

**A Descriptive Analysis of the Emergency Prescription
Assistance Program's (EPAP) role in providing access to
chronic care medications to displaced disaster survivors of
Hurricane Maria in the United States Virgin Islands**

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Abstract

**A Descriptive Analysis of the Emergency Prescription Assistance
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In this study we explore the capabilities and the impact of Emergency Prescription Assistance Program (EPAP) during Hurricane Maria in the U.S. Virgin Islands (USVI) using descriptive analytic methods and mapping from the data provided by the Department of Health and Human Services. To date, this is the first academic analysis of EPAP conducted since its launch in 2008 post Hurricanes Ike and Gustav. Three primary study objectives are explored which include the following: a) Characterization of the chronic care medication needs met by EPAP. b) Characterization and subsequent analysis of the type of claims processed, the time period over which the claims were processed c) Characterization of pharmacies that utilized EPAP in Hurricane Maria. The EPAP proved to be useful federal program to help meet the ongoing chronic care medication needs of the uninsured disaster survivors from USVI. Since the program activation in November 2017, EPAP has served over 2000 patients

amounting to over 17,000 prescription claims processing through April 2018.

Maintenance medications claims for hypertension, diabetes and antibiotics were the top three drug categories processed by the program. Through local pharmacies enrolled with EPAP, continuity of care was ensured, and the local business operations were bolstered post hurricane. EPAP services are a critical component of the disaster recovery efforts to address chronic care medication needs of displaced disaster survivors.

Introduction:

Natural disasters often have devastating impacts on local health infrastructure, as evidenced by recent disasters such as Hurricanes Katrina, Sandy and the West Coast wildfires. Displaced individuals often overwhelm the tribal, local and state health systems, thus necessitating the involvement of federal aid to provide acute and chronic healthcare services. While there are several private and governmental programs in place to address post-disaster acute care pharmacy services, there aren't many programs in place to address chronic care pharmacy services.

It is estimated that 45% of the U.S. population (Raghupathi & Raghupathi, 2018) experience at least one chronic disease state, which accounts for nearly 75% of aggregate healthcare spending. When chronic diseases are left unmanaged over a period of time, long-term disabilities and hospital readmissions for disease exacerbations may result, thereby driving up health care expenditures and lowering patient quality of life ("Addressing the Health Care Impact of Hurricane Katrina," 2005). Therefore, as part of emergency preparedness, it is imperative to have mechanisms in place to address chronic disease needs of disaster survivors to prevent disease exacerbation. Lack of access to chronic care medications post disasters is a gap identified in Hurricane Katrina (Benson)(Brodie, Weltzien, Altman, Blendon, & Benson, 2006)(Ochi, Hodgson, Landeg, Mayner, & Murray, 2014) well over a decade ago. In order to fill the gap in chronic care pharmacy services during federally declared emergencies, EPAP was identified as one possible solution and was first

activated after Hurricane Gustav, in 2008. Since its launch no formal analysis of EPAP services has been published in the peer-reviewed literature. This study aims to provide a descriptive analysis of EPAP services following Hurricane Maria, specifically focusing on EPAP utilization among U.S. Virgin Island (USVI) disaster survivors between November 2017 to April 2018.

EPAP is a program led by the Office of the Assistant Secretary for Preparedness and Response (ASPR) under the Department of Health & Human Services (HHS) and is a contractual agreement with private sector resources that assists with prescription claims reimbursement during and post federally declared disasters. The program was first activated September 2008 for Hurricanes Gustav and Ike and was initially managed by the Centers for Medicare and Medicaid Services. As of May 2016, the new program vendor was contracted with ASPR. In order for EPAP activation to occur, the following criteria have to be met (“About the Emergency Prescription Assistance Program - PHE”):

- There must be a Federal Emergency declaration via the Stafford Act or the Public Health Service Act
- The State or Territory must request EPAP activation in the federally identified disaster area

There are three considerations for EPAP patient eligibility and access to fill a claim:

- Has the EPAP program been activated for the area of their pre-disaster residence, as identified by zip code of the patient?
- Does the patient meet other eligibility criteria? (i.e. possess no other

private prescription insurance or Medicare/Medicaid)

- Can the patient access a pharmacy enrolled in the EPAP program?

The EPAP program provides payment for a limited formulary of prescription medications, some durable medical equipment, certain medical supplies and vaccinations:

- At no cost to the patient

Provides up to a 30-day supply of medication, with the capability to provide recurring fills with new prescriptions if the program is still active

- Services can be provided by any enrolled pharmacy nationwide

Enrolled pharmacies nationwide can fill the claim of a patient whose pre-disaster residence zip code was within the federally identified disaster area. Therefore, storm evacuees can fill medications, DME and vaccination prescriptions in their evacuation location. For example, a resident of USVI who has evacuated to the state of Georgia can fill their prescription claim in Georgia. A pharmacy can enroll in the EPAP program at any time even pre-disaster to ensure ability to process claims. The pharmacy works with the EPAP vendor to determine eligibility and the process can take one to two weeks.

The EPAP is a voluntary program which can be activated after the State or Territory makes a request for the program activation. In some instances, such as post Hurricane Harvey, EPAP was not requested by the State of

Texas, likely due to the fact that the local jurisdictions had the appropriate resources to meet the needs of the disaster survivors. A total of 13 pharmacies were identified as EPAP enrolled within USVI (“EPAP Enrolled Pharmacies - PHE”). EPAP was activated following Hurricane Maria for the residents of the USVI islands beginning November 2, 2017 through September 15, 2018. This paper examines the paid claims through April 26, 2018 only as this was the extent of the data available at the time of analysis.

The broad objective of this analysis is to measure EPAP’s capability in providing access to chronic care medications to uninsured disaster survivors during federally-declared emergencies. This descriptive analysis examines utilization of EPAP following Hurricane Maria for the residents the U.S. Virgin Islands (USVI). This provides valuable insight into long-term recovery efforts after a large-scale disaster and help optimize pharmaceutical care services for future disaster survivors.

Methods:

A descriptive analysis of EPAP claims records was undertaken using quantitative methods to evaluate the following research questions.

- Characterize the acute and chronic care medication needs met by EPAP. For the purposes of this analysis antibiotics, opioids and steroids were considered as acute care medications as no diagnostic codes were given to distinguish their use as chronic versus acute care medication. These three classes of medications are generally used in acute care conditions, but in some cases, they can be used for chronic conditions.
- Characterize the scale of EPAP use by analyzing the type and number of claims

processed and the time-period over which the claims were processed and subsequently reimbursed

- Describe the characteristics of pharmacies using EPAP

The study population is the Hurricane Maria survivors who were recipients of EPAP benefits. According to the Census bureau statistics 2010, the total population for USVI was estimated as 106,405 out of which approximately 30,538 people were uninsured or underinsured who were technically eligible for EPAP(Census Bureau, 2010). All EPAP prescription claims information applicable to the above population dated between November 2017 and April 2018 was used for the descriptive analysis. The EPAP prescription claims data contains information on the types of drugs dispensed, total number of reimbursements, demographics of EPAP recipients, and total number of participating pharmacies. To answer the primary research questions, the following indicators noted in the table were used:

Study Questions	Indicators
a) Characterize the acute and chronic care medication needs met by EPAP.	● Number of prescriptions filled through EPAP to access chronic care medications ● Frequencies of different medication categories covered by EPAP during Hurricane Maria (including important omissions of drug classes that did not appear, such as Over the Counter (OTC) medications like acetaminophen and first aid ointments ● Demographic information on EPAP recipients: age

b) Characterize the scale of EPAP use by analyzing the type of claims processed and the time period over which the claims were processed and subsequently reimbursed or rejected.	• Number of EPAP claims processed and the dollar amount of reimbursements claimed • Report trends for peak reimbursements • Average number of prescriptions per person • Average dollar amount per claim categorized by person and the state
c) Describe the characteristics of pharmacies using EPAP in Hurricane Sandy	• Trend EPAP reimbursements per pharmacy • Identify trends in dispensing large quantities of specific classes of medications per pharmacy

Table 1: Display of study questions of interest and the corroborating indicators for appropriate measurement

Population Demographics	Percent	Count
% of adults uninsured	30%	31,922
% living below federal poverty line	22%	23,409
% on Medicaid/CHIP	22%	23,409
Hemodialysis patients*	0.11%	122
Cancer patients	5%	5,320
% under the age of 18 years	27.8%	29,581
% over the age of 65 years	13.6%	14,471

*Table 2: USVI Population Demographics adapted from the US Census Bureau 2010, (*HHS.gov news 9/10/2017)*

EPAP is a contractual agreement between the Pharmacy Benefit Manager (program vendor) and the Department of Health and Human Services (DHHS). The University of Washington worked closely with the DHHS EPAP program manager to obtain access to the EPAP data set for the activation in USVI following Hurricane Maria.

