



HEALTH

The two main health care facilities in the Territory are the government-owned Schneider Regional Medical Center (SRMC) in the St. Thomas-St. John district and Governor Juan F. Luis Hospital and Medical Center on St. Croix. SRMC consists of three health care facilities: the Roy L. Schneider Hospital, the Charlotte Kimelman Cancer Institute on St. Thomas, and the Myrah Keating Smith Community Health Center on St. John. The Governor Juan F. Luis Hospital, in addition to the hospital itself, includes the Virgin Islands Cardiac Center. Other health care options in the Territory include Federally Qualified Health Centers, community health clinics, and private providers. There are also multiple private pharmacies.

Hurricanes Irma and Maria damaged much of the health care system's physical infrastructure. Those facilities able to continue providing services faced the challenges of operating without electricity, increased costs associated with fueling and running a generator, limited access to fuel, reduced service delivery due to limited capacity, loss of pharmaceutical inventory and equipment, and staffing shortages. Patients in need of long-term medical care were forced to evacuate, with more than 800 moved to medical facilities in locations such as Miami, FL; Shreveport, LA; Atlanta, GA; Charleston, SC; and Puerto Rico. Almost nine months later, some patients still have not been able to return to the USVI because of limited specialty services, limited hemodialysis capabilities on St. Croix, and uncertainty about the safety and condition of their storm-damaged homes.

Inadequate funding, workforce shortages, limited educational programs, licensure processes, and aging infrastructure all contributed to pre-storm operational challenges and must be addressed while rebuilding the health care infrastructure going forward. Looking ahead, the USVI must rebuild stronger facilities, improve emergency planning and response, improve coordination and collaboration between all the different health care players, and work diligently to enhance health care communication systems and technology that will permit the Territory to rebound quickly after future natural disasters.

HOW THE HEALTH CARE SYSTEM WORKS

The Territory's health care system serves roughly 104,000 USVI residents, as well as visitors; many residents are low- or moderate-income (LMI). The system's infrastructure includes two public hospitals, two federally qualified health centers (FQHCs), two specialized service centers, 23 pharmacies, numerous private providers, and 382 VI-licensed medical professionals (excluding nurses). The system is overseen by the Department of Health, which has offices and clinics on St. Thomas, St. Croix, and St. John.

Patients

Compared to the rest of the United States, the USVI has unique characteristics related to the demographic and social determinants of health and poverty that affect health care delivery. Approximately 82 percent of the USVI population is medically underserved and faces a number of health challenges, including limited access to certain specialty services. Some USVI residents refrain from seeking care altogether because of unaffordable costs and/or language barriers. This partly has to do with the share of low-income patients in the Territory: according to the 2010 US Census, approximately 23 percent of the Territory's population fell below the poverty line, compared to 12 percent in the mainland United States.¹ Partly it is the result of medical staff shortage: the US Health Resources and Services Administration (HRSA) has designated the US Virgin Islands as a Geographic High Needs Health Professional Shortage Area (HPSA), indicating a shortage of health providers and services even prior to the impact of Hurricanes Irma and Maria. The geography of the USVI also impacts health care, patients are limited by their ability to access seaplanes, ferries, or public transportation, as well as the ability to pay for all of those. A segment of the USVI community also relies heavily on herbal and natural remedies, often

¹ 2013 Virgin Islands Community Survey. Eastern Caribbean Center (ECC), University of the Virgin Islands. January 2016. https://www.uvi.edu/files/documents/Research_and_Public_Service/ECC/SRI/VICS%202013.pdf

forgoing traditionally Western medical intervention until later in their health crisis. Diabetes complications such as kidney failure are a prominent problem in the Territory, making hemodialysis (kidney dialysis) services in the Territory an essential component of the health care system.

Public hospitals

Acute care in the Territory is provided by two public hospitals—Juan F. Luis Hospital (JFLH) on St. Croix and Schneider Regional Medical Center (SRMC) on St. Thomas (see table: [Acute care facilities in the USVI](#)).

Juan F. Luis Hospital is the only acute care facility serving St. Croix’s population. It offers emergency services, elective procedures, hemodialysis services, radiology services, laboratory services, labor and delivery, as well as myriad other services that—before the hurricanes—also included outpatient surgical procedures. The Schneider Regional Medical Center consists of three health care facilities: the Roy L. Schneider Hospital, the Charlotte Kimelman Cancer Institute on St. Thomas, and the Myrah Keating Smith Community Health Center on St. John. The Roy Lester Schneider Hospital (RLSH) is licensed for 169 beds and is the only acute care facility on St. Thomas that provides services including in-patient behavioral health services, emergency services, hemodialysis services, surgical care, radiology, laboratory services, labor and delivery, and many others. The SRMC emergency department serves approximately 20,000 persons per year (for details on the other two facilities, see below).

Federally Qualified Health Centers

Federally Qualified Health Centers (FQHCs) are federally supported primary care outpatient facilities located in medically underserved areas or health professional shortage areas. There are two FQHCs in the Virgin Islands: Frederiksted Health Care, Inc. (FHC) on St. Croix and St. Thomas East End Medical Center Corporation (STEEMCC) on St. Thomas. All FQHC locations are accessible by public transportation and focus on providing care to low-income persons who fall below the federal poverty level and live in medically underserved communities. FQHCs also serve the general public by offering a sliding fee scale and accept patients covered through private insurance, Medicaid, Medicare, and self-payment.

Both USVI FQHCs are approved National Health Services Corp (NHSC) sites and employ NHSC providers at both centers. FHC and STEEMCC are the only public dental health providers in the Territory, in addition to their primary care and mental health services. On St. Croix, FHC serves the special populations of the homeless, administers the federally funded Health Resources & Services Administration’s (HRSA) Ryan White HIV/AIDS Program, which serves persons with HIV/AIDS, facilitates a syringe exchange program, and operates the 340B discount pharmacy program. On St. Thomas, STEEMCC offers limited mental health services but is not a recipient of Ryan White funding (see table: [Federally Qualified Health Center \(FQHC\) overview by facility](#)).

