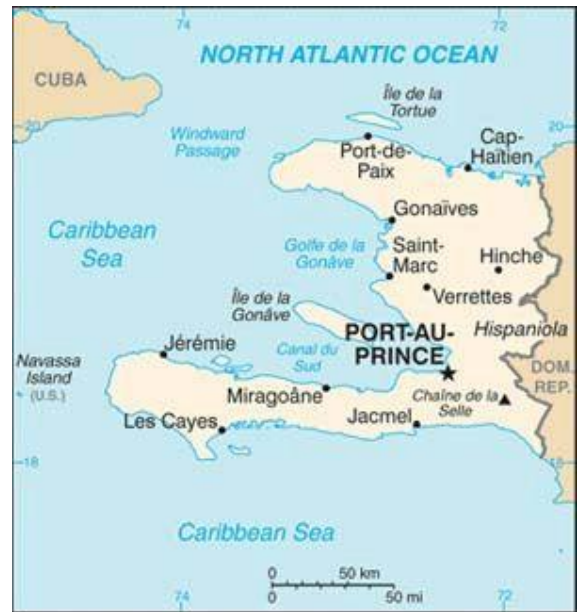


LES PALMES HEALTH CENTER

Petit Goave, Haiti

July 14 – 22, 2012



A medical mission in partnership with:

Safer Institute, Providence, RI

Brown University, Providence, RI

World Connect US, Waltham, MA

RI Medical Reserve Corps, Providence, RI

RI Disaster Medical Assistance Team, Providence, RI

International Medical Equipment Collaborative, North Andover, MA

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Overview

- **Full name:** Republic of Haiti
- **Capital:** Port-au-Prince
- **President:** Michel Martelly
- **Prime Minister:** Garry Conille

- **Area:** 27,750 sq km (10,714 sq miles); about the size of Maryland
- **Population:** 10.1 million (UN, 2011)
- **Annual population growth rate:** (est.) 1.66%. (US Dept. of State, 2009)
- **Life expectancy:** 61 years (men), 64 years (women) (UN)

- **Climate:** Warm, semiarid, high humidity in many coastal areas.
- **Official Languages:** Creole, French
- **Religions:** Roman Catholic (55%), Protestant (28%), voodoo (pervasive) (US Dept. of State, 2003)
- **Ethnic groups:** African descent 95%, African and European descent 5%. The latter includes a small, but significant number of Arabs of Lebanese, Syrian, and Palestinian descent. (US Dept. of State)
- **Monetary unit:** 1 gourde = 100 centimes
- **Main exports:** Light manufactures, coffee, oils, mangoes
- **GNI per capita:** Estimated to be low income: \$995 or less (World Bank, 2009)

- **Internet domain:** .ht
- **International dialing code:** +509

Country Description

Haiti covers the western third of the Caribbean island of Hispaniola. The capital city is Port-au-Prince. The January 12, 2010 earthquake significantly damaged key infrastructure and greatly reduced the capacity of Haiti's medical facilities. Despite the passage of time, Haiti's infrastructure remains in very poor condition, unable to support normal activity, much less crisis situations. Last year's cholera outbreak – exacerbated by inadequate public sanitation – killed thousands of Haitians, further straining the capacity of medical facilities and personnel and undermining their ability to attend to emergencies. While the Embassy's ability to provide emergency consular services has improved since the earthquake, it is still limited. The Haitian National Police (HNP), with assistance from UN Police (UN Pol), are responsible for keeping peace in Haiti and rendering assistance during times of civil unrest. The level of violent crime in Port-au-Prince, including murder and kidnapping, remains a concern and Haiti is considered a 'critical threat' post for crime.

Medical System

Structure

Haiti's medical system was severely disrupted by the 2010 earthquake. The general structure of the system includes a public sector, a private nonprofit sector, and a private for-profit sector:

- The *public sector* is responsible for providing health care to all citizens within the country. This sector has been significantly affected by the country's ongoing political crisis. Consequently, services and access to care are limited. The Ministry of Public Health and Population (MSPP) is responsible for the regulation of all medical activities in Haiti. The MSPP works closely with the World Health Organization (WHO) and Pan American Health Organization (PAHO) for capacity building and management of programs such as the Program on Essential Medicine and Supplies (PROMESS), Haiti's central warehouse for distribution of medications and medical equipment.
- The *private nonprofit sector* includes medical facilities operated by nongovernmental and religious organizations, and affiliated personnel.
- The *private profit-making sector* is comprised of private practice specialists who work mostly in the capital of Port-au-Prince and in private healthcare facilities. The private sector provides approximately one third of the population's health care.
- Doctors and hospitals often expect immediate cash payment for health services.

Major infectious Diseases

- **Vector borne:** malaria, lymphatic filariasis, and dengue
 - **Food or water borne:** hepatitis A, hepatitis E, typhoid fever, leptospirosis
- Note: A lack of potable water contributes to high rates of bacterial and protozoal diarrhea.*

Fertility Rate

- 4.79 children born/woman (2008 estimate, WHO/PAHO)

Mission Team Roster

Safer Institute recruited and deployed a multidiscipline team in partnership with the Rhode Island Disaster Medical Assistance Team, Rhode Island Medical Reserve Corps, and Brown University. The team members, skillsets and affiliations are listed below.

