

Testimony
Committee on Oversight and Government Reform
Evaluating Federal Disaster Response and Recovery Efforts

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Mr. Chairman and members of the House Committee on Oversight and Government Reform, it is my honor to testify today for your hearing on Evaluating Federal Disaster Response and Recovery Efforts. I am Dean of the Milken Institute School of Public Health at the George Washington University. I am a pediatrician and an epidemiologist and from 1993 through 1998 I served as Assistant Administrator for the Office of Chemical Safety and Pollution Prevention at the US EPA. Prior to joining the EPA I worked for eight years in public health with the California Department of Health Services. Prior to joining GW, I was a Professor at the Johns Hopkins Bloomberg School of Public Health where I was co-PI for the National Center for the Study of Preparedness and Catastrophic Event Response (PACER). I currently am co-chair of the National Academy of Sciences, Engineering and Medicine Standing Committee on Medical and Public Health Research During Large-Scale Emergency Events. These comments reflect my own views and not those of the organizations with which I have been affiliated.

I am here today to discuss the findings of a recent study carried out by the George Washington University to assess excess mortality in Puerto Rico from Hurricane María¹. The Executive Summary of the report we prepared for the government of Puerto Rico in Collaboration with the University of Puerto Rico Graduate School of Public Health, “Ascertainment of the Estimated Excess Mortality from Hurricane María in Puerto Rico”, is submitted for the record.

Our study had three objectives: 1) assess the excess total mortality that occurred between September 2017 – February 2018; 2) evaluate the implementation of guidelines for mortality reporting in disasters and identify areas of opportunity for improvement; and 3) assess the crisis and emergency risk communication plans and actions and stakeholder perceptions of government communications. While the focus of our efforts was to make recommendations to the government of Puerto Rico, in this testimony I will focus on implications and recommendations for the Federal government.

Using sophisticated models that accounted for migration, annual and seasonal variability in death rates, and adjustments for demographics (age, sex and social class) we found that there were 2,975 excess lives lost due to Hurricane María for the six-month study period of September 2017 through February 2018. (The 95% confidence interval for this number is 2,658-3,290.)

All regions, social strata and age groups on Puerto Rico were affected. For most subgroups, the mortality risk returned to pre-hurricane levels within 2-3 months. However, those living in municipalities with the lowest tertile of socioeconomic development and older (>65) adults –experienced the greatest risk of excess mortality. Those two higher risk groups continued to experience high rates of mortality through the end of the study period in February 2018.

Excess mortality is a good indicator for the disaster impact on public health, which extends beyond death to injury, disability, illnesses that were successfully treated and consequent disabilities. In the

¹ Santos-Burgoa C., Sandberg J., Suárez E., Goldman-Hawes A., Zeger S., Garcia-Meza A., Pérez CM, Estrada-Merly N., Colón-Ramos U., Nazario C.M., Andrade E., Roess A., Goldman L. Differential and persistent risk of excess mortality from Hurricane María in Puerto Rico: a time-series analysis. *Lancet Planetary Health*, doi:10.1016/S2542-5196(18)30209-2, 2018.

future, we would like to do a deeper dive into the causes of death, including interviews to enhance the information that was available on death certificates.

As in the rest of the US, most physicians in Puerto Rico did not have the correct guidance to complete death certificates to relate the deaths to the hurricane and the conditions it created. More fundamentally, most have not had adequate training to certify deaths under normal conditions or in a disaster. The disaster did not appear to have had a large effect on the quality -- completeness and internal consistency -- of the death certificates. The percentage of inaccurate or mis-assigned underlying cause of death codes increased only slightly.

We also found that crisis and emergency risk communication plans for Puerto Rico Government agencies did not exist or were outdated at the time of the hurricane; did not reflect recent government restructuring, in particular the establishment of the Department of Public Safety; were not designed for catastrophic disasters, including the designation of contingencies for telecommunications failures; and were not created with community and stakeholder involvement. Moreover, communications personnel did not have necessary supports to fulfill key communications functions in a disaster, such as sufficient numbers of staff, especially those dedicated to crisis and emergency risk communication, and training and expertise in disaster communication.

Despite local preparedness efforts, Puerto Rican communities were not adequately prepared for a catastrophic hurricane, likely as a result of inadequate central government and municipal emergency plans; incomplete risk communication and preparedness messaging disseminated to the public; lack of oversight of preparedness efforts by federal agencies; and inadequate community engagement for preparedness planning. We have since learned that FEMA, likewise, was not prepared, having planned only for a Cat I/II storm.

There was inconsistent information provided to the public by the Government of Puerto Rico, as well as information gaps, regarding hurricane-related mortality. These were likely the result of delays in information exchange due to telecommunication failures, inconsistent disaster spokesperson training, no official protocol for interagency coordination of mortality reporting, and ineffective strategies for rumor control. These information gaps and inconsistencies contributed to public perceptions of non-transparency and the spread of misinformation. The federal government did not step in to assist in this regard.

In terms of the committee's task in evaluating federal disaster response and recovery efforts, I think it is clear that the response did not adequately address the need to protect the lives of the most vulnerable in Puerto Rico. Puerto Rico was quite vulnerable in terms of electrical and transportation systems that were not resilient and broke down for weeks to months after the storm. Probably many of the health impacts were related to the great exertions that were required to provide basic needs like food, water, shelter and health care services. Eventually those who were better off were able to take care of their own needs but there were many who could not.

