RUTGERS GLOBAL HEALTH INSTITUTE

2020–2021

IMPACT REPORT

RUTGERS
Global Health Institute

ON THE COVER: Emanuel Garcia owns La Guelaguetza, a Mexican store in New Brunswick's Esperanza neighborhood. He participated in Equitable Recovery for New Jersey's Small Businesses, a Rutgers Global Health Institute program.

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DIRECTOR'S LETTER

DEAR FRIENDS AND COLLEAGUES:

Global health is a field that emphasizes health equity in communities all over the world, including those in our own backyards. Disparities in health, which existed long before the COVID-19 pandemic, include imbalances not only in access to care but also in all the conditions that make good health possible. The pandemic has only worsened these disparities.

Over the past year, we launched Equitable Recovery for New Jersey's Small Businesses, which provides crucial support to small businesses and nonprofits in underserved communities. Helping small businesses means helping the owners and community members that depend on them for income, a big social determinant of health. Our program is running in communities where poverty is high and where minority-owned businesses face distinct disadvantages. Addressing these kinds of inequities is at the core of what global health is about.

The Rutgers Global Health Institute Student Council has also made meaningful contributions toward a massive volunteer operation to assemble COVID-19 test kits and the institute's first Global Health Case Competition. The case competition engaged students from across the university in designing relevant, sustainable solutions for pandemic-related problems in New Brunswick.

Make no mistake: international impact on issues of health equity continues to be a significant aspect of our work. The pandemic necessarily expanded our efforts in Botswana to respond to both the threat of COVID-19 and the need to continue improving cancer care and prevention in the country. Thankfully, we have a talented and dedicated team on the ground in Botswana, and we have also taken this opportunity to strengthen our telehealth and distance learning capabilities.

All of these are efforts that promise long-term impacts, and you will find many more examples in this annual report. Please read on, and join us! There is much more to be done.

Sincerely,

Richard Marlink, MD
Director, Rutgers Global Health Institute
Henry Rutgers Professor of Global Health

LOCAL PANDEMIC RESPONSE

Pandemic Fallout

At Rutgers Global Health Institute, we view "global health" as a matter of equity, not geography. Right here in New Jersey, there are tremendous disparities in access to care and in the conditions that make good health possible. These inequities existed long before COVID-19, but they are particularly acute now. Pandemic-related economic hardships are resulting in business closures and loss of jobs, lack of access to health care, loss of housing, and food insecurity. For the low-income and minority communities that were already vulnerable, these impacts are much more pronounced. Helping these communities recover and become more resilient is an urgent global health priority.

Mario Sabas is one of the owners of Mozzarella, an Italian and Mexican restaurant in New Brunswick's Esperanza neighborhood.

Equitable Recovery for New Jersey's Small Businesses

Small businesses are vital to the fabric of their communities, and they are struggling as a result of the COVID-19 pandemic. Businesses in communities with significant percentages of people living in poverty, and those owned by minorities and women in particular, are struggling disproportionately. When small businesses struggle—particularly in these underserved communities—so do the employees and families that are counting on them to survive.

At Rutgers Global Health Institute, we are addressing these challenges through Equitable Recovery for New Jersey's Small Businesses. Launched in December 2020, this program offers crucial support to small businesses and local nonprofit organizations, including faith-based organizations, in low-income and minority communities in New Jersey.

The Equitable Recovery program is responsive to community needs and thus continues to evolve. It offers three key areas of support: training, consultations, and resilience. All three of these components are available in English, Spanish, and Haitian Creole, the main languages spoken in the New Brunswick and Newark communities the program has served to date. (For more information on these locations, see page 4.)

EQUITABLE RECOVERY PROGRAM

Owner Danielle Diaz, center, stands with employees of Nail City, a salon in New Brunswick's Esperanza neighborhood.

Training

The Equitable Recovery program offers live, web-based training in multiple languages that provides detailed information relevant to keeping employees and customers safe. The training content is dynamic, reflecting both up-to-date health and safety guidance and participant feedback.

Early in the program, the training focused heavily on preventing the spread of COVID-19 in the workplace and reviewing health and safety standards mandated by New Jersey executive orders. Information about COVID-19 vaccination, as well as resources for COVID-19 testing and other support services, are among the topics that have been added over time.

Consultations

Through virtual and in-person consultations, the Equitable Recovery program team assesses the risk of COVID-19 transmission in each workplace setting. Based on Occupational Safety and Health Administration guidelines, these consultations take into account the physical environment and the needs specific to the business. Following this assessment, each business receives tailored recommendations on how to operate safely.

Resilience Network

In each community, we establish a network of local organizations and resources that offer a wide range of services. We identify businesses' needs and make connections that help them navigate many complex issues related to COVID-19, as well as build resilience for the future.

This Resilience Network includes:

- Access to COVID-19 vaccines
- COVID-19 testing and education
- Business support
- Food assistance
- Spiritual and faith-based services
- Medical and mental health services
- Housing support
- Legal advice
- Tax support services

The Equitable Recovery program began in New Brunswick's Esperanza neighborhood.

50
businesses trained

1,102
tests administered

580
individuals vaccinated across two cities

Locations

NEW BRUNSWICK: The Equitable Recovery program launched in New Brunswick in December 2020. Of New Brunswick's 56,000 residents, 34 percent live in poverty. The program's earliest participants were in the Esperanza neighborhood, in which 84 percent of people are Hispanic and 52 percent are foreign born. In most homes and businesses in New Brunswick, either English or Spanish is the primary language spoken.

NEWARK: The Equitable Recovery program expanded to Newark early in 2021. Of Newark's more than 281,000 residents, 27.4 percent live in poverty. The city's population is more than half Black or African American and more than a third Hispanic or Latino, and nearly half of households speak a language other than English at home. Based on input from community partners, the Equitable Recovery program is focused on the city's South and West wards, which were largely unreached by previous recovery efforts in Newark. Within these neighborhoods, English, Spanish, and Haitian Creole are the primary languages.

Testing Sites

In working closely with businesses in New Brunswick, we discovered that employees were more likely to get tested for COVID-19 if they could access the testing sites more easily. Transportation for those without cars was a key barrier to accessing testing. In collaboration with Rutgers Occupational Training and Education Consortium, New Brunswick City Center, the New Jersey Department of Health, and Tavern on George, the Equitable Recovery program team set up a weekly testing site located within walking distance from many points throughout the city.

