

Access to Healthcare and Health Services in Puerto Rico Following Landfall of Hurricane Maria

By Andrea Newman-Rivera

Introduction

Wind howling like a lost and lonely spirit in the distance, rivers flooding, bamboo creaking — and suddenly snapping — along with the constant hum of rain pounding cement buildings and zinc-roofed homes embedded among tropical terrain are all characteristic of the Atlantic hurricane season. The season can be observed every year, starting in June through the end of October, as rainstorms and high winds gather in the Atlantic Ocean to travel west towards the Caribbean Islands, Central America and up to the southeastern coastal United States. It is during this season when many well-known hurricanes have taken form, including Hurricane Andrew in 1992, Katrina in 2005, and Sandy in 2012 — September of 2017 was no different. Hurricane Maria, a category 5 storm, made its way through the U.S Virgin Islands before making landfall in Puerto Rico and Florida, causing power outages, home losses, increases in adverse health outcomes, and even death. Puerto Rico, a U.S territory since 1898 and known as “La Isla del Encanto,” is located just east of the Dominican Republic and 1,000 miles southeast of Florida’s coast. Factors such as voting rights and an economic crisis that has lasted for decades have contributed to reinforcing the role of modern colonialism on the island, which has made Puerto Rico especially vulnerable to the effects of major hurricanes. Hurricane Irma, another category 5 storm preceding Maria, had already predisposed Puerto Rico to the challenges of post-hurricane recovery. Nonetheless, even before Hurricane Maria, Puerto Rico experienced a decades-long economic crisis, with a debt of

over \$100 billion, including bond and pension owes. This growing debt has affected the proper funding of many public services such as healthcare and education.¹

Not only has a growing debt and an economic crisis on the island affected services essential to the well-being of these U.S citizens, but unequal treatment from the U.S Federal government has also had a major impact on the decisions and services that island-residing Puerto Ricans can access. All 3.5 million U.S citizens who live on the island are denied the right to vote for U.S president and have no congressional representation. This comes despite Puerto Ricans voting for statehood repeatedly, with the most recent vote for “Yes” being the 2020 elections. Yet Congress has never done anything to approve statehood status.² Additionally, Puerto Rico serves as a guaranteed consumer for large U.S corporations due to the Jones Act of 1920. The Jones Act restricts imports to Puerto Rico from other countries. Therefore, Puerto Rico can only receive products if they come directly from the mainland United States, which often causes heightened prices for common electric appliances and automobiles.³

Healthcare, which serves as another consumer product in the U.S., follows many of the same patterns as an automobile — the best car is often available only to those who can afford it, while populations without the financial means are often left behind. However, one could argue that health is different from a gas-combustible automobile depending on how you answer this fundamental question — is health a human right or a commodity reserved for those in power?

¹ Carlos E. Rodríguez-Díaz, “Maria in Puerto Rico: Natural Disaster in a Colonial Archipelago,” *American Journal of Public Health* 108, no. 1 (2018): pp. 30-32, <https://doi.org/10.2105/ajph.2017.304198>.

² Rashid Carlos Jamil Marcano Rivera Ph.D. Candidate in Political Science, “Puerto Rico Wants Statehood – but Only Congress Can Make It the 51st State in the United States,” *The Conversation*, January 20, 2021, <https://theconversation.com/puerto-rico-wants-statehood-but-only-congress-can-make-it-the-51st-state-in-the-united-states-150503>.

³ Colin Grabow, Inu Manak Research Fellow, and Daniel J. Ikenson Former Director, “The Jones Act: A Burden America Can No Longer Bear,” *Cato Institute*, January 22, 2021, <https://www.cato.org/publications/policy-analysis/jones-act-burden-america-can-no-longer-bear>.

Access to healthcare and health services in the U.S varies from state to state and county to county depending on income, health status, and transportation availability. Even under normal circumstances, Puerto Rico is not exempt from the differences already present on the mainland. Many of these differences are exacerbated on the island. I argue that Hurricane Maria did not create new problems, but instead allowed individuals and leaders from across the country to see the funding disparities in health services already present on the island. These disparities can be attributed to Puerto Rico's colonial status and lack of representation in the U.S Federal government. Colonial status has led to neglect by the Federal government before and after Hurricane Maria. Furthermore, the lack of Puerto Rican representation in the U.S congress has tied the island down into a constant cycle of oppression, which has remained unchanged since the start of U.S presence in 1898. I aim to take a historical and present-day approach on access to healthcare since the establishment of Medicare and Medicaid in Puerto Rico in 1965 to understand how health services were impacted by Hurricane Maria in 2017.