Background information on USVI:

The USVI is comprised of three major islands which include St. Croix, St. Thomas, and St. John. The three islands have a total population of 107,268 ("U.S. Virgin Islands: Fast Facts | The Henry J. Kaiser Family Foundation, 2018") persons with most of the population clustered within

the largest island of St. Croix followed by St. Thomas and then St. John. Baseline chronic disease and economic indicators are depicted in Table 2. Prior to the Hurricanes, the U.S. Bureau (2016) showed that approximately 22% percent of the population within USVI lived below federal poverty line. The median income of a household within USVI was \$37,254 and over 13% of the population represented age greater than 65 years. The territory economy is primarily driven by tourism resulting in fluctuating employment rates. 2016 unemployment rate in USVI was reported to be 13% (2016 US average unemployment rate was approximately 5 %). Prior to the storms, the territory seemed to display a baseline shortage of providers and allied healthcare practitioners as uncovered during stakeholder interviews conducted by the Kaiser Permanente Foundation (“Addressing the Health Care Impact of Hurricane Katrina,” 2005).

Healthcare System Demographics	Pre-Hurricane Count	Post-Hurricane Count (June 2018)
Pharmacies per island**		
St. John	1	1
St. Thomas	12	12
St. Croix	10	10
Major Clinics per island*	Facility Name	Operations status
St. John	Myrah Keating Smith Community Health Center	Not operational
St. Thomas	St. Thomas East End Medical Center Corp.	Semi-operational.
St. Croix	Frederiksted Health Center	Operational
Hospitals per island*	Facility Name	Operations status
St. John	n/a	n/a
St. Thomas	Schneider Hospital	Semi-operational. Cancer treatment center non-operational.

St. Croix	• Juan Luis Hospital • The Charles Harwood Medical Complex	Semi-operational. Limited emergency medicine and dialysis services.
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Table 3: Healthcare facilities status in USVI pre and post Hurricane Maria ((“Navigating Recovery: Health Care Financing and Delivery Systems in Puerto Rico and US Virgin Islands | The Henry J. Kaiser Family Foundation,” 2018.*)(***“Rx Open,” 2018*)*

On September 6th, 2017, a category 5 storm Hurricane Irma made landfall in USVI, leaving behind structural damages across all three islands of USVI (“Progress Update on Hurricanes Irma and Maria in the U.S. Virgin Islands | FEMA.gov,”2017). The response efforts post Hurricane Irma were abruptly interrupted by yet another category 5 Hurricane, named Maria, which made landfall on September 19th, 2017. This second powerful Hurricane immediately following Hurricane Irma, ultimately decimated the infrastructure of the islands, leading to a state request for federal assistance and a subsequent federal emergency disaster declaration. The storms interrupted transportation, communication, clean water and the electricity infrastructure (“Hearing on Hurricane Recovery Efforts in Puerto Rico and the U.S. Virgin Islands - Hearings and Business Meetings - Hearings - U.S. Senate Committee on Energy and Natural Resources,”). These systems were already stressed at baseline due to the diminished public funding as a result of being a territory rather than a state (“Health Care in Puerto Rico and the U.S. Virgin Islands: A Six-Month Check-Up After the Storms (Report) | The Henry J. Kaiser Family Foundation”). In a congressional testimony, the Governor of USVI reported estimated Hurricane damages in excess of \$7.5 billion. Post Hurricanes Irma and Maria, large infrastructure damages led to decreased access to health care services for many residents (Health Care in Puerto Rico and the U.S. Virgin Islands: A Six-Month Check-Up After the Storms (Report) | The Henry J. Kaiser Family Foundation). As depicted in Table 3, two main hospitals,

as well as several healthcare centers and pharmacies were destroyed, thereby incapacitating their ability to provide acute care medical services and medications to vulnerable patients such as hemodialysis patients. Initially, post Hurricane Irma, much of the infrastructure damage was incurred by St. Thomas and St. John. Critically ill patients and those requiring dialysis were transported to Puerto Rico and to one of the less Hurricane Irma impacted USVI locations, the island of St. Croix. These rescue efforts were soon overtaken by Hurricane Maria events, which forced the Department of Defense and Health & Human Services to transport patients to mainland United States. More than 200 dialysis patients had to be evacuated via air lift to mainland to meet their dialysis needs (“Driven From Island Homes by Storms, Dialysis Patients Can Do Little but Wait - The New York Times,” 2018). Although a formal count of displaced patients to the mainland post disaster was not available, one report from the American Red Cross (ARC) shelter does seem to indicate that up to 309 patients used five ARC shelters on the islands post Hurricane Maria (Learn More about Red Cross Response to Irma & Maria). Acute phase healthcare response activities were coordinated between the territory level resources such as the Department of Health, local faith-based organization, and federal resources such as the US military, Department of Health & Human Services (e.g. Disaster Medical Assistance teams, Centers for Disease Control (CDC), U.S. Public Health Service) and FEMA. A total of 5 deaths (Redcross.org, 2018.) were identified in the immediate wake of Hurricane Maria in USVI, but the overall death count as well as the acute and chronic disease burden on the existing healthcare system post the Hurricanes has yet to be determined. One of the larger facilities within St. Thomas named Schneider Hospital sustained severe infrastructure damages leading to abrupt cessation of patient care services including specialty care for patients with cancer and

hemodialysis patients (“Navigating Recovery: Health Care Financing and Delivery Systems in Puerto Rico and US Virgin Islands | The Henry J. Kaiser Family Foundation,”). Healthcare facility damages also led to loss of healthcare professionals who went elsewhere in search of employment (“In The U.S. Virgin Islands, Health Care Remains In A Critical State | WBUR News,”2018.). According to the 2015 Kaiser Family Foundation report, up to 22% of USVI population were on Medicaid/CHIP coverage. As the unemployment rate in USVI continues to rise, there may also be a concurrent increase in the demand on the Territory Medicaid services, which can further exacerbate the financial crisis experienced by the local healthcare facilities(Park, 2018). A further barrier to care for this vulnerable population is the differing match rates and cap on Medicaid funds for the US territories as compared to states (“U.S. Virgin Islands: Fast Facts | The Henry J. Kaiser Family Foundation,” 2018). The Federal Medicaid Assistance Program (FMAP) can range from a minimum match rate of 50% to a match rate as high as 74%. The federal government, on average, pays 57% of the cost of Medicaid services utilized by the States in mainland U.S. based on state per capita income; however, the territories can claim only the lowest match rate of 55% (Park, 2018)(Kaiser Family Foundation, 2012). Based on this high-level overview of baseline economic and health challenges in USVI, the 2017 Hurricanes added a new dimension of complications on an already stressed healthcare infrastructure of the territory.