Vaccination Efforts

Local stakeholders in New Brunswick and in Newark's South and West wards helped us identify COVID-19 vaccination as a critical community need. In these communities, factors that play a role in vaccine uptake include immigration status, language and transportation barriers, and cultural norms. Without a concerted effort to address specific barriers and build trust, vaccination rates would inevitably suffer.

With significant support from trusted community messengers, and through the help of familiar community organizations that volunteered their sites, we hosted a series of COVID-19 vaccine information sessions and pop-up vaccination clinics.

Licelot Gonzalez, Etphane Barthelus, Arpita Jindani, and Richard Marlink represent Rutgers Global Health Institute at a pop-up COVID-19 vaccination clinic in Newark.

NEW BRUNSWICK

Sites:

Elijah's Promise community kitchen
Saint Joseph Roman Catholic Church
Tavern on George

Community messengers:

Doug Schneider, owner of Tavern on George
Reverend Thomas F. Ryan, Saint Joseph Roman Catholic Church
New Brunswick Tomorrow's *promotoras* (community health promoters)

NEWARK

Sites:

Family Manor Restaurant
Greater Abyssinian Baptist Church

Community messengers:

Micano Evra, owner of Family Manor Restaurant and host of a show on Radio GAMMA (99.7 FM), a Haitian radio station
Reverend Allen Potts, Greater Abyssinian Baptist Church
South Ward Councilman John Sharpe James

Micano Evra hosted a vaccine clinic and Haitian feast at his restaurant, Family Manor, located in Newark's West Ward. Evra also promoted the clinic on his Haitian radio show.

North Jersey Community Research Initiative was among the partners that provided COVID-19 vaccination support at a pop-up clinic in Newark's South Ward.

Campus and Community Partners

Equitable Recovery in New Brunswick:

Elijah's Promise
New Brunswick City Center
New Brunswick Tomorrow
New Jersey Department of Health
New Jersey Small Business Development Center at Rutgers University–New Brunswick
Robert Wood Johnson University Hospital, Community Health Promotions
Rutgers Cooperative Extension
Rutgers VAX Corps
Visiting Nurse Association of Central Jersey

Equitable Recovery in Newark:

City of Newark, Department of Health and Community Wellness
City of Newark, Newark People's Assembly
Family Manor Restaurant
Greater Abyssinian Baptist Church
New Jersey Small Business Development Center at Rutgers University–Newark
North Jersey Community Research Initiative
Office of University-Community Partnerships, Rutgers University–Newark
Partnership West, Inc.
Rutgers Business School–Newark and New Brunswick
South Ward Special Improvement District

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Sponsors

The Equitable Recovery program is funded in Newark through a grant from Merck & Co., Inc. and in New Brunswick with support from Johnson & Johnson Foundation and the New Jersey Alliance for Clinical and Translational Science.

The program also receives support from private donations to the institute's Health Equity in New Jersey Fund. During Rutgers Giving Day, an annual, universitywide, 24-hour fundraising event that was last held on March 24, 2021, we raised a total of $18,870 for the cause. This total represents $15,370 in donations from 142 individuals and $3,500 in challenge grants. A major contributor to this fundraising success was a matching gift challenge created by members of the Rutgers Global Health Institute Impact Council and friends of Rutgers Global Health Institute.

Learn how to support Rutgers Global Health Institute and the Health Equity in New Jersey Fund:
globalhealth.rutgers.edu/giving

The Equitable Recovery program expanded to Newark early in 2021.

Advocacy

Rutgers Global Health Institute and Rutgers University Alumni Association co-presented a virtual event, "Better Together: How Rutgers is Helping to Create a More Equitable Recovery from COVID-19." Held on June 8, 2021, the event brought together university and community partners for a discussion about pandemic-related challenges minority communities are facing across the state, problems unique to underserved neighborhoods in Rutgers' backyard, and what is needed to address these disparities—during the pandemic and beyond. The event included key Equitable Recovery program leaders and partners.

Watch the presentations and panel discussion:
globalhealth.rutgers.edu/better

Jhoana Mancilla, co-owner of Mozzarella in New Brunswick, says the Equitable Recovery program gave her needed clarity on how to operate her restaurant safely during the pandemic.

STUDENT COUNCIL

Membership

The Rutgers Global Health Institute Student Council works to advance global health engagement opportunities for students throughout Rutgers. The past year's council consisted of 55 undergraduate and graduate students from 16 schools across Rutgers locations. For fiscal year 2021, the council's leaders and the schools they attended were:

CO-PRESIDENTS

Jack Hemphill, Edward J. Bloustein School of Planning and Public Policy

Jodi Lynch, Rutgers Business School–Newark and New Brunswick

CO-CHAIRS

Career Pathway Awareness Committee
Adishi Ranjan, School of Arts and Sciences
Marlena Sabatino, Robert Wood Johnson Medical School

Global Health Case Competition Committee
Rohit Mukherjee, School of Public Health
Hajar Shirley, School of Communication and Information

Global Health Education and Community Outreach Committee
Dana Masand, New Jersey Medical School
Laura Palm, Mason Gross School of the Arts

Rutgers Alumni Engagement Committee
Ashante Patterson, School of Communication and Information
Alexandra Zeng, Edward J. Bloustein School of Planning and Public Policy

Student Organization Collaboration Committee
Oriana Culbert, School of Public Health
Brooke Margolin, School of Environmental and Biological Sciences

Marlena Sabatino served as co-chair of the student council's Career Pathway Awareness Committee.

Highlights

COVID-19 TEST KITS

The student council initiated a volunteer effort to help Rutgers offer SARS-CoV-2 PCR saliva testing to employees and students who were working and learning on campus during the 2020–2021 academic year. In order to supply the university's testing locations with enough materials to meet the ongoing need, test kits were assembled en masse by volunteers during shifts at Rutgers Environmental Health and Safety (REHS) on Livingston Campus in Piscataway, New Jersey.

Through December 2020, the volunteer effort to assemble test kits was being led by Jack Hemphill, co-president of the Rutgers Global Health Institute Student Council and a staff member in the Office of the Senior Vice Chancellor for Clinical Affairs at Rutgers Biomedical and Health Sciences, and Alejandro (Alex) Ruiz, university safety officer and associate director of REHS. After that, the operation grew considerably.