Acute care facilities in the USVI

	Juan F. Luis Hospital	Schneider Regional Medical Center
Certification	CMS-certified	CMS-certified
In-patient capacity*	188	169
Governance	Board of Directors, CEO	Board of Directors, CEO
Population served	St. Croix: 50,000+	St. Thomas, St. John: 48,000+
Operating rooms*	7	8
ER visits (annual)*	~20,000	~20,000

*Pre-storm

Virgin Islands Department of Health community clinics

The Virgin Islands Department of Health (VIDOH) serves the community as both a regulatory and clinical public health entity. It is the largest provider of public health services in the Virgin Islands and operates clinics on St. Croix, St. Thomas, and St. John. Clinical services under this umbrella include Mental Health, Family Planning, Communicable Diseases, Maternal and Child Health, HIV/STD, and Community Health. The Health Department is also home to the Vital Statistics division, the Women, Infant, and Children Program (WIC), the Immunization Clinic, Public Health Preparedness, Environmental Health, Health Regulation and Licensing, Emergency Medical Services (EMS), Epidemiology Surveillance Services, and Primary Care. Additionally, VIDOH operates the public health laboratory, which serves as the center for disease prevention, control, and surveillance.

In accordance with USVI Code Titles 3 and 19, the VIDOH must provide medical services to the general public regardless of ability to pay.² While the department accepts private insurance, a sliding scale fee is employed and offered to persons within the federal threshold of the poverty scale. Medicaid, Medicare, and self-pay patients are also seen at the VIDOH-operated clinics. The VIDOH clinics provide administrative, clinical, regulatory, and mental health services at five physical locations: Charles Harwood Medical Center on St. Croix, Knud Hansen Complex, Community Health Clinic (located at SRMC), Barbel Plaza on St. Thomas, and the Morris DeCastro Clinic on St. John. The Morris DeCastro Clinic offers limited clinical and regulatory services. Prior to the hurricanes, VIDOH employed and housed 343 clinical and regulatory full-time employees (FTEs) across these facilities.

Specialized outpatient facilities, community clinics, and private providers

The Myrah Keating Smith Community Health Center on St. John provides 24-hour urgent care and general/primary care and preventive health care services to the island's 4,500 residents. The community center is operated and funded by SRMC. The health center is

not a hospital and is limited in its capacity to provide a full range of medical care. Patients in need of advanced medical care and hospitalization are transported to St. Thomas via the VIDOH ambulance boat.

The Virgin Islands Cardiac Center (VICC) on St. Croix was opened as a specialized cardiac care facility adjacent to JFLH in 2008. The expanded diagnostics and intervention services offered at VICC increased access to heart disease treatment and care, thereby reducing or eliminating the need for patients to travel outside of the USVI. Prior to the opening of VICC, services such as angioplasty, heart catheterization, and implanting pacemakers were provided by cardiologists at JFLH. Unfortunately, due to the severe hurricane damage to the hospital, the VICC is currently being used as an inpatient facility for a variety of diagnoses.

The Charlotte Kimelman Cancer Institute (CKCI) on St. Thomas was opened in 2005 as a state-of-the-art, comprehensive outpatient diagnostic, treatment, research, and educational facility and is also operated by and co-located with SRMC. As a specialized facility, CKCI's services benefited both the USVI and the entire Eastern Caribbean region and minimized the need for patients to seek cancer treatment on the mainland. CKCI is also the only facility in the Territory to offer radiation oncology. Severe damage from the hurricanes has resulted in the closure of this facility. While certain services such as radiation oncology have been suspended, other services such as IV infusion, blood transfusion, and limited medical oncology are still provided at the SRMC.

Beyond these specialized facilities, Community-Based Private Providers provide treatment for chronic diseases, diagnostic services, and medication management services. Private providers and allied health professionals operate in specialties such as internal medicine, pediatrics, family medicine, obstetrics, behavioral health, orthopedics, and hemodialysis.

² VI CODE Title 19, Chapter 16 § 243 V.I. Government Hospitals and Health Facilities Corporation.

Federally Qualified Health Center (FQHC) overview by facility

Frederiksted Health Care, Inc. (FHC)	East End Medical Center (EEMC)
Four locations: Frederiksted, North Shore, School-Based Clinic, and Mid-Island	One location: East End Sub District (Tutu Mall)
Established 2000	Established 2000
HRSA Ryan White Program for HIV/AIDS	No Ryan White Funding
Syringe Exchange Program	—
Child & Adult Dental Services	Child & Adult Dental Services
Behavioral Health Care Services	Limited Behavioral Health Care Services
340B Discount Pharmacy Program	—
Primary Care Services	Primary Care Services
Nutrition & Immunization Services	Nutrition & Immunization Services
OBGYN (Obstetrics & Gynecology)	—
Pediatrics	Pediatrics
Optometry	—
Laboratory Services	Laboratory Services
Internal Medicine	—
Approved NHSC Site	Approved NHSC Site



US Military medics prepare to load local residents with medical needs on a military plane out of the US Virgin Islands on September 29, 2017

Jocelyn Augustino/FEMA

Mental health residential services

The Eldra Schulerbrandt facility operated by VIDOH is the only residential facility in the US Virgin Islands designed to treat patients diagnosed as chronically mentally ill. The facility also operates a day program for persons who are court-ordered to receive individual or group therapy, medication management services, and independent living services. While there is greater need in the community for behavioral services, this facility has a maximum capacity of 32 persons. Inpatient mental health services were available at SRMC, but the hospital's capacity was capped at 15 beds. On September 23, 2016, citing a severe shortage of mental health professionals in the Territory, Governor Mapp declared a state of emergency in mental health. The state of emergency remains in effect as there is still a deficit of mental health services, professionals, and care in the USVI.

Pharmacies

The USVI is served by 23 pharmacies, including one hospital pharmacy located in JFLH and one located in SRMC. There are nine retail pharmacies in the St. Croix district and 12 in the St. Thomas-St. John district; one pharmacy remains closed as a result of the hurricanes. Because of the geographic location of the USVI, all pharmacies obtain medication through the same wholesaler and utilize a common shipping process. Certain medications are only distributed by pharmacies affiliated with larger national chains and are not otherwise available in the USVI since most pharmacies are small, family-owned operations. Consequently, access to prescribed medication is a significant consideration in health care planning.

Air evacuation

Patients who need specialized services not available in the Territory must travel either to Puerto Rico or the US mainland. Three private companies (MASA, Horizon Air Ambulance, and AeroMD) provide air ambulance emergency evacuation, but these services can cost \$10,000 or more per incident if a patient is not enrolled with the company. Enrollment rates range from \$120 to over \$500 per year, depending on the company, destination, and hospital location. Financially, this option is not feasible for most Virgin Islanders, even with private insurance options to limit the out-of-pocket costs for emergency air evacuation.