It should be emphasized that the people involved in the response and recovery efforts, both in the Federal Government and in the Government of Puerto Rico, were, as far as we could tell, very capable

and competent. Those living in Puerto Rico were, like all on the Island, negatively impacted by the storm personally, and almost certainly were not performing optimally at work in the context of having to first take care of their own basic needs as well as the needs of their families. However, none of the responders could, on the fly, make up for the lack of planning and preparation that would have been needed for response and recovery to a Category IV storm.

Unfortunately, this lack of preparation is a problem that can be observed again and again – when Katrina hit the Mississippi/Louisiana region; when Ike hit my hometown of Galveston Texas; when Sandy hit New York and New Jersey; and the recent massive hit to the Texas Gulf Coast from Hurricane Harvey. Contrary to best practice, there were no evacuations either for Harvey or for Puerto Rico, largely because there were no trusted evacuation routes and plans. Very large storms are occurring with more frequency yet we are continuing to plan for smaller ones. We need to recognize that every inch of Atlantic coast, along with our Island territories, is at risk. Instead, we fail to prepare in any specific location until that place has first been hit hard.

The problems with response and recovery in Puerto Rico, and the resultant increase in deaths, did not evolve over night. For many years, we have failed to adequately prepare for major disasters, across the US. We need to change from a culture of disaster and response to a culture of preparedness and resilience. We must adapt to our changing climate, a warming ocean, and sea level rise, all of which are conspiring to create more and larger storms. That means we need to prepare for Cat 4 (not Cat 1) storms. Across coastal areas we must take steps to protect medical facilities, including assisted living facilities. It means redesigning power grids to make them more resilient and establishing more backup power systems for healthcare facilities. It also means (as Florida has learned) moving people out of harm's way via evacuations. Individuals and communities need help to become more resilient and self-reliant. They need stockpiles of food and water, medical supplies and other basic needs not for just 24-48 hours but for days, weeks and in the case of Puerto Rico possibly months. They need to be trained and equipped to do immediate rescue and response ala the so-called "Cajun Navy". It means sending in help –FEMA but also the Public Health Service and the military-- for the very difficult jobs that need to be done to restore basic functions of society. We need to harness the capacity of the private sector to deliver food, medicines and other necessities directly to people. And we need to focus preparedness efforts on civil society – churches, schools, community clinics and pharmacies for example – who can immediately provide assistance even before outsiders can get into a disaster area.

We would of course like to see additional research about the impacts on Puerto Rico – to better understand the causes of excess lives lost and ways that we could prevent such deaths in the future; to identify other health impacts like morbidity and disability; and to find better ways to prepare the communities in Puerto Rico so that they work together in a more coordinated fashion in the future. We would like to see improvements in federal guidelines, policies and training for death certification. Recovery is a multi-year process, and public health relevant research is critical to understand the causal pathways of the conditions leading to extended duration of morbidity and time to death for establishing protective measures for future disasters. The strengthening of public health surveillance, including the vital statistics system of Puerto Rico and the death certification process, is a vital component of public health protection including disaster preparedness and recovery. More fundamentally, Puerto Rico needs

support in building resilient public health systems, not only those within the government but also the structures in communities that support health and well-being, including resilient systems for shelter, food, drinking water, transportation and power. Although we do not yet know the causes of the excess lives lost, it is clear that all efforts need to disproportionately target resources to the elderly, and those in lower income areas, both immediately after the hurricane and in the months to follow.

**Committee on Oversight and Government Reform
Witness Disclosure Requirement — “Truth in Testimony”**

Pursuant to House Rule XI, clause 2(g)(5) and Committee Rule 16(a), non-governmental witnesses are required to provide the Committee with the information requested below in advance of testifying before the Committee. You may attach additional sheets if you need more space.

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1. Please list any entity you are representing in your testimony before the Committee and briefly describe your relationship with each entity.					
Name of Entity	Your relationship with the entity				
2. Please list any federal grants or contracts (including subgrants or subcontracts) you or the entity or entities listed above have received since January 1, 2015, that are related to the subject of the hearing.					
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I certify that the information above and attached is true and correct to the best of my knowledge.

Signature Lynn R. Goldman

Date: _____

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Lynn R. Goldman, a pediatrician and an epidemiologist, is the Michael and Lori Milken Dean and Professor of Environmental and Occupational Health at the Milken Institute School of Public Health at the George Washington University. She is a renowned expert in pediatric environmental health and chemicals policy. She was previously Professor of Environmental Health Sciences at the Bloomberg School of Public Health (1999-2010); Assistant Administrator for Toxic Substances at the U.S. Environmental Protection Agency, where she directed the Office of Chemical Safety and Prevention (1993 – 1998); and Chief of the Division of Environmental and Occupational Disease Control (as well as other positions) at the California Department of Public Health. At Hopkins, she was co-PI for the National Center for the Study of Preparedness and Catastrophic Event Response (PACER). She currently is co-chair of the National Academy of Sciences, Engineering and Medicine Standing Committee on Medical and Public Health Research During Large-Scale Emergency Events. She completed a BS and MS from UC Berkeley, an MD from UC San Francisco; an MPH from Johns Hopkins University; and pediatric residency training at the UCSF Benioff Children’s Hospital in Oakland. She is a member of the National Academy of Medicine (NAM) and received the NAM Walsh McDermott Award for service to the academy.