CASE COMPETITION

The student council played a major role in the development of the institute's first-ever Global Health Case Competition, which is described on the following pages.

CASE COMPETITION

Tackling Issues Close to Home

The institute's first-ever Global Health Case Competition was an opportunity for Rutgers students to gain practical experience in global health. The focus was on the impact of COVID-19 on vulnerable communities in New Jersey. Not only did the student participants develop and present solutions to address this timely, local problem, but also they worked in interdisciplinary teams, consulted community stakeholders, and explored many complex factors that affect health.

The competition involved 48 Rutgers student participants (out of 90 applicants) from more than 30 undergraduate and graduate programs universitywide. The students formed eight interdisciplinary teams, each under the guidance of a faculty mentor.

A Semester-Long Experience

Beginning with the kickoff event on January 26, 2021, the teams spent the next 10 weeks working and learning together in preparation for the culminating pitch event and awards ceremony on April 6. The 10 weeks included regular team meetings and skill-building workshops on topics such as "design thinking" and "perfecting your pitch."

All components of this year's case competition took place virtually to comply with COVID-19 public health guidelines. Students, faculty, staff, and community partners used a variety of communications tools to meet, collaborate, attend events, and pitch their solutions.

Community-Based Initiatives

Each team was tasked with designing a community-based initiative that would address one of four broad categories—health care access and delivery, housing and food insecurity, COVID-19 health communication, and pediatric mental health—within the context of the case.

The case, which was fictional but based on real-life scenarios and input from community stakeholders, involved a single mother and her 8-year-old son living in New Brunswick, New Jersey. They were struggling because of factors related to and exacerbated by the COVID-19 pandemic. These factors included food and housing insecurity, health care access, language and literacy barriers, childcare and education dynamics, immigration status, work requirements, cultural considerations, and mounting stress.

The Culminating Event

Each team produced and presented a five-minute video to pitch its proposal to a panel of seven judges comprised of Rutgers faculty and community leaders, and a short question-and-answer session followed.

The pitches were judged according to a scoring rubric that incorporated criteria such as depth and breadth of analysis, sustainability and scalability, comprehensiveness of an action plan and contingencies, clarity, and novelty.

Three teams were declared winners, and they received cash prizes to be shared among team members, as well as support to explore implementing their solutions in the community.

1ST PLACE

ZIPPEA PANTRY

Proposal: Designed to support New Brunswick's existing food security network, ZipPea Pantry is a service that would deliver food, sourced from the city's established food banks and community kitchens, to residents who are not able to access these services for reasons that include transportation, work schedules, domestic responsibilities, and physical abilities.

Team 8 members: Julia Bland, David Chapinski, Douglas Colbert, Judy Lam, Jessie Sullivan, Clairisse Whang, and faculty mentor Shauna Downs

Prize: $1,000

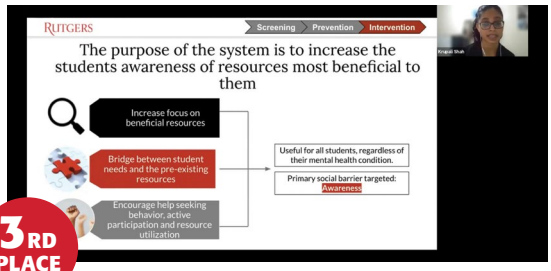
2ND PLACE

PARTNERING WITH RELIGIOUS ORGANIZATIONS FOR PREVENTATIVE SCREENING (PROPS)

Proposal: The PROPS initiative would provide training, equipment, and educational materials to community-based religious organizations, enabling them to offer preventative health screenings, such as blood pressure and weight monitoring, to their members at their worship locations.

Team 7 members: Maria Galkin, Jerry Kong, Katie Lynch, Nidhi Mittal, Nazia Shaheed, Kirsten Spichiger, and faculty mentor Gloria Bachmann

Prize: $500



3RD PLACE

ADDRESSING PEDIATRIC MENTAL HEALTH IN NEW BRUNSWICK HIGH SCHOOL

Proposal: This initiative centers around creating a software app that would be installed on students' school-issued Chromebook computers to provide greater access to mental health screening, prevention, and intervention resources.

Team 6 members: Meha Aggarwal, Abiola Biriowo, Ryan Downey, Krupali Shah, Matt Slavin, and faculty mentor Vicente Gracias

Prize: $250

Read all eight teams' proposal summaries and watch their final pitch videos:
globalhealth.rutgers.edu/casecomp

ACKNOWLEDGEMENTS

The Global Health Case Competition was funded by an Inclusion, Diversity, Equity, and Advocacy (IDEA) Innovation Grant from Rutgers Biomedical and Health Sciences.

The case competition had been in development for more than a year and required many diverse contributions. Thirty-five individuals were responsible for bringing the event to fruition, including:

- 21 Rutgers faculty and community leaders who served as advisors, mentors, and judges
- 8 student members of the Global Health Case Competition Committee within the Rutgers Global Health Institute Student Council
- 4 institute staff members
- 2 virtual event producers

MEMBERSHIP

Universitywide Scope

Rutgers Global Health Institute advances global health efforts across the university's disciplines, schools, and campuses. We host quarterly meetings among global health offices and related centers and programs based in the Graduate School of Applied and Professional Psychology, New Jersey Medical School, Robert Wood Johnson Medical School, Rutgers School of Dental Medicine, School of Environmental and Biological Sciences, School of Health Professions, School of Nursing, School of Public Health, and School of Social Work, as well as Rutgers Global, the universitywide unit of Rutgers that is committed to leading, developing, and promoting international initiatives and education. Through our programming, outreach, and communications, we also build relationships and foster collaboration among faculty, staff, and students who are affiliated with units throughout Rutgers.

Our institute has 105 members from across the university, the Rutgers Health system, and beyond. These members are faculty and professionals who collaborate to support and advance the institute's mission.

Our membership now includes three types: core faculty member, core professional member, and affiliate professional member. Core faculty and core professional members are Rutgers faculty and staff from across the university and its health system; affiliate professional members are non-faculty from organizations outside of Rutgers.

