Heroic life-saving efforts abounded in Puerto Rico after Hurricane Irma, then Hurricane Maria, ripped through the island last year, bringing destruction and loss of electric power and potable water.

After Hurricane Maria, Moffitt Cancer Center team members joined the Tampa Bay Rays on a mission to deliver supplies (over 10,000 pounds of medical and hurricane relief supplies, food and water) to Puerto Rico, to aid in relief efforts. The returning plane held cancer patients and their caregivers who continued their care at Moffitt.

The flight home also held precious cargo that will help assure a healthier tomorrow for people of Hispanic descent. Moffitt team members had packed some unique equipment for the trip: liquid nitrogen-chilled storage/shipping containers nicknamed “mushrooms” because of their shape. They were used to preserve and transfer tissue samples gathered over the past 10 years from cancer patients and healthy “controls” at Ponce Health Sciences University (PHSU) in partnership with Moffitt.

“The research partners in Ponce, Puerto Rico, were using backup generator power to keep the precious samples frozen and were quickly running out of time to get the samples to a stable power source,” said Moffitt researcher Teresita Muñoz-Antonia, PhD.

Two rescue trips ultimately brought more than 2,000 samples to Moffitt for safe storage until a consistent source of electric power is restored to the island. Through the dedicated efforts of many, “all the samples were saved,” said Muñoz-Antonia. “Losing these samples would cripple multiple research projects at Moffitt and Ponce, who have forged an academic partnership.” The research is critical to guiding personalized medicine efforts in the Hispanic population.

The Moffitt research team, including Muñoz-Antonia, who has strong ties to Puerto Rico, and Daniel Sullivan, MD, secured an initial planning partnership grant in 2006 to work with PHSU.

“Losing these samples would cripple multiple research projects at Moffitt and Ponce, who have forged an academic partnership.”
THEIR AIMS: To establish programs to enhance basic and clinical research, enrich cancer outreach, expand cancer education, and to create a unique Hispanic/Latino Biobank, the first functional, centralized Hispanic cancer-related biobank in Puerto Rico. The tissue samples were collected from consenting cancer patients and healthy controls. “To secure a grant in 2006 means we started working several years beforehand,” says Muñoz-Antonia.

The partnership has led to the development of a robust network and infrastructure necessary for a sustained long-term collaboration to improve cancer outcomes in the Hispanic/Latino population.

It is challenging to get enough samples from Hispanic patients, because they and other minority groups are underrepresented in all of the big databases. “If you have a mutation that happens in only 10 percent of the people, to be able to detect it, you need to have more than 10 people to detect it once,” said Muñoz-Antonia. “For example, when researchers look at lung cancer in some of the data bases, they have 900 tissue samples of white people and 15 samples of Hispanics. With these numbers you cannot detect a 10 percent difference. This is one of the reasons it is important to have a targeted biobank.”

If these biosamples were not saved, it would have “pushed the research back for years,” she adds.

GENETIC ALTERATIONS HOLD KEY ROLE IN DIAGNOSIS

An understanding of these genetic alterations among Hispanics is important. It will help assure that people in this population can be diagnosed accurately and receive appropriate therapy, the goal of personalized medicine.

We are learning, through this research, that the frequency and nature of mutations (genetic alterations) can be different among the Hispanic population and non-Hispanic whites. These alterations could make a difference in a patient’s response to a particular treatment.
The genetic alterations also could make a difference in diagnosis. For example, for mutation testing, physician-scientists sequence for mutations that are already known. But Hispanics may have mutations not yet discovered, and thus not included in current screening tests.

“This research is not yet benefitting today’s patients, because we are still working to secure enough numbers to make sure that our observations are accurate. It takes a long time to do that,” said Muñoz-Antonia. “We believe these initiatives will help future patients.” In essence, the work is “saving the future.”

Her take on the future? “We want to grow! And we want to get more samples,” says Muñoz-Antonia. She foresees obtaining more samples through consented patients in Puerto Rico over time as electric power continues to be restored throughout the island.

The partnership is led at Moffitt by Drs. Muñoz-Antonia and Sullivan and at PHSU by Drs. Jaime Matta and José Torres.

Much of this potentially life-saving work related to biosamples happens because of the PHSU and Moffitt teams, notes Muñoz-Antonia. The PHSU team is led by Dr. Idhaliz Flores; her team includes Maria Rojas and Dagmar Correa. The Moffitt team includes pathologists Dr. Domenico Coppola and Dr. Marilín Rosa, along with Edna Gordian, Ed Seijo and Rodrigo Carvajal.

**MOFFITT POST-HURRICANE RELIEF EFFORTS**

As Hurricanes Irma and Maria left millions in Puerto Rico and the Caribbean without electricity, water and much-needed supplies, Moffitt created a Puerto Rico Response workgroup to address how best to assist in the recovery efforts.

Moffitt team members and volunteers collected monetary donations, organized and packed boxes of goods and supplies that went to Puerto Rico. Kaaron Benson, MD, medical director of the Blood Bank at Moffitt, worked with the OneBlood organization in Florida to coordinate a blood drive in October, 2017, targeted to help those in Puerto Rico affected by the hurricane; 35 people donated life-saving blood.

And for the United Way campaign at Moffitt Cancer Center, Puerto Rico support was added as one of the donation options.

The Moffitt Foundation made it easy to donate online in support of Moffitt’s Puerto Rico Relief efforts, by visiting Moffitt.org/Give, click “Give” and direct your gift to “Other” in the drop-down menu. Then type “Puerto Rico” in the Details for “Other” box.

“**This research is not yet benefitting today’s patients, because we are still working to secure enough numbers to make sure that our observations are accurate. It takes a long time to do that.”**

Each weekend, Moffitt physicians and advanced practice providers traveled to Puerto Rico, bringing medical supplies and providing medical care, especially in out-of-the-way areas. (See “Moffitt Helps Rural Puerto Rico Post-Maria,” page 19.)

In addition to the cancer patients from Puerto Rico who were transported to Tampa to continue their care at Moffitt, an increasing number of patients from Puerto Rico are continuing to come to Moffitt for treatment. 

A few of the many Moffitt physicians and scientists who work with the Ponce-Moffitt partnership. L-R: Drs. Jamie Teer, Scott Antonia, Dan Sullivan, Teresa Muñoz-Antonia, Shari Pilon-Thomas, Domenico Coppola.
Teresita Muñoz-Antonia, PhD, Daniel Sullivan, MD, and many others breathed a deep sigh of relief when the National Institutes of Health (NIH) renewed the Ponce Health Sciences University-Moffitt Cancer Center partnership grant in October 2017.

The NIH grant award to Moffitt of almost $9 million over the next five years, and a similar partnership award to the Ponce Health Sciences University (PHSU), means that work between the physicians and researchers at Moffitt and PHSU will continue, with the aim of driving personalized medicine efforts in the Hispanic population.

PHSU and Moffitt have forged a strong working relationship founded on seamless communication with mutual support and benefits.

“There are many of us involved in this, not only those of us from Puerto Rico but also people from Moffitt who are very committed and believe this is the right thing to do,” says Muñoz-Antonia.

With partnership resources and significant commitment from both institutions, joint programs are enhancing basic and clinical research, enriching cancer outreach, expanding cancer education, and creating a unique Hispanic/Latino biobank. All this leads to the development of a robust network and infrastructure necessary for a sustained long-term collaboration to improve cancer outcomes in the Hispanic/Latino population.

The partnership’s immediate impact includes identification of new mutations in breast and lung cancer in Hispanic/Latino patients, recruitment of new faculty essential for sustainability and growth, and 84 community outreach educational activities for Hispanic/Latinos in Florida and Puerto Rico.

“The grant has elements of training and education led by Dr. Ken Wright,” says Muñoz-Antonia. “And one of the beauties of that is the students not only come here to Moffitt, but also we send students from Moffitt to participate in and do rotations in medical school in Ponce.” Everyone benefits through this bidirectional partnership; neither benefits more than the other.

The initial and ongoing purpose of the grant is to enhance health disparities research at Moffitt, and cancer research in PHSU and cancer care in Southern Puerto Rico. A major goal of the partnership is increasing the number of researchers involved in cancer health disparities and growing the research and training.

“For Moffitt it is important to enhance our training, care and research in health disparities. And this focus is especially important for us because Hispanics are a large part of our catchment area, the area we serve,” says Sullivan. “Through this partnership we can learn how to better serve the health needs of Hispanics through targeted research and training.”

“Without this knowledge a physician might not think to ask a patient certain questions that could yield beneficial information,” says Muñoz-Antonia. "We want to see more investigators asking questions that pertain specifically to Hispanic health disparities and genetics.”

From a clinical services standpoint, numerous people have been involved with this partnership to help with initiatives in Puerto Rico. As part of one such successful initiative, Melissa Alsina, MD, has established a bone marrow transplant clinic in Puerto Rico. Fellows from the San Juan Veterans Administrative Hematology-Oncology Program in Puerto Rico do a rotation at Moffitt. Alsina, who also has ties to Puerto Rico, is an associate professor of medicine in the Blood and Marrow Transplant Program and head of the Multiple Myeloma Transplant Program at Moffitt.

“Without this knowledge a physician might not think to ask a patient certain questions that could yield beneficial information,” says Muñoz-Antonia. "We want to see more investigators asking questions that pertain specifically to Hispanic health disparities and genetics.”

The community outreach and education component, led by Drs. Susan Vadaparampil and Clement Gwede, is another key part of the partnership. Latinos y el cáncer in Tampa is well received in the Hispanic/Latino community and well attended, largely because the participants appreciate the opportunity to talk to cancer experts who speak Spanish. In Puerto Rico the educational programs are called Hablemos de cáncer.

“It is a huge team effort to produce these community outreach and educational events,” says Muñoz-Antonia. "Moffitt physicians and team members who are Hispanic, whether part of the partnership or not, are always willing to help.”

Photography: Ray Reyes

PhD candidate Jaileene Perez-Morales of Puerto Rico (L) interned in Dr. Muñoz-Antonia’s research lab, through the Moffitt-Ponce partnership.
Every Friday night from October through December 2017, a handful of Moffitt physicians and advanced practice professionals boarded a plane bound for hurricane-ravaged Puerto Rico.

They would often pay their own airfare – and even donate to buy the medicines and supplies they would need for the busy weekend ahead. Come Sunday, they’d be flying back to Tampa, tired but ready for their patients at Moffitt on Monday morning.

Moffitt weekend missions in late 2017 brought needed medical care to rural areas devastated by Hurricane Maria on Sept. 20. As part of Moffitt’s Puerto Rico Response workgroup, BMT physician Melissa Alsina, coordinated efforts with doctors on the island, targeting a different town with each visit. These Puerto Rican colleagues spread the word to make sure cancer patients were made aware, but the volunteers were most likely to find themselves dealing with primary medical needs – making house calls to places where few homes were left standing.

Alsina shares the story of their visit to a remote area in Utuado, a town near the center of the island, its sole access bridge destroyed by the category 4 storm. A makeshift rope-and-pulley system allowed locals to load baskets full of food, water and necessities for their fellow Puerto Ricans in the isolated town. It’s heartening to see such cooperation, says Alsina, but “it makes you wonder – how is this going to get better? It will take a long time.”

Weekly trips continued through the end of 2017. Since then, Alsina and Dr. Jose Leonel Ochoa-Bayona have traveled to Puerto Rico for the monthly bone marrow clinic. Additionally, Alsina has taken medical supplies to a public hospital in San Juan.

Moffitt has strong connections to Puerto Rico, including a partnership with the Ponce Health Sciences University in Ponce, Puerto Rico, to facilitate high-quality research, teaching and outreach efforts that focus on the Hispanic population. Many team members have family and roots in Puerto Rico, including Alsina who earned her MD, completed her residency and first year of her hematology fellowship in San Juan.

For Alsina, the gratitude for these volunteer efforts is as sincere as that of the everyday Puerto Ricans being helped. “I have no words to express how much we appreciate your effort and kindness.”