

Puerto Rico's Community Health Centers: Struggling to Recover in the Wake of Hurricane Maria

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Research Collaborative**

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Peter Shin, PhD

Jessica Sharac, MSc, MPH

Rachel Gunsalus

Brad Leifer, MSLIS

Sara Rosenbaum, JD

Milken Institute School
of Public Health

THE GEORGE WASHINGTON UNIVERSITY



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community health foundation

About the Geiger Gibson / RCHN Community Health Foundation Research Collaborative

The Geiger Gibson Program in Community Health Policy, established in 2003 and named after human rights and health center pioneers Drs. H. Jack Geiger and Count Gibson, is part of the Milken Institute School of Public Health at the George Washington University. It focuses on the history and contributions of health centers and the major policy issues that affect health centers, their communities, and the patients that they serve.

The RCHN Community Health Foundation is a not-for-profit foundation established to support community health centers through strategic investment, outreach, education, and cutting-edge health policy research. The only foundation in the U.S. dedicated solely to community health centers, RCHN CHF builds on a long-standing commitment to providing accessible, high-quality, community-based healthcare services for underserved and medically vulnerable populations. The Foundation's gift to the Geiger Gibson program supports health center research and scholarship.

Additional information about the Research Collaborative can be found online at <https://publichealth.gwu.edu/projects/geiger-gibson-program-community-health-policy> or at www.rchnfoundation.org.

Executive Summary

On September 20, 2017, Hurricane Maria hit Puerto Rico as a Category 4 storm, devastating a U.S. territory whose heavily impoverished population already was facing critical economic and health challenges. Community health centers play an especially important role in Puerto Rico's health care system; in 2016, twenty health centers operating in 86 mostly rural sites provided comprehensive primary health care to more than 352,000 children and adults – over 1 in 10 residents.

One month after the hurricane, 89% of health center sites are open but are operating under challenging conditions. Only 13% of 70 assessed sites have had power restored as of mid-October. Many are able to provide only limited hours and services under post-storm conditions, and all health centers face an enormous need for drugs, vaccines, medical equipment, and other resources essential to proper functioning. Health centers report an urgent need for a wide range of vaccines and drugs, and report treating conditions identified with catastrophic public health events that elevate the risk for infectious disease: acute infections, conjunctivitis, scabies, leptospirosis, gastroenteritis, asthma, dermatitis, and viral infections (including influenza and suspected dengue and Zika). Over half of 70 assessed health centers report that their communities have only intermittent access to drinking water, and 70% report that their communities need food. All health centers report the

need for vector control to prevent mosquito bites and other insect infestations.

Restoring health centers' ability to serve their communities will depend on a major infusion of federal aid through both Medicaid and health center grant funding.

Background

The catastrophic aftermath of Hurricane Maria has placed a spotlight on Puerto Rico's deep poverty, fragile economy and vulnerable health care system. As **Table 1** shows, the Commonwealth of Puerto Rico's residents are extraordinarily poor: nearly half the population (46%) have below-poverty incomes (\$20,420 for a family of three in 2017),¹ a figure more than three times the poverty rate in the 50 states and the District of Columbia (DC) (15%). Even before Hurricane Maria struck, Puerto Rico's working-age residents were more than twice as likely to be unemployed (10% versus 4%). The island's residents are nearly twice as likely to report being in fair to poor health (34% versus 18%) and report higher rates of chronic but manageable diseases, such as diabetes and heart disease. Puerto Rico also faces health risks more likely to be associated with tropical climates; prior to Hurricane Maria, Puerto Rico reported nearly 35,000 confirmed cases of the Zika virus, compared to approximately 5,100 cases on the U.S. mainland.²

Their poverty and elevated unemployment mean that residents of Puerto Rico are heavily dependent on public health programs. Residents are much less likely to have employment-based health insurance compared to those in the 50 states and DC (35% versus 60%). Because of the

¹ Office of the Assistant Secretary for Planning and Evaluation. (2017). 2017 Poverty Guidelines for the 48 Contiguous States and the District of Columbia. U.S. Department of Health and Human Services. <https://aspe.hhs.gov/poverty-guidelines>

² Centers for Disease Control and Prevention. (2017). Zika Virus - 2016 Case Counts in the US. <https://www.cdc.gov/zika/reporting/2016-case-counts.html>