Learn about all of our members:
globalhealth.rutgers.edu/members

Mariam Merced, core professional member

Charles Bergman, affiliate professional member

Michelle Wilson, affiliate professional member

New Members

The following members joined the institute this year:

CORE FACULTY MEMBERS

Edward Alessi	School of Social Work
Joseph Hanna	Robert Wood Johnson Medical School
Joachim Sackey	School of Health Professions

CORE PROFESSIONAL MEMBERS

Denise Gavala	Rutgers University Foundation
Elayne McClaine	Rutgers Business School–Newark and New Brunswick
Mariam Merced	Robert Wood Johnson University Hospital
Tendai Ndoro	Rutgers Business School–Newark and New Brunswick
Adrian Rodriguez	Rutgers Cancer Institute of New Jersey

AFFILIATE PROFESSIONAL MEMBERS

Jennifer Apostol	MCFOODS
Charles Bergman	New Brunswick Tomorrow
Anthony Capece	Elijah's Promise
Manuel Castañeda	New Brunswick Tomorrow
Diana Diaz Tapia	New Brunswick Tomorrow
Pamela Stefanek	New Brunswick City Center
Michelle Wilson	Elijah's Promise

IMPACT COUNCIL

The Rutgers Global Health Institute Impact Council provides strategic input and vital support to the institute. Its members offer advice on institute priorities, advocate on behalf of the institute, and help unite the institute's efforts with opportunities and partners around the world and locally.

This year, the impact council helped launch the institute's Health Equity in New Jersey Fund by creating a matching gift challenge to support the Rutgers Giving Day campaign. That campaign influenced the expansion of the Equitable Recovery for New Jersey's Small Businesses program (see pages 2–6).

Members for 2020–2021 included:

Joseph Camardo
ADC Therapeutics SA

Brenda Colatrella
Merck

John Damonti
Bristol Myers Squibb Foundation

Patricia Doykos
Bristol Myers Squibb

Nimesh Jhaveri
McKesson Corporation

Michele Korfin
Gamida Cell Ltd.

Betsy McNeilly
Morgan Stanley

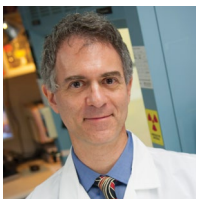
James Sapirstein
AzuRx BioPharma, Inc.

David Scheer
Scheer & Company, Inc.

Jeffrey Sturchio
Rabin Martin

MEMBER HIGHLIGHTS

These are just a few examples of our core members' accomplishments over the past year.



DAVID ALLAND, a professor at New Jersey Medical School and director of the Public Health Research Institute, and a team of researchers developed a rapid test to detect SARS-CoV-2 variants. The test can be adapted for labs that use varying types of equipment and methods.

GLORIA BACHMANN, a professor at Robert Wood Johnson Medical School and director of the Women's Health Institute, was named medical director of the new PROUD Gender Center of New Jersey at Robert Wood Johnson University Hospital–New Brunswick.

RADHIKA BALAKRISHNAN, a professor at the School of Arts and Sciences and the faculty director of the Center for Women's Global Leadership, chaired and moderated the closing plenary session, "Feminist Resistance," at the International Association for Feminist Economics annual conference.

CARA CUITE, an assistant extension specialist for Rutgers Cooperative Extension and assistant professor at the School of Environmental and Biological Sciences, is co-leading a Rutgers initiative to vaccinate farmers and migrant seasonal farmworkers against COVID-19. The work is part of a national program funded by a $9.95 million grant from the Centers for Disease Control and Prevention to the U.S. Department of Agriculture.

REBECCA DAVIS, an associate professor of professional practice at the School of Social Work, was honored as a "Social Work Pioneer" by the National Association of Social Workers Foundation in recognition of her global impact in the realms of children's welfare and expanding social work education, training, and capacity building.

XINQI DONG, director of the Institute for Health, Health Care Policy, and Aging Research and the Henry Rutgers Distinguished Professor of Population Health Sciences, co-presented a congressional briefing about preventing and addressing elder abuse during COVID-19.

SHAUNA DOWNS, an assistant professor at the School of Public Health, received a £249,998 grant from the Agriculture, Nutrition, and Health Academy to implement in Haiti and India a project titled Food Environment Toolbox: Tools to Measure Natural and Built Food Environments in Low- and Middle-Income Countries.

MARIA LAURA GENNARO, a professor at New Jersey Medical School, was the co-editor of a book published by Springer International titled *Advances in Host-Directed Therapies Against Tuberculosis*, and she co-authored two chapters with members of her research laboratory.

SHAWNA HUDSON, a professor at Robert Wood Johnson Medical School, co-wrote a report for the National Academies of Sciences, Engineering, and Medicine titled *Implementing High-Quality Primary Care: Rebuilding the Foundation of Health Care*. The 448-page report evaluates the current state of primary care and outlines a plan to strengthen primary care services in the United States, especially in underserved communities.

OLGA JARRÍN-MONTANER, an assistant professor at the School of Nursing, received a $2.6 million grant from the National Institutes of Health's National Institute on Aging to investigate ways that skilled home health care can benefit people with Alzheimer's disease and other dementias. The project includes a focus on overcoming structural and systemic racism that contributes to lower utilization of palliative and hospice care among Black, Hispanic, and Asian older adults living with advanced dementia.

ANITA KINNEY, director of the Center for Cancer Health Equity at the School of Public Health and Rutgers Cancer Institute of New Jersey and a professor at the School of Public Health, was elected to serve as president-elect of the American Society of Preventive Oncology.

KEVIN LYONS, an associate professor of professional practice at Rutgers Business School–Newark and New Brunswick, was appointed by Governor Phil Murphy to the New Jersey Council on the Green Economy. The council's charge is to develop a blueprint for expanding the state's green economy and building a diverse workforce to support the administration's clean energy and climate goals.

MARY MARCHETTA O'DOWD, the executive director for health systems and population health integration at Rutgers Biomedical and Health Sciences, launched a podcast titled *On the Pandemic*. In the biweekly series, she hosted conversations with university experts and health leaders about the critical challenges involved in recovering from the COVID-19 pandemic.

