

Panel: Natural disasters and HIV care: impact and lessons from Hurricane Maria
Introduction and framework for the workshop

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Disclosures

Presenter

Research Funding provided by NIH and HRSA

Integrated University of Puerto Rico Clinical Trials Unit

University of Puerto Rico Mentoring Institute for HIV and Mental Health Research

Ryan White Tittle IV Women, Infants, Children, Youth and Affected Family Members AIDS Healthcare

Integrated Health Services, Case management, and new case identification of women and men living with HIV

Hurricane-related maternal stress, infant outcomes and resilience factors

Industry sponsored trials (payment to the institution)

Gilead US 380-1878. ACTIVE

Gilead US 380-4030 ACTIVE

Ending in September:

MERCK MK292-0518

Janssen TMC 114HIV 2015

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Learning Objectives

At the conclusion of this activity, the participant will be able to:

1. Appraise the interaction of social and clinical factors associated to the impact of a natural disaster on the HIV population.
2. Recognize the role and needs of the different stakeholders in the aftermath of a large scale natural disaster.
3. Formulate recommendations aimed at specific groups and contexts affected by a disaster.
4. Generate ideas to foster resilience and channel resources to HIV patients, their families and communities.
5. Identify strategies to upgrade infrastructure and update policies aimed at the preparation and mitigation stages of a disaster.
6. Outline recommendations for future research activities.



Puerto Rico before Hurricane Maria

- PR had the most severe and prolonged economic recession since the great depression in the 1930's.
- Between 2006-2016 Puerto Rico's economy shrunk by nearly 16% and its public debt reached more than \$73 billion in 2017, due to faulty bonds and \$49 million due to pension obligations.
- In June 2016 the US Congress approved the **Puerto Rico Oversight, Management and Economic Act (PROMESA)** which effectively placed the island government under direct federal control.
- **46.5%** poverty level
- **\$19,350** median household income
- **10.1%** unemployment rate
- **35%** employer sponsored health insurance
- **49%** Medicaid, CHIP coverage
- **65%** of patients medically indigent
- **6%** uninsured
- **15%** living with disability
- **1%** Flood Insurance
- Building codes unable to withstand 125 mph winds
- Lack of ownership deeds

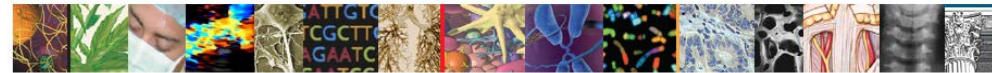
Streets in Puerto Rico Blocked by Debris from Hurricane Maria.

The View from Puerto Rico — Hurricane Maria and Its Aftermath

Carmen D. Zorrilla, M.D.

“ My residents were overwhelmed, not just from physical exhaustion but from our patients’ stories and the difficult decisions we had to make. We are not trained in disaster management, so we *had to draw on our own personal and emotional strengths in managing the situation, aiming to provide high-quality and efficient care while maintaining our professionalism, humanism, and empathy.* ”

Zorrilla CD. N Engl J Med 2017. DOI: 10.1056/NEJMp1713196



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“Continuous HIV High-risk Obstetrical Services During a Hurricane”



Baby Z was born at home on September 25, 2017.

Her mother is living with HIV and had a prior C/S on 2015.

The ambulance never arrived, after the birth, they went to a local health center where the umbilical cord was cut and then she was taken to our hospital.

This photo was taken on October 24 during her post-partum visit.

She was on HAART and had undetectable VL, but wanted a repeat C/S for this pregnancy.

Fortunately, the baby is HIV negative.



Impact of Hurricane Maria on the Health Care System in PR

- Complete disruption of Hospital care for more than a month with partial services afterwards.
- Complete disruption of Primary Care and Prevention services.
- Interruption of all elective surgery, procedures and care, including cancer surgery, chemotherapy for months.
- Interruption and disruption of Dialysis treatments.
- Interruption of Pharmacy services due to lack of power and internet.

Increased mortality reports **initially denied**, later confirmed.

Concerns with outbreaks at shelters (scabies, lice, conjunctivitis).

Outbreaks/epidemics **never confirmed** by the state epidemiologist (i.e. Leptospirosis- 74 cases).

Complete disruption of the epidemiologic surveillance systems for vector-borne diseases.



“How families were separated and concerns for treatment”

Twin girls born at the University Hospital on September 18, 2017.

Their parents are from a town 2 hrs. away from San Juan.

This photo was taken on November 3, 2017.

One baby was discharged home and the other stayed at the NICU.

They were told to come every day to the hospital.

On day 126th, they had no power, no running water and had damage to their home.



 pressreader

Immediate Federal Response

September 28, 2017

- The first of 17,000 U.S. soldiers arrived and would stay until mid-November.
- President Trump Administration temporarily waived the 1920 Jones Act in Puerto Rico - which requires that all merchandise be shipped to the Island on U.S. owned and operated vessels, doubling the price of imported goods on the Island. The Act was reinstated ten days later.