Table 1. Puerto Rico Compared to the 50 States and DC: Key Indicators

	Puerto Rico (3.4 million residents)	50 States & DC (317 million residents)
Economic and Insurance Profile		
Unemployment (2017)	10%	4%
Below 100% Poverty Level (2015)	46%	15%
Medicaid/CHIP Coverage (2015)	49%	20%
Employer-Based Insurance (2015)	35%	60%

Health Status and Health Conditions (2016)		
Adults Reporting Poor/Fair Health	34%	18%
Adult Heart Disease or Heart Attack	11%	7%
Adult Diabetes	15%	11%

Source: Kaiser Family Foundation. (2017). Puerto Rico: Fast Facts. <https://www.kff.org/disparities-policy/fact-sheet/puerto-rico-fast-facts/>

depth of Puerto Rico’s poverty, the Affordable Care Act invested additional resources into expanding the reach of Medicaid rather than funding a federally-subsidized private health insurance Marketplace.³ As a result, 49% of all residents are insured through Medicaid or CHIP, compared to 20% on the U.S. mainland.

Puerto Rico’s Health Crisis Triggered by Hurricane Maria

Following on the heels of Hurricane Irma, Hurricane Maria was particularly devastating for Puerto Rico, greatly endangering population health and safety. The initial wind intensity as the Category 4 event made landfall severely disrupted the island’s already-fragile infrastructure. Structural damage to homes and buildings resulted in uninhabitable living conditions for a large swath of the population; thousands of displaced residents remain in emergency shelters. In addition, the storm crippled telephone and internet networks, leaving millions with no means of communication. As the weeks have passed, power lines remain downed, and it could take months before electricity is permanently restored.⁴

The lack of electricity in Puerto Rico has also severely limited the availability of potable water, since the filtration systems that create clean running drinking water rely on electricity to treat sewage.⁵ Clean water is critical to public health; without it, health care providers are already seeing a surge in the number of patients needing treatment for

³Kaiser Family Foundation. (2017). Puerto Rico: Medicaid, Fiscal Issues and the Zika Challenge. <https://files.kff.org/attachment/Fact-Sheet-Puerto-Rico-Medicaid-Fiscal-Issues-and-the-Zika-Challenge>

⁴Webber, T. (2017, October 20). “Why It’s So Hard to Turn the Lights Back on in Puerto Rico.” NPR. <http://www.npr.org/2017/10/11/557051712/repairing-puerto-ricos-power-grid-could-top-5-billion>

⁵Dreazen, Y. (2017, October 23). “Darkness: Life in Puerto Rico without Electricity.” Vox. <https://www.vox.com/platform/amp/2017/10/23/16501164/puerto-rico-hurricane-maria-power-water-sewage-trump>

communicable diseases such as conjunctivitis, gastritis, and scabies.^{6,7} Furthermore, the combination of high temperatures, standing water from flooding, and contaminated water sources considerably increases the risk of mosquito-borne and water-borne diseases that could affect residents in the coming weeks and months, including chikungunya, Zika, and dengue.⁸ Leptospirosis, a bacterial disease that can be fatal without timely treatment, is also on the rise as a result of unsanitary living conditions; state epidemiologists report more suspected cases in the wake of Hurricane Maria than they normally see in a year.⁹ Mental health is a matter of great concern, given the effects of trauma and its aftermath, including the loss of homes and livelihood. Shelters report heightened need for mental health care.¹⁰

The post-hurricane conditions have and will continue to create heightened demand for health care. But the health care system, including the island's twenty federally funded health centers, are under enormous stress. Without regular power, clinics and hospitals depend on diesel-run emergency generators for basic operations such as laboratory services, x-ray equipment, refrigerators for medication storage, hemodialysis machines, ventilators, and a host of other diagnostic and treatment services that require electricity. Even with extraordinary efforts,

providers lack access to what they need; as of mid-October, downed trees and standing water mean that less than ten percent of roads are open;¹¹ as a result, access to diesel fuel and supplies is compromised. The consequences for patients with chronic conditions who need dependable access to health care are severe.