Insurance

The largest private insurance provider in the Territory is Cigna. The company holds the contract for the Government of the Virgin Islands (GVI), the single largest employer in the USVI, and provides coverage for 30,000 individuals (to include active employees, their dependents, and retired GVI employees under the age of 65). Cigna also holds the contract for more than 10 Autonomous and Semi-Autonomous agencies, as well as the employees of 10 nonprofit organizations (approximately 150 people). Other insurance companies operating in the USVI include United Healthcare, which provides coverage to government retirees age 65 and older, and Elan, which provides coverage to private sector company employees (see chart: [Insurance coverage in the USVI](#)).

Government programs cover approximately 45,000 people: 26,000 for Medicaid and 19,000 for Medicare. The Medicaid coverage comes with restrictions:

participants in the USVI are required to first seek primary care from the local health department, one of the two FQHCs, community health centers, or the local hospitals. Those who need specialty care must receive authorization from the Medical Assistance Program (MAP) in order to obtain a referral to private providers as medically needed. Providers at the FQHCs and VIDOH are not authorized to make off-island referrals for services unavailable in the Territory; referrals for off-island treatment can only be obtained from the special services unit within the MAP program at the Department of Human Services. This may result in a delay in obtaining a referral to an off-island provider, disrupting continuity of care. Another ongoing concern is that some private practice providers may avoid treating Medicaid/Medicare insured patients because of the low reimbursement rate for these patients (which would require those providers not to participate in the Virgin Islands Malpractice Insurance program since, if they were to participate, 27 V.I.C. § 166 would require them to accept such patients).

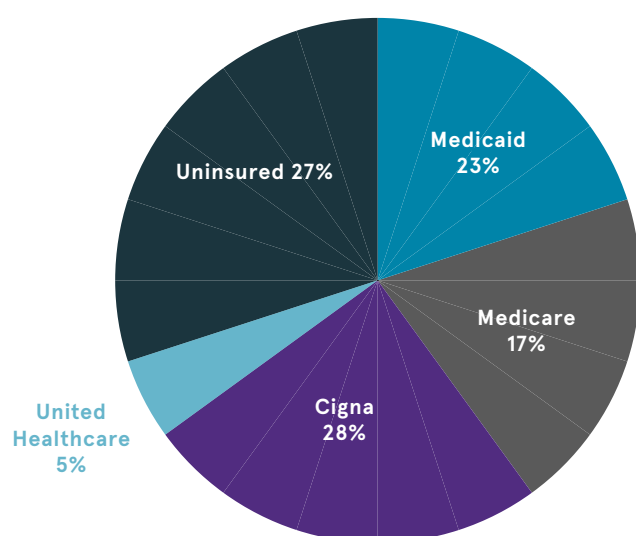
Whether private or government-provided, insurance coverage is far from universal: the USVI has one of the lowest health insurance coverage rates of any state or territory with approximately 27 percent of the population uninsured. Part of the reason for that is that it is challenging for USVI residents to obtain insurance coverage if they are unable to access it through an employer (which is often the case because many small businesses in the Territory are not able to offer insurance). Currently, no insurance provider offers individual health coverage to residents of the USVI, as the Territory does not fall under the Affordable Care Act's mandate. Without individual health care plans, many people who do not have employer-based coverage but have incomes that exceed the threshold eligibility for MAP (Medicaid) coverage cannot find health insurance. This uninsured population seeks medical services through self-pay with private providers (if they can afford to do so), the FQHCs, or VIDOH community clinics where they can receive affordable health services. While this practice is discouraged, a segment of the community utilizes the emergency room to meet their primary care needs. In an effort to ensure accessibility of health care services to all Virgin Islanders, the Virgin Islands Code Title 19, Part II, Chapter 17 states that "no resident of the Virgin Islands shall be denied medical care because of financial inability to pay the cost thereof." As an unintended consequence, this law has resulted in an increase in uncompensated care in the Virgin Islands, thereby complicating and increasing health care costs.

Of the three main islands, St. John is perhaps the worst off: a local study conducted pre-storm by Island Health & Wellness Center suggested that 56 percent of the island's residents do not have health insurance at all, while a further 16 percent have insurance that does not cover primary or preventive care, adding up to a total of 72 percent of residents who have no or partial insurance coverage. Of those residents, 21 percent report they currently have health care-related debt, and 71 percent have delayed or avoided health care while living on St. John mainly due to high costs or lack of appropriate services. Deepening the problems, Westin and Caneel Bay, two of the largest employee insurers on St. John, shuttered their operations following the 2017 hurricanes. The closure of these hotels meant employees lost their health insurance in addition to their employment. The dynamic is repeated in the rest of the Territory, even if to a smaller extent.

Federal funding

The Territory receives a designated Federal Medical Assistance Percentage (FMAP) reimbursable rate of 55 percent for Medicaid; the lowest legal reimbursable rate of any state or territory is 50 percent, while the highest (Mississippi) is 76 percent.³ The local share equates to a 45 percent match. This formula is fixed and can only be changed through congressional action. Despite efforts, the USVI has been unsuccessful in securing a higher reimbursement percentage. As a result, the USVI

Insurance coverage in the USVI



is at a disadvantage compared to the US mainland as pertains to health care funding. The USVI already faces a medical professional shortage, and the strain on the Territory's health care system is further exacerbated by the reluctance of private providers to accept MAP-insured patients due to the low reimbursement rates for services. Due to the hurricanes, the USVI has been given a 100 percent federal reimbursement rate for a two-year period. The Territory will continue advocacy for parity in reimbursement after the temporary increase ends.

For the period of July 1, 2011 through September 30, 2019, section 2005 of the Affordable Care Act (ACA) provided an additional \$273.8 million in Medicaid funding to the USVI.⁴ The USVI was awarded \$24.9 million for its Medicaid program in lieu of establishing a health marketplace, but the Territory must exhaust its ACA (section 2005) allotment prior to using these funds.

Health regulations and legislative policies

The VIDOH Office of Professional Licensure and Health Planning regulates all health care providers in the USVI, with two exceptions: the USVI Board of Psychology Examiners and Virgin Islands Board of Nurse Licensure (VIBNL). The boards oversee behavioral health providers and nursing professionals, respectively. VIDOH is responsible for licensing, malpractice certification, and Certificate of Need applications requesting the operation of new and/or expanded medical services within the Territory. VIDOH is also responsible for the inspection of food services within the hospitals, community clinics, and residential facilities; however, staff shortages in the Environmental Health Division have prevented regular inspections; post-storm conditions have only exacerbated this irregularity.

³ "United States Virgin Islands: Medicaid Overview." Medicaid.gov. Accessed June 28, 2018. <https://www.medicare.gov/state-overviews/usvi.html>.

