

Adapt and Evolve: How our Internal Medicine Residency changed in Hurricane Maria

Weather reports were predicting a direct hit by Hurricane Maria and Puerto Ricans were not prepared. The island had not been affected by a major hurricane in more than a century, and two weeks earlier we were lucky to be barely scathed by Hurricane Irma, which was a category 5. However, on September 20, 2017 Hurricane Maria engulfed the island with torrential rains and howling winds, changing forever our landscape. Maria caused an unprecedented humanitarian crisis that none of us have experienced before. The magnitude of human tragedy can never be quantified, but the property damage has been listed to be close to 90 billion dollars (1).

In the first days post Maria there was complete lack of power throughout the island and telecommunications were impaired. Landlines were replaced by cell phones, yet the service was both spotty and limited, as most relay towers were inoperable. There was one radio station available to transmit news during the hurricane and in the days that followed.

A month after Maria, more than 85% of the population remained without power and the water service had not been fully restored. As of November 1st, 51 people were reported dead as a result of the hurricane and 109 were missing (2). A significant portion of the population were still in refugee camps and some have been abandoned throughout the entire island's mountain range despite the presence of the Federal Emergency Management Agency, US military and National Guard, in this emergency. Puerto Ricans are resilient, but we are struggling with incredible adversity and are feeling weary and tired. There is a desolate feeling throughout the island, even more so in the sick and the people who are confined to their beds. The feeling of powerlessness and lack of hope, has rendered us anxious and burdened.

Amid all this human tragedy there are fears and concerns of first responders and doctors. We, as health care professionals, are expected to be resilient to catastrophes and to act in a quick, organized manner. It is in our medical vows, that regardless the situation, we should inspire confidence and composure. As doctors, we are taught to put aside all our personal feelings and deliver our best. In Hurricane Maria, not even the most experienced physician was ready to encounter such despair and generalized chaos. Medical students, interns, and residents, who were in the beginning of their training, had to face this disaster hands on.

The University Hospital of Adults (UHA), located at the Puerto Rico Medical Center, represents the main academic setting for most of the residency and subspecialty programs of the University of Puerto Rico School of Medicine. As the only supra-tertiary hospital in the island, mostly ran by residents, the UHA became a strategic setting for patient care during and after Hurricane Maria. Despite the critical conditions, the hospital was able to continue operations due to a contingency plan that included power generators, cisterns and personnel mobilization. Residents and faculty faced unique challenges such as property loss, lack of communication, and difficult access to fuel, transportation and food. During the heavy rains and flooded roads, we provided care for patients, making them the true heroes that should be recognized for their efforts.

Since Disaster Medicine is not usually included in the Internal Medicine training curriculum, we lacked a well-structured plan in case of a natural disaster. Therefore, we were forced to rapidly develop and implement a contingency plan that we called "The ABC equation plan". This plan, instituted from September 19 to October 10, 2017 was established to help residents, as well as faculty members to be able to continue caring for our patients in a considerate manner to our residents, attendings and fellows. Moreover, it allowed to provide enough time off for personal needs, given the overwhelming circumstances such as impossible lines that were happening at gas stations, supermarkets and banks. The plan consisted in allocating our residents and faculty members into three equivalent groups: A, B and C; with both emergency and ward coverage during 24-hour in-house shifts and 48-hours off (Figure 1). Residents worked together to achieve cohesion, planning and team-work to cover all hospital

Team A	Team B	Team C
Program Director		
Chief Residents (2)		
Attendings (3)	Attendings (3)	Attendings (3)
PGY-3 (6)	PGY-4 (1)	PGY-3 (6)
	PGY-3 (5)	
PGY-2 (5)	PGY-2 (5)	PGY-2 (5)
PGY-1 (7)	PGY-1 (7)	PGY-1 (7)
Coverage		Number of Residents
University Hospital Ward		PGY-3 (3)
		PGY-2 (3)
		PGY-1 (3)
ER Consults		PGY-3 (1)
		PGY-2 (1)
		PGY-1 (2)
University Hospital ICU		PGY-1 (1)
Dr. Federico Trilla Hospital Ward		PGY-1 (1)
Dr. Federico Trilla Hospital ICU		PGY-3/4 (1)
Dr. Isaac Gonzalez Ward		PGY-2 (1)
		PGY-1 (1)
PGY: Postgraduate Year, ER: Emergency Room, ICU: Intensive Care Unit.		

Figure 1. Residency distribution on ABC equation plan.

needs. Responsibilities included: ward rounds, intensive care unit coverage, admitting officer shifts and ward rounds at two other institutions (University Hospital of Carolina, Dr. Federico Trilla, and Oncological Hospital, Dr. Isaac Gonzalez Martinez). It was hard work, but the residents managed to cover all services adequately and companionship was the law of the land.

All our medical students, interns, residents, fellows and faculty, in one way or another were rallied into service, facing many challenges. The weight of our own personal fears and concerns was not enough to lessen any of the heroic efforts done by our teams. It showed that doing what we are passionate about and witnessing the outcomes, gives us a sense of satisfaction and hope in the midst of this ongoing catastrophe. We are continuously adapting to the challenges that arise and making the best of this experience. The lessons learned during this tragedy cannot be taught in any classroom or seen in any ward. D.H. Sidebottom once said, "Stars can't shine without darkness". In our training program, we have experienced darkness like no other in our history, and through it, we have witnessed how bright our stars shine.

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