Puerto Rico's Health Centers

In 2016, the island's 20 federally funded health centers operated in 86 urban and rural locations (**Table 2**). Health centers provided comprehensive primary health care to 352,172 residents, serving as medical homes for more than one in ten residents that year.¹² Beyond providing health care, health centers are a major source of employment and serve as economic engines in rural and urban communities across the island, including those most isolated and underserved. In 2016, Puerto Rico's health centers employed over 3,200 staff including physicians, nurses, advanced practice health providers, dental staff, community outreach workers and administrative and facilities personnel.

⁶ Roig-Franzia, M. and Hernández, A.R. (2017, October 11). "Three Weeks Since Hurricane Maria, Much of Puerto Rico Still Dark, Thirsty and Frustrated". The Washington Post. https://www.washingtonpost.com/national/three-weeks-since-hurricane-maria-much-of-puerto-rico-still-dark-dry-frustrated/2017/10/11/3a263b22-ade7-11e7-9e58-e6288544af98_story.html

⁷ Bendery, J. (2017, October 16). "These Volunteer Nurses in Puerto Rico Fear FEMA is Failing." Huffington Post. https://www.huffingtonpost.com/entry/puerto-rico-hurricane-maria-fema-trump_us_59df75d5e4boabf3646c751

⁸ McKay, B., Evans, M., Hernandez, D., and de Cordoba, J. (2017, September 27). "Puerto Rico Rushes to Patch Up Health-Care System Ravaged by Hurricane Maria." Wall Street Journal. <https://www.wsj.com/articles/puerto-rico-rushes-to-patch-up-health-care-system-ravaged-by-hurricane-maria-1506480187>

⁹ Moreno, C. (2017, October 20). "Doctors Fear a Potentially Deadly Disease Outbreak in Puerto Rico." Huffington Post. https://www.huffingtonpost.com/entry/leptospirosis-outbreak-puerto-rico-hurricane_us_59e905aae4bof9d35bc969ac

¹⁰ Melia, M. and Coto, D. (2017, October 5). "Mental Health Concerns Arise in Puerto Rico Aftermath of Hurricane Maria." Pittsburgh Post-Gazette. <http://www.post-gazette.com/news/health/2017/10/05/Mental-health-concerns-arise-in-Puerto-Rico-aftermath-of-Hurricane-Maria/stories/201710050224>

¹¹ Federal Emergency Management Agency. (2017). Hurricane Maria. <https://www.fema.gov/hurricane-maria> (Accessed October 23, 2017)

¹² US Census Bureau. Quick Facts: Puerto Rico. Population estimates, July 1, 2016. <https://www.census.gov/quickfacts/PR>

Table 2. Health Centers, Patients, and Staff in Puerto Rico, 2016

Health Center Name	City	Total Sites	Total Patients	Total FTEs
Barceloneta Primary Health Services, Inc.	Barceloneta	2	15,658	110
Camuy Health Services, Inc.	Camuy	1	13,336	126
Castañer General Hospital	Castañer	2	10,626	162
Centro de Salud de Lares, Inc.	Lares	2	16,340	156
Centro de Salud Familiar (Palmieri)	Arroyo	3	13,150	97
Centro de Servicios Primarios de Salud Inc.	Florida	1	13,877	38
Concilio de Salud Integral de Loíza, Inc.	Loíza	3	13,583	145
Consejo de Salud de Puerto Rico, Inc.	Ponce	11	40,265	335
Corporación de Servicios de Salud y Medicina Avanzada	Cidra	6	27,960	263
Corporación de Servicios Medicos Primarios Y Prevención de Hatillo	Hatillo	7	16,505	150
Corporación Sanos	Caguas	3	5,713	63
Costa Salud Community Health Centers Inc.	Rincón	2	12,454	102
HPM Foundation, Inc.	San Juan	5	14,540	114
Migrant Health Center, Western Region, Inc.	Mayaguez	12	23,985	287
Morovis Community Health Center, Inc.	Morovis	1	13,083	96
Municipality of San Juan	San Juan	4	947	18
Neomed Center Inc.	Gurabo	7	34,545	317
Patillas Community Governing Board	Patillas	4	19,064	155
Prymed Medical Care, Inc.	Ciales	2	14,432	111
Salud Integral En La Montaña, Inc.	Naranjito	8	32,109	366
Total Puerto Rico Health Centers, 2016		86	352,172	3,210

Source: GW analysis of 2016 Uniform Data System (UDS) data

As shown in **Figure 1**, in 2016, health centers provided over 1.53 million visits for medical, dental, mental health and substance abuse services, as well as services that enable patients to secure access to necessary care such as case management and home visiting.¹³ Most patient visits are for medical care, but oral health and behavioral health also figure prominently. Two-thirds of health center sites serve the island's many rural communities.