Results

From October 2017 through April 2018, there were 17,589 claims for prescriptions and durable medical equipment processed that served 2339 lives through the Emergency

Prescription Assistance Program financed by allocated funds approved for over \$ 1 million
(FEMA Daily Mission Assignment Activity, 2017).

Patient Demographics: Over the course of 6 months since the EPAP activation in USVI, the patients served through the program ranged in age from neonates up to 99 years of age, with the highest numbers of claims filled for the age ranges between 45 and 65 years (Figure 1). Ages below 1 year was not captured clearly by the vendor reporting systems. The average number of claims came to 7.52 per patient, with claims counts ranging from 1 per person to a high of 91 for one individual. The high count of 91 for one individual and a higher average number of claims noted can be likely due to the fact that claims are recurring per month per patient for refills.

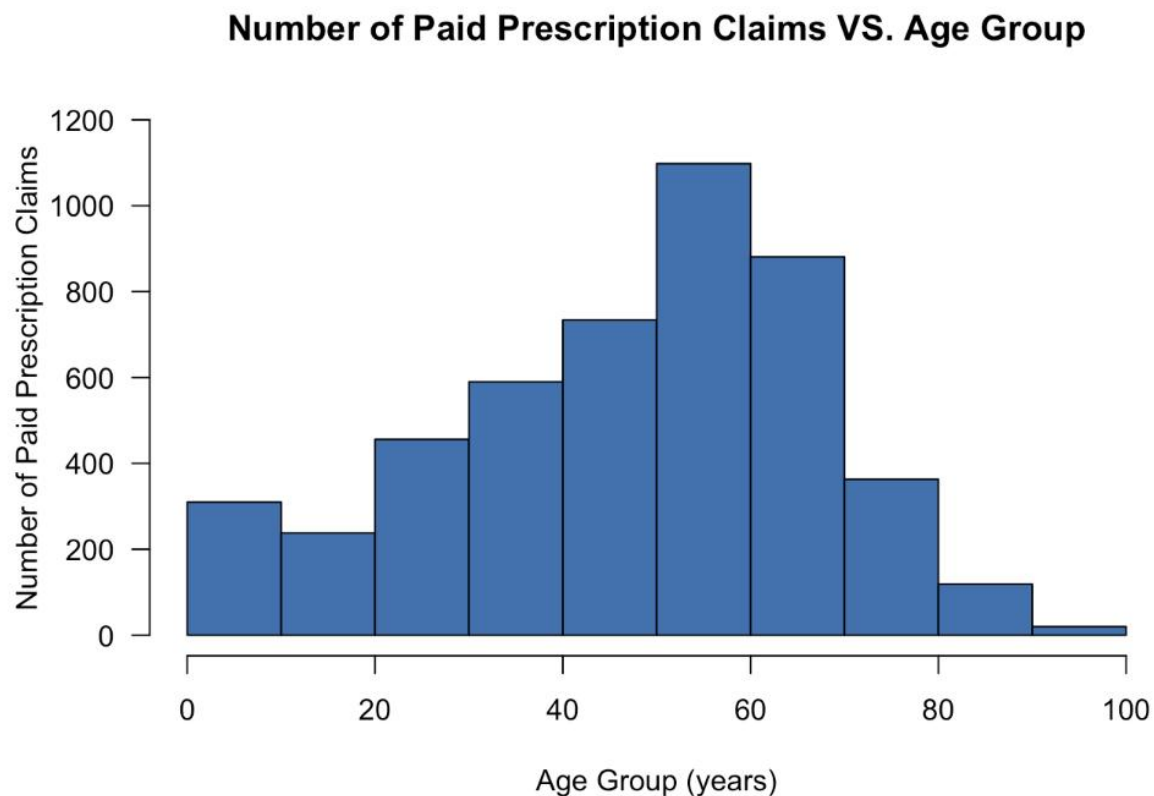


Figure 1: Number of paid prescriptions claims per age groups.

Pharmacy Demographics:

A majority of the EPAP claims were for prescriptions filled by pharmacies within USVI followed by Georgia pharmacies. The highest volume of prescriptions in USVI came from Christiansted, St. Croix, which is expected as out of the three islands that comprise USVI, Christiansted, St. Croix had the largest population pre-disaster. The next largest prescription volume was filled on St. Thomas, the island with second largest population. St. Croix and St. Thomas each had 10 operational pharmacies pre-disaster in their islands respectively (see Appendix 1). 6 out of 10 pharmacies in St. Thomas and St. Croix respectively were EPAP registered and were found to be operational post disaster. Only 1 pharmacy was located on St. Johns island which was found to be operational and EPAP registered.

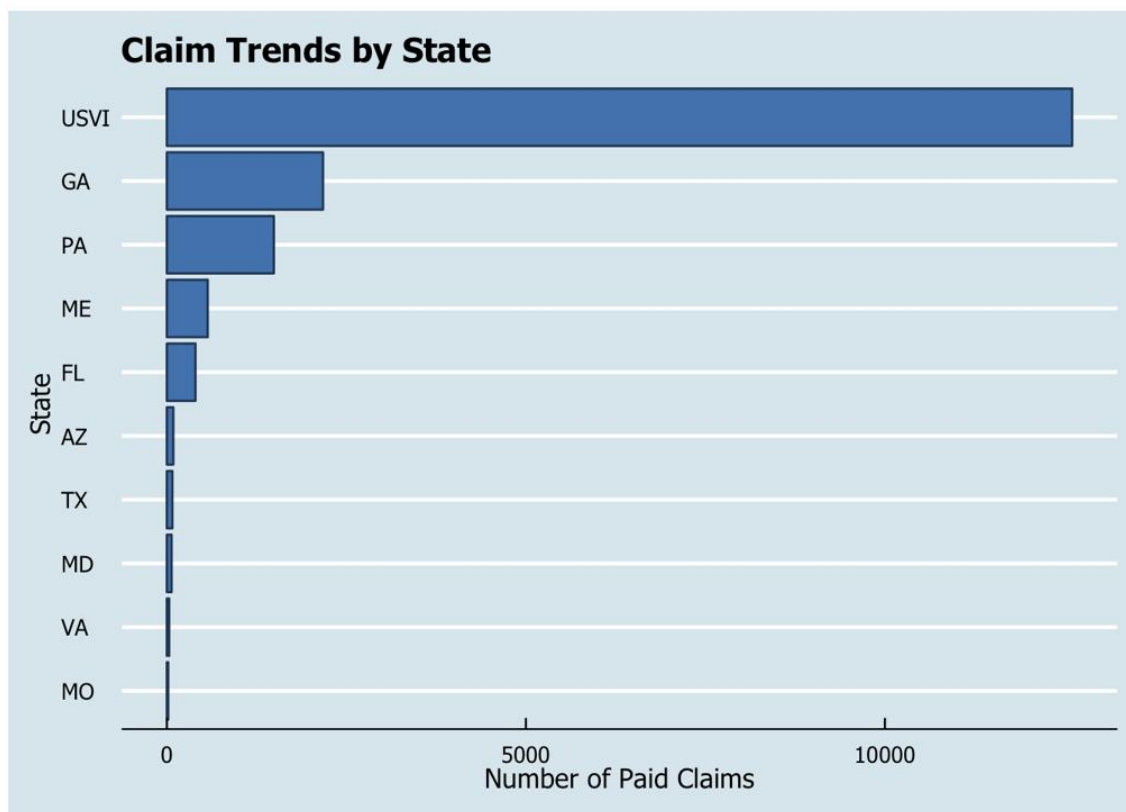


Figure 2: Display of top 10 States and Territories with the largest volume of paid claims

It is interesting to note that of the 10 pharmacies in St. Croix, 1 EPAP registered pharmacy filled the majority of the prescriptions (Appendix 2). This may be because, Hurricane Irma inflicted profound structural damages on St. Thomas and St. John islands, but spared St. Croix; however, category 5 Hurricane Maria wreaked havoc on all three islands with the biggest infrastructural damages noted on St. Thomas and St. John. St. Croix, specifically Christiansted area sustained minimal structural damages, which might be the reason why pharmacies located within the district of Christiansted were filling unusually high volumes of prescriptions. Christiansted was

also accommodating the displaced patient population from St. John and St. Thomas; therefore, they were likely also taking care of the displaced disaster survivor medications.