Name	Position (Skillset)	Affiliations
Peter Fucci	President (Technology)	Safer Institute, RI DMAT
Christopher Daniel	Vice-president (Technology)	Safer Institute, RI MRC
Larry Warner	Public Health Specialist, EMT-Cardiac	Safer Institute, Brown University, RI MRC
Michelle Daniel	Physician (Emergency Medicine)	RI MRC, RI Hospital, Brown University
Gail Skowron	Physician (Infectious Disease)	RI MRC, Roger Williams Hospital, Boston Univ.
Monica Kleinman	Physician (Pediatric Medicine)	RI DMAT, Boston Children's Hospital
Helene Bradley	Optometrist	RI MRC, RI National Guard
Scott Marcotte	Registered Nurse, Paramedic	RI DMAT, RI Hospital
Joseph Parent	Registered Nurse	RI DMAT
Thomas Lawrence	Paramedic	RI DMAT Team Leader
Cheryl Lawrence	Administrator	RI DMAT
Brooke Lawrence	EMT-Cardiac	RI DMAT
Michael DeRosa	EMT-Cardiac	RI DMAT
Gregory Elia	Medical Student (Training)	RI MRC, Brown University
Jean Dole Romain	Medical Student (Translation)	Universite Quisqueya
Camille Thamar	Medical Student (Translation)	Universite Quisqueya
Francky Accelin	Medical Student (Translation)	Universite Quisqueya
Israel Joseph	Medical Translator	Poured Out



Les Palmes Health Center

Les Palmes Health Center

- The Les Palmes health center is an eight (8) bed facility, and has been the primary source of medical and dental care for approximately 28,000 people in the Les Palmes area.
- The full time staff consists of a general physician, a community health specialist, two dental surgeons, two lab technicians, two nurses, two assistant nurses, one nutrition monitor, two pharmacy staff, two archivists, two immunization agents, and three health animators.
- Services include general consultation, care of malnourished children, diagnosis and treatment of tuberculosis, hospitalization, maternal care for uncomplicated cases, small surgeries, bucco-dental care, family planning, immunizations and child weight monitoring, and routine testing.
- The health center has a caseload of 600 - 800 patients per month.
- The most common conditions seen at the health center include:
 - malaria
 - anemia
 - typhoid
 - acute respiratory infection
 - hypertension
 - genitourinary infections
 - gastric hyperacidity
 - intestinal parasitic infections
 - skin diseases
 - arthritis
 - OB/Gyn - staff assist with 5 to 10 births per month.
- The health center is comprised of several stone and block buildings. The roofs are made from metallic zinc sheets. The rooms are well aerated and spacious.
- The health center is powered by generator, solar panels, and DC/AC inverter.
- The health center had two consultation beds in poor condition, one electrical microscope, one centrifuge, one rotator, one very old lab counter, one maternity bed, one table for small surgeries, one scale, one cot, one gas refrigerator for vaccine storage.
- The health center has upgraded most of its inventory with the shipment of medical equipment and supplies from *Safer Institute*, *World Connect*, and the *International Medical Equipment Collaborative* in March 2012.

Lafond School – Satellite Clinic

- The Lafond School is a five (5) building complex constructed from concrete, cinder block, rebar, and metallic zinc sheet roofs.
- The classroom complex consists of four (4) one-story buildings. A fifth building is teacher housing.
- The Lafond School served as a satellite clinic during the week long medical mission, and lodging for some members of the medical team. All buildings were powered by generator.
- Building 1
 - Classrooms 1 and 2 – Lodging for medical team members
 - Classroom 3 – Storage for relocated classroom furniture during the clinic’s operation
- Building 2
 - Classroom 4 – Patient registration, clinic pharmacy, survey administration location
- Building 3
 - Classroom 5 – Logistics / supply station
- Building 4
 - Classroom 6 – Adult exam room
 - Classroom 7 – Optometry exam room
 - Classroom 8 – Pediatric exam room
 - Classroom 9 – OB/GYN exam room
- Building 5
 - Lodging for medical team members and medical translators
 - Kitchen and bathroom facilities



Lafond School – building 1, lodging and storage.

Medical Equipment Shipment

- In March 2012, *Safer Institute*, in partnership with *World Connect* and the *International Medical Equipment Collaborative*, shipped a 20 foot container filled with medical equipment and consumable supplies to the Les Palmes Health Center. The shipment was comprised of pallets, each one loaded to fully equip an examination room, laboratory, or administrative office. These “suites” were designed to equip a room for a specific purpose.
- The shipment included dental suite, patient room, laboratory suite, administrative suite, community delivery suite, exam room, special care suite, special procedures suite, ultrasound machine and medical supplies. The shipping manifest listing the contents of the suites is provided at the end of this document.
- A Brown University medical school faculty member and student have provided ultrasound training during the medical mission to clinicians from the Les Palmes Health Center and a neighboring health center.
- The equipment and supplies delivered by IMEC to the Les Palmes Health Center is valued at \$156,000 US.



Medical equipment being loaded at IMEC

Assessment of Cholera Knowledge



Young women bring water up the mountain to their homes

- *World Connect* funds a community health nurse who works in Les Palmes and has been implementing a *Zero Cholera* education and prevention program. According to the staff at the Les Palmes Health Center, there have been no cases of cholera. The low reported incidence of cholera is a testament to the hard work of the community health nurse. However, in an area where the geography and distances can make access to healthcare challenging to the healthy, and more so to the sick, it is worthwhile to explore other measures of the effectiveness of the *Zero Cholera* program. Towards that end, we researched low literacy knowledge assessment questionnaires, as well as prior studies on water