Demographically, Puerto Rico health center patients resemble other U.S. health center patients (**Figure 2**). But there are also key differences. In 2016, 86% of health center patients in Puerto Rico had below-poverty income, compared to 70% of patients served by health centers in the 50 states and DC.¹⁴ As might be expected given the size of Puerto Rico's Medicaid program, health center patients in Puerto Rico are also far more dependent on Medicaid and CHIP. In 2016, 68% of health center patients were insured through Medicaid or CHIP, compared to 50% of health center patients served by health centers in the 50

Figure 1. Puerto Rico Health Centers: A 2016 Snapshot



20 federal grantees operating in 86 sites

*33% of sites in urban locations
67% of sites in rural locations*



352,172 patients served

One in ten residents in Puerto Rico



1.53 million visits, including:

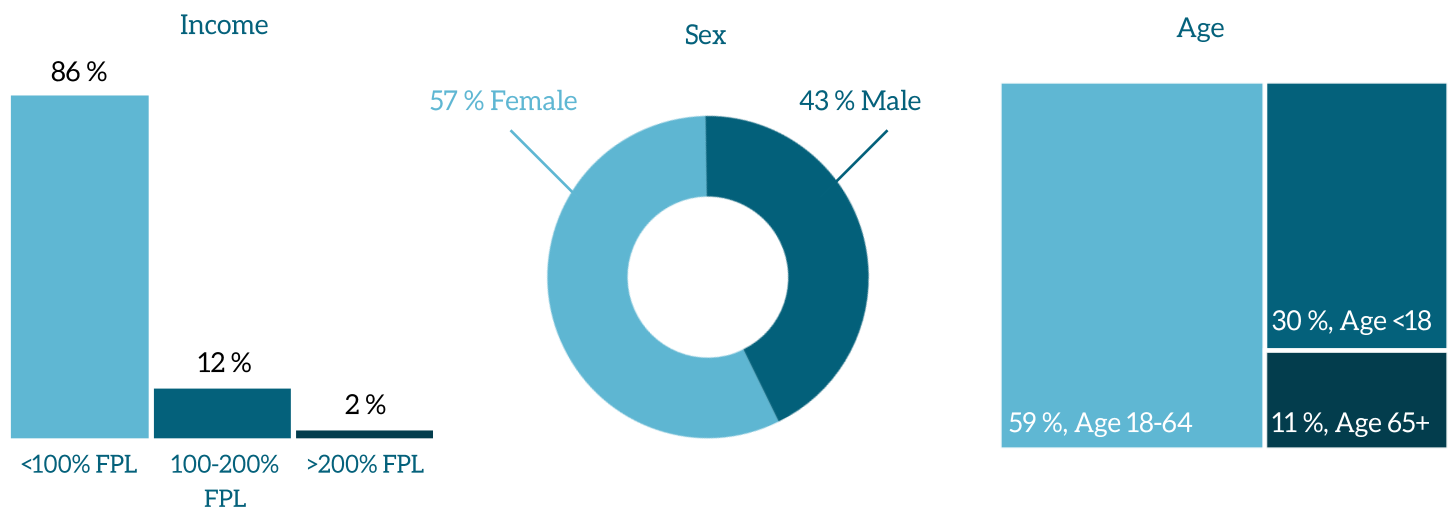
*1.26 million medical visits
Over 84,000 dental visits
Over 68,000 behavioral health visits
Over 82,500 enabling services visits*

¹³ Bureau of Primary Health Care. (2017). 2016 Health Center Data: Puerto Rico Data. Health Resources and Services Administration. <https://bphc.hrsa.gov/uds/datacenter.aspx?q=tall&year=2016&state=PR>

¹⁴ GW analysis of 2016 Uniform Data System (UDS) data

SOURCE: Bureau of Primary Health Care. (2017). 2016 Health Center Data: Puerto Rico Data. Health Resources and Services Administration. <https://bphc.hrsa.gov/uds/datacenter.aspx?q=tall&year=2016&state=PR>; GW analysis of 2016 Uniform Data System (UDS) data