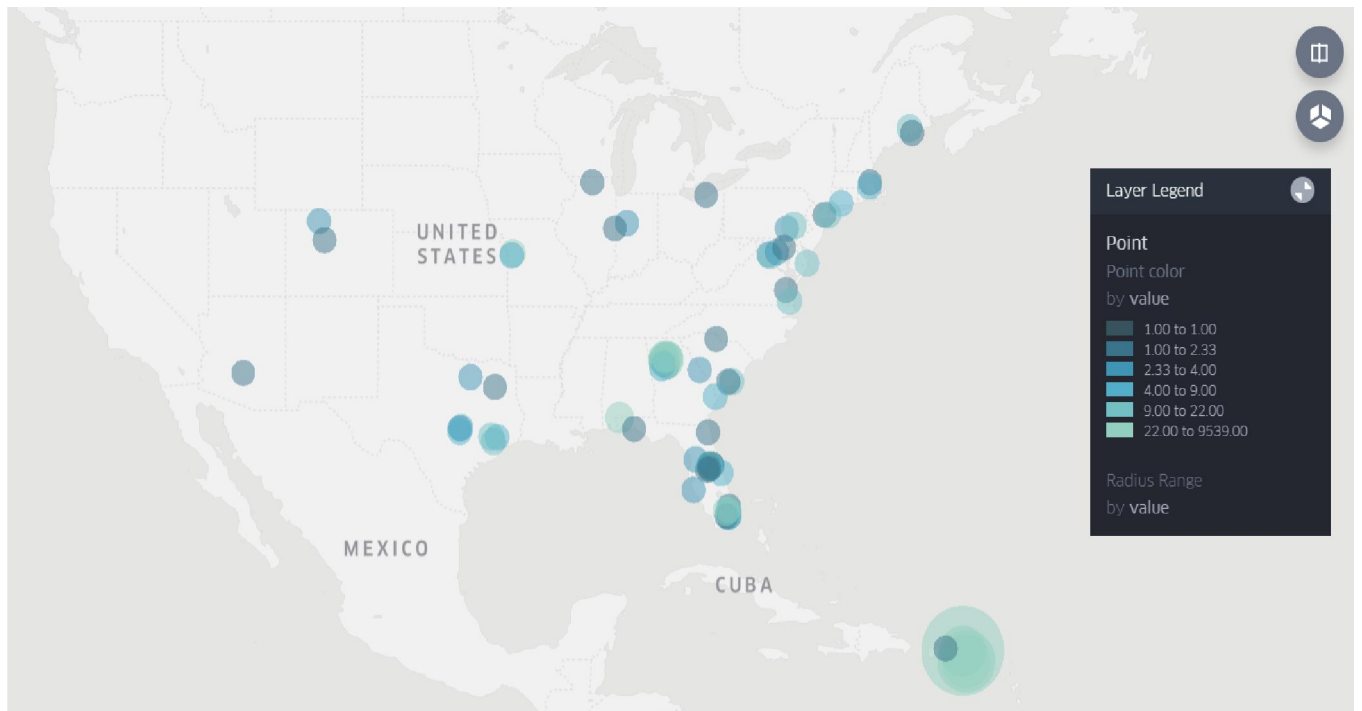


Figure 3: Density map of mainland United States and territories depicting volume of EPAP prescription fills from November 2017 through April 2018. USVI has the largest number of prescription fills. A total of 9 prescriptions were filled in Honolulu, HI amounting to a total of \$119.32

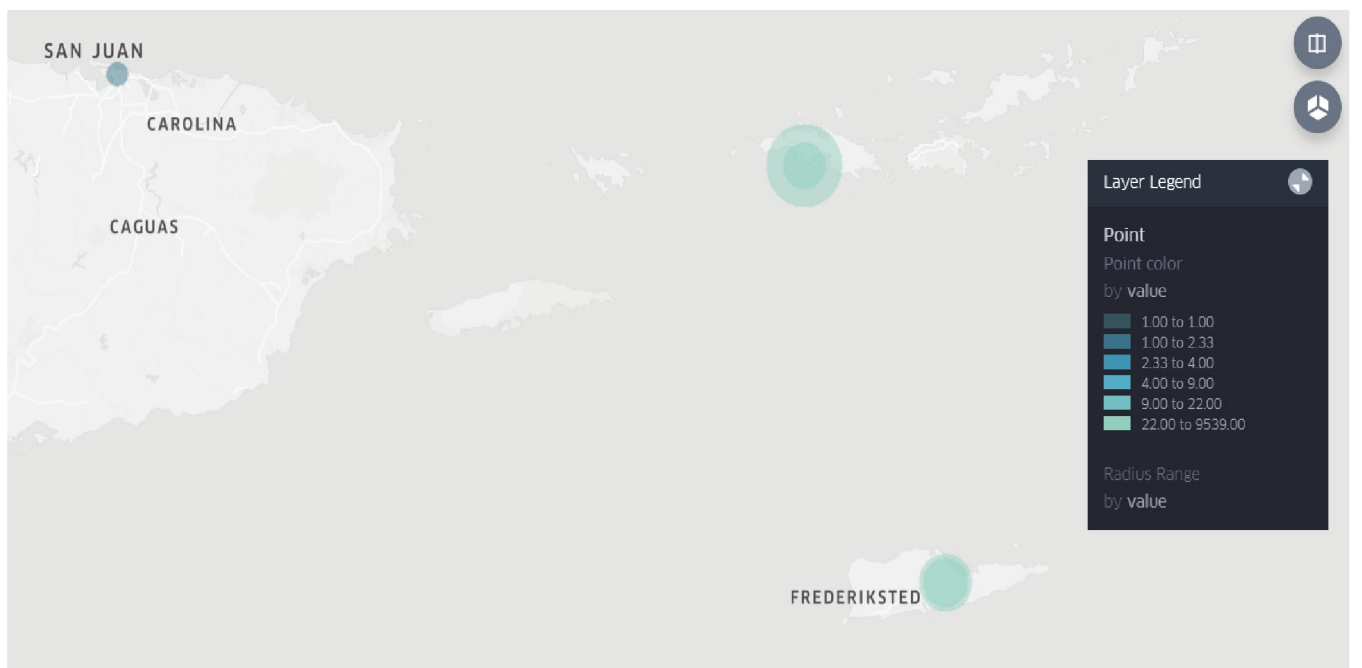


Figure 4: Density map of US territory, Virgin Islands depicting volume of EPAP prescription fills from November 2017 through April 2018. USVI has the largest number of prescription fills. Each circle is a zip code and the size and color depict prescription volume

As Figure 3 and 4 indicates, EPAP paid for a large number of prescriptions with USVI based pharmacies generating the highest volume of EPAP claims. High volume of EPAP claims occurring locally in USVI also shows that EPAP is assisting with continuity of business operations for local pharmacies. Inadvertently operationalizing pro-bono drug dispensing channels could have the capacity to undermine and displace existing pharmacy business operations. This was clearly not the case here as not only did EPAP provide patients with maintenance medications, but also kept workers employed, insured and empowered to rebuild their lives and community. The vast majority of pharmacies are enrolled in EPAP nationwide as evidenced by enrolment of over 70,000 pharmacies in the U.S. ("About the Emergency Prescription Assistance Program - PHE," 2018); as a result, patients who were evacuated to the mainland were still able to utilize EPAP. Among the EPAP registered pharmacies nationwide, there were a total of 13 EPAP participating pharmacies in USVI that were meeting the prescription needs of displaced communities and as depicted by the graph above.