BENEDETTO PICCOLI, the Joseph and Loretta Lopez Chair Professor of Mathematics and vice chancellor for research at Rutgers University–Camden, is a co-investigator on the multidisciplinary research team that received a $771,695 grant from the National Science Foundation for the project Managing Epidemics by Managing Mobility, which seeks to develop a tool that can help government officials assess the impacts of social distancing and travel restrictions during a pandemic or another crisis.

MARK ROBSON, a Board of Governors Distinguished Service Professor in the School of Environmental and Biological Sciences and a senior policy fellow in global health policy and practice at the Edward J. Bloustein School of Planning and Public Policy, received the university's Daniel Gorenstein Memorial Award for his outstanding scholarly achievement and exceptional service to Rutgers.

BRIAN STROM, chancellor of Rutgers Biomedical and Health Sciences and university executive vice president for health affairs, was named a fellow of the American Association for the Advancement of Science.

SHOBHA SWAMINATHAN, an associate professor at New Jersey Medical School, was the principal investigator for a COVID-19 vaccine clinical trial site at the medical school and University Hospital in Newark. Conducted by Moderna and the National Institutes of Health, the phase three trial enrolled approximately 30,000 volunteers at more than 90 sites across the United States.

SEED GRANTS

Our Global Health Seed Grants support collaborative faculty activities that address health inequities in New Jersey and around the world. The following projects were awarded up to $10,000 each for the 2020–2021 academic year.

A Cross-Sector Partnership to Promote Equity in School Readiness

PROJECT LEAD:

Manuel Jimenez, Department of Pediatrics and Department of Family Medicine and Community Health, Robert Wood Johnson Medical School

COLLABORATIVE PARTNERS:

Center for Literacy Development, Graduate School of Education; Department of World Languages and Cultures, Faculty of Arts and Sciences–Camden; Greater Brunswick Charter School; Eric B. Chandler Health Center, Robert Wood Johnson Medical School

Even before children start kindergarten, their "school readiness"—in a sense, their social, emotional, cognitive, and physical development—is a critical indicator of their long-term well-being. This includes their potential to thrive well into adulthood, including college attendance, career trajectory, and saving money for retirement. Young dual-language learners from low-income Latino backgrounds are at elevated risk for poor school readiness. Additional hardships caused by the COVID-19 pandemic are amplifying the inequities these children and their families face; preschool closures, changing family dynamics, and other disruptions have created an urgent need for innovative solutions to mitigate harms. This interdisciplinary project featured the pilot launch of a family-oriented virtual program that promotes literacy and language acquisition in both English and Spanish through the use of a health-themed curriculum. During the summer of 2020, 35 pre-kindergarten children living in New Brunswick and their caregivers participated in the program, which featured interactive sessions accessible via Zoom and activities for families to do on their own. The project team adapted its assessment model to the virtual environment and gained invaluable insights to inform revisions to the program, which was offered again in the summer of 2021.

Development of a Mobile Health App to Improve the Safe Use, Storage, and Disposal of Opioid Medications

PROJECT LEAD:

Ann Bagchi, Division of Nursing Science, School of Nursing

COLLABORATIVE PARTNERS:

Department of Rehabilitation and Movement Sciences, School of Health Professions; North Jersey Community Research Initiative

Between 1999 and 2017, the United States saw nearly five times as many drug overdose deaths involving prescription opioid medications.

A school readiness project led by Manuel Jimenez featured the pilot launch of a family-oriented virtual program that promotes literacy and language acquisition in both English and Spanish.

A key driver of the epidemic is the misuse of legitimately prescribed opioid medications, such as more frequent dosing than prescribed and sharing prescribed medications with others. Education provided to patients via mobile technology may help to increase their knowledge of appropriate use of opioid medications; however, knowledge does not always translate into behavior modification. This research study conducted focus groups with patients and health services providers about how patient-facing technology can be deployed to increase both knowledge and behaviors consistent with safe opioid use, storage, and disposal. The project also included efforts to develop and test a mobile health app. The app, expected to be completed in 2021, has relevance beyond the opioid epidemic in light of telehealth expansions related to the COVID-19 pandemic.

Development of an HIV Prevention Group Intervention for LGBTQ+ Migrants in South Africa

PROJECT LEAD:
Edward Alessi, School of Social Work

COLLABORATIVE PARTNERS:
Department of Biostatistics and Epidemiology, School of Public Health; McGill University School of Social Work; People Against Suffering, Suppression, Oppression, and Poverty

In South Africa, the country's robust HIV/AIDS response over the years has tended to overlook LGBTQ+ migrants, which is a significant population due to the country's constitutional guarantees of nondiscrimination on the basis of sexual orientation. The resulting disparities LGBTQ+ migrants face present a serious challenge to reducing new HIV infections in South Africa and globally. The COVID-19 pandemic magnifies this risk because existing structural and psychosocial drivers of HIV—such as housing insecurity, lack of health care access, and perceived homophobia within their diaspora communities—intersect with pandemic-related stressors. These dynamics influence unprecedented health inequities for LGBTQ+ migrants in South Africa. This pilot study is focused on developing a group intervention to increase knowledge about HIV prevention, increase self-efficacy in managing HIV risk, and reduce HIV-related stigma among LGBTQ+ migrants in South Africa—a population that represents an expansion of the project's original target, which is a change resulting from early focus groups with community stakeholders. Researchers have since developed a facilitator manual for a four-session group intervention and finalized evaluation methods. An invited paper published in the *Georgetown Journal of International Affairs* offers a preliminary look at the ongoing project.

Ann Bagchi is investigating the use of a mobile app to promote safe opioid use, storage, and disposal.

Development of an Ultrasensitive COVID-19 (Coronavirus) Detection Method Using Upconversion Nanoparticle-Based Biosensing

PROJECT LEAD:
KiBum Lee, Department of Chemistry and Chemical Biology, School of Arts and Sciences

COLLABORATIVE PARTNER:
Sogang University

Testing has been vital to worldwide efforts to control and understand the COVID-19 pandemic. Fast, selective, and highly sensitive tests for SARS-CoV-2 infection are critical for rapid and effective disease management as well as for monitoring the disease's global spread. Biosensor technology, which measures biological or chemical reactions by generating signals proportional to the concentration of a substance in the reaction, offers promise for a new testing method that would provide clinicians and researchers with even more resources to battle COVID-19. This project aims to develop a biosensor that is luminescent resonance energy transfer-based and uses upconversion nanoparticle constructs to detect SARS-CoV-2 in blood samples. The research team has been working to design and synthesize a highly uniform technique for measuring the

fluorescence intensity of graphene oxide emissions, a biochemical reaction that occurs when the coronavirus RNA's aptamer changes structurally, thereby indicating the presence of SARS-CoV-2. They also are incorporating multiple methods for characterizing the synthesized samples, such as optical imagery, spectral analysis, and transmission electron microscopy.