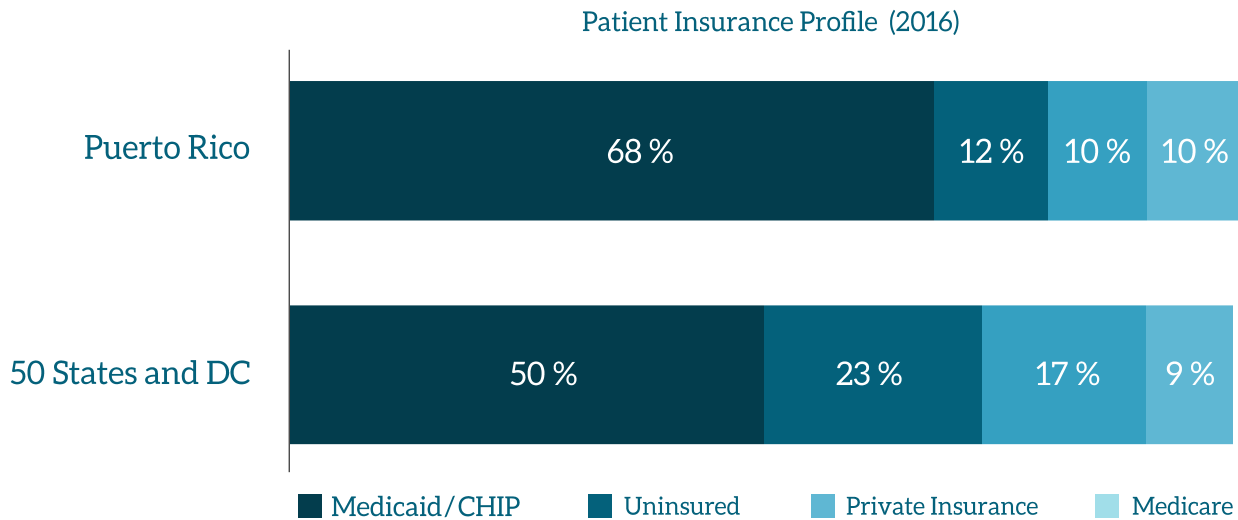
Figure 2. Puerto Rico Health Center Patients, 2016



Notes: Income distribution reflects 270,139 patients with known income.

SOURCE: Bureau of Primary Health Care. (2017). 2016 Health Center Data: Puerto Rico Data. Health Resources and Services Administration. <https://bphc.hrsa.gov/uds/datacenter.aspx?q=tall&year=2016&state=PR>

Figure 3. Puerto Rico health center patients depend on Medicaid more than those in the 50 states and D.C.



NOTE: The percentages for the 50 states and DC do not sum to 100% because non-CHIP other public insurance (0.5%) is not shown.
 SOURCE: GW analysis of 2016 UDS data

states and DC (**Figure 3**). Conversely, 10% of health center patients in Puerto Rico have private health insurance, compared to 17% of patients receiving care at health centers in the 50 states and DC.

Figure 4 shows that, like other health center patients, those served by Puerto Rico health centers experience a range of health conditions that can be well managed in primary health care settings. Compared to health center patients in the 50 states and DC, higher percentages of Puerto Rico patients are diagnosed with hypertension and asthma, but lower percentages with depression and anxiety. Health centers also provide essential primary and preventive health care, furnishing routine and influenza vaccines to over 78,500 patients, preventive cervical cancer screenings (including Pap tests) to nearly 25,000 patients, and prenatal care services to 3,350 patients in 2016.¹⁵ Because of where they are located, whom they serve, and their mission, health centers play a vital role in public health