Methodology Overview

In this paper, I consider research analyzing federal healthcare programs in Puerto Rico as compared to U.S states, in addition to articles that analyze health outcomes after the hurricane. Moreover, I prioritize interviewing current Puerto Rican residents who are actively experiencing the challenges and benefits of the Puerto Rican healthcare system before and after hurricane Maria. Interviews were conducted with residents who I met through my school, family, or neighborhood in Puerto Rico. Interviews were conducted in Spanish, and interviewees were contacted via phone in order to understand their potential interest in participating in the interview. Before questions were probed, all participants verbally consented to the interview, and verbal consent was recorded via video and/or audio (questions can be found in Appendix A).

State of Medicare and Medicaid pre-2017

Medicare and Medicaid are both federal healthcare programs providing medical coverage to low-income and/or senior populations in the U.S. However, funding for these services differs between states and territories. The costs of Medicaid in states are often matched up to 83% with federal dollars. Yet, in Puerto Rico, federal matching is capped at 55% despite having a poverty rate of 44% — twice that of Mississippi.^{4,5} Moreover, Medicare reimbursements were 25% lower for hospitals located on the island compared to those on the mainland. However, this changed in 2009 with the passing of the Medicare Reimbursement Equity Act.⁶ Furthermore, Puerto Rico bases Medicaid eligibility on a “local poverty line that is only about 40 percent of the federal poverty line.” This means that an individual with an income below the federal poverty line of \$17,236 but above \$9,000 a year would not qualify for Medicaid on the island and would have to resort to more costly private providers instead.⁷

How can only a fraction of the 44.4% of Puerto Rican residents falling below the federal poverty line qualify for Medicaid when other U.S states would provide coverage for all of them? These numbers provide evidence of discrimination and the paternalistic nature of the federal government towards the resident Puerto Rican population. Instead of granting the island funds to assure quality healthcare as the federal government does with its states, they resort to a mindset of

⁴ María Portela and Benjamin D. Sommers, “On the Outskirts of National Health Reform: A Comparative Assessment of Health Insurance and Access to Care in Puerto Rico and the United States,” *Milbank Quarterly* 93, no. 3 (2015): pp. 584-608, <https://doi.org/10.1111/1468-0009.12138>.

⁵ U.S. Census Bureau, “U.S. Census Bureau QuickFacts: Puerto Rico,” accessed April 20, 2021, <https://www.census.gov/quickfacts/PR>.

⁶ Marc N. Elliott et al., “Are There Differences in the Medicare Experiences of Beneficiaries in Puerto Rico Compared with Those in the U.S. Mainland?,” *Medical Care* 50, no. 3 (2012): pp. 243-248, <https://doi.org/10.1097/mlr.0b013e3182408027>.

⁷ Judith Solomon, “Puerto Rico's Medicaid Program Needs an Ongoing Commitment of Federal Funds,” Center on Budget and Policy Priorities, April 22, 2019, <https://www.cbpp.org/research/health/puerto-ricos-medicaid-program-needs-an-ongoing-commitment-of-federal-funds>.

“good enough.” A mindset that functions as a form of maintenance instead of care. A quote by John Gunther from *Inside Latin America* written in 1945 states, “Puerto Rico has been a headache to the United States for 40 years. Its poverty is a disgrace to the Stars and Stripes.” It is not surprising that Puerto Rico receives oppressive treatment — the island is denied a vote in the Congress where important funding decisions are being made. The silencing of Puerto Rican voices has ensured the United States’ ability to maintain a powerful colonial relationship with “La Isla del Encanto.” Not only does this mindset from the Federal government affect healthcare itself, it further instills an inferiority complex within the Puerto Rican population. As Gunther’s quote suggests, the Puerto Rican population has been belittled and treated as a nuisance. When a group of individuals is told time and time again that they are not worthy of quality care, or of the same federal assistance as other U.S states, there comes a point when those individuals start to believe in their— false—inferiority. Although these feelings may not resonate with everyone, the lack of concern from the Federal government itself is guaranteed to cause individuals to question if they truly deserve the care they see fit — a right that should not be in question.