⁴ "Federal Medical Assistance Percentage (FMAP) for Medicaid and Multiplier: Timeframe FY 2019," Kaiser Family Foundation, Henry J. Kaiser Family Foundation, <https://www.kff.org/medicaid/state-indicator/federal-matching-rate-and-multiplier/>

“... All health care providers who, in addition to their employment with the Government of the Virgin Islands, engage in a private practice and receive financial assistance toward the payment of their medical malpractice insurance premiums under this section, shall accept Medicare and Medicaid for payment of health care services from patients in their private practice, and in addition must provide medical services to veterans of the United States Military Services that are covered by an insurance carrier.”
-27 V.I.C. § 166

IMPACT OF THE HURRICANES

Damage to facilities

The hurricanes caused extensive structural damage to the Territory’s health care facilities. Both hospitals suffered from significant flooding and roof and structural damage, resulting in the need to medically evacuate all acute care and dialysis patients. Without access to medical services in Puerto Rico, it was necessary to transition over 800 patients to medical facilities on the East Coast mainland (from Florida to South Carolina) with the help of federal partners at the Department of Defense (DoD) and the Department of Health and Human Services (HHS).

Elsewhere in the health care system, both the Myrah Keating Smith Community Health Clinic on St. John and CKCI on St. Thomas were rendered inoperable due to collapsed roofs, flooding, and/or mold concerns. FQHCs sustained flood and other structural damage resulting in lost medication and supply stores, but the damage did not prevent the centers from reopening. The FQHCs also struggled with malfunctioning

backup generators. The VIDOH clinics on St. Croix also suffered severe damage, which resulted in service provision being conducted in an emergency tent and on a mobile van. Finally, the storms caused a backup of medical waste throughout the Territory; the US Environmental Protection Agency (EPA) is working with USVI officials to dispose of 130,000 pounds of medical waste stockpiled at JFLH on St. Croix and SRMC on St. Thomas.⁶

Impact on service

In anticipation of Hurricane Irma’s September 6 landfall, St. Thomas SRMC began discharging patients who could be sent home without compromising their health as a precautionary storm measure. SRMC transitioned hospital patients who required continued acute care services to St. Croix for triage and stabilization in an effort to ensure a safe transfer to hospitals and medical facilities in Puerto Rico. In partnership with the Department of Defense, SRMC began medical evacuations to Puerto Rico immediately following Hurricane Irma. However, Puerto Rico’s health care services were crippled when Hurricane Maria struck only 14 days later and so were those on St. Croix. Throughout the Territory, the catastrophic interruption of power, Internet, and telecommunications complicated service delivery to patients who remained on-island, as well as the continuity of care for medical evacuees and those who



A member of the FEMA Disaster Medical Assistance Team speaks to a patient at the Gov. Juan F. Luis hospital center on September 30, 2017
Jocelyn Augustino/FEMA

⁶ VI CODE Title 19, Chapter 16 § 243 V.I. Government Hospitals and Health Facilities Corporation.

sought refuge on the mainland. Health information was inaccessible for a period of time during and after the storms, both for providers who use an EHR system and those who rely on paper records.



Residents line up at a local pharmacy in Charlotte Amalie East while a 6:00 p.m. to 12:00 p.m. curfew is in effect
K.C. Wilsey/FEMA

Both hospitals, SRMC and JFLH, decreased daily inpatient capacity by roughly 50 percent following the hurricanes. In addition to compromised infrastructure, decreased patient volume resulted in revenue losses totaling more than \$4 million monthly for both hospitals and led to budgetary issues. The FQHCs were able to resume service more quickly, as they operate at lower costs and are not fully dependent on government allotments for operational costs. Among private providers, many were forced to close temporarily, and those that were able to resume service within the first seven days of the hurricanes were met with high demand due to the loss of primary care offices and the limited service offerings at the hospitals and community health clinics. The increased volume coupled with the mandated curfew hours created longer wait times, leaving patients to decide between spending time traveling to seek health care, violating the curfew, or seeking other essential supplies during the curfew's limited hours. Services such as surgical procedures and/or outpatient treatment procedures were reduced or eliminated altogether as most health care facilities were operating on generator power, reduced hours of operation, and under mandatory curfew.

Obtaining medications became an issue, too. Pharmacies were unable to verify patient medication needs and, in some instances, medication inventories were compromised or stolen. While most pharmacies had prepared with an advanced 90-day supply of medication, the post-storm increase in their customer base quickly led to a depletion of their stores, forcing a seven-day supply limit per customer. Closed ports and damaged airports left pharmacies unable to restock quickly. Utilizing personal resources, pharmacists went to extraordinary lengths to obtain essential supplies, including chartering a plane to fly medication into the Territory, traveling between St. John and St. Thomas via dinghy, and safeguarding their inventory by sleeping in their establishments. In other instances, medications available only at larger chains before the storms were no longer accessible to patients. Unfortunately, the national pharmacy chains also suffered damage, which forced closures and prolonged reopening timelines of those pharmacies.

Finally, personnel issues arose throughout the system as well. Prior to the hurricanes, the USVI health care workforce was already identified as fragile and considered a geographical Health Professional Shortage Area (HPSA). SRMC reported the voluntary resignation of 58 staffers (including some resignations pending before the storms) immediately following the hurricanes, while JFLH reported the loss of 80 personnel. Additionally, personnel across the health care system required extended personal leave and/or extended family medical leave to address their own emotional and physical impacts from the storms. Furthermore, a portion of health care personnel left the Territory as a result of overwhelming damage to their homes, lack of electricity, personal health needs, or other challenges impacting their livelihoods. Consequently, the health care workforce experienced further deterioration as a result of the hurricanes.

Response

In the days immediately after the hurricanes, the challenges to delivering health care were multiple. First responders and health providers experienced transportation challenges while navigating the roads to and from work. The ports were closed for several days, ferry services cancelled, and supply shipments halted or inaccessible. Telecommunications and Internet connectivity were out across the Territory, further

⁶ "EPA Hurricane Maria Update for Thursday, October 12th." EPA. October 12, 2017. Accessed June 28, 2018. <https://www.epa.gov/newsreleases/epa-hurricane-maria-update-thursday-october-12th>.

crippling patients' and staff's ability to communicate with loved ones, medical peers, and pharmacies. Service delivery was restricted as a result of power outages; facilities equipped with generators still faced the high cost and challenge of maintaining adequate fuel supplies to maintain operations as well as the breakdown of generators not designed for continuous use. The coordination of health care services was non-existent, too: the Territory lacks a centralized electronic health record (EHR) system or a health information exchange system to link disparate EHR systems to track patients who present for care at a location other than their primary care provider. Finally, many patients presented with unmet behavioral and mental health needs, while others remained at the emergency shelters far past the anticipated timeframe because of their inability to care for themselves at home, highlighting the need for a long-term care facility, an inpatient behavioral health facility, and an increase in medical provider recruitment and retention efforts in the Territory.