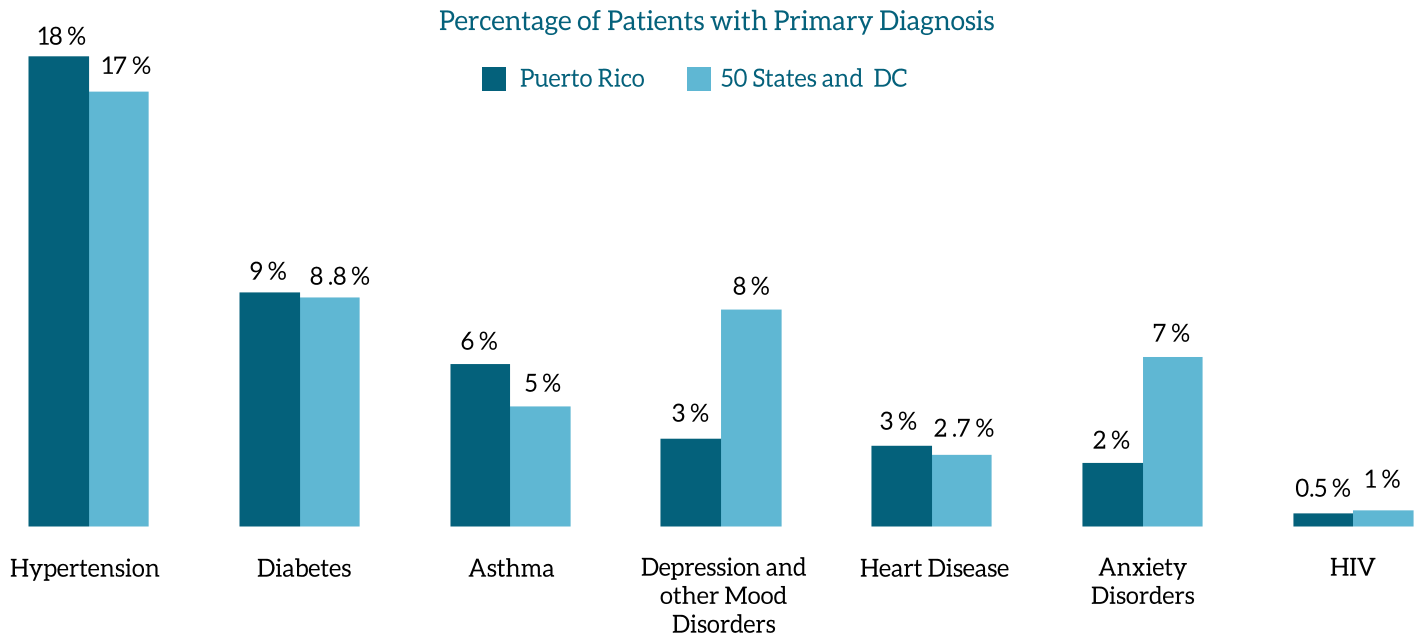
prevention and as first emergency response in the face of public health threats. During the Zika outbreak, for example, health centers served as a central part of the effort to control its spread, receiving, along with health centers in other U.S. territories, nearly \$40 million to undertake expanded primary and preventive care activities.¹⁶

Given the extent of Puerto Rico’s poverty and reliance on Medicaid, health centers disproportionately depend on Medicaid and federal grant funds for their operating revenue. As **Figure 5** shows, in 2016, 30% of health center revenue in Puerto Rico came from Bureau of Primary Health Care (BPHC) grants, compared to 18% for health centers in the 50 states and DC; similarly, Medicaid accounted for 53% of Puerto Rico health center revenue in 2016, compared to 43% in the 50 states and DC.

¹⁵ Bureau of Primary Health Care. (2017). 2016 Health Center Data: Puerto Rico Data. Health Resources and Services Administration. <https://bphc.hrsa.gov/uds/datacenter.aspx?q=tall&year=2016&state=PR>