Despite the fact that Puerto Rico spent only one-third per capita, or roughly \$3200, compared to the United States on governmental healthcare in 2012, the island shows greater overall healthcare coverage with only 7.4% uninsured, compared to those in the mainland United States where 15.0% are uninsured.⁸ The island’s push for coverage shows their unwavering commitment to helping the resident population. The island is willing to work with the limited resources they are given to ensure that everyone has some sort of healthcare coverage, even if the benefits themselves are of lesser quality compared to those on the mainland. As already mentioned, federal

⁸ María Portela and Benjamin D. Sommers, “On the Outskirts of National Health Reform: A Comparative Assessment of Health Insurance and Access to Care in Puerto Rico and the United States,” *Milbank Quarterly* 93, no. 3 (2015): pp. 584-608, <https://doi.org/10.1111/1468-0009.12138>..

funding is a major limiting factor to Medicare and Medicaid access on the island, however it does not speak to the quality of healthcare services themselves. One study comparing quality of care between Puerto Rican and mainland Medicare beneficiaries found that Puerto Rican clients got necessary care less frequently than their U.S counterparts. The same study found Puerto Ricans experience more challenges when receiving essential prescription drugs even though they experienced more positive communication with their doctors than those residing on the mainland.⁹

These findings are consistent with an interview conducted with my neighbor from Barrio Abras Mavillas in Corozal, Puerto Rico. Seventy-five-year-old Ángel de Jesús Santiago, who suffers from diabetes, high blood pressure, and ulcerative colitis, has two health insurance plans: Medicare, provided by the government, and Triple-S, a private plan provided by his previous employer PepsiCo. Foods. He says that if it were not for the private plan he receives, he would have to pay \$4000 a month for medication treating ulcerative colitis. He further elaborates on the downfalls of the Medicare Advantage plan which rarely covers the costs of prescription medication. When asked about the importance of the type of health insurance one receives, Ángel responds, “If you have a good plan, you are good. But if you have the Advantage plan, or the plan provided by the government, then you already know that’s to ‘mendigar’ — something they give to you only if you are *lucky*.”

The definition of “lucky” often depends on perspective. But for necessary services such as healthcare, luck should not be a determining factor to obtaining access. The concept of luck for healthcare access is not exclusive to Puerto Rico but is also a prevalent issue in the mainland United States given their 15% uninsured rate. Since the type of health insurance one receives

⁹ Marc N. Elliott et al., “Are There Differences in the Medicare Experiences of Beneficiaries in Puerto Rico Compared with Those in the U.S. Mainland?,” *Medical Care* 50, no. 3 (2012): pp. 243-248, <https://doi.org/10.1097/mlr.0b013e3182408027>.

depends greatly on the jobs secured throughout a lifetime, it is easy for other determinants to influence access to care. For example, an individual with low-income may resort to working a minimum wage job instead of obtaining a secondary degree due to the already high costs of a college education. The lack of a high school diploma or bachelor's degree can quickly disqualify an individual from careers that can provide generous healthcare packages. That said, being born into a low-income household is not a choice. While it is possible to climb up the socioeconomic ladder despite low socioeconomic status, it is more challenging. When healthcare access is obtained because of luck, it means that individuals must battle, fight and try repetitively for the access they know they deserve and need. However, this effort does not guarantee a win in the case of healthcare due to barriers that cannot be controlled.

Another example of how luck plays a role in access to health services is evident through 17-year-old Adrianna's experience. I know Adrianna from my time in high school and she has since become close to my family after forming a tight friendship with my younger sister. Adrianna is a type-1 diabetic from Toa Alta, Puerto Rico and was grateful for her mom's employer *Boston Scientific* following the hurricane. *Boston Scientific* was able to provide Adrianna with the medication she needed to treat her diabetes when her local pharmacy was unable to due to power outages and loss of running water in the neighboring area. Had Adrianna's family lacked these employee benefits, she would not have been able to continue this essential treatment.

