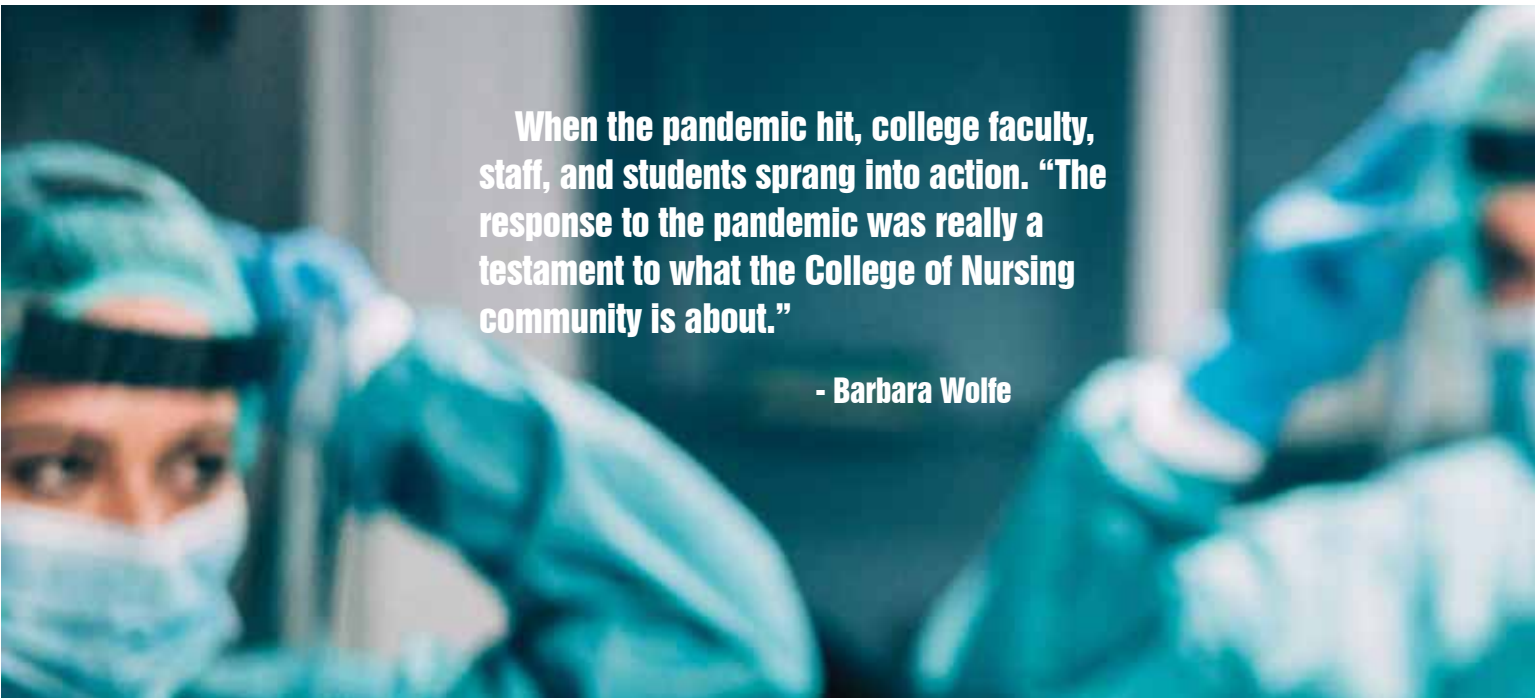
Seventy-five years after the founding of the College of Nursing, about 850 undergraduate students and 150 graduate students access a dedicated Nursing Education Center with labs stocked with interactive patient simulated manikins, sophisticated technology, and faculty steeped in leading research about patient care, nursing practice and policy. The college’s partnerships extend beyond nearby hospitals to encompass research projects around the world.

“The college and faculty always embraced being responsive to the changes in the health delivery system, to student clinical experiences and to what was happening on the national level,” said Viau-Hann, who went on to serve on the URI nursing faculty and retired in 2008 as associate dean of nursing emeritus.

The college started the first nursing baccalaureate program in the state and conferred its first degree in 1947 during an era when hospitals hosted most nursing programs. Today, the nationally accredited URI program stands apart from hospitals — figuratively and literally.

While maintaining a presence on the Kingston campus, the college in 2017 opened the Rhode Island Nursing Education Center in Providence, RI, in partnership with Rhode Island College and Brown University. The center puts students just minutes from some of the leading hospitals in the state and provides tens of thousands of square feet of lab and teaching space.

“The center elevated the role of nursing and URI and provides a significant advantage for the students



When the pandemic hit, college faculty, staff, and students sprang into action. “The response to the pandemic was really a testament to what the College of Nursing community is about.”

- Barbara Wolfe

because you’ve got five hospitals nearby,” said Edward Quinlan (’76), the former president and CEO of the Hospital Association of Rhode Island.

While the nursing center makes a prominent splash, the college has, at one point or another, worked with every hospital in the state. Hospitals scramble to recruit graduates, resulting in many leadership positions dominated by URI alumni.

“They’ve made a significant difference in the quality of care that is delivered in Rhode Island,” Quinlan said. He notes that Miriam Hospital Chief Nursing Officer and URI alumni Maria Ducharme ’96 and Rebecca Burke ’76 guided the institution to obtain the prestigious Magnet Hospital nursing designation six times, an honor achieved only by a handful of hospitals in the nation.

In 2020, the novel coronavirus pandemic put Miriam and other Rhode Island hospitals to the test. The state generally received high marks for its response in no short thanks to the hard work of nurses, including those URI alumni.

And when the pandemic hit, college faculty, staff, and students sprang into action. Students collected thousands of N-95 masks for health care workers. Nursing Clinical Assistant Professor Wylie Dassie deployed with his Army Reserve unit to New York City to care for patients. Clinical Assistant Professor Mary Cloud took to the phones to inform patients testing positive for COVID-19 of their results and next steps while other faculty staffed the phones at the RI Department of Health taking questions from worried Rhode Islanders. College staff gathered up patient beds

to send to field hospitals.

The academic leadership stepped into overdrive, revising the curriculum for a health care system forced into virtual visits. In spring 2020 the college strategically hired Research Professor Kimberly Arcoleo who has a background in telehealth. She and nursing Dean Barbara Wolfe now find themselves working to bolster the curriculum around virtual health care delivery. Wolfe also submitted a successful federal supplemental grant to fund the initiative. Meanwhile, every faculty member moved to swiftly transform in-person instruction to virtual or socially distanced learning.

“The response to the pandemic was really a testament to what the College of Nursing community is about,” Wolfe said.

The pandemic response served as just the latest impact of the college on health care. Viau-Hann points out the research of Professor Judith Mercer and Associate Professor Debra Erickson-Owens changed the view on when to clamp umbilical cords following delivery of preterm babies. Rather than clamping as quickly as possible, the two urged a delay to provide more blood from the mother to the baby during the first moments of life. The concept is now considered best practice and endorsed by the American Academy of Pediatrics and the American College of Nurse–Midwives.