To fill at least some of these gaps, VIDOH deployed mobile health vans in the St. Croix and St. Thomas communities. The Department also requested support from the Emergency Management Assistance Compact (EMAC), which is an agreement between US states and territories to provide mutual aid and share resources during disasters. EMAC partners supplied and sent essential health care professionals, medical supplies, and medication to the Territory. Private providers and nonprofit health clinics also maximized their resources to obtain supplies. Donors locally and across the nation reached out to offer resources, including health supplies, in-kind donations, volunteer personnel, and small generators to operate health equipment. On St. John, the Myrah Keating Smith Community Health Center's services were relocated to the Morris DeCastro Clinic in Cruz Bay where 24-hour urgent care and general/primary care health care services continued with the help of off-island volunteer staff from Johns Hopkins.

To date, health care services in the USVI remain impacted. As of May 2018, initiation of permanent repairs, renovations, or replacement of the hospitals and community health clinics had not yet begun. Medical evacuees from Irma and Maria remain in off-island facilities: as of June 6, 2018, 71 dialysis patients and 20 additional medical evacuees had not been able to return to the Territory. Furthermore, hemodialysis services remain limited, a health information exchange system or Territory-wide EHR system has not yet been introduced, and utility and communication systems

have not yet reached standards of resilience. Mobile operating rooms and modular units will provide some relief: JFLH received two mobile operating rooms in April 2018, but those have not yet been put into use. Modular units have been requested by the Myrah Keating Clinic on St. John, JFLH, SRMC, and for VIDOH on both St. Thomas and St. Croix. As of early June 2018, only the Myrah Keating unit had arrived in the Territory. Still, modular operations—scheduled to last for at least the next three to five years—present a risk to the continuity of services in the event of another significant natural disaster.

Cost

While a definitive dollar amount has not yet been assessed, the USVI health system has incurred massive financial consequences associated with infrastructure damage, staff overtime, and the loss of critical medical services.

Prescription medication and durable medical equipment for uninsured individuals was covered by the US Department of Health and Human Services (HHS) Emergency Prescription Assistance Program (EPAP), which accepted nearly 27,000 claims and spent more than \$1.8 million. The program was set to continue through August 15, 2018. Medical evacuation costs, wages for temporary health care personnel, infrastructure repairs, and the installation of modular units were all covered by the Federal Emergency Management Agency (FEMA) public assistance program at 100 percent cost share; however, after May 14, 2018, the Virgin Islands is required to assume 10 percent of the costs associated with the continuation of health care assistance under this program.

VIDOH has further requested \$800 million from Congress to rebuild the USVI health care system to be more resilient and to reduce barriers to care immediately following a natural disaster. If received, all physical and operational systems will be built with the capacity to meet the health care needs of the USVI population in a resilient and expedient manner. At a minimum, to meet this goal, hospitals and community health clinics will need to be rebuilt to more resilient building code standards, and pharmacies will also need to develop contingency plans to ensure medication availability.



EMS Task Force members from New Jersey help the local EMS personnel at Schneider Regional Medical Center transport a patient from St. John that arrives via a boat and needs medical attention

Jocelyn Augustino/FEMA

FUTURE CHALLENGES RESULTING FROM CLIMATE CHANGE

The health sector faces risks from all climate hazards. On the patient side, each presents health risks such as the exacerbation of chronic disease, mental health deterioration, the manifestation of respiratory ailments due to increased mold, compromised water and food supply, environmental degradation, changes in vector conditions, and increases in mosquito-borne diseases. On the infrastructure side, the most serious risks come from hurricane winds, rainfall, and storm surge, with other hazards carrying smaller risks.

Hurricane winds, rainfall, and storm surge

Stronger future storms and higher wind speeds will potentially destroy facilities, inventory, medications,

equipment, and patient records. Interruption of communication and technology services caused by hurricane damage will also lead to problems with insurance verification, prescribing and filling medications, and coordinating patient care. The increased potential for psychological and emotional trauma as a result of surviving catastrophic hurricanes is likely to lead to the manifestation and/or exacerbation of behavioral health symptoms. Storm debris, curfews, and limited access to transportation, fuel, and vehicles will also severely hinder islanders' access to health care following a storm.

Heavy rainfall alone will have minimal impact on service delivery and health care structures; however, the impact will be contingent upon facilities' drainage capacity and structural integrity. Hurricane rainfall and the resulting standing water will lead to increases in mosquito-borne diseases such as the Zika, chikungunya, and dengue viruses, which were a challenge in the Territory prior to the storms.⁷ The USVI also saw its first confirmed cases of Leptospirosis and Melioidosis after the hurricanes, both of which are caused by waterborne bacteria.

Adding to the threat of increased prevalence of infectious diseases, CDC Community Assessment for Public Health

⁷ "Zika Weekly Surveillance Report," US Virgin Islands Department of Health, September 12, 2017 and April 24, 2018.

Response (CASPER) surveys conducted in November 2017 and again in March 2018 saw 39 percent of respondents reporting the existence of rats and mice in their households, and 40 percent of households reporting an increase in mosquito bites. Additionally, the CASPER survey and other data sources have consistently indicated the increased presence of mold; mold is likely to be an ongoing challenge for structures within the Territory.^{8,9}

Rising sea levels

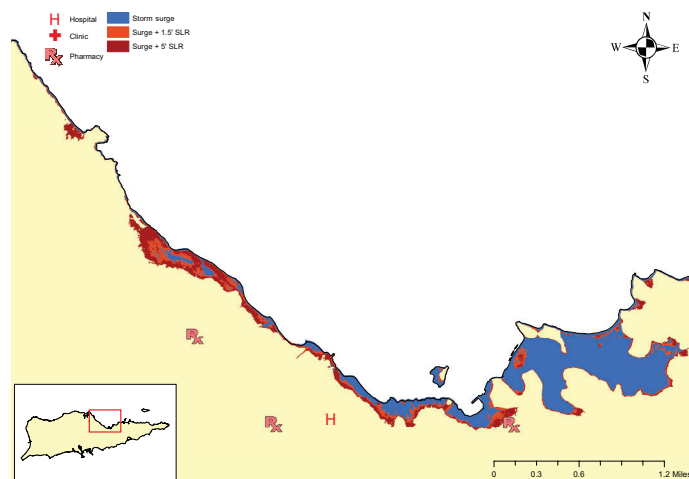
Static sea level rise will have a minimal effect on the health care system except for facilities in low-lying areas.

