

Investigating Excess Mortality after Hurricane Maria

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Abstract

On September 20, 2017 Hurricane Maria devastated Puerto Rico, dropping record levels of rainfall, destroying infrastructure, and knocking out the entire power grid. In the weeks that followed, questions began to surface regarding the official death toll attributed to the hurricane. By the beginning of November 2017, the official death toll was 55, but accounts from news media were presenting a grim reality on the ground that was not consistent with the official count. On November 8th, my colleague Alexis Santos-Lozada and I began analyzing historical records of monthly death counts for Puerto Rico. From this analysis we calculated the average expected monthly number of deaths and the range of normal variability around this average, known as a 95% confidence interval. Based on public statements made by the Secretary of Public Safety, Hector Pesquera, we estimated the number of total deaths for September and October 2017. Comparing these estimates to our historical figures, we estimated that 1,085 more deaths had likely occurred in September and October than would normally be expected. Soon after we released these figures the New York Times released a similar estimate. After this the government stopped sharing mortality data, and did not release these data until June 2018 following a ruling by a judge that the government must release the data. We received the updated data, with actual total death counts for all of 2017, and re-ran our analyses, which showed an estimated 1,139 excess deaths had occurred between September and December 2017. Other estimates have ranged from 800 to 4,645, but most have hovered around 1100. Regardless of methodology, all of the estimates to-date show that the number of deaths following Hurricane

Maria were at least 15 times more than the official death toll, which was not changed until almost one year after the hurricane.