Professor Mary Sullivan operates one of the longest-running research studies of babies born prematurely spanning some 30 years. Associate Dean Katherine Hutchinson is rolling out a nationwide program for college health service departments to reduce risky



behavior of college students. This year, Professor Betty Rambur was appointed a commissioner on the Medicare Payment Advisory Commission that advises the U.S. Congress on Medicare policy.

“We now have an impact that is national and international,” Wolfe said.

Wolfe and others credit the college’s success to a long history of strong leadership and investment in the college by the University and the state. They say the influence of the college’s first director Louisa White carries to this day.

As a member of the State Committee on Nursing Education in 1943 White advocated for a nursing program teaching more than direct patient care. In a move almost unheard of at the time, she outlined a curriculum with a liberal arts component leading to a bachelor of science degree. By 1946, White found herself as director of the program housed within the School of Home Economics. A three-part curriculum consisted of academic study, pre-clinical experience at a hospital and clinical study.

“She had the vision, the wisdom, the courage and the tenacity to move this agenda forward and establish a nursing program in a university environment,” Wolfe said of White.

The program rapidly took steps to establish itself and, by 1957, new director Martha Sayles set in motion college accreditation. The next year, two men joined the class ranks. On July 1, 1961 the School of Nursing became the College of Nursing as part of the now named University of Rhode Island.

In 1977, the program moved from cramped quarters in Fogarty Hall to a new 29,186-square-foot facility named White Hall after its inaugural director. In 1985, a doctoral program was launched vaulting the college firmly into the research and policy sphere. Over the ensuing decades the number of college faculty expanded to 35 and with them research grants totaling \$30 million during the last four decades.

In the last few years alone, besides opening the Nursing Education Center, the college launched an online program for registered nurses to obtain a bachelor’s degree and in 2016 joined the University’s Academic Health Collaborative to forge collaboration among the colleges of Nursing, Pharmacy, and Health Sciences. Since then the college’s national rankings have climbed steadily.

“I just can’t imagine the University and college ever being stagnant and not responding to what’s happening nationally and locally in the health care delivery system,” Viau-Hann said.

Naturally, students keep flocking to the college due to its national recognition, and undergraduate applications have soared in recent years. And through the Pathways program the college works to bolster the number of students from diverse backgrounds and about 13 percent of its undergraduate students hail from historically underrepresented populations.

“We have been able to really grow our impact,” Wolfe said. “Over the years certainly we’ve remained committed to the education of Rhode Islanders, but the program has grown in visibility.”

EQUITABLE



“I want the state as a whole, and specifically the policy leaders in the state, to tap the amazing resources we have at URI.”

- Elizabeth Roberts

HEALTH CARE

in a Post-Pandemic Society



written by
THERESA BROWN '20

The COVID-19 pandemic highlighted the need for health care more than ever before, prompting government, hospitals and doctors' offices, to evaluate and revise how they manage care for patients.

Health care reform is a perpetual political topic and has become more prominent in caring for patients during the pandemic. The biggest change in health care to emerge from the pandemic? A greater acceptance of virtual visits.

Providers adopting virtual care creates access for remote patients as well opens up office time for those who need to be seen in person, according to

University of Rhode Island (URI) Nursing Professor Betty Rambur, who is the Routhier Endowed Chair for Practice. This transformation is also enabled, in part, by changes in the way care is reimbursed by insurers.

"Clearly, we have taken giant steps forward in virtual care," Rambur said. "Many providers have learned that they can effectively deliver virtual care, and what's exciting about that is it also preserves face-to-face care for people who really need it."

The health care system is shifting away from a narrow focus on episodic care to incorporate accountability for longer-term outcomes as well

Additionally, new technology and an ever-expanding world of research will provide many different learning experiences for the students at URI.



Elizabeth Roberts

Director

Academic Health Collaborative

as cost. Supporting patient self-management for chronic conditions, for example, creates more opportunities for virtual care and remote monitoring.

“The pandemic has also revealed fundamental flaws in the U.S. health systems’ financial dependence on elective procedures, many of which were halted during the pandemic,” said Rambur. “As a result, COVID-19 has sparked greater provider interest in value-based payments and, in some cases, fixed-revenue global budgets because they are not financially dependent on achieving a certain volume of selected procedures and can instead focus on the health needs of those they serve.”

According to Elizabeth Roberts, URI’s new director of the Academic Health Collaborative (AHC) and former lieutenant governor for the State of Rhode Island, COVID-19 paved the way for many research opportunities at the University level, across the state, and around the world. Roberts began her role as director of the AHC in late April 2020. She said her goal is to add value to the colleges that are part of the AHC — Pharmacy, Nursing, and Health Sciences — by bringing students and faculty

together through education, clinical training and research.

Another of Robert’s goals centers on giving the University the opportunity to utilize its resources in an effort to assist with health care throughout the state.

“I want the state as a whole, and specifically the policy leaders in the state, to tap the amazing resources we have at URI,” Roberts said. “We are seeing some of that with the COVID-19 virus, there’s quite a bit of involvement at the Department of Health from all three colleges.”

With this, Roberts said, the education and research currently being conducted at the University surely will make a difference in the future.

“This is where I think the University of Rhode Island has an enormous role to play,” Roberts said. “If you think about the professions that we educate: nurses, advanced-practice nurses, community and research-based pharmacists, psychologists, kinesiologists and more, there is research going on now. As you look to the future there are going to be some very interesting discussions about how to



Betty Rambur

Professor

Routhier Endowed Chair
for Practice

Nursing

**“We have
taken giant
steps forward
in virtual
care.”**

- Betty Rambur

improve the health of the population.”

Roberts said many angles exist from which to approach COVID-19 regarding how the virus affects different people based on their health, history, or genetics. Certain chronic diseases, such as diabetes, chronic obstructive pulmonary disease (COPD), heart disease, and chronic kidney disease are highly linked to COVID-19 death and allow for reconsideration of preventative care and team-based health delivery.

“I think we’ll have an enhanced focus on disparities across racial and ethnic groups and the determinants of health that are connected to those disparate outcomes,” Roberts said. “We have some people at URI who are already teaching and researching on these important issues.”

The change in health care and new research will further affect and change the way the University approaches educating future health care workers.

“There are so many layers,” Roberts said. “To me most exciting is looking forward. Universities have a unique role to play because they are not providers of care, but they teach those who build our health care responsiveness, and they can fundamentally change and improve what happens.

“It is an exciting thing to think about, working across the colleges here at URI, to be revising our systems of care,” Professor Rambur said. “Those systems can have greater accountability for both improved outcomes and lower cost.”

Additionally, new technology and an ever-expanding world of research will provide many different learning experiences for the students at URI.

“We are in an era of opportunities related to things like artificial intelligence, and the use of sophisticated data mining

approaches, to manage care more proactively,” Rambur noted. “This is a real opportunity, and this has not traditionally been part of the education for nurses. It’s important to incorporate the innovations that are now available and soon will be routine.”

LESSONS LEARNED

1. Telehealth visits have permanently transformed health care delivery, offering increased access to care. The AHC faculty will explore this expansion with a focus on assuring quality and preventing fraudulent use.
2. The COVID-19 pandemic has exposed gaps and disparities in our health system. Research and education at URI across the colleges of Pharmacy, Nursing and Health Sciences will offer important new approaches to assuring improved health care access for the entire population.
3. The way we pay for health care should increasingly focus on improved lifelong well-being, including preventing and managing chronic diseases.