Increases in temperature

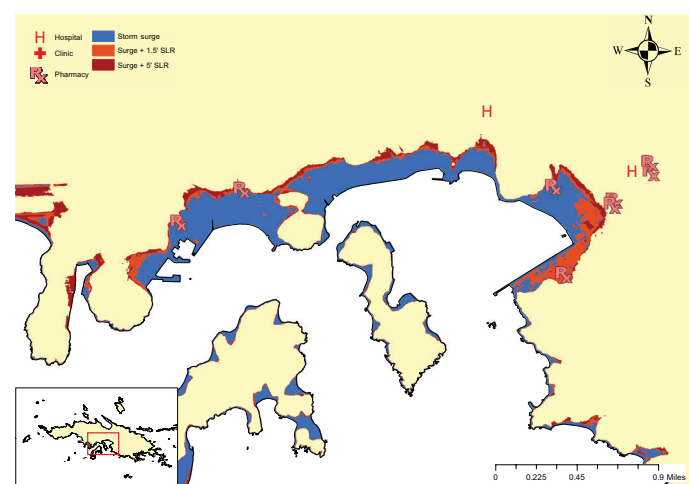
Increased temperatures in the USVI will likely have a moderate effect on the lifestyle of Virgin Islanders and the operations of the health care system. Among the population, the elderly, medically fragile persons, pregnant women, and children are likely to experience health symptoms related to excessive heat—particularly in homes without air conditioning. While air conditioning is commonly used in businesses and homes in the USVI, a large segment of the community cannot afford the costs of purchasing, installing, and operating AC units because of the high cost of power in the Territory. As a result, increased temperatures could lead to increased mortality in vulnerable populations. Within the health care system, temperature management is required for disease control (hospitals), medicine storage (pharmacies and community health clinics), and the comfort of patients and staff (particularly in the case of vulnerable patients). Higher temperatures may result in greater strain on cooling systems, higher energy costs, and increased probability of premature system failures.

Changes in precipitation

Longer dry spells will not likely affect health care structures, but may increase water costs associated with higher water usage. Drought or limited availability of fresh water means that people who rely solely on household cisterns are more likely to be impacted by *E. coli* or other waterborne diseases.



Storm surge risk for VIDOH facilities and pharmacies in Christiansted



Storm surge risk for VIDOH facilities and pharmacies in Charlotte Amalie

⁸ "Community Assessment for Public Health Response," Centers for Disease Control and Prevention (CDC), June 14, 2016, <https://www.cdc.gov/nceh/hsb/disaster/casper/default.htm>.

⁹ "CASPER: US Virgin Islands," Centers for Disease Control and Prevention (CDC), January 25, 2018, <https://www.cdc.gov/nceh/hsb/disaster/casper/states/usv.htm>.

INITIATIVES FOR INCREASING RESILIENCE IN HEALTH

Building a more resilient health care system in the face of future climate risks will include improving the system's physical infrastructure, upgrading data and telecommunications protocols, improving management of the system's emergency response assets, strengthening emergency planning and communication, working to expand health care coverage, and ensuring health care workforce development and clear system governance.

IMPROVE PHYSICAL INFRASTRUCTURE

Physical infrastructure is an important element in preserving the health of Virgin Islanders; therefore, health facilities must be hardened to the most current building standards to be able to meet the needs of the population during a disaster. Hardening of infrastructure will support a swift rebound and allow for the continuation of health services. The identified strategies are intended to decrease facility damage, ensure the protection of medical equipment, expand utilities and air conditioning capacity, and, ultimately, eliminate the need for medical evacuations in times of disaster.

Initiative 1

Build new buildings to withstand climate risks and respond to local climate conditions

To ensure future resilience, VIDOH will work with DPNR to ensure new buildings are built to withstand climate risks and respond to local climate conditions. In addition to constructing new buildings to meet the updated building code standards, physical health care structures will ideally exceed code requirements in an effort to mitigate future risks. New construction will make accommodations for increased temperatures, flooding, high winds, and storm intensity.

Initiative 2

Retrofit old buildings to withstand climate risks, respond to local climate conditions, and become more energy efficient

Old buildings will be retrofitted to withstand climate risks, respond to local climate conditions, and become more energy efficient. As with new hospitals, health care facilities that were able to sustain the impact of Hurricanes Irma and Maria will be required to install backup generators, air conditioning units, chillers, lab equipment, telecommunications, and any other equipment deemed necessary to protect critical services and prevent the need for medical evacuations. As appropriate, retrofitting work will include: energy audits, rewiring, renewable energy solutions, hurricane-resistant windows, upgraded lighting technology, full building renovation, and smart meters. VIDOH will work to complete a successful retrofit operation that will meet the standards for environmental performance required in a hurricane zone.

Initiative 3

Reduce reliance of facilities on central energy grid

VIDOH will equip each facility with backup generator systems to allow for continued equipment operation, inventory maintenance, and limited interruptions to service delivery, as well as eliminating the need for medical evacuations during disasters. Incorporating renewable energy in all current and new health care structures across the Territory will reduce reliance on the Water and Power Authority (WAPA) for commercial power, as well as lower carbon footprint and electricity costs. VIDOH will assess its ability to incorporate the use of solar power and/or other renewable energy solutions in order to enhance facilities' capacity to deliver health care services that would otherwise be interrupted by a commercial power outage.

UPGRADE DATA AND TELECOMMUNICATION PROTOCOLS AND TECHNOLOGY

Health care data and communications in the Territory need an upgrade to perform better both during and after hurricanes and in normal times. Strategies for improvement will include post-disaster communications, a health information exchange system, cloud storage of medical data, and telemedicine.

Initiative 4

Develop protocols and technical capacity for immediate post-disaster communications

VIDOH will work with federal partners and VITEMA to develop protocols for immediate post-disaster communications and integrate these into its disaster communications plans. As part of this initiative, VIDOH will assess its current technical capacity and telecommunications technology to identify gaps and acquire enhanced technologies in order to bolster technical capacity for post-disaster communications. VIDOH will develop protocols to utilize satellite Internet connections, satellite phones, and long-range radios in the aftermath of a storm.