Not only can we understand the importance of raw luck when accessing health services through Adrianna's experience, but we can also understand the influence that private companies have on the health and wellbeing of Puerto Rican residents. Many of these companies are pharmaceuticals from the U.S that establish business on the island due to tax incentives. After the Tax Reform Act of 1976, many pharmaceutical companies established themselves in Puerto Rico

in exchange for a 0% corporate tax rate. However, Section 936 the Tax Reform Act was repealed in 2006 launching the start of an economic downturn on the island as drug manufacturers fled.¹⁰ Despite the repeal, companies such as *Boston Scientific*, *Eli Lilly* and *Pfizer* still have a major influence in Puerto Rico by providing essential services and benefits to families through the private sector, instead of through the indebted local government.

To further comprehend the state of health and healthcare services on the island, I contacted a couple of frequent visitors to my grandparents' old bakery, which closed in 2019. Sixty-three-year-old Ana "Anita" Rolón-Salgado lives with her husband, Geraldo Carrión-Carrasquillo, 77, in Barrio Quebrada Cruz, Toa Alta, Puerto Rico. Anita had been diagnosed with breast cancer and has since been receiving treatment every year. Before the hurricane, Anita would drive Geraldo to a dialysis center located in Dorado, Puerto Rico approximately 25 minutes from her home. Geraldo, in addition to living with occupationally obtained pulmonary fibrosis from his time working as a welder, suffers from a genetic condition called polycystic kidney disease. This disease requires Geraldo to receive dialysis treatment three days a week for four hours a day.

However, not everyone had major health issues prior to the hurricane. I reached out to my uncle, Victor Rivera-Rosado, who used to live in Corozal, Puerto Rico. He moved to Florida in 2018 after the storm with the hopes of starting a new life in the continental United States. While in Puerto Rico, he worked 12-hour days, seven days a week managing the family bakery. Although he did not have any physical ailments before or after Maria's landfall, he still struggled mentally as he tried to manage a small business that needed electricity and water to function.

¹⁰ José A. Cabranes, "Opinion | Bring the Drug Industry Back to Puerto Rico," *The Wall Street Journal* (Dow Jones & Company, May 20, 2020), <https://www.wsj.com/articles/bring-the-drug-industry-back-to-puerto-rico-11590015910>.

Outcomes After María as a Product of Modern Colonialism

Every person residing on a state or island affected by Hurricane Maria suffered differently. However, this does not discount the major common consequences found across the island following the hurricane, including an estimated 1000-5000 excess deaths despite an original report of 64 deaths by the Puerto Rican government.^{11, 12, 13} Additionally, 80% of power lines were damaged after the storm leading to the use of generators as a primary source of power for those who were lucky enough to afford one.¹⁴ Secondly, 41% of rural areas underwent more than 120 days without power.¹⁵ Potable water was also limited, with some populations waiting three months after the storm to receive running water to their homes.

One could say the loss of electricity, water, and access to essential services are expected consequences of a category 5 hurricane. Puerto Rico's mountainous terrain and already underfunded healthcare infrastructure before the storm was bound to make recovery more difficult. While this may be true, the Federal Emergency Management Agency (FEMA) provided less relief to Puerto Rico after Maria compared Texas after Hurricane Harvey. Within the first nine days following both storms, FEMA approved \$6.2 million for Puerto Rico, but \$141.8 million for Texas according to a report published by *Politico*.¹⁶ The funding disparities in post-hurricane relief are a

¹¹ Nishant Kishore et al., "Mortality in Puerto Rico after Hurricane Maria," *New England Journal of Medicine* 379, no. 2 (December 2018): pp. 162-170, <https://doi.org/10.1056/nejmsa1803972>.

¹² Carlos Santos-Burgoa et al., "Differential and Persistent Risk of Excess Mortality from Hurricane Maria in Puerto Rico: a Time-Series Analysis," *The Lancet Planetary Health* 2, no. 11 (2018), [https://doi.org/10.1016/s2542-5196\(18\)30209-2](https://doi.org/10.1016/s2542-5196(18)30209-2).