Pharmacy Services:

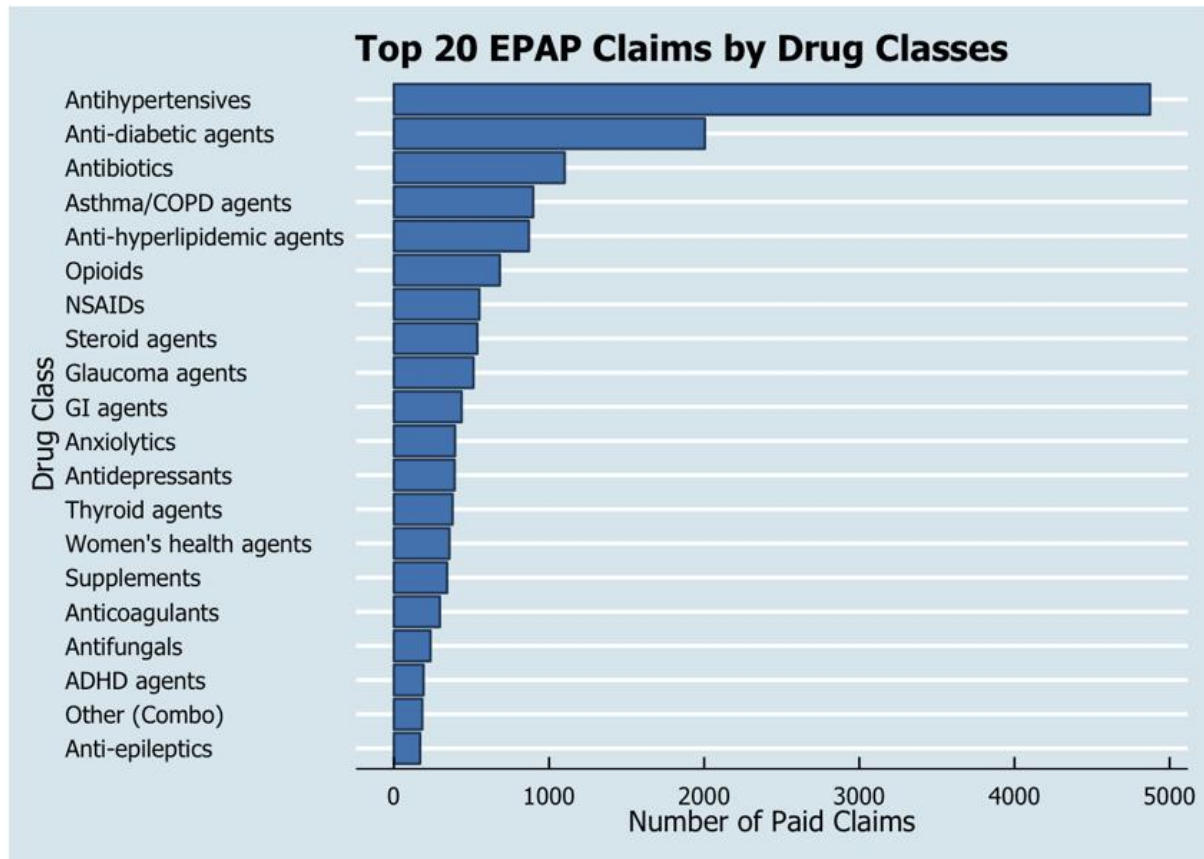


Figure 4: Top 20 drugs classes dispensed under EPAP. Please refer to the Appendix 5 for a closer look at drug class breakdown

An analysis of the top 20 drug classes paid for by EPAP revealed that there was a large demand for chronic care medications following Hurricane Irma and Maria. Of the top 20 drugs dispensed under EPAP, antihypertensives take the lead followed by antidiabetics, asthma/COPD medications and cholesterol medications in the top 5 chronic care medications (Figure 4.). For the purposes of this analysis, pain medications, steroids and antimicrobials were considered as acute care medications. In this category, the antimicrobials took the lead followed by pain medications and steroids (Appendix 5). A small volume of claims for DME was noted,

accounting for only 0.3% of the claims cost. Due to the minimal cost of this program component, it will not be further discussed in this report.

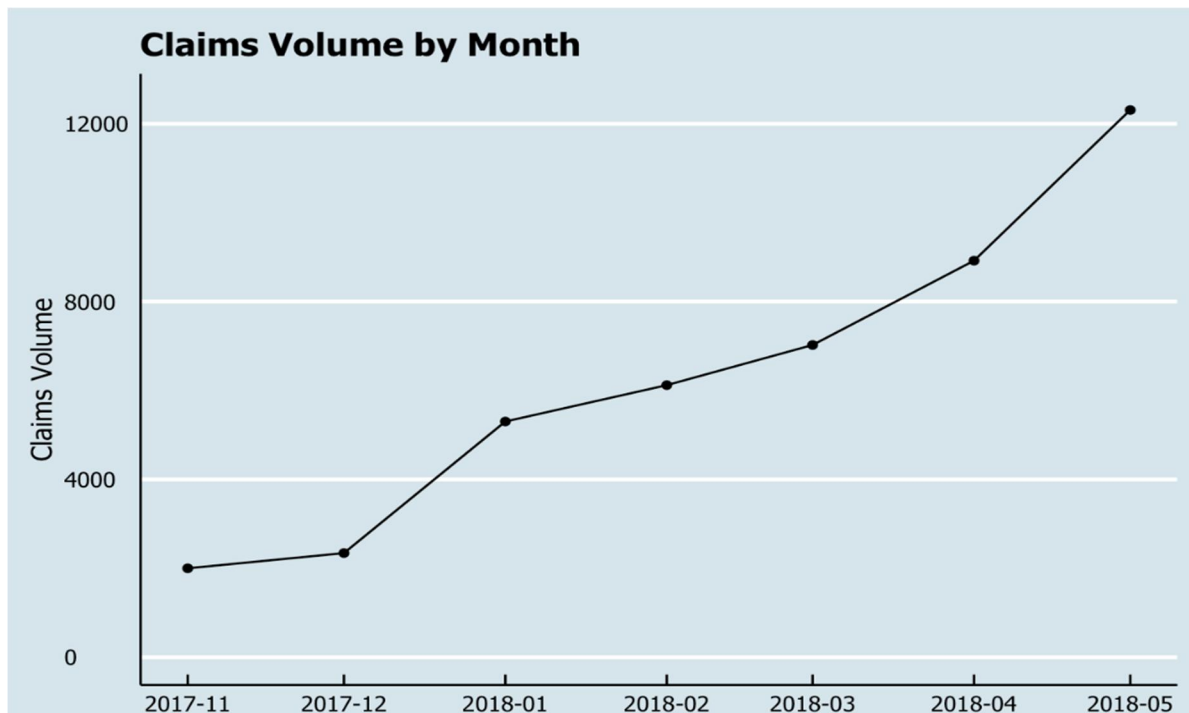


Figure 5: Total EPAP claims volume by month. This is not a cumulative total and is representative of monthly claims display only

Figure 5 displays the number of prescriptions paid by EPAP on a monthly basis starting Nov 2017. Of note, this is not a cumulative trend line. It is interesting to note that despite being activated for 6 months, prescription demand (new and refills) is steadily growing, showing no signs of downward trends that are indicative of territory infrastructure recovery to meet the chronic care medication needs. Many specialty medications were also covered which include transplant medications, biologics, HIV and, dialysis medications. Most specialty medications were filled in mainland US pharmacies and infusion centers for products requiring IV administrations.