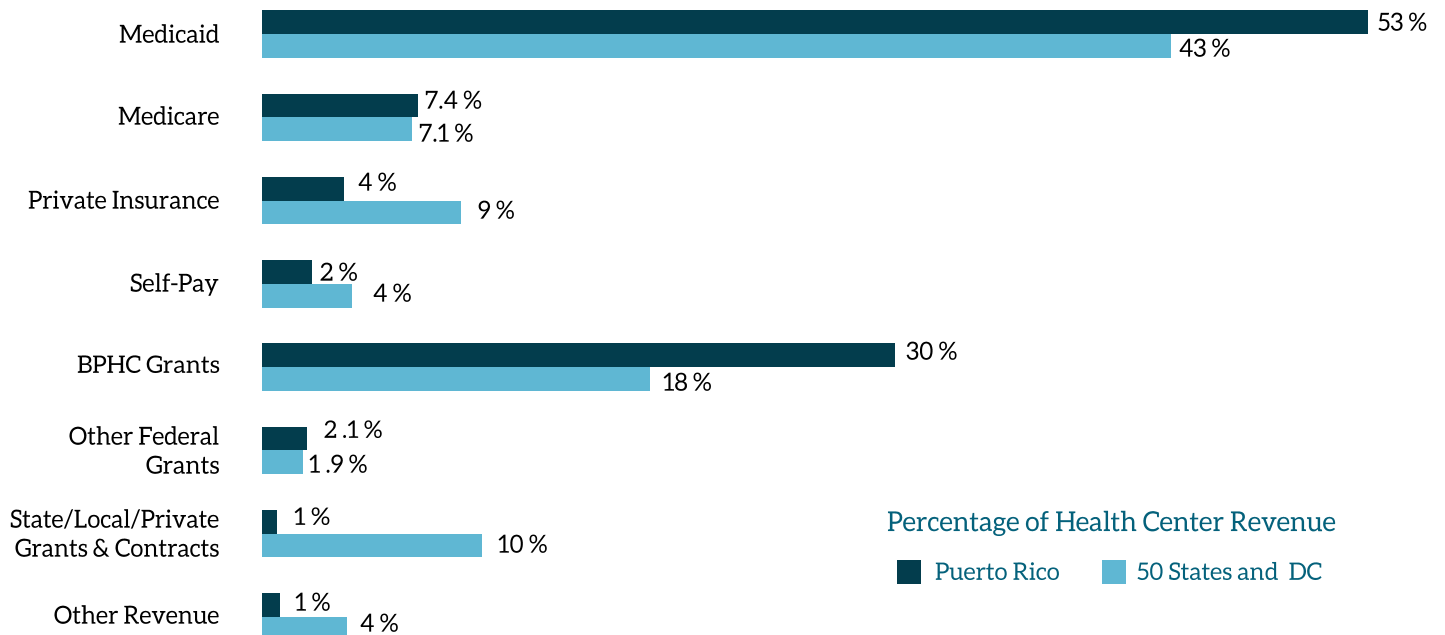
¹⁶ HHS News Release. (October 31, 2016). “HRSAs announces \$39 million to fight Zika in U.S. territories.” <http://news.aha.org/article/161031-hrsa-announces-39-million-to-fight-zika-in-us-territories>

Figure 4. Like other health center patients, Puerto Rico health center patients have serious health conditions.



NOTE: Percentages determined by dividing the number of patients with a primary diagnosis for each condition by the total number of patients.
SOURCE: GW analysis of 2016 UDS data

Figure 5. Compared to other health centers, Puerto Rico health centers rely more heavily on federal grants and Medicaid.



NOTE: The percentages for the 50 states and DC do not sum to 100% due to rounding. Other public insurance revenue is not shown (accounted for 0.001% of revenue for Puerto Rico and 1% for the 50 states and DC)
SOURCE: GW analysis of 2016 UDS data

Recovering from Hurricane Maria

Because of health centers' role in the Puerto Rico health care system and the extent to which communities rely on them for care and as sources of employment and community economic well-being, their recovery becomes a matter of vital concern. According to information provided by the Health Resources and Services Administration (HRSA),¹⁷ 83 out of 93 (89%) community health center sites in Puerto Rico were open as of October 20, 2017 (the number of sites is higher than the 86 sites reported in the 2016 UDS because new sites have opened since 2016, including one look-alike health center site).¹⁸ The ten closed sites include nine permanent service sites and one mobile van, while the 83 open sites include nine mobile vans and 74 permanent service sites. It should be noted that "open" does not mean that sites are operating as they were before the hurricane hit, and many sites are without power, relying on generators, and offering limited services or hours of operation.

Asociación de Salud Primaria de Puerto Rico, Inc. (ASPPR), the health centers' primary care association, is undertaking extensive efforts, along with the health centers themselves, to restore health centers to full operation as rapidly as possible. Evidence to date suggests that while health centers have been extraordinarily responsive to local need, there is far to go, and a significant level of aid will be needed. Based on their needs assessment of 70 health center sites, ASPPR reports that as of mid-October, only 13% of assessed health center sites had power restored, while another 4% had intermittent power; the rest appear to be running on generators. Approximately 40% of assessed sites have an internet connection and access to electronic health records, while many remain without stable internet or telephone services.