¹³ Raul Cruz-Cano and Erin L. Mead, "Causes of Excess Deaths in Puerto Rico After Hurricane Maria: A Time-Series Estimation," *American Journal of Public Health* 109, no. 7 (2019): pp. 1050-1052, <https://doi.org/10.2105/ajph.2019.305015>.

¹⁴ Alexia Fernández Campbell, "It Took 11 Months to Restore Power to Puerto Rico after Hurricane Maria. A Similar Crisis Could Happen Again," *Vox* (Vox, August 15, 2018), <https://www.vox.com/identities/2018/8/15/17692414/puerto-rico-power-electricity-restored-hurricane-maria>.

¹⁵ Miguel O. Román et al., "Satellite-Based Assessment of Electricity Restoration Efforts in Puerto Rico after Hurricane Maria," *PLOS ONE* 14, no. 6 (2019), <https://doi.org/10.1371/journal.pone.0218883>.

¹⁶ Danny Vinik, "How Trump Favored Texas over Puerto Rico," *POLITICO*, March 27, 2018, <https://www.politico.com/story/2018/03/27/donald-trump-fema-hurricane-maria-response-480557>.

strong indication of Puerto Rico's secondary status under the Federal government's eyes. Some may argue the funding dollars approved was fair. However, the dollar amount provided was not the only difference. It took FEMA 43 days to approve permanent disaster relief for Puerto Rico, which is four times longer than Texas, and allows for an influx of Federal funds to be used for emergency supplies and other relief efforts.¹⁷ As discussed previously, lack of interest and the "good-enough" mentality from the Federal government continue to promote a cycle of marginalization towards the Puerto Rican population. This evidence also further supports the necessity for political representation within the institutions where these financial decisions are made. In order to guarantee fair and adequate funding, Puerto Ricans would need representation in positions of power to advocate for its individual needs — a right they are not granted.

Regardless of the funding disparities mentioned, we must ask ourselves: How did the absence of basic services affect the health of the Puerto Rican population after Hurricane Maria? The hurricane was associated with an overall increase in depression, anxiety and PTSD symptoms across all age groups. Males 65 years and older being the most adversely affected population, accounting for the most excess deaths due to the hurricane.^{18, 19} Puerto Rico is experiencing an aging population of which 21.3% is over the age of 65 according to U.S Census data — about 4% higher than the national average of 16.5%. Many elderly residents are diabetic and are in need of ventilators which require power, which was lacking after the hurricane due to power outages. Delays in receiving necessary medical equipment was also an issue that primarily affected the

¹⁷ Danny Vinik, "How Trump Favored Texas over Puerto Rico," *POLITICO*, March 27, 2018, <https://www.politico.com/story/2018/03/27/donald-trump-fema-hurricane-maria-response-480557>.

¹⁸ Carlos Santos-Burgoa et al., "Differential and Persistent Risk of Excess Mortality from Hurricane Maria in Puerto Rico: a Time-Series Analysis," *The Lancet Planetary Health* 2, no. 11 (2018), [https://doi.org/10.1016/s2542-5196\(18\)30209-2](https://doi.org/10.1016/s2542-5196(18)30209-2).

¹⁹ Raul Cruz-Cano and Erin L. Mead, "Causes of Excess Deaths in Puerto Rico After Hurricane Maria: A Time-Series Estimation," *American Journal of Public Health* 109, no. 7 (2019): pp. 1050-1052, <https://doi.org/10.2105/ajph.2019.305015>.

senior population. One man from Lajas, a small town located on the southwestern corner of the island, said it took him almost two weeks to receive an oxygen tank.²⁰

Anita and her husband Geraldo had a very difficult time after the hurricane. Unfortunately, the dialysis center Geraldo attended, located in Dorado, closed due to loss of power and shortages in running water supply. With too few centers to keep up with the dialysis patient population on the island, many were being translocated to hospitals on the mainland. According to Anita, centers were offering free plane tickets for those affected. Consequently, Geraldo was flown to Boston, Massachusetts for two months to receive treatment while Anita stayed in Puerto Rico. Thankfully, Geraldo was able to stay with his son in Boston while he continued dialysis treatment. But what would access look like if patients had no family in the mainland, or a job that required them to stay on the island? Again, luck is a determining factor to healthcare access especially under U.S. colonial status. This speaks to the constructed dependence of Puerto Rico on the U.S. The weak healthcare system on the island due to lack of federal funding has contributed to this dependency. Had Puerto Rico received more funding for health services at the start of this colonialist affiliation, maybe this dependence would not be as damaging to its resident population. Over time, however, Puerto Rico has formed a reliant relationship with its colonizer, which has made it nearly impossible for the island to progress on its own.