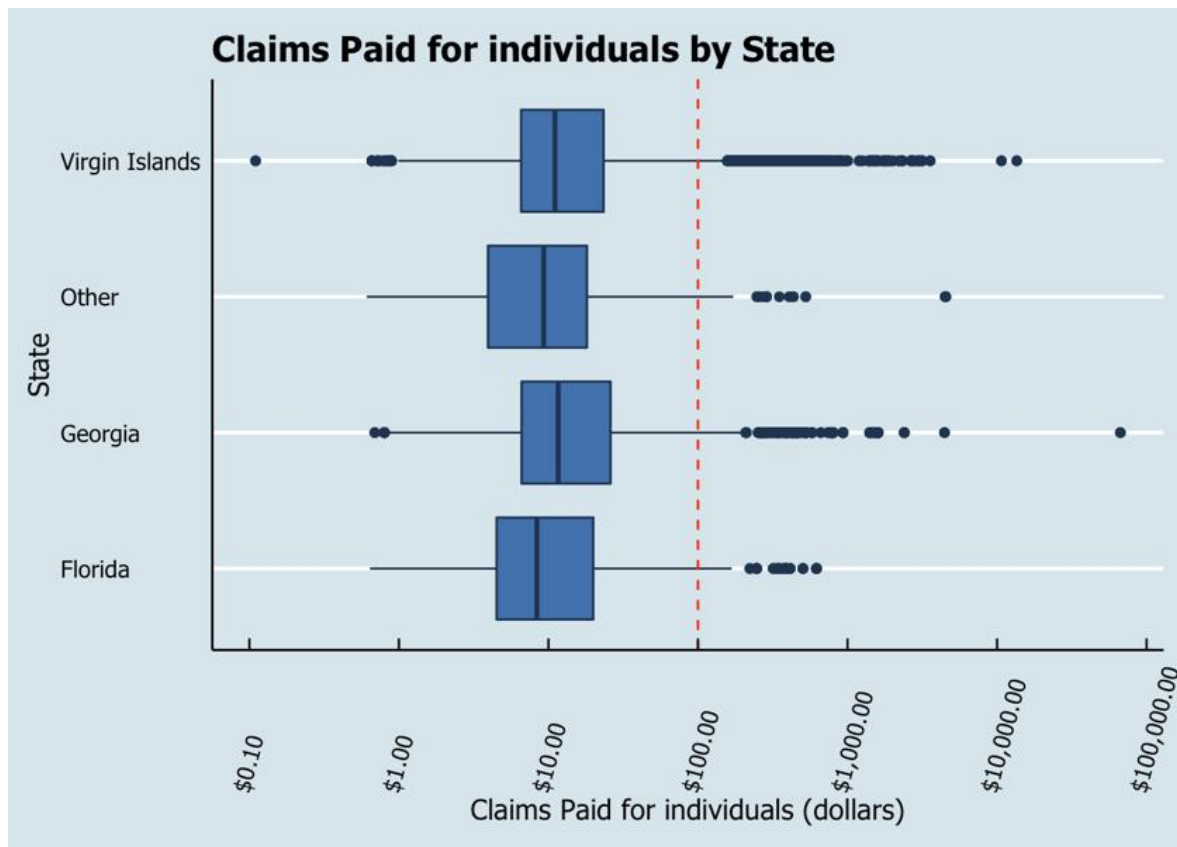


Figure 6: Pharmacies by State or Territories with the highest volume of paid claims in log scale. The median claims value for the four regions clustered around \$10. Fifty percent of the claims reimbursed were less than \$10. The right sided outliers indicate specialty medications, which were mostly filled in USVI.

Across the four groups displayed in Figure 6, the median values and the distribution of the lower 75% of each group is similar. The distribution of the upper 25% differs greatly. This makes sense as a majority of the patients refilled the most commonly prescribed chronic and acute care medications as represented by the lower 75% of each group. The highly variable upper 25% of each group is represented by specialty medications such as HIV, chemotherapy, biologics and dialysis specific medications. The median claims reimbursement for all states and territories was \$11.05 with the upper and lower quartiles ranging from \$23.22 and \$6.54 (Appendix 3).

Discussion: USVI's health services availability and capacity to address the surge in health care needs secondary to acute and chronic diseases were undermined due to severe infrastructure damage ("Six Months after Two Category 5 Hurricanes Struck, the U.S. Virgin Islands Is Recovering | FEMA.gov," 2018). 22 pharmacies exist in St. Thomas, St. John and St. Croix, of which only 13 were operational and EPAP enrolled. More than 17,000 prescription claims were processed across the United States that served approximately 2339 patients with chronic diseases from November 2017 through April 2018. Over 400 survivors requiring advanced medical care were evacuated to several mainland states ("Progress Update on Hurricanes Irma and Maria in the U.S. Virgin Islands | FEMA.gov,"). Historically, EPAP provided a one-time 30-day supply of chronic care medications to patients without refills. Contractual changes with the Pharmacy Benefits Managers led to EPAP expanding its duration of services from one-time 30-day medication fill to recurring fills through new prescriptions for eligible USVI patients from November through program de-activation date.

According to the CDC, approximately 50% of the U.S. population is reported to have at least one chronic disease state ("About Chronic Disease | Chronic Disease Prevention and Health Promotion | CDC,"2018). If this percentage is applied to the USVI population, an estimated 53,000 people are likely to have at least one chronic disease medication need. The 2010 surveillance of insurance status of the population revealed that 30% of the island residents were uninsured which amounts to an estimated 16,000 patients with chronic diseases that are also uninsured, thereby making them EPAP eligible (see Table 4).

Factors affecting program utilization: EPAP is a program that plays a critical role in the response and recovery phases of federally declared emergencies. The program's core function is to minimize the barriers to accessing pharmaceutical services based on the disaster survivor's ability to pay following a major disaster. The activation and utilization of EPAP following Hurricane Maria served over 2000 patients in the outpatient setting, thereby preventing an inappropriate surge of patients seeking care in acute-care settings for chronic care needs. Provision of chronic care medications also enabled patients to maintain health and may have potentially prevent hospitalizations secondary to disease exacerbation. However, it is interesting to note that the EPAP served only approximately 15 % of its potential target population of 16,000 USVI patients with chronic diseases who are uninsured. Multiple factors may have resulted in the noted underutilization of the program. Some of the factors could

USVI Population		Percent with chronic diseases in USVI	Number of patients with chronic diseases
106,405	X	~ 50%	~ 53,000
Number of patients with chronic diseases		Percent uninsured	Number of uninsured and EPAP eligible
53,000	X	30%	~16,000

TABLE 4: An estimation of EPAP eligible patients derived from US Census Bureau 2010 and the Department of Health USVI

include lack of program awareness by patients, providers or pharmacies, baseline economic status of the territory, concurrent assistance from aid organizations, delay in program activation due to multiple factors such as cost sharing burden and other disaster borne infrastructural damages that prevent normal business operations of healthcare facilities.