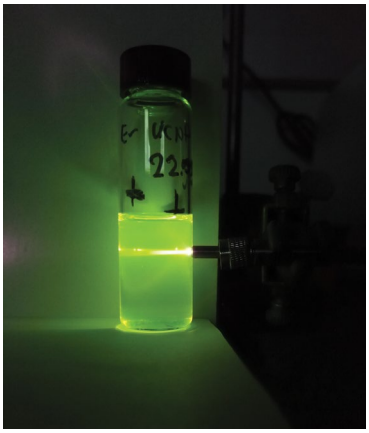
Transdisciplinary Intergenerational Community Engagement Model for Senior Health Promotion in Greater Newark

PROJECT LEAD:

Diane Hill, Office of University-Community Partnerships, Rutgers University–Newark

COLLABORATIVE PARTNERS:

Advocates for Healthy Living Initiative; American Heart Association; CareSparc Consulting, Inc.; City of Newark, Department of Recreation, Cultural Affairs, and Senior Services; East Orange Senior Services; Essex County Division of Senior Services; Greater Newark Conservancy; Greater Newark Health Care Coalition; Hillside Senior Center; Mental Health Association in New Jersey; Newark/North Jersey Committee of Black Churchmen, Inc.; New Community Corporation; New Hope Baptist Church; New Jersey Medical School; Rotary Club of Newark; Rutgers African-American Alumni Alliance; Rutgers Cancer Institute of New Jersey; Rutgers Global Health Institute; Rutgers Institute for Health, Health Care Policy, and Aging Research; Rutgers University–Newark Gourmet Dining; School of Public Affairs and Administration; ScreenNJ; *The Positive Community Magazine*; University Hospital; Urban Healthcare Initiative Program; West Ward Community Coalition; Woman in Media-Newark; Zonta Club of Essex County



Experimentation in KiBum Lee's laboratory shows green luminescence indicating the existence of SARS-CoV-2 RNA.

Urban health inequity is rampant throughout America, creating detrimental lags in health literacy and appropriate health care utilization within communities of color. The COVID-19 pandemic has only exacerbated these problems by disrupting ways of connecting with people, thus introducing new difficulties in ensuring access to accurate health information and appropriate services. These factors present extraordinary health and wellness challenges for older adults living in Greater Newark. This intervention launched Living Your Best Life Virtually, a collaborative, community-engaged series to promote information sharing around COVID-19 and encourage healthy living practices for older adults. Over five weeks, programs offered on Mondays, Wednesdays, and Fridays included wellness education workshops, recreational activities, fitness classes for older adults, inspirational speakers, mindfulness and guided meditation, music therapy, and resource sharing. The project team offered technical support to enable community-resident seniors' participation in the Zoom and WebEx-based programs. The series catalyzed a partnership among the university, civic organizations, and retail entities to provide internet-ready tablets, training, coaching, and supportive services to mitigate the digital divide among older adults. The project relied on the Transdisciplinary Intergenerational Community Engagement Model created by Rutgers University–Newark's Office of University-Community Partnerships. This model provided a means of engaging the community meaningfully along with community partners as co-creators, facilitators, and moderators, for their mutual benefit and satisfaction.

INTERNATIONAL ENGAGEMENT

The baobab tree, native to Botswana, is known as the "tree of life."

Rutgers faculty are involved in global health efforts in the majority of the world's countries. Our most recent universitywide survey of faculty projects in global health demonstrated a Rutgers presence in 114 countries. Rutgers' impact can be felt in Brazil, China, Colombia, Democratic Republic of the Congo, Ghana, India, Indonesia, Kenya, Nepal, Nigeria, South Africa, Tanzania, and Thailand, to name just a few examples.

For a bigger picture of Rutgers' impact around the world, visit our online map of faculty-submitted global health projects: **globalhealth.rutgers.edu/projectmap**

In Botswana, Rutgers Global Health Institute has created a unique partnership. The model includes a staff and ongoing operations on the ground. This has helped us continue and expand our impact amid pandemic-related travel restrictions.

Botswana-Rutgers Partnership for Health

Cancer is far deadlier in sub-Saharan Africa than it is in other regions of the world. The cancer mortality rate in the southern African country of Botswana is close to 75 percent, and many patients present with advanced disease. Since 2018, the Botswana-Rutgers Partnership for Health has been engaged in a multiyear effort to build a national, comprehensive cancer care and prevention program together with Botswana. Ultimately, this program can serve as a model for other African nations and developing countries around the world.

The COVID-19 pandemic has introduced many new challenges. Containing viral transmission of SARS-CoV-2, the novel coronavirus that causes COVID-19 disease, remains an urgent priority. Dangerous variants, such as the Delta variant, continue to emerge and are leading to steep increases in infections and deaths. Meanwhile, vaccines are still scarce throughout Africa, even for the protection of health care workers.

The people of Botswana have some of the world's highest rates of tuberculosis and HIV infection, as well as rising rates of the chronic health conditions that may increase their risk of COVID-19 complications. In addition, Botswana's health care system, as with much of sub-Saharan Africa, has faced a number of challenges in its efforts to mobilize the additional resources needed for major outbreaks. The work of the partnership has necessarily expanded to address the COVID-19 pandemic and to ensure the fight against cancer continues.

BOTSWANA-RUTGERS PARTNERSHIP

COVID-19 National Webinar Series

The Botswana COVID-19 Webinars, launched in April 2020, have provided Botswana's frontline health workers with crucial knowledge and skills in the fight against COVID-19. The program has enabled fast, efficient dissemination of information on COVID-19 preparedness, recovery, and resilience, along with highly specialized topics such as effects on the kidneys and pulmonary embolism. The interprofessional team of presenters includes experts in medicine, public health, and epidemiology, as well as government health officials. The webinars are organized by the Botswana-Rutgers Partnership for Health in collaboration with the Botswana Ministry of Health and Wellness, the University of Botswana, and the Botswana-Harvard AIDS Institute Partnership. By the end of fiscal year 2021, 30 webinars had been produced for this ongoing series.