Conclusion

Puerto Rico is a melting pot of talent, with world renowned artists and academics making impacts all across the globe, including Dr. Antonia Coello-Novello from Fajardo, Puerto Rico who served as the 14th Surgeon General of the United States. Most of the time, unfortunately, the talent

²⁰ Molly Hennessy-Fiske, "In One Puerto Rican Nursing Home, a Struggle to Get Power and Keep Patients Alive," Los Angeles Times (Los Angeles Times, October 1, 2017), <https://www.latimes.com/nation/la-na-puerto-rico-healthcare-20170930-story.html>.

migrates offshore, depriving the island of the people who can make a difference for those who stay behind. As Anita shared with concern during her interview, “A lot of good doctors leave here because they aren’t paid well. They study, study, study, and what they make here isn’t sustainable, whereas in other states they can get paid double or triple what they would make here.” The secondary status of Puerto Rico compared to U.S. states, as well as the rising unemployment rates on the island after the hurricane have caused many to leave family and friends behind with hopes of progressing on the mainland. After Maria, 14% of residents were projected to leave the island between 2017 and 2019, further limiting the human capital available on “La Isla del Encanto.”²¹ Not only does the U.S. restrain Puerto Rico’s federal funding and voting representation, it has also helped drain the medical talent from the island. Puerto Rico is essential to the prosperity of the entire country, especially as we prepare for mass manufacturing of the COVID-19 vaccine. According to the FDA, “Puerto Rico produces more pharmaceutical products for the U.S. (\$40B) than any foreign country,” making it a crucial player for the success of the U.S. pharmaceutical industry.²² The selfishness presented here by the U.S. is telling of the country’s underlying intentions, which has led Puerto Rico to fall in a rut despite the resources it provides to its colonizer.

But not all Puerto Rican residents focus on the plethora of negatives tethering down the island from progress. “Gracias a Dios” — which in English means “Thanks to God” — was a common phrase repeated by all interviewees. When probed on their views regarding quality of healthcare in Puerto Rico compared to the U.S., many of the interviewees were hesitant to complain

²¹ Edwin Meléndez and Jennifer Hinojosa. "Estimates of Post-Hurricane Maria Exodus from Puerto Rico (Research Brief)." *Center for Puerto Rican Studies* (2017).

²² U.S. Food and Drug Administration, “Securing the Future for Puerto Rico: Restoring the Island’s Robust Medical Product Manufacturing Sector,” accessed 2021, <https://www.fda.gov/media/108975/download>.

entirely. Anita discussed that while healthcare in Puerto Rico is not up to par to the healthcare offered in the mainland U.S., it is still better than that of what she's seen from other Latin American countries. Moreover, Angel states, "I've been told the services are very good over there (U.S. mainland), that they work differently than how they work here." He goes on to add, "But I am not complaining of the treatment I receive here. It's been very good." Adrianna and Victor had similar perspectives, but they did not elaborate further.

Although these thoughts speak to the resilience and gratefulness of the Puerto Rican people, it brings into question the reasons as to why they are thankful for the services received, despite the inferior quality. Based on evidence discussed previously, the U.S has only provided support for temporary maintenance on the island, rather than adequate funding to permanently address the failing healthcare infrastructure. Yet, conditions could always be worse, which is something the humble community in Puerto Rico keeps in mind. However, the dependent relationship that has been formed between Puerto Rico and the U.S is sometimes a toxic one, as is visible throughout the public services on the island. With that said, it is a relationship that will only improve for "La Isla del Encanto" if Puerto Ricans are granted voting rights in Congress. Until Puerto Rico is granted a position of power in their colonizer's government to advocate for themselves, the cycle of oppression is destined to continue and will refrain Puerto Rico from progressing to the prosperity it deserves.