ASPPR reports that given the severe damage to the structural facilities, health centers have employed alternative methods to continue providing needed health care for their communities. Health centers are furnishing services from tents outside their clinics and in mobile units in the community. Virtually all assessed health centers reported one or more employees having lost homes themselves, yet these staff have continued to provide services at their centers. Health centers also report that staff have been conducting outreach visits to resident homes, emergency shelters, and elderly living facilities.

Health centers are reporting an urgent need for a wide range of vaccines and drugs, including antibiotics, eye drops, insulin, anti-inflammatory drugs, gastrointestinal drugs, serums, and respiratory therapy. Two-thirds of health centers report a need for tetanus vaccines, while one third need influenza vaccines. Because of the severe community needs after the hurricane, many of the clinics are supplementing their staff with volunteers to be able to extend their reach still further. Two in five sites are seeking volunteer nurses, physicians, dentists, and pharmacists.

ASPPR also has collected information on the range of health conditions Puerto Rico health centers are treating in the aftermath of Hurricane Maria. Health centers report treating conditions closely aligned with catastrophic public health events that elevate the risk for infectious disease: acute infections, conjunctivitis, scabies, leptospirosis, gastroenteritis, asthma, dermatitis, and viral infections (including influenza and suspected dengue and Zika).

Health centers also are reporting on the state of the communities they serve. As of mid-October, slightly more than half of all assessed health centers report that their communities had only intermittent access to drinking water and virtually all assessed health centers reported a need

¹⁷ Personal communication, HRSA

¹⁸ The term "look-alike" refers to health centers that meet all program requirements but do not receive federal grant support.

for water filters. Seven in 10 health centers report that their communities need food, 85% report that community residents need personal hygiene products, and all assessed health centers report a need for vector control to prevent mosquito bites and other insect infestations.

The health of the communities served by Puerto Rico's health centers depends on sustained economic investment cutting across all social sectors. Where health care is concerned, like Puerto Rico's hospitals, health centers' ability to make a full recovery hinges heavily on an infusion of financial resources. In the case of health centers, the two most important sources of funding are federal BPHC grants and Medicaid. While all health centers rely predominantly on these two funding sources, the level of reliance is particularly great in the case of Puerto Rico health centers; these two financial sources alone represent 83% of all health center operating revenue. The Health Center Fund, established in 2010 as part of the Affordable Care Act, represents 70% of all federal health center grant funding; legislation to extend the Fund, whose spending authority expired on September 30th, is now pending in Congress.¹⁹

In addition, Congress is considering additional investment in Puerto Rico's Medicaid program, long a victim of federal under-investment. Following an additional infusion of federal Medicaid funding under the ACA, this more generous funding period has ended, leaving the Commonwealth – nearly 50% of whose residents are impoverished – responsible for 80% of the cost of its Medicaid program; in comparison, Mississippi, the poorest state, is expected to fund only 25% of its program.²⁰

Addressing this long-standing inequity in federal Medicaid financing, continuing the Health Center Fund, and including targeted relief to Puerto Rico's health centers in federal aid packages emerge as crucial steps to preserving population health and promoting a more rapid recovery by health centers and other parts of the health care system. Indeed, a direct investment into Puerto Rico's health care system has emerged as among the island's most critical needs, a reality reflected in the formal declaration of a public health emergency that has been in place for over a month and that, in all likelihood, will not end any time soon.²¹

¹⁹ George Washington University. (September 14, 2017). "With Community Health Center Fund Expiration Looming, Health Center Services at Risk Nationwide." <https://publichealth.gwu.edu/content/community-health-center-fund-expiration-looming-health-center-services-risk-nationwide>; see also, Shin et al., (2017). What are the Possible Effects of Failing to Extend the Community Health Center Fund? <http://www.rchnfoundation.org/?p=6112>

²⁰ Miller, J. (October 13, 2017). "Puerto Rico's Economic Recovery Requires a Sustained Federal Investment." Brookings Institution. <https://www.brookings.edu/blog/the-avenue/2017/10/13/puerto-ricos-recovery-requires-a-sustained-federal-commitment/>

²¹ United States Department of Health and Human Services. (September 19, 2017). "Secretary Price declares public health emergency in Puerto Rico and US Virgin Islands due to Hurricane Maria." <https://www.hhs.gov/about/news/2017/09/19/secretary-price-declares-public-health-emergency-puerto-rico-and-usvi-due-hurricane-maria.html>