Initiative 5

Enhance data resilience by establishing a health information exchange system

Those health organizations in the Territory that store the data of their patients electronically do so on systems that cannot communicate with each other—meaning that if a patient normally visits one location, he or she cannot, for example, retrieve their health history at another. A territorial Health Information Exchange (HIE) system would allow different systems in the Territory to communicate and is essential to better track and securely share patients' complete medical histories. HIEs help facilitate coordinated patient care, reduce duplicative treatments, and avoid costly mistakes. In partnership with HHS, representatives from VIDOH, FHC, SRMC, JFLH, and STEEMCC are working to develop a health information exchange

system in the USVI. Steps to achieving this goal include: participation in the Health Information Summit (2018) sponsored by National Health Information Technology (NHIT), stakeholder discussions and working groups, a survey of USVI medical providers, identification of financial resources (the 10 percent local match is yet to be secured), and technical assistance to complete and submit the Implementation Advanced Planning Document (IAPD) that will outline the goals, functionalities, and budgetary assignment. With the previous implementation of an EHR system at VIDOH, the Department is now equipped to be integrated into the Health Information Exchange (HIE) system when one is implemented territorially.

Initiative 6

Transition to cloud storage of medical data

To establish best practices in medical health data management, VIDOH recommends transitioning medical data to a secure cloud storage provider or investing in an off-site data center to support virtual storage. All VIDOH health care facilities and providers should be integrated into a shared electronic health records system. As part of this initiative, VIDOH will also consider the maintenance of technologies like servers to mirror data and isolate total loss.

Initiative 7

Develop capacity to deliver medical care through telemedicine

VIDOH facilities and providers will look to implement telemedicine technology as a practice in order to expand access to care to all residents in the Territory. VIDOH will pursue a US Department of Agriculture (USDA) grant funding (up to \$500,000) to initiate telemedicine services. This option has been introduced to the FQHCs, VIDOH, and private providers in the Territory; receipt of this funding will expand access to services to persons living in the Territory who are unable to obtain specialty health care locally due to the health professional workforce shortage.

IMPROVE MANAGEMENT OF EMERGENCY RESPONSE ASSETS

Following a natural disaster, first responders and health care professionals are at the forefront of care coordination. Developing partnerships with pharmacies and public/private health care providers will help ensure adequate medication and supplies are on hand, and pre-positioning EMS assets will help meet the needs of underserved communities.

Initiative 8

Establish formal public/private partnerships for post-disaster medication storage

To enhance client-centered care prior to, during, and after a crisis event, VIDOH will work to establish and fund pre-storm formal public/private partnerships through memoranda of understanding (MOU) for post-disaster medication storage, emergency personnel, and transportation.

Initiative 9

Pre-position EMS assets in underserved locations in advance of storms

VIDOH will work with health care facilities and providers to pre-position EMS assets and mobile health vans in underserved locations well in advance of storms. This will be carried out according to needs-based criteria and protocols developed before a disaster event.

Initiative 10

Ensure adequate supplies of pharmaceuticals

VIDOH will work with hospitals and clinics to forecast the supply of pharmaceuticals needed in advance of a disaster situation. VIDOH will establish protocols and put in place mechanisms in order to ensure this quantity is delivered or accessible in advance of an emergency and/or strategically and securely stockpile pharmaceuticals in a manner that ensures the integrity of the medical supplies is maintained (e.g., ensure proper cooling is maintained at all times so that medications do not spoil).

Initiative 11

Establish single point of accountability for management of donated relief supplies

VIDOH will work with government and non-government organizations to develop protocols and technical capacity for storing and disbursing donated medications and medical supplies immediately post-disaster; this will include establishing a single point of accountability for managing donated relief supplies.

Initiative 12

Assess morgue capacity, portable refrigerated trailers, and spaces capable of additional cooling

VIDOH will assess morgue capacity and invest funds to secure portable refrigerated trailers and spaces capable of additional cooling prior to a hurricane warning in order to increase emergency resources before they are needed in a disaster situation.

IMPROVE EMERGENCY PLANNING AND COMMUNICATION

Emergency planning is critical before storms; communication to the public is critical during and after. VIDOH will work to improve existing emergency plans (including by involving a greater range of participants) and to improve the way communications to the public are organized in the aftermath of a disaster.

Initiative 13

Involve partners from within and outside the government in the emergency planning process

VIDOH will continue to work toward building robust cross-sector partnerships to include the entire health care system in order to develop an inclusive emergency planning process. Toward this end, VIDOH recommends the Territory's emergency planning and recovery processes include both government and private health care partners. VIDOH will also work with public and private stakeholders to develop and implement an emergency health care communications plan across the different types of health care providers on-island.

Initiative 14

Develop an internal communications plan and the capacity to implement it

Following Hurricanes Irma and Maria, lack of communication was a barrier in the response period as the whereabouts of providers were unknown, medical records were not available, and the locations where specialty medication could be obtained or refilled were not clearly established. Developing an enhanced communications plan between Community Health Centers, the hospitals, and private providers will encourage the sharing of resources and allow primary care and behavioral health services to be accessible to USVI residents without extended delays. VIDOH will develop such a communications plan and establish the internal channels to implement it through establishing a communications center. The communications center will execute the pre-established disaster plan and utilize the enhanced telecommunications

technology referenced in the preceding initiatives. Establishing a centralized communication center will additionally permit real-time information sharing with VIDOH health care facilities and personnel, as well as with private providers, health care clinics, and other health partners that may not be affiliated with the local hospital.

Initiative 15

Work with behavioral health community to inform and educate patients about storms

VIDOH will partner with local and off-island behavioral health professionals (for example, with Johns Hopkins Medicine) to analyze and forecast the behavioral impact on the community. VIDOH will coordinate efforts to inform and educate patients and service providers about the impact of natural disasters on mental health, as well as the plan to meet patients' needs during a crisis.

Initiative 16

Educate the broader community on new and existing emergency plans

VIDOH will utilize its various pre-established communications channels and media to inform the public about new and existing emergency plans for health care. As part of this initiative, VIDOH will coordinate with VITEMA to educate the broader community on new and existing emergency plans.

EFFECT POLICY CHANGES FOR EXPANDED HEALTH CARE COVERAGE

The Territory's high number of residents who are either uninsured or underinsured presents a resilience risk: in the aftermath of a natural disaster, when health care needs increase and the capacity to pay for services out of pocket decreases, many residents may be unable to get care. These initiatives will attempt to rectify the situation at least partly.