A PANDEMIC IS NOT A VIABLE SOLUTION FOR CLIMATE CHANGE

written by LAINE FISCHER '23

In the first half of 2020, carbon emissions decreased globally by nearly 9 percent due to the widespread COVID-19 quarantine. However, the pandemic's impact on climate change hardly offers a legitimate, lasting solution. Instead, the effect is more like using a single sandbag to try and stop rising sea levels — small and inconsequential.

"No one I know, no matter how concerned about climate change, sees the emissions drop due to COVID-19 lockdowns as way to achieve progress," said Associate Professor Jaime Palter of the University of Rhode Island's (URI) Graduate School of Oceanography.

Palter studies the impact of climate change on the world's oceans, examining ocean circulation and ocean carbon uptake. Professor Palter grew worried by how the reduction in carbon emissions, in early 2020, was being referred to by politicians and pundits alike.

A small number of people on social media cheered the drop as a win for the environment. Many described the global shutdown as an unprecedented opportunity to study the environment free of human interference.

"Clearly, people need to commute to work, stores must reopen, and travel helps keep the economy strong," Palter noted. "Quarantining the

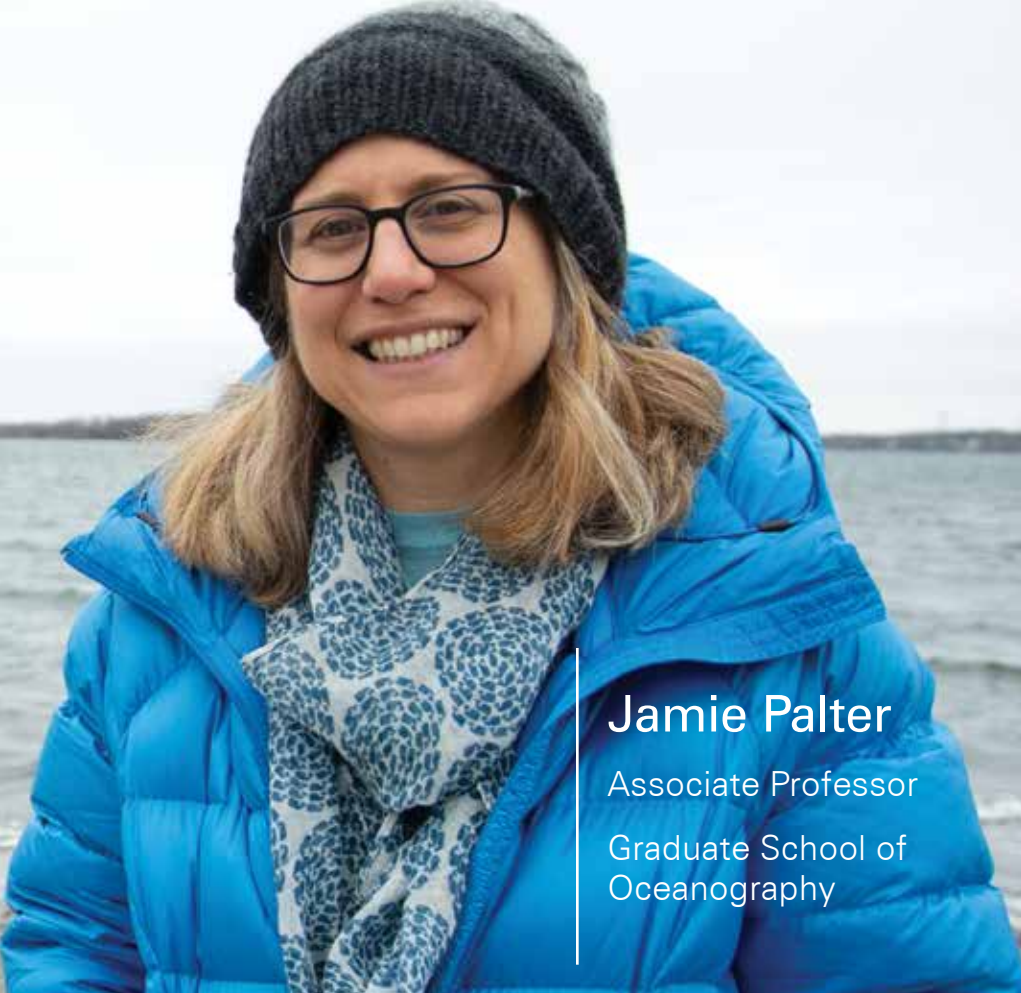
population has no merit as a solution, offering only a temporary, non-sustainable dip in the otherwise rapid rise in greenhouse gases that requires a long-term plan."

The initial reduction, impressive as it might sound, likely will prove inconsequential with the year's carbon emissions predicted to end down just a few percentage points and the decades of past emissions still in the atmosphere.

"And, most importantly, the solution is not sustainable. Keeping people at home and closing the economy is unrealistic," Palter said. "Climate scientists, like most all of us, want a climate change solution that allows people to live healthy and productive lives without decimating the economy."

URI faculty are searching for meaningful and realistic solutions.

Environmental and natural resource economics Professor Corey Lang researches clean energy and carbon emission reduction strategies. He said people can take many everyday actions, quarantine or not, to limit their own carbon footprints such as eating less meat, flying less often, and choosing renewable energy sources (such as upgrading to solar energy at home). Governments can support bike lanes in cities to reduce vehicle pollution, procure public transportation powered



Jamie Palter

Associate Professor
Graduate School of
Oceanography

“CLIMATE SCIENTISTS, LIKE MOST ALL OF US, WANT A CLIMATE CHANGE SOLUTION THAT ALLOWS PEOPLE TO LIVE HEALTHY AND PRODUCTIVE LIVES WITHOUT DECIMATING THE ECONOMY.”

- JAIME PALTER

by renewable sources and to develop policies that encourage solar and wind energy production. Additionally, choosing to reduce our use of single-use plastics will make a difference, as plastics are petroleum-based products and the manufacturing process adds greatly to carbon emissions.

“Radical action produces remarkable results,” said Lang, noting that while quarantine doesn’t offer a sustainable solution for climate change, the situation provides a good example of how people can together, take radical action, and make a difference. That is, the large-scale quarantine this past spring provided a brief window to the improved air quality we would all enjoy with widespread sustained efforts.

The goal, according to Lang, is to first be carbon neutral, a concept that means adding to the atmosphere roughly the same level of emissions as the earth naturally absorbs. Rather than the loftier goal of striving to be carbon negative, or removing carbon from the atmosphere to reverse the effects of climate change — the latter solution that is unlikely to be attainable in the short-to-medium term future.

“Climate change is a difficult problem to focus on because the rewards are far in the future,” Lang noted. “So other problems with more immediate payoffs get more attention.”

Lang said the pandemic proves that governments and their citizens can take dramatic, rapid and unpopular action in a time of crisis. He hopes that society can apply that same collective and serious approach to climate change, which will last well beyond a pandemic and requires a coordinated global response.