Post Hurricane Sandy in 2012, EPAP paid for 5194 discrete prescription claims and durable medical equipment for a total billable amount of \$806,110.61 (ASPR Tracie, 2016). In

contrast, EPAP paid for over 17,000 claims for USVI patients post Hurricane Maria for a total amount of \$1,054,011.9. The difference noted in the program utilization between the two disasters could be attributed to the fact that post Superstorm Sandy, eligible patients were entitled to only a 30-day supply of medications. Conversely, post Maria, patients were given the opportunity to receive monthly refills through this program in USVI and other mainland states. This extension that allows patients to claim refills was likely granted secondary to lessons learned from one-time medication fills seen in Hurricane Sandy as well as due to the severe economic hardship that the territories faced post hurricanes. As mentioned earlier, up to 30% of the population were uninsured pre-disaster. This percentage is likely higher at present secondary to loss of jobs for many post disaster areas (“In The U.S. Virgin Islands, Health Care Remains In A Critical State | WBUR News,” 2018)(“Health Care in Puerto Rico and the U.S. Virgin Islands: A Six-Month Check-Up After the Storms (Report) | The Henry J. Kaiser Family Foundation,” 2018). Medicaid is one likely possible solution for these patients; however, given that USVI is a US territory, there is a cap on the federal Medicaid funds (“Health Care in Puerto Rico and the U.S. Virgin Islands: A Six-Month Check-Up After the Storms (Report) | The Henry J. Kaiser Family Foundation,” 2018), thereby potentially making the territory more dependent on long-term aid solutions.

Factors affecting program activation: EPAP activation with Hurricane Maria occurred 2 months post storm as evidenced by its enactment on Nov 2017. In contrast, post Hurricane Sandy landfall, EPAP was activated within 5 days in New Jersey and 7 days in New York (ASPR Tracie, 2016). In the setting of a federally declared emergency, the typical chain of command to request EPAP resources stems from the states’ local Emergency Operations Center that

performs a needs assessment. In the event that the assessment reveals the need for EPAP activation, a request is made to FEMA through the local EOC in collaboration with the governor of the territory. The request is then reviewed and assigned to the Department of Health & Human Services who will ultimately execute the EPAP contract activation. The reasons for the delay in EPAP activation post Hurricane Maria are multi-factorial and may include the following major factors: a) The activation of EPAP is optional and must be formally requested by the State to HHS for its formal activation; b) The State may have assessed and determined that the patient needs could be met by the local jurisdictions immediately post hurricane, thereby forgoing EPAP initially; c) EPAP is a federal-state cost sharing program; therefore, if the State is financially unable to afford the cost sharing expenses, EPAP may not be activated. The EPAP continues to evolve and HHS seeks to remove barriers to care to ensure more patients have access to needed medications, vaccines and durable medical equipment.

Limitations:

Several limitations were identified in this descriptive analysis which set out to characterize and report EPAP services utilization in USVI post Hurricanes Irma and Maria. One of the study objectives was to characterize and analyze the types of claims processed and the time frame over which the claims were processed. The study was not able to obtain clear trends on time to first claim for patients. This maybe because patients were getting their medication needs met elsewhere through aid organizations. Further landscape analysis is needed to understand major barriers to care as well as available acute and chronic care medication distribution and dispensing channels made available to patients immediately post hurricanes. The study was also not able to determine the actual medication needs of the

disaster survivor population. The analysis showed that over 2000 patients were provided with access to acute and chronic medications, however, there were no reports available to determine the baseline volume of patients with medication needs. Further studies are needed to understand the baseline population medication needs, so that EPAP can be utilized optimally to provide care to the vulnerable patients in the community.

Conclusion:

The rehabilitative efforts for USVI will likely prevail long-term marked by reconstruction of both its acute care and long-term care health services as well as health care infrastructures. The unmet healthcare needs for this resource limited community is projected to remain high for quite some time, given the resource limitations that the territory faced pre-hurricane and the extent of hurricane destruction to the infrastructure and the subsequent economy. Analysis of the claims data revealed that EPAP covered a large number of chronic care medications within USVI, of which, the vast majority of the claims were non-specialty medications costing under \$25. This indicates that EPAP is a relatively inexpensive way of taking care of previously unmet medical needs of disaster survivors. Almost all pharmacies in the U.S. are enrolled in the EPAP program and can participate in the recovery process, which is a long-term commitment. Chronic care medication needs persist after the disaster resolves, thereby requiring these concerns to be addressed months to years after the disaster. The call to action is not just for the EPAP, which is only one mechanism to meet the gap in care, but to all emergency management agencies to address the unmet need for chronic care medications post large scale disasters with innovative programs and initiatives in collaboration with the affected state.

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Appendix 1

Pharmacy Name	Location: St. Croix	EPAP Registered	Operational as of June 2018
Christian's Pharmacy - Pharmacies	Frederiksted, St. Croix	no	yes
Diamond Pharmacy - Pharmacies, Medical Supply and Equip	Estate Diamond, St. Croix	yes	yes
Doctor's Choice Pharmacy - Pharmacies	Plaza Extra E., Plaza Extra W., St. Croix	no	yes
Golden Rock Pharmacy - Pharmacies, Home Health Supply and Equip	Golden Rock Shopping Center, St. Croix	yes	yes
Gore's of St. Croix - Pharmacies	King Street, St. Croix	no	yes
K-Mart Pharmacy - Pharmacies	Sunshine Mall, St. Croix	yes	yes
Medicine Shoppe Pharmacy, The - Pharmacies, Home Health Supply and Equip	Sunny Isle Shopping Center, St. Croix	yes	yes
Mt. Welcome Pharmacy - Pharmacies, Medical Supply and Equip	Estate Mt. welcome, St. Croix	yes	yes
Ocean Side Pharmacy - Pharmacies	Plaza Extra West, St. Croix	no	yes
Neighborhood Pharmacy	140B ESTATE ST GEORGE	yes	yes
Total Pharmacies	10		
% EPAP registered	60%		

Pharmacy Name	Location: St. Thomas	EPAP Registered	Currently Operational (y/n)
Chelsea Drug Store - Pharmacies, Medical Supply and Equip	Red Hook Plaza, St. Thomas	yes	yes

Doctor's Choice Pharmacy - Pharmacies	Medical Arts, Time Center, Wheatley, Sub Base, St. Thomas	no	yes
Drug Farm Pharmacy - Pharmacies	Lockhart Shopping Center, St. Thomas	no	yes
Drug Farm Pharmacy - Pharmacies	Medical Foundation Bldg., St. Thomas	no	yes
Frenchtown Drug Center - Pharmacies	Frenchtown, St. Thomas	no	yes
Healthy Living Pharmacy - Pharmacies	Barbel Plaza, St. Thomas	yes	yes
K-Mart Pharmacy - Pharmacies	Tutu Park Mall, St. Thomas	yes	yes
Medicine Shoppe Pharmacy, The - Pharmacies, Medical Supply and Equip, Home Health Supply and Equip, Oxygen	Havensight Mall, St. Thomas	yes	yes
Tradewinds Pharmacy - Pharmacies	Paragon Medical Bldg., St. Thomas	yes	yes
Walgreens - Pharmacies, Medical Supply and Equip	Tutu, St. Thomas	yes	yes
Total Pharmacies	10		
% EPAP registered	60%		

Pharmacy Name	Location: St. John	EPAP registered	Currently Operational (y/n)
Chelsea Drug Store - Pharmacies, Medical Supply and Equip	The Market Place, St. John	yes	yes
Total Pharmacies	1		

% EPAP registered	100%		
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APPENDIX 2

EPAP REGISTERED PHARMACIES in USVI			
Pharmacy	City	County	Territory 🇻🇲
KMART PHARMACY	SAINT THOMAS	ST. JOHN-THOMAS	VI
KMART PHARMACY	SAINT CROIX	SAINT CROIX	VI
GOLDEN ROCK RX	CHRISTIANSTED	St. Croix Island	VI
CHELSEA DRUG STORE	SAINT JOHN	St. John Island	VI
CHELSEA DRUG STORE REDHOOK	SAINT THOMAS	St. Thomas Island	VI
HEALTHY LIVING PHARMACY	SAINT THOMAS	St. Thomas Island	VI
DIAMOND PHARMACY	CHRISTIANSTED	ST. CROIX	VI
MEDICINE SHOPPE PHARMACY	CHRISTIANSTED	St. Croix Island	VI
MT WELCOME PHARMACY	SAINT CROIX	ST. CROIX	VI
TRADEWINDS PHARMACY	SAINT THOMAS	ST. JOHN-THOMAS	VI
WALGREENS	ST THOMAS	St. Thomas Island	VI
NEIGHBORHOOD PHARMACY	FREDERIKSTED	St. Croix Island	VI
THE MEDICINE SHOPPE	ST THOMAS	ST. JOHN-THOMAS	VI