View the webinar series:
globalhealth.rutgers.edu/botswanacovid

Telehealth Partnership

A grant from the U.S. Department of State enabled the creation of a clinical telehealth program in Botswana. The funding is part of the University Partnerships Initiative, which seeks to strengthen existing ties and foster new collaborations between U.S. and African universities.

The project supports the Government of Botswana's pandemic mitigation efforts, including the Botswana COVID-19 Webinars, in remote and under-resourced communities across the country. It also establishes a framework to bolster health systems through telehealth and expanded educational opportunities.

Initially, the program is focusing on COVID-19. The improved telehealth capabilities will also help with the care and prevention of other infectious diseases, such as tuberculosis and HIV/AIDS, and help lay the groundwork for applying telehealth in the treatment of noncommunicable diseases such as cancer, diabetes, and heart disease.

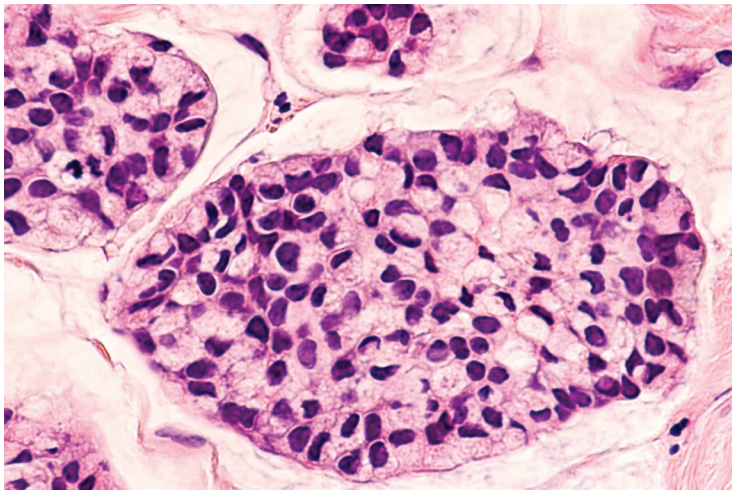
Refeletswe Lebelonyane, program manager for the Botswana-Rutgers Partnership for Health, spoke during a public announcement of the clinical telehealth program funded by the U.S. Department of State.

Cancer Pathology Working Group

Pathology and laboratory medicine are critical to enabling accurate and early diagnoses of cancer, which in turn leads to improved chances of treatment and survival. However, these areas of Botswana's health system require significant capacity building to fast-track cancer diagnoses, which currently can take months.

The Botswana-Rutgers Cancer Pathology Working Group was launched in September 2020 to harness a collective commitment across Rutgers, Botswana's Ministry of Health and Wellness, and the University of Botswana to improve pathology and laboratory medicine services for cancer throughout Botswana's health system. The working group consists of 28 members across diverse professions, including pathology, oncology, laboratory medicine, informatics, and molecular biology. The group's chairs are Kirthana Sharma, senior research manager at Rutgers Global Health Institute; David Foran, chief informatics officer and executive director of biomedical informatics and computational imaging at the Rutgers Cancer Institute of New Jersey; and Richard Marlink, director of Rutgers Global Health Institute.

The group is currently involved in creating a digital collection of pathology cases for training purposes. Working in collaboration with the University of Botswana's Department of Pathology, the Rutgers Cancer Institute's biomedical informatics team is launching digital imaging capabilities for pathology slides. This will allow for a diverse spectrum of cancer biospecimens to be included as a teaching resource within a digital quiz bank. Foran and Wenjin Chen, who oversees imaging services at Rutgers Cancer Institute and leads the clinical data warehouse team within its biomedical informatics division, are leading this effort at Rutgers. The digital imaging capabilities and quiz bank will allow for knowledge exchange between trainees at both institutions.



The Botswana-Rutgers Cancer Pathology Working Group is collaborating to create a collection of pathology cases for training purposes.

Needs Assessment

The Botswana Comprehensive Cancer Care and Prevention Needs Assessment is an evaluation of the current health system and services available for cancer across the nation's four hospitals that are referred to as "cancer centers." These sites, which either currently provide or are planning to provide some level of oncologic care, are Princess Marina Hospital in Botswana's capital city of Gaborone, Letsholathebe II Memorial Hospital in Maun, Nyangabgwe Referral Hospital in Francistown, and Sekgoma Memorial Hospital in Serowe.

This evaluation encompasses not only health facilities but also perspectives from health care providers, cancer patients and survivors, caregivers, members of the public, and local nongovernmental organizations that support cancer care and prevention programs. The evaluation was completed in April 2021 and included site visits, focus groups, and questionnaires; data analysis is underway.

The needs assessment will provide key insights into awareness about cancer and its prevention, disparities in access to cancer-related services, and the difficulties

of continuity of care based on different locations and types of facilities in Botswana. With support from the Bristol Myers Squibb Foundation, the national cancer needs assessment also includes an assessment of cancer awareness at a population level to inform approaches for broader health campaigns throughout the country.

Breast Cancer Research

Breast cancer is a leading cause of cancer-related deaths for women in Botswana, second only to cervical cancer. A lack of screening and early detection, long delays in diagnosis, and limited treatment options mean that many women present with breast cancer at advanced stages, at which point recovery is far less likely.

Improving Timely Access to Care for Women with Advanced Stage Breast Cancer in Botswana is a research project funded by the Union for International Cancer Control's SPARC MBC Challenge (Seeding Progress and Resources for the Cancer Community: Metastatic Breast Cancer Challenge). The project team is uncovering and addressing gaps in breast cancer care at the patient level, clinician level, and health system level.