LESSONS LEARNED

- 1.** The global quarantine served as a brief “natural experiment” that shows how rapidly positive change can occur, but this will only happen with the serious and consistent collective action of governments and populations across the globe.
- 2.** Each of us have personal roles to play in reducing the production and release of greenhouse gases, including limiting unnecessary commuting, reducing the use of single-use plastics, choosing renewable energy sources and more.



When the SHOW

No Longer Goes On

COVID-19'S IMPACT ON THE ARTS

Tony Estrella '93

Artistic Director, Rhode Island's
Sandra Feinstein-Gamm Theatre

Instructor of Theater, URI

written by **ARIA MIA LOBERTI '20**

From shuttered museums and galleries to vacant theaters and silent concert halls, the COVID-19 pandemic has vastly changed the face of the arts. According to the National Endowment for the Arts, the arts contribute \$763.6 billion to the U.S. economy and employ 4.9 million people nationally.

As a result, the impact of the virus — and of the necessity of social distancing practices in particular — come at a high price, both for the U.S. economy and for the artists, technicians, managers, and patrons who fuel this industry. Despite the limitations, however, artists are finding innovative ways to adapt to the challenge, exchanging physical audiences for virtual ones and striving to keep people connected.

Judith Swift, professor of communication studies and of theater at the University of Rhode Island (URI), and director of the URI Coastal Institute, works at the intersection of professional theater and the sustainability sector.

"Artists choose to work on the cutting edge of what is human, and help us understand the human

condition, which is all the more important when the human condition is stressed beyond measure," Swift said. "When actors are unable to make a living, they can go online and do a reading of a play. But that is just a suggestion of the experience, not the experience itself."

As Americans self-isolate at home or seek comfort at the end of a long day working on the front lines in the health care industry, the arts often are a reprieve — whether by tuning into an opera or ballet broadcast, joining a live at-home concert from a favorite musician, or binge-watching favorite television shows.

"Most of us do not give a lot of thought as to the factors that motivate us to go to galleries, concerts or theaters," Swift said. "And, many would now argue that we — as a society — have far more pressing issues to be concerned about. But the arts are vital to meeting our needs to maintain our mental health, communities, and to enrich our human social interactions."



Judith Swift

Professor

Communication
Studies and Theater

Tony Estrella, a 1993 URI graduate and an instructor of theater at the University, serves as the artistic director of Rhode Island's venerable Sandra Feinstein-Gamm Theatre. Estrella described COVID-19's effect as seismic and said people have yet to fully appreciate the transformative nature of the shutdowns. The Gamm has held its acting classes via video conferencing, enhanced its social media presence, offered recordings of past performances, and produced online shows that allow audiences and actors to connect through a Shakespearean scene-study.

Though the content that has resulted from COVID-19 is novel, from both an economic and artistic perspective, he said the virus is potentially devastating to the industry.

"We are going to need financial resources to replace ticket income and help us stay afloat until we can unfurl the sails once again," Estrella said. "And along with that, an acknowledgment of the priceless contribution to the quality of life that the arts are responsible for."

The potency and power of live performances simply cannot be replicated. "The longing need for real human contact, for literally sharing breath and air, is fundamental," Estrella stressed. "It cannot be replaced by the digital world. If there is a silver lining in any of this it is a reminder of that fundamental necessity."

Like the performing arts, art galleries and museums, tours, receptions, and educational outreach have

"Artists choose to work on the cutting edge of what is human and help us understand the human condition, which is all the more important when the human condition is stressed beyond measure."

-Judith Swift

also been threatened by COVID-19. "Without programming, an art gallery is just an empty room with artwork on the walls," said Michael Rose, the gallery manager of the prominent, 140-year-old Providence Art Club. "It requires people to activate that space with interest and camaraderie, and it requires collectors to buy art and support artists

and galleries. For many artists, the postponement of their exhibitions has put a pause on years of work and added a level of uncertainty to selling art.”

In response to the pandemic, the Providence Art Club produced virtual catalogues of artwork available for purchase, postponed exhibitions, offered virtual studio tours, increased its social media presence, and offered lectures, demonstrations, and studio classes via video conferencing. Rose said there will likely be a dip in art sales — with the exception of high-end galleries, whose clientele is likely to be more protected from the economic onslaught that has accompanied the virus. “In the long-term,” Rose said, “I think many of the online initiatives organizations have adopted will remain and become integrated into their regular strategy.”

Throughout these trying times, the arts remain a vital, irreplaceable anchor — a means of comfort, escape, and discovery, and a reflection of what it means to be human. But, the harsh reality is that the COVID-19 pandemic has already led to a loss of approximately \$4.5 billion across the arts and culture industry, according to a recent survey from the nonprofit organization Americans for the Arts. Despite this massive loss, leaders in the arts community, as well as individual artists, have not ceased offering innovative content, programming, and experiences through this challenging period.



Throughout these trying times, the arts remain a vital, irreplaceable anchor — a means of comfort, escape, and discovery, and a reflection of what it means to be human.

LESSONS LEARNED

- 1.** The lockdown isolation of the pandemic has led to rediscovering the place for the arts, to provide as solace and healing. Social media has been enlivened with families pulling out instruments and rediscovering the joy of harmony in song, in poetry readings, and in storytelling.
- 2.** When Winston Churchill was asked to cut funding to the arts in order to support the war effort in World War II, he allegedly responded “Then what would we be fighting for?” Whether or not this should be ascribed to him matters less than the fact that he frequently spoke to the need to keep England’s artistic treasures close at hand as central to the heart of any civilization.
- 3.** Galleries and theaters that have pivoted lectures, shows and sales to the virtual world see enduring value in enhancing their online presence, beyond the current crisis. These web-based programs, that accompany physical exhibitions for instance, may open up new audiences both nationally and around the world.

Michael Rose

Gallery Manager

Providence Art Club

A close-up photograph of a person's arms and hands wearing blue nitrile gloves, harvesting fresh green lettuce in a greenhouse. The person is wearing a grey t-shirt. The background is a bright, out-of-focus greenhouse structure. The text "FOOD SECURITY" is overlaid in a large, blue, sans-serif font.

FOOD SECURITY

THE SUPPLY CHAIN AND URI'S RESPONSE

written by **TODD MCLEISH**



As the pandemic forced businesses around the United States to close for months, Douglas Hales tracked the effect on the movement of goods around the globe.

A University of Rhode Island (URI) professor of supply chain management, he held weekly calls with colleagues in Korea, China, Europe and elsewhere, and he searched online and visited local stores to gauge the availability of various products. He focused mostly on the security of the food supply.

“The pandemic started in winter, when lots of vegetables were being shipped from the South, California, Texas, and those were somewhat limited getting to the Northeast,” said Hales, who also serves as associate dean of undergraduate programs in the College of Business. “As we closed the borders, a lot of the people that used to pick vegetables in the U.S. – migrant workers – were still in Mexico, so there were fewer workers to pick. That dried up some of the supply.”

Plenty of drivers were available to transport goods, because so many manufacturers had shuttered their operations, but many of the drivers shifted to delivering personal protective equipment rather than food. Nonetheless, fresh produce was never notably in short supply in most areas of the country, especially as the weather warmed and the growing season extended further north.