APPENDIX 3:
SUMMARY OF PAID CLAIMS IN DOLLARS FOR FIGURE 6

	Min.	25TH	Median	75TH	Max.
VI	0.11	6.56	11.05	23.36	13,540.94
FL	0.64	4.50	8.37	19.94	619.79
GA	0.69	6.61	11.61	26.01	66,776.91
OTHER	0.61	3.94	9.29	18.09	4,538.73
ALL	0.11	6.54	11.05	23.32	66,776.91

APPENDIX 4: Top 20 Pharmacies by State or Territory with highest amount of claims reimbursement

State/Territory	Pharmacy Names	Total Claims Payment	Total Volume of Paid Claims
USVI	DIAMOND PHARMACY	173314.11	3257
USVI	CHELSEA DRUG STORE REDHOOK	147012.39	2320
USVI	CHELSEA DRUG STORE	117366.25	1462
USVI	THE MEDICINE SHOPPE #1956	97282.23	2036
USVI	TRADEWINDS PHARMACY	95359.55	1505
GA	WALGREENS #13641	71578.01	8
USVI	MT WELCOME PHARMACY	48409.11	816
USVI	KMART PHARMACY #3829	48005.18	1295
USVI	KMART PHARMACY #7413	44933.19	1486
USVI	GOLDEN ROCK RX	40227.27	811
MA	WALGREENS #02359	34236.09	450
USVI	WALGREENS #13846	24734.43	560
NJ	WALGREENS #07502	21339.59	132
GA	WALGREENS #07167	13593.65	214
USVI	NEIGHBORHOOD PHARMACY	13577.3	307
TX	AMERICARE INFUSION CENTERS	13562.37	3
GA	WALGREENS #06204	8000.85	56
USVI	MEDICINE SHOPPE PHARMACY #1886	7902.38	209
FL	CVS #04027	7645.35	90
GA	WALGREENS #10265	4935.31	65

Table: Note that a majority of the pharmacies with highest ranking reimbursements are from USVI

APPENDIX 5:

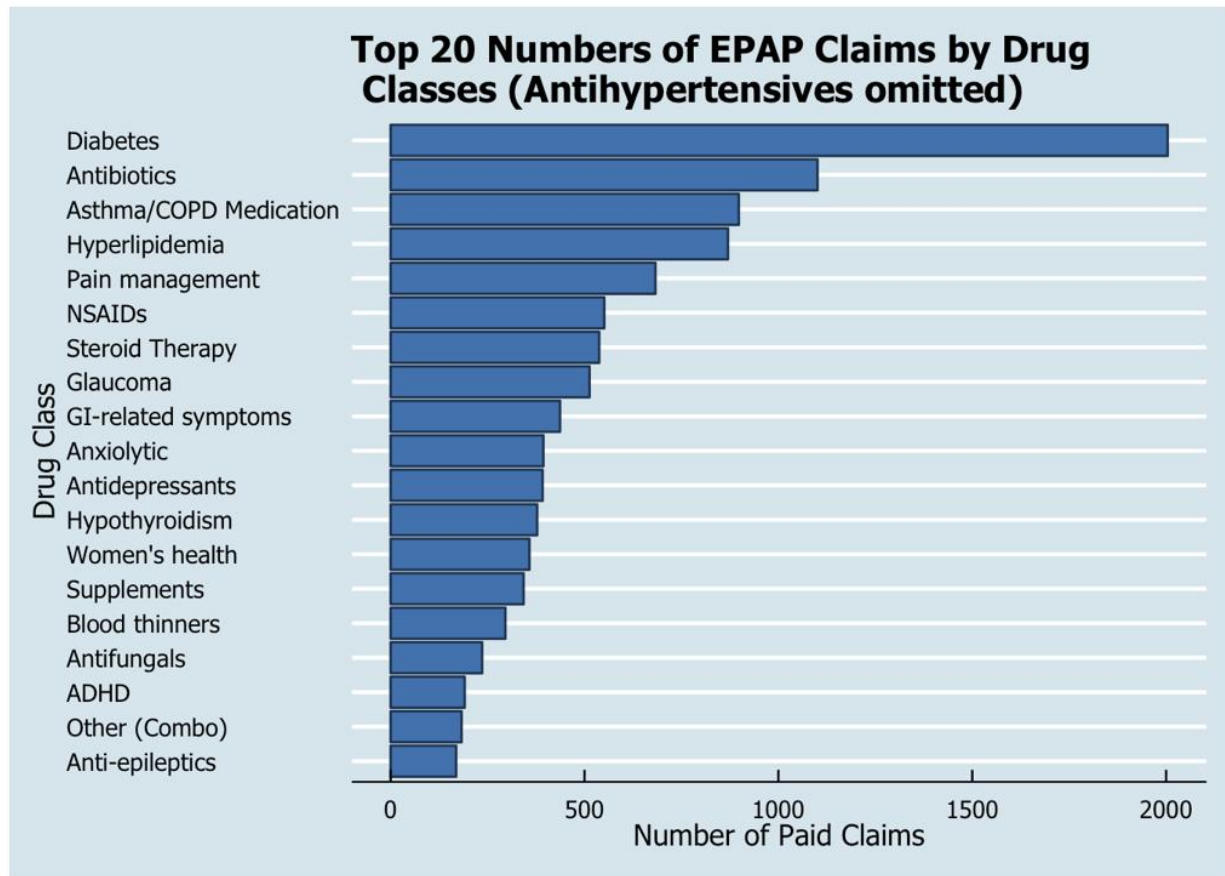
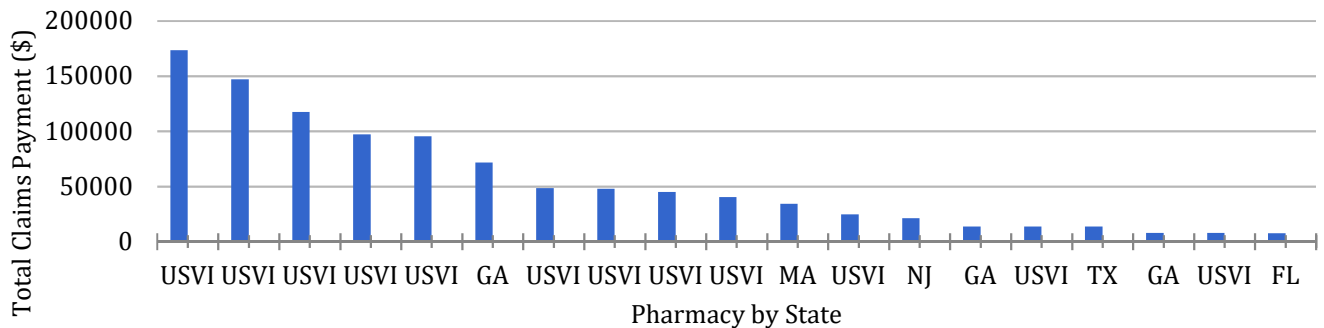


Figure: This is a bar graph depicting the top 20 drug classes covered by EPAP without anti-hypertensives in order to provide a better display of distribution of drug classes covered.

Acute Care Medications	Rx Volume
Antimicrobials	1464
Pain Management	683
Steroids	538

Claims Reimbursement for the Top 20 Pharmacies by City & State/Territory



Top 20 Pharmacies by State with the highest amount of reimbursement in U.S. Dollars

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