Over the past fiscal year, the team has:

- conducted focus group discussions with breast cancer patients and their caregivers;
- administered a questionnaire to health care personnel at Princess Marina Hospital in Gaborone to evaluate knowledge, attitudes, and practices;
- conducted provider training on fine needle aspiration, a relatively simple and safe biopsy procedure;
- developed a comprehensive training manual for, and begun training, patient navigators to assist and support breast cancer patients with advanced disease; and
- established agreements to offer training on fine needle aspirations and Tru-Cut needle biopsies, as well as patient navigator training, at five public hospitals: Bamalete Lutheran Hospital in Ramotswa, Scottish Livingstone Hospital in Molepolole, Kanye Adventist Hospital in Kanye, Good Hope Primary Hospital in Good Hope, and Athlone District Hospital in Lobatse.

The Botswana Comprehensive Cancer Care and Prevention Needs Assessment is focused on hospitals in Gaborone, Maun, Francistown, and Serowe.

Oncologist Tlotlo Ralefala examines a woman in Botswana.

Global Oncology Fellowships

Since 2018, the global oncology fellowship program has provided Rutgers hematology/oncology fellows with a global oncology experience and has contributed to improving cancer care and prevention in Botswana. Rutgers Global Health Institute co-developed the fellowship program through partnerships with Rutgers Cancer Institute of New Jersey, Robert Wood Johnson Medical School, the University of Botswana, and Princess Marina Hospital in Gaborone, Botswana.

Each year, two fellows participate in a yearlong program that typically includes a one-month research elective in Botswana. However, the COVID-19 pandemic made international rotations impossible this year.

This year's fellows, Sharon Li and Sadaf Qureshi, participated in a training program designed to educate Botswana's medical officers and nurses on oncologic emergencies. Li and Qureshi expanded on the program's curriculum, contributing and evaluating (through surveys and analysis) nine new lectures. They also participated in live, case-based video training and presented their findings at the 9th Annual Symposium on Global Cancer Research. They also collaborated on a large-scale analysis of non-chemotherapy treatments in Botswana and created a lecture series on the topic.

FACULTY IMPACT IN BOTSWANA

Core Faculty-Led Projects

Multiple Rutgers Global Health Institute core faculty members are engaged in the Botswana-Rutgers Partnership for Health projects described on the preceding pages. The following core faculty members of Rutgers Global Health Institute have led or are leading additional global health projects in Botswana.

Francis Barchi, an associate professor in the Edward J. Bloustein School of Planning and Public Policy, is spearheading two projects in Botswana.

In a multiphase study in northwestern Botswana, Barchi and colleagues are investigating adolescent sexual and reproductive health needs, knowledge, and behavior. Adolescent risk behaviors and teen pregnancy are major health concerns in Botswana, where three in every 10 new HIV infections in 2018 occurred among young people aged 15–24 years, and where the adolescent fertility rate is higher than global averages. The first phase of this study involves surveying 4,000 secondary school students and out-of-school youth to understand how their knowledge, attitudes, and access to health information shape their behaviors around sex, gender, and HIV.

A second study is using social media, cell phones, and digital technologies to gain insights into how the COVID-19 pandemic is impacting the economic health of households in Botswana and how this, in turn, is affecting household dynamics and relationships between spouses and partners.

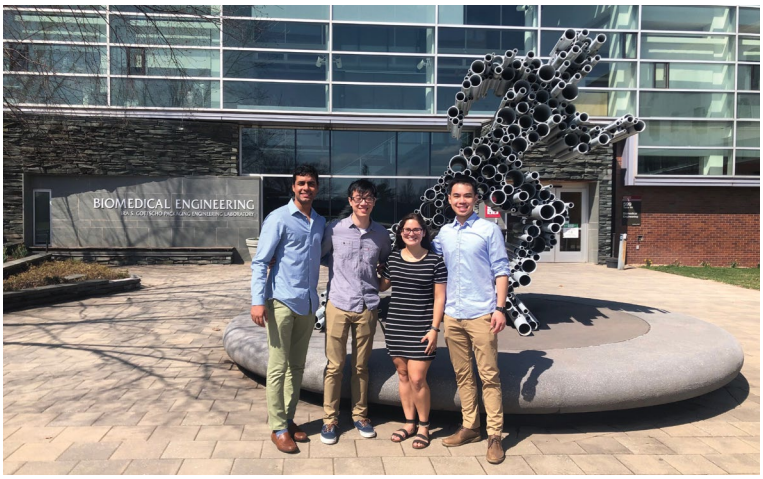
Barchi's collaborative partners on both projects are the nongovernmental human rights organization WoMen Against Rape in Maun, Botswana, and the University of Botswana in Gaborone, Botswana.

Joachim Sackey, an assistant professor in the School of Health Professions' Department of Clinical and Preventive Nutrition Sciences, is the principal investigator for a project focused on investigating dietary quality and associated cardiovascular disease risk factors among adults living with HIV in Selebe Phikwe, Botswana. Botswana has a high prevalence of HIV, and the Selebe Phikwe region has the highest prevalence nationally. As people with HIV live longer due to effective medication, their rates of cardiovascular disease risk factors—such as obesity, hypertension, elevated lipid levels, and type 2 diabetes—are increasing.

The COVID-19 pandemic has delayed initiation of this funded, IRB-approved study. Once the situation improves, the study team will recruit study participants, screen them for cardiovascular risk factors, and conduct interviews to better understand factors that influence diet quality in this vulnerable population.

Sackey's collaborative partners are the Department of Interdisciplinary Studies in Rutgers' School of Health Professions, Rutgers Global Health Institute, and the National Food Technology Research Centre in Kanye, Botswana.

Mark Pierce, associate professor in the School of Engineering's Department of Biomedical Engineering, advised the Rutgers undergraduate team that won first place in the Rice 360° Institute for Global Health student design competition on March 26. Team members Kyle Lee, Kyle Mani, Megan Maniar, and Joseph Nguyen used machine learning to train a neural network to classify cell phone images of biopsied breast tissue. In some low-resource settings, women wait months for biopsy results, and the team hopes its app could reduce wait times to just a few hours. The students' app was 96 percent accurate in classifying tissue as benign or malignant and 78 percent accurate in identifying tumor subtypes.



Kyle Mani, Joseph Nguyen, Megan Maniar, and Kyle Lee, an engineering student team advised by associate professor Mark Pierce, won first place in the Rice 360° Institute for Global Health student design competition.

PHOTOGRAPHY: Licelot Gonzalez; Arpita Jindani; Nick Romanenko; Fred Stucker; Jinho Yoon; Ministry of Health and Wellness, Government of Botswana

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