Douglas Hales, professor of supply chain management and associate dean of undergraduate programs in the College of Business



“We’re beginning to appreciate the smaller and more local food producers that are more resilient.”

- Rebecca Brown

Professor Rebecca Brown, Plant Sciences

“When the U.S. shut down its beef, poultry and pork processing facilities, there was about three weeks of meat in the pipeline, so we were always able to get some meats,” Hales explained. “But there have been fewer choices at the grocery store. You might have been able to get steak and ground beef but not sirloin, for instance.”

One factor that helped ease the situation was that the demand for restaurant food decreased dramatically. And although demand for home food increased, Hales said that most people eat about 15 percent less food when they eat at home.

“The lesson from all this is that, in spite of what we hear, the food supply chain is safe and secure and did not collapse,” he said. “We had fewer choices, but we kept produce, meat and durable goods in sufficient amounts that people had enough.”

FOOD SECURITY: URI’S VEGETABLE PROGRAM

Still, many people faced food shortages — though, that had little to do with the food supply chain. Instead, the lack was due largely to job losses and other health and economic factors. So, URI faculty, staff, and students stepped up to provide support.

“All the food pantries around the state have been inundated with demand,” said Rebecca Brown, URI professor of plant sciences. “With unemployment

as high as it’s been since the Great Depression, all kinds of people don’t have the money for food. And, at the same time, a lot of the sources that food pantries rely on for donations of fresh produce — like restaurants — dried up because those businesses were closed.”

Brown and the students in her vegetable production class typically grow large quantities of produce each spring, and the students eat most of it themselves. But when the students went home midway through the semester due to the pandemic, after having already planted a dozen varieties of vegetables in the greenhouses, that left more



Environmental Sciences and Management major and Coastal and Environmental Fellow Joe Manetta at the URI Gardiner Crops Research Center.



produce than usual that could be donated to those in need.

“We’ve been able to step in and fill some of the gap at the Jonnycake Center and other food pantries so they can continue to provide fresh vegetables to their clients,” said Brown, who did much of the harvesting herself, with the assistance of a few staff and local student helpers.

“The key to food security is making sure people have reliable access to food,” she added. “One of the things we’re seeing with the pandemic is that the industrial food system, while very efficient at delivering low-cost food, can be disrupted when a failure occurs at a single point in the chain. We’re beginning to appreciate the smaller and more local food producers that are more resilient. They’re like the internet, with lots of nodes and ways to get around failure points.”



URI Master Gardener Karen Kalish.



URI Master Gardener Nan Quinlan.

FOOD SECURITY: URI'S MASTER GARDENERS PROGRAM

In the face of the pandemic, URI Master Gardeners have taken steps to make local food even more local by supporting those interested in growing their own food.

“By having trained volunteers in the community, we’ll be able to help people become more self-sufficient, either by growing their own food or encouraging them to support local farmers and local food,” said Vanessa Venturini, state coordinator of the Master Gardener program.

Even before the COVID-19 virus emerged, the Master Gardeners were planning to launch an initiative to support the local food system, but the pandemic made it even more timely to do so.

“There has been a huge resurgence in interest in gardening as a result of the pandemic, including many who are gardening for the first time,” Venturini said.

So the Master Gardeners and URI faculty and staff offered a series of webinars on such topics

as growing vegetables, composting and food preservation, including some offered in Spanish. More than 7,000 people attended, with 97 percent of those surveyed afterwards reporting that they learned something new and 96 percent planning to change their gardening behavior after attending.

In partnership with Hope’s Harvest RI, a Pawtucket-based organization sponsored by Farm Fresh Rhode Island, the Master Gardeners are also helping to collect surplus produce from local farms to deliver to food pantries and other hunger relief agencies in a practice called gleaning. And they are continuing to produce vegetables at community gardens around the state for donation to food pantries.

“By having trained volunteers in the community, we’ll be able to help people become more self-sufficient, either by growing their own food or encouraging them to support local farmers and local food.”

- Vanessa Venturini



State Coordinator Vanessa Venturini
Master Gardener Program



URI Students in January 2019 seine harvesting milkfish broodstock in a saltwater fishpond at the Philippine Bureau of Fisheries and Aquatic Resources Aquaculture Research and Development Center in Dagupan City. Photo by Michael A. Rice.

FOOD SECURITY: URI'S FISH RIGHT PROGRAM

But it is not just Rhode Islanders who benefit from URI efforts to make the food supply more secure during the pandemic. In the Philippines, where URI College of the Environment and Life Sciences professors Emi Uchida and Michael Rice, and URI Coastal Resources Center managers Elin Torell and Glenn Ricci, have worked to improve fisheries management for several years, the Fish Right program shifted focus during the pandemic to boost food security in local fishing communities.

Filipino partners, in collaboration with the URI team developed an online marketplace that links more than 6,000 fishermen and women with about 300,000 households seeking to purchase fish. According to Rice, the program has allowed the communities to have safe access to locally caught fish at a time when mobility restrictions were in place that could have led to a food crisis and significant loss of income for those who fish for a living.

"Instead of going to the fish market to buy fish — which is problematic under quarantine conditions — we helped develop a way to link small-scale fisherfolks with their markets and use local motorcycle drivers as the delivery agents," said Rice.

Like many URI initiatives launched in response to the pandemic, Rice said "it's one of those things we had thought about before, but the pandemic gave us the impetus to push the idea to the forefront."

LESSONS LEARNED

- 1.** The U.S. food supply chain for the country is stronger than some had predicted. At the present time there appears to be sufficient food production and distribution capacity to meet domestic needs, although food insecurity due to economic stressors are of serious concern.
- 2.** Despite an abundance of food, people who were living at or below the poverty level do not have consistent and reliable resources to access food. This has been exacerbated during the current pandemic, as a result of the massive layoff of labor and the closing of assistance centers. Many people in the U.S. are dependent on food programs and/or living paycheck-to-paycheck and are only one missed paycheck away from hunger. In addition, prices rose to cover the extra costs of supplying food including risk pay for essential workers. Donations to food banks dried up, and as such, the poor have struggled to survive. Therefore, we need to create relationships with food suppliers to maintain additional capacity, specifically for poverty level distribution, as well as to create an emergency fund for food banks.
- 3.** Small diversified farms and local food systems are much more flexible than the large-scale national food system. People want to garden and grow food, and URI's Cooperative Extension still has an important role in helping people do so.

THE BORDERLESS PANDEMIC RESEARCH AND RESPONSE ACROSS DISCIPLINES

written by CLEA HARRELSON '20





Archive photo of patients during the 1918 flu pandemic.

Crises like the COVID-19 pandemic are often said to be equalizers, as everyone has some risk of being affected. In reality, however, people are impacted by the virus in vastly different ways based on socio-economic demographics such as race, sex, finances, employment, and geographic location. To understand the ongoing impacts of the pandemic and response efforts, on people's lives and public policy, requires diverse sources of data and quick adaptation. Researchers at the University of Rhode Island's (URI) departments of History, Economics, and Political Science are up to the task.

DON'T DISCOUNT HISTORY

As Catherine DeCesare, senior lecturer in the URI History department, worked to transition her spring 2020 History of Rhode Island class online, she saw opportunity in the midst of crisis. DeCesare expanded her course material on the 1918 flu pandemic to explore COVID-19 through the lens of the past.