Initiative 17

Work with the federal government to negotiate better reimbursement rates for Medicaid

The Territory receives a designated Federal Medical Assistance Percentage (FMAP) reimbursable rate of 55 percent for Medicaid. As previously detailed, the USVI has been given a 100 percent federal reimbursement rate for a two-year period due to the catastrophic effects of the hurricanes. The Territory must continue its advocacy efforts to decrease the gap for Medicaid reimbursement after this temporary increase ends to reduce USVI's high local match rate of 45 percent to a range closer to 35-25 percent, in line with the mainland US. Such a reduction would have a profound effect on health care funding in the Territory. The Governor's Office and legislature must work closely and consistently with Congress to reduce this rate through legislative action. The USVI's non-voting representative, Congresswoman Stacey Plaskett, introduced the Improving the Treatment of the US Territories Under Federal Health Programs Act of 2017 (H.R.2404) in May 2017. This Act calls for eliminating the Medicaid funding cap and specific FMAP limitations, among other changes, for US territories, including the USVI.¹⁰ The Act has not yet been passed, but the USVI will continue to work to push these changes through.

Initiative 18

Reduce number of uninsured patients by reconsidering the creation of a Territory Health Care Exchange

The Territory struggles to maintain affordable health care services, and reforms such as the ACA intended to create healthy markets for consumers to choose high-quality, yet affordable health care options do not apply to the USVI under the applicable definition of "state."¹¹ Thus, the provisions of the ACA requiring individual or group health insurance issuers to offer guaranteed availability, a single risk pool, rate review, community rating, medical loss ratio, essential health benefits, etc., do not apply to providers in any US territories,

and thus exempt insurance issuers in the USVI from most ACA market reforms (although some employer-issued health plan recipients benefit from applicable ACA provisions). The lack of a mandated competitive marketplace for purchasing individual insurance, known as an exchange, means the marketplace reforms aimed at providing options for those completely uninsured do not apply to the USVI; residents of the Territory are issued an exemption from the insurance mandate penalty. However, although the ACA does not require an exchange to be formed the way it is mandated for states, it does permit the establishment of an exchange wherein individuals and small businesses may purchase private health insurance products.¹² Creating an exchange would be a complex undertaking requiring the removal of several roadblocks in the health care system, including additional compliance. These complexities are part of the reason why the Governor's Office elected to forgo the creation of an exchange by the January 2014 deadline, and instead opted into receiving additional federal assistance in the form of Medicaid funding to serve the most vulnerable USVI residents. However, with the opportunities afforded to the health care system during this recovery effort, the benefits and cost-effectiveness of creating an exchange and the positive impact an Exchange could have should be re-evaluated by the Governor's Office in close consultation with the HHS as well as other federal and local partners.

ENHANCE HEALTH CARE SYSTEM THROUGH WORKFORCE DEVELOPMENT AND CLEAR GOVERNANCE STRUCTURES

Health care sector workforce development and improved health care governance structures are potent improvements needed to meet the medical needs of the Virgin Islands community. Following the hurricanes, the Virgin Islands depended heavily on nursing staff and allied health professionals in meeting immediate needs. In the future, ensuring that qualified and licensed professionals are prepared for a natural disaster will improve health care accessibility and response. Proper and effective governance structures will also increase preparedness and help ensure long-term resilience in the system.

¹⁰ H.R.2404, 115th Cong. (2017). Accessed June 28, 2018. <https://www.congress.gov/bill/115th-congress/house-bill/2404/text>

¹¹ "Letter to the Commissioner," Department of Health & Human Services (HHS), July 16, 2014, <https://www.cms.gov/CCIIO/Resources/Letters/Downloads/letter-to-Francis.pdf>.

¹² "Impact of the ACA in the US Territories," The Benefits Group, 2016, [https://www.benegroup.net/assets/files/Impact-of-the-ACA-in-U.S.-Territories-10-31-16-\(1\).pdf](https://www.benegroup.net/assets/files/Impact-of-the-ACA-in-U.S.-Territories-10-31-16-(1).pdf).

*Initiative 19***Assess current state of health care workforce in the USVI**

The USVI's fragile health care workforce was further crippled by the loss of health care professionals in the aftermath of Hurricanes Irma and Maria. Insufficient numbers of health care professionals resulted in emergency requests for nurses, environmental health specialists, physicians, pharmacists, and behavioral health specialists. In the absence of subject matter experts and skilled technicians, the USVI relied on the Emergency Management Assistance Compact (EMAC) and the Disaster Medical Assistance Teams (DMAT) to supply and meet health care workforce needs following the storms. Although these resources effectively filled the short-term need, the Territory needs a long-term approach to fill the gaps. VIDOH will conduct long- and short-term surveys to assess health professional shortages in the Territory and develop a plan to address the workforce gaps identified.

*Initiative 20***Support health care workforce development through public and private partnerships in education and employment**

VIDOH will establish partnerships between the Virgin Islands Department of Education (VIDOE), the University of the Virgin Islands (UVI), and health care providers to outline emerging professional needs. VIDOH will coordinate with the Virgin Islands Department of Labor (VIDOL), VIDOE, the Career and Technical Education Board, and UVI to create an educational and career pipeline to cultivate and prepare Virgin Islanders to fill health professional voids. VIDOH will also engage the VIDOL and private employers in dialogue on how to prioritize the value and critical role of health care professionals and incentivize them by offering competitive wages and retention benefits. Funding new and ongoing training partnerships with local and external educational institutions to promote advanced learning, exposure to cutting-edge practices, and the continuation of skill development will also support the Territory's long-term health care staffing needs.

*Initiative 21***Evaluate efficacy of health care governance structures and reform oversight mechanisms, beginning with hospitals' Boards of Directors**

Beginning with the Board of Directors (BoD) model, VIDOH will help evaluate the governance structures of both Juan F. Luis Hospital and Schneider Regional Medical Center in order to determine the effectiveness of the current board model and oversight mechanisms. The BoD typically takes a higher-level strategic and values-oriented role by ensuring the hospital's mission is abided by, approving strategic plans and making decisions, overseeing the financial health of the hospital, allocating and managing hospital resources, credentialing, monitoring, and evaluating the performance of the hospital CEO, and, ultimately, ensuring the hospital provides high-quality patient care for the community. It is common for the BoD to be independent and separate from those with daily operating responsibilities—namely the CEO. This independence, however, should serve the purposes of advancing the interests of the hospitals and the community rather than those of the board members themselves.

To help ensure this outcome, the role and the responsibilities of the BoD should be outlined clearly in writing, as should their oversight mechanisms, including checks and balances between the board and the operating CEO. Performance metrics and evaluation systems should also be clearly outlined for the hospital management, the CEO, and include requirements for the board itself.