Bibliography

- "Hurricane Maria's Official Death Toll is 46 Times Higher than it was almost a Year Ago. here's Why." -08-30T17:50:20+00:00 [cited 2020]. Available from <https://www.pbs.org/newshour/nation/hurricane-marias-official-death-toll-is-46-times-higher-than-it-was-almost-a-year-ago-heres-why>.
- Cabranes, José A. *Opinion | Bring the Drug Industry Back to Puerto Rico*. 2020.
- Campbell, Alexia Fernández. "It Took 11 Months to Restore Power to Puerto Rico After Hurricane Maria. A Similar Crisis could Happen again." -08-15T12:40:02-04:00 [cited 2020]. Available from <https://www.vox.com/identities/2018/8/15/17692414/puerto-rico-power-electricity-restored-hurricane-maria>.
- Census Bureau QuickFacts, U.S. "U.S. Census Bureau QuickFacts: Puerto Rico." Census Bureau QuickFacts, 2019. <https://www.census.gov/quickfacts/PR>.
- Cruz-Cano, R., and E. L. Mead. "Causes of Excess Deaths in Puerto Rico After Hurricane Maria: A Time-Series Estimation." *Am J Public Health* 109, no. 7 (2019): 1050-1052.
- Elliott, Marc, Amelia Havaland, Jacob Dembosky, Katrin Hambarsoomian, and Robert Weech-Maldonado. *Are there Differences in the Medicare Experiences of Beneficiaries in Puerto Rico Compared with those in the U.S. Mainland?* Lippincott Williams & Wilkins, 2012.
- Grabow, Colin, Inu Manak, and Daniel J. Ikenson. "The Jones Act: A Burden America can no Longer Bear." 2018-06-28T14:00:00-0400 [cited 2020]. Available from <https://www.cato.org/publications/policy-analysis/jones-act-burden-america-can-no-longer-bear>.
- Hennessy-Fiske, Molly. "In One Puerto Rican Nursing Home, a Struggle to Get Power and Keep Patients Alive." *Los Angeles Times*. Los Angeles Times, October 1, 2017. <https://www.latimes.com/nation/la-na-puerto-rico-healthcare-20170930-story.html>
- Kishore, N., D. Marqués, A. Mahmud, M. V. Kiang, I. Rodriguez, A. Fuller, P. Ebner, C. Sorensen, F. Racy, J. Lemery, L. Maas, J. Leaning, R. A. Irizarry, S. Balsari, and C. O. Buckee. "Mortality in Puerto Rico After Hurricane Maria." *N Engl J Med* 379, no. 2 (2018): 162-170.
- Meléndez, Edwin, and Jennifer Hinojosa. "Estimates of Post-Hurricane Maria Exodus from Puerto Rico (Research Brief)." *Center for Puerto Rican Studies* (2017).
- Portela, M., and B. D. Sommers. "On the Outskirts of National Health Reform: A Comparative Assessment of Health Insurance and Access to Care in Puerto Rico and the United States." *The Milbank quarterly* 93, no. 3 (2015): 584-608.
- Rivera, Rashid Carlos Jamil Marcano. "Puerto Rico Wants Statehood – but Only Congress can make it the 51st State in the United States." [cited 2020]. Available from <http://theconversation.com/puerto-rico-wants-statehood-but-only-congress-can-make-it-the-51st-state-in-the-united-states-150503>.

- Rodríguez-Díaz, Carlos E. "Maria in Puerto Rico: Natural Disaster in a Colonial Archipelago." *American journal of public health (1971)* 108, no. 1 (2018): 30-32.
- Román, Miguel O., Eleanor C. Stokes, Ranjay Shrestha, Zhuosen Wang, Lori Schultz, Edil A. Sepúlveda Carlo, Qingsong Sun, Jordan Bell, Andrew Molthan, Virginia Kalb, Chuanyi Ji, Karen C. Seto, Shanna N. McClain, and Markus Enenkel. "Satellite-Based Assessment of Electricity Restoration Efforts in Puerto Rico After Hurricane Maria." *PLOS ONE* 14, no. 6 (2019): e0218883.
- Santos-Burgoa, C., J. Sandberg, E. Suárez, A. Goldman-Hawes, S. Zeger, A. Garcia-Meza, C. M. Pérez, N. Estrada-Merly, U. Colón-Ramos, C. M. Nazario, E. Andrade, A. Roess, and L. Goldman. "Differential and Persistent Risk of Excess Mortality from Hurricane Maria in Puerto Rico: A Time-Series Analysis." *Lancet Planet Health* 2, no. 11 (2018): e478-e488.
- Solomon, Judith. *Puerto Rico's Medicaid Program Needs an Ongoing Commitment of Federal Funds*. Washington D.C:2019.
- U.S Food and Drug Administration. "Securing the Future for Puerto Rico: Restoring the Island's Robust Medical Product Manufacturing Sector." *U.S Food and Drug Administration*. Accessed 2021. <https://www.fda.gov/media/108975/download>.
- Vinnik, Danny. "How Trump Favored Texas Over Puerto Rico." March. Available from <https://www.politico.com/story/2018/03/27/donald-trump-fema-hurricane-maria-response-480557>.

Appendix A: Interview questions

1. ¿Tenemos tu consentimiento para grabar tus respuestas a estas preguntas? (Do we have your consent to record your answers to these questions?)
2. ¿Tenemos tu consentimiento para utilizar tu nombre, edad, e ubicación municipal? (Do we have your consent to use your name, age and municipal location?)
3. ¿Tenemos tu consentimiento para utilizar la información discutida hoy en un proyecto de salud pública hecho por estudiantes de Johns Hopkins University? (Do we have your consent to use the information discussed today for a Public Health project done by students at Johns Hopkins University?)
4. Recordatorio: Si no quieres contestar alguna pregunta, notifícalo. No estás obligado a contestar las preguntas que se llevarán a cabo en esta entrevista. (Reminder: If you do not want to answer one or more of the questions, please notify us. You are not required to answer the questions that will be discussed in this interview.)
5. ¿Cuál es su nombre, edad y en qué municipio resides? (What is your name, age and in what municipality do you reside in?)
6. ¿Eres paciente de Medicare o Medicaid? (Are you a patient of Medicare or Medicaid?)
7. ¿De qué problemas de salud padeces? Puede ser mental o físico. (What health ailments do you suffer from? They can be mental or physical.)
8. ¿Por cuántos años has padecido de estos problemas de salud? (For how many years have you suffered from these health ailments?)
9. ¿Cuántos minutos te toma llegar al hospital más cercano? (How long does it take you to arrive to your nearest hospital?)

10. ¿Cuáles aspectos del acceso a servicios de salud en Puerto Rico son buenos? ¿Cuales necesitan reestructuración y por qué? (Which aspects of access to health services are good? Which aspects need restructuring and why?)
11. ¿Qué piensas de los sistemas y servicios de salud en los Estados Unidos comparados a los de Puerto Rico? (What do you think of the healthcare system and health services of the United States compared to those in Puerto Rico?)
12. ¿Cuál era tu tratamiento antes de María? (What was your medical treatment before Maria?)
13. ¿Cómo afectó el huracán María el acceso a estos tratamientos? (How did hurricane Maria affect your access to these treatments?)
 - a. ¿Cuál fue la parte más difícil de obtener el acceso necesario a servicios de salud después del huracán? (What was the most challenging aspect when obtaining necessary access to health services after the hurricane?)
 - b. ¿Qué servicios fueron proveídos y por quiénes después del huracán María? (Which services were provided and by whom after hurricane Maria?)
 - c. ¿Qué servicios de salud necesitabas que no fueron proveídos por el gobierno? (Which health services did you need that were not provided by the government?)
 - d. ¿Cómo afectó tu salud la pérdida de la luz y agua después del huracán? (How was your health affected due to the loss of electricity and water after the hurricane?)
 - e. ¿Cómo cambiaron los servicios de Medicare y Medicaid después del huracán María? (How did Medicare and Medicaid services change after hurricane Maria?)
14. ¿Hay algo más que quieras añadir sobre tu experiencia con tu salud mental o físico después del huracán María? (Is there anything else you would like to add regarding your mental and/or physical health after hurricane Maria?)