"I wanted my students to be able to see analogues between the past and what they're experiencing today," said DeCesare.

As with the COVID-19 pandemic, the H1N1 flu virus behind the 1918 pandemic spread globally, resulting in an estimated 675,000 deaths in the United States alone. DeCesare said that similar to today, handwashing, wearing masks, keeping hands away from the face, and discouraging large gatherings were all common practices to prevent the spread of disease. Concerns about the pandemic even caused URI to delay the beginning of the 1918 fall semester.

DeCesare described the national response in 1918 as sporadic due to World War I. "The public health crisis was pushed aside because all efforts were directed at winning the war," she said. "The impacts of delayed response were devastating. More people died in Providence due to the pandemic than Rhode Island soldiers died as a result of World War I."

DeCesare plans to build on her current 1918 pandemic research, to continue to place the current crisis within historical context and to thereby inform current approaches and



Catherine DeCesare

Senior Lecturer

History Department

decisions. “Pandemics are recurring,” DeCesare said. “Historical studies can directly inform policy initiatives today. Don’t discount history.”

STAYING AT HOME SLOWED THE SPREAD

Much of the early government response to the COVID-19 pandemic has been framed through stay-at-home orders, but as states re-opened people were increasingly on the move.

For Assistant Professor Michael DiNardi of the URI Economics Department, anonymous mobile device GPS location datasets like those from Google’s Community Mobility Reports and SafeGraph Inc. are useful proxies for answering questions about compliance with social distancing guidelines and how movement has varied among states.

DiNardi researched people’s behavior based on mobile device movement five weeks before Governor Gina Raimondo’s emergency declaration on March 9, three weeks after the stay-at-home order, and continued his research through early May.

“The data shows that following the state of emergency declaration in March, Rhode Islanders were taking this pandemic seriously,” said DiNardi. “Before the state of emergency, 20 to 25 percent of mobile devices did not leave home, after March 9 nearly 40 percent stayed home, and leveled off at 45 percent in early May.”

Rhode Island wasn’t unique in its response, according to DiNardi. In early March 2020, prior to most official restrictions, people across the country increasingly reduced their travel. As stay-at-home orders went into effect in late March, travel outside the home entered a low plateau, but toward the end



Archive photo of people wearing masks to avoid being infected by the 1918 flu pandemic.



Michael DiNardi

Assistant Professor

Economics

of May 2020, datasets showed a noticeable uptick in people leaving their homes.

“There’s about a two-week lag in cases,” said DiNardi. “So in March, about two weeks after people started staying home, the number of cases started to decline, which suggests that people staying at home really helped.”

As the country continues to grapple with COVID-19, DiNardi hopes to expand on his initial research and analyze new GPS data, as well as data from the labor market, to better understand how the pandemic impacts people differently based on factors like race or socioeconomic class.

GLOBAL PANDEMIC, GLOBAL RESPONSE

Long after the immediate trauma of COVID-19 passes, the impacts of the pandemic will still be reverberating on a global scale.

As Assistant Professor Brendan Mark of the URI Department of Political Science began to untangle the repercussions of the pandemic on international relations, human rights, the economy, and conflict, two questions drove his work: How bad is this going to be? And whom among us are most vulnerable to suffering long-term consequences of this crisis?

“The data shows that following the state of emergency declaration in March, Rhode Islanders were taking this pandemic seriously.”

- Michael DiNardi

“The economic impacts of this are going to be massive on a global scale,” said Mark. “They are going to define our generation. The economy is going to shrink by 4.4 percent according to the International Monetary Fund (IMF), which is worse than what we experienced during the 2008 financial crisis. We may see 400 million full-time jobs erased globally.”

According to Professor Mark, poverty, which has been declining every year in the 21st century will now increase for the first time, with approximately 100 million extra people in extreme poverty due to the pandemic. This is likely to impact underdeveloped countries and vulnerable groups such as minorities, women, and disabled people the most.



Brendan Mark
Assistant Professor
Political Science

“We’re seeing that people who have access to technology are faring better than those who don’t,” said Mark. “Countries that don’t have widespread internet networks and access to computers will suffer the most, as will individuals in lower income brackets or members of other vulnerable groups.”

According to Professor Mark, in the beginning of the pandemic the fear of the virus made lockdowns politically acceptable, despite the massive impacts on our lives, jobs and finances. However, as the lockdowns worked and cases decreased, countries rapidly started to re-open leading again to rapid viral spread.

“A useful way of thinking about this is we can sort countries into one of two groups,” said Mark. “One, is we have seen populist leaders in countries like the United Kingdom, India, the United States and Brazil, pushing an anti-science agenda and downplaying the risks of the pandemic and these countries have done much worse than others.

“These countries adopted policies to combat the pandemic late and reluctantly. A lot of their political capital was used to avoid blame for the pandemic rather than to step up and combat it.”

In other countries we have seen leaders take a much more pro-active, pro-science response. “New

Zealand and Germany are doing particularly well,” Mark said. “A great fact that I like to point out is that countries where women are heads of states are doing much better than countries where men are heads of state.”

Part of this is because in these countries, leaders have taken measures to control the pandemic, while also taking extraordinary steps to educate the public and prevent conspiracy theories from taking hold.

“In the U.S. a quarter of the of the population think the coronavirus was manmade, planned and released — there’s not actually evidence for that,” said Mark. “In the UK people have been burning down 5G cell towers because there’s a conspiracy theory asserting that they cause COVID-19. We’re not really seeing that level of anti-science beliefs in the countries where leaders have taken pro-active steps, and it is those countries that are doing much better.”

There is hope here in New England, where the virus positivity rate has, in recent months, been in better control than the current trends seen in the south and Midwest of the U.S. Moreover, with the pending change of the executive branch, and a fresh slate with a newly formed presidential-elect COVID-19 advisory task force, we have an opportunity to gain control and protect millions of lives.

“The economic impacts of this are going to be massive on a global scale. They are going to define our generation.”

- Brendan Mark

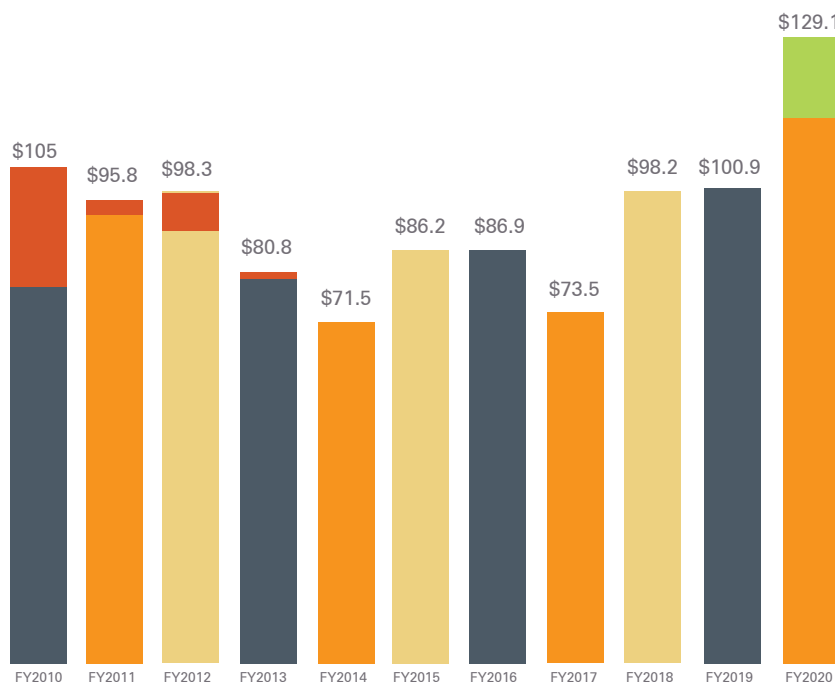
2020

ANNUAL REPORT FISCAL YEAR

TOTAL AWARDS TREND

FY2010 - FY2020
in Millions

ARRA Funding
COVID-19 Related



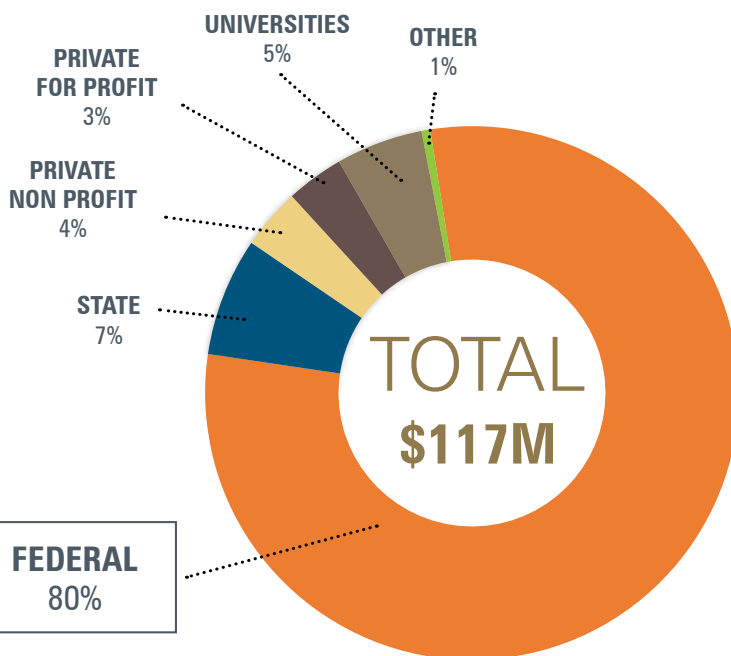
	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020
COVID-19 Related											11.2
ARRA Awards	24.4	1.7	4.8	0.8	0.1						
Awards Non-ARRA	80.6	94.1	93.5	80.0	71.4	86.2	86.9	73.5	98.2	100.9	117.9
Total Awards	105.0	95.8	98.3	80.8	71.5	86.2	86.9	73.5	98.2	100.9	129.1

Research Proposals Submitted FY2020
\$313.4 Million

*Does not include COVID-19 emergency funds proposal amount - \$16.9M

Expenditures FY2020
\$87.9 Million

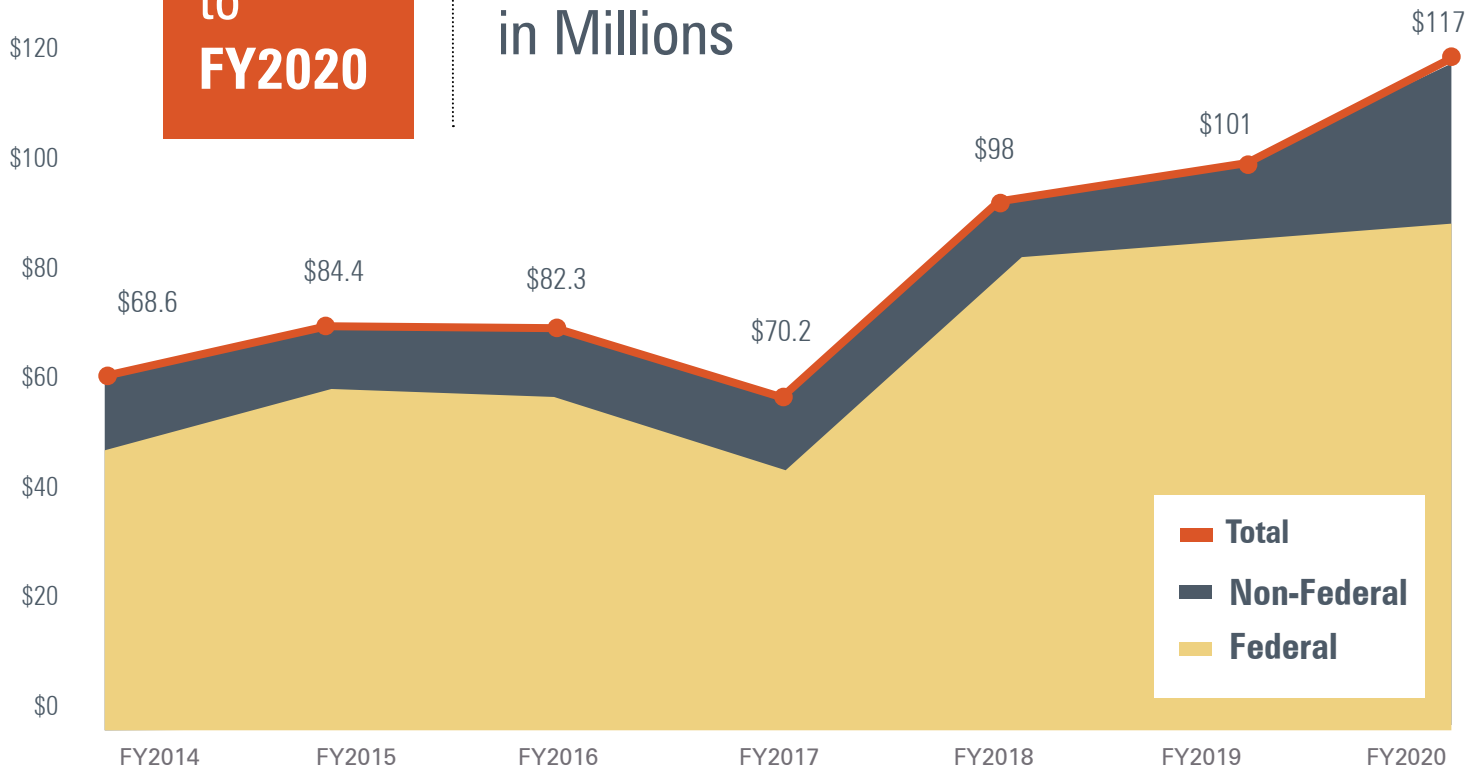
*Does not include COVID-19 emergency funds proposal amount - \$11.2M



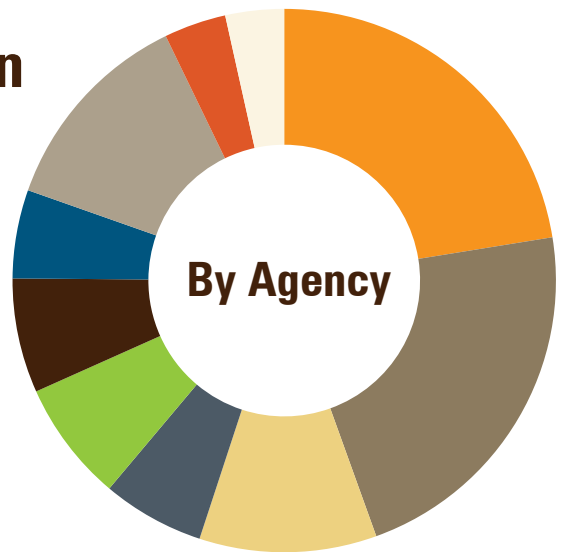
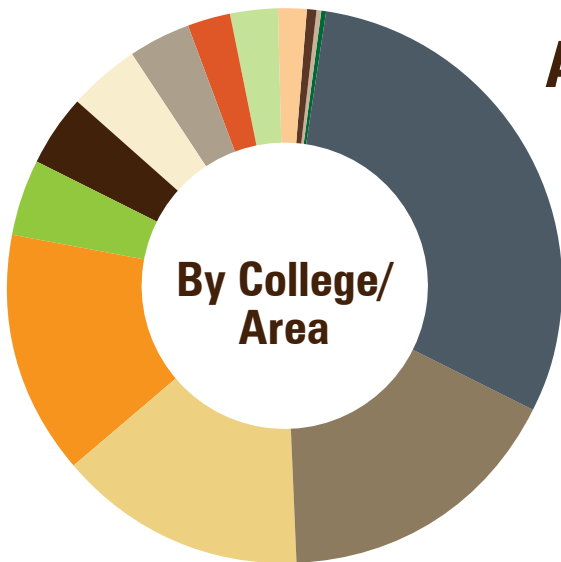
The University of Rhode Island's goal is to reach \$125 million in sponsored research funds by FY2024

**FY2014
to
FY2020**

Sponsored Awards in Millions

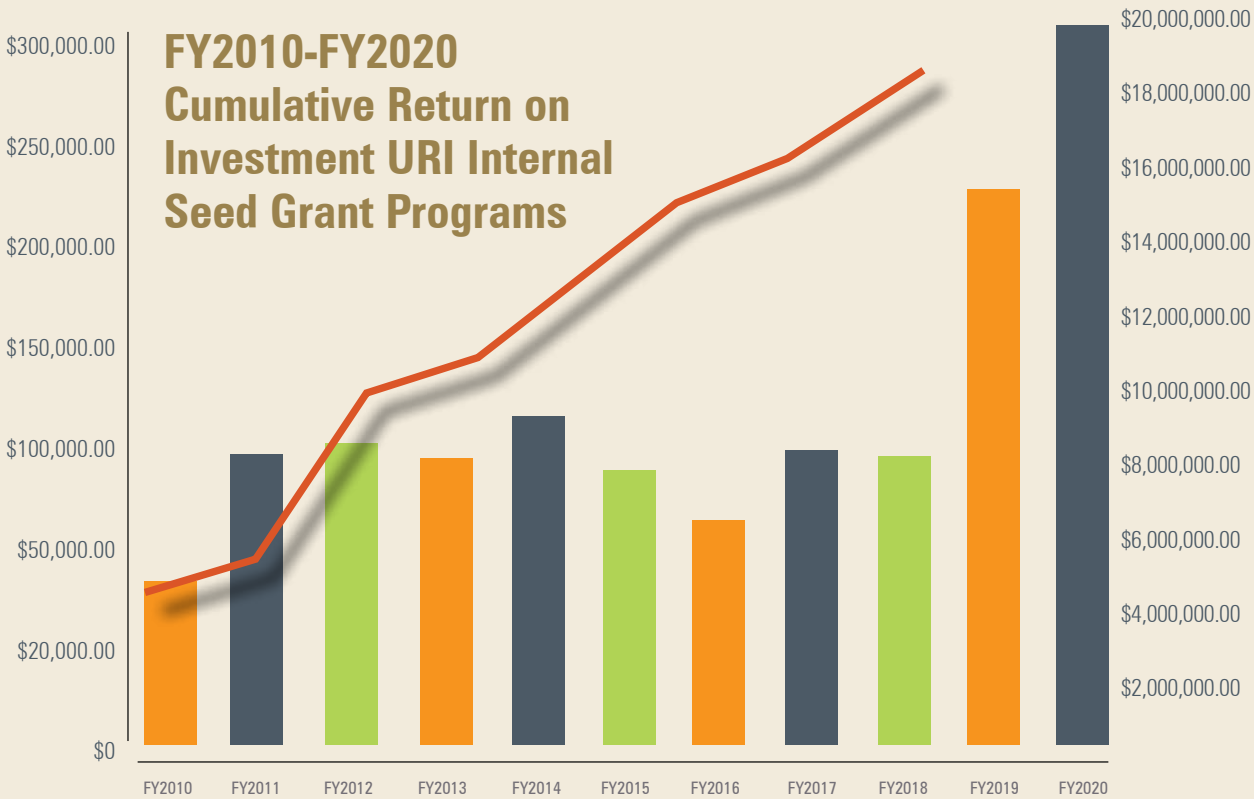


FY2020 Awards in Millions



- Graduate School of Oceanography
- Environment & Life Sciences
- Engineering
- Pharmacy
- Health Sciences
- Arts & Sciences
- Research & Economic Development
- Academic Health Collaborative
- Nursing
- University Library
- Education & Professional Studies
- Provost
- Business
- Student Affairs

- NSF
- AID
- STATE
- DOC
- UNIVERSITIES
- NON PROFIT
- HHS
- USDA
- OTHER FEDERAL AGENCIES
- PRIVATE FOR PROFIT



**In FY2020
the Annual
Internal
Seed funding
more than
tripled in
size since
2018 from
\$89,323 to
\$346,000.**

RISBDC-POLARIS-IP

IMPACTING THE RHODE ISLAND ECONOMY

URI INTELLECTUAL PROPERTY FY2011-FY2020

- 121 U.S. and Foreign Issued Patents
- 366 Patent Applications
- 218 Invention Disclosures
- 6 Companies Formed: CREmedical, pHLIP, Velobit, Burbank, Labonachip, and Plant Advancement

URI IMPACTING RHODE ISLAND BUSINESS POLARIS MANUFACTURING EXTENSION PROGRAM (MEP) FY2019

- \$124 Million in New Sales
- \$10 Million in Cost Savings
- 914 Jobs Created or Retained
- \$17 Million New Investment Capital

RHODE ISLAND SMALL BUSINESS DEVELOPMENT CENTER (FROM 10/1/19 - 9/30/20)

- 873 Clients Served (67% are existing businesses)
- 5,378 Hours of Counseling
- 7,517 Counseling Sessions
- \$26,948,829 Capital Formation (the amount of funding from all sources that RISBDC staff has assisted clients in receiving)
- 2,113 Webinar Registrants

A significant majority of this impact has occurred since the onset of COVID-19.

THE
UNIVERSITY
OF RHODE ISLAND

DIVISION OF RESEARCH
AND ECONOMIC
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