•October, 2017 Visits from several US Congress Members, HHS and other Agencies

•October 3, 2017

- President Trump visited Puerto Rico to survey the damages caused by Maria.

•October 4, 2017

- USNS Comfort Arrives in Puerto Rico
 - The hospital had 250 hospital beds.
 - Over its 53 day deployment only 290 total patients were admitted (6 per day) and 1,625 people were treated as outpatients.

How many days it took to restore 95% of the peak number of customers left without power after major hurricanes since 2004, including Sandy, Ivan, Katrina, Rita, Wilma, Ike and Irene?

http://www.pennlive.com/midstate/index.ssf/2012/11/restoring_power_to_hurricane_s.html

After **Sandy, New York** utilities restored power to at least 95% of customers **13 days** after the peak number of outages was reported. **New Jersey** reached that same level in **11 days** and **West Virginia** in **10 days**.

The longest stretch to 95% restoration since 2004 was **Louisiana after Hurricane Katrina**, where local utilities had power restored to only **three-quarters of their customers after 23 days** before Hurricane Rita hit and caused additional outages.

Rita left **Texas** customers in the dark for **16 days**; **Katrina** knocked out power to **Mississippi** customers for **15 days**; **Wilma** and **Ike** knocked **Florida** and **Texas** out for **14 days** each before power was restored to 95% of those who lost it, according to the federal data.

Excess mortality estimates

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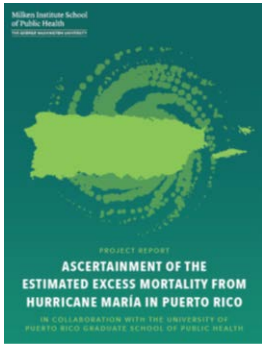
SPECIAL ARTICLE

Mortality in Puerto Rico after Hurricane Maria

Nishant Kishore, M.P.H., Domingo Marqués, Ph.D., Ayesha Mahmud, Ph.D.,
Mathew V. Kiang, M.P.H., Irmay Rodríguez, B.A., Arlan Fuller, J.D., M.A.,
Peggy Ebner, B.A., Cecilia Sorensen, M.D., Fabio Racy, M.D., Jay Lemery, M.D.,
Leslie Maas, M.H.S., Jennifer Leaning, M.D., S.M.H., Rafael A. Irizarry, Ph.D.,
Satchit Balsari, M.D., M.P.H., and Caroline O. Buckee, D.Phil.



- NY Times: 1,052
- Santos-Lozada and Howard: 1,218
- Official death count: 64
- Kishore, Marques et al (NEJM) survey: 4,645
- Milken Institute of Public Health report : 2,975



ASCERTAINMENT OF THE ESTIMATED EXCESS MORTALITY FROM HURRICANE MARÍA IN PUERTO RICO

According to interviews with **DPS (Department of Public Safety)** and the DoH (Department of Health) personnel, after the establishment of the DPS, which *integrated key emergency and first responder agencies (Emergency Management Bureau (EMB), Police, 911, Firefighter Corps, Medical Emergency Corps, Special Investigations Bureau)* and the BFS, emergency plans for agencies under the DPS umbrella were not updated and coordinated between agencies, including the communication plans.

This led to inoperable and disconnected emergency plans and a lack of clarity about crisis and emergency risk communication protocol when Hurricane María struck.

<https://esnoticiapr.com/wp-content/uploads/2018/08/Muerto-tras-Mar%C3%ADA.pdf>



Economic Losses - \$94 Billion

Property losses.

Virtual destruction of the electrical power grid.

Elimination of thousands of housing structures.

Collapse of most telephone lines and cell networks.

15,600 business

97,000 jobs – decline of 45,300 non-farm jobs.

Leisure and Hospitality – 4,700

Professional and Business – 1,100

Industry losses:

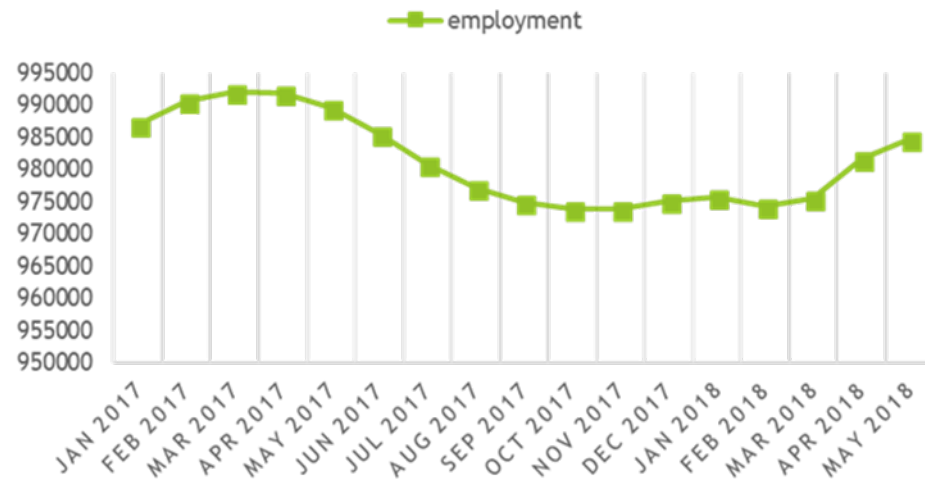
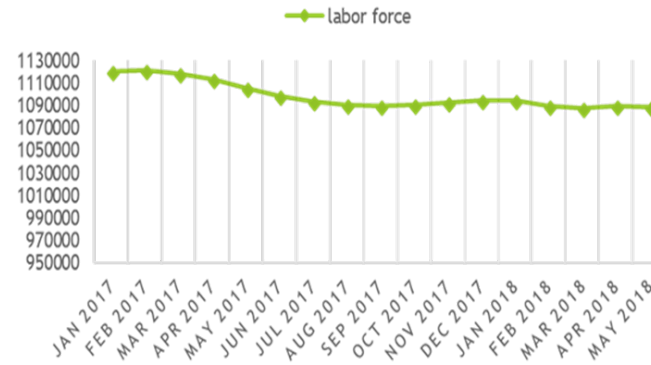
- Government - 10,900
- Education and Health Services – 7,100

FY2018 (Before Maria) = \$9,500 million

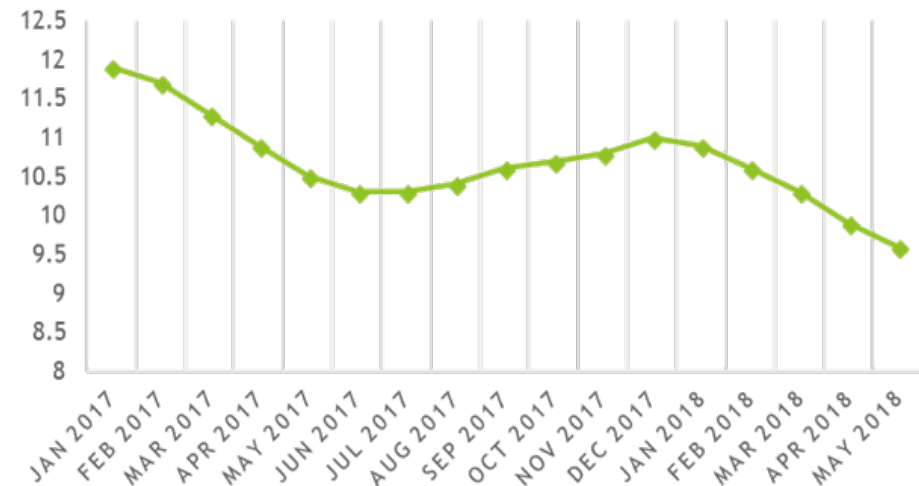
FY2019 = \$8,700 million



Employment in PR (2017-18) in thousands



Unemployment





Economic Impact of Recovery

- Poverty increased from **44.3%** of the Island population before Maria to **52.7%** afterwards.
- **\$49 Billion** estimated FEMA contribution
- **\$20 Billion** CBDGDR from HUD
- **\$15 Billion** estimated from Insurance
- **\$15 Billion** estimated from Private no profit and other Federal Agencies

As the recovery progresses and the reconstruction starts you can **expect** a resilient power grid, housing reconstruction, new and improved flood control facilities, a resilient water system and many more actions that will benefit the economy.

New resilient power grid to include generation, transmission and distribution
Updated flood control facilities.

Resilient and redundant communications to include radios and Satellite voice/data systems.

Some recommendations based on experience:

- **The CareWare should provide access to registered users so that the data of displaced patients is available at any RW funded clinic.**
- Pregnant women should have a **pregnancy emergency kit** that would include advice of how to get to the nearest hospital even if its not their primary provider.
- Instructions and materials for an emergency unplanned home delivery should be given to women > 26 weeks GA at the beginning of the hurricane season.
- Copies of the prenatal care chart should be provided to every pregnant women at the beginning of the Hurricane season or not later than September 1st.
- Shelter employees and volunteers should be educated about HIV to reduce stigma and mistreatment.
- Gasoline cards could be provided to our patients as incentives to visits and during the aftermath.

Humor in social media

Star Wars in Puerto Rico...



Completaste tu
entrenamiento



Mas de 70 dias sin luz
bienvenido al lado oscuro

Mi emoción en el 1997



Mi emoción en el 2017



FOTO FAMILIAR PR 2017



Powerful Photos of Ballet Dancers in Puerto Rico 5 Months After Hurricane Maria

By Jessica Stewart on March 20, 2018



**When someone evolves,
everything that surrounds
him or her also evolve. When
we try to become a better
person, everything around us
also improves.**

**Paulo Coelho
The Alchemist**

https://mymodernmet.com/omar-robles-hurricane-maria-puerto-rico/?utm_source=site

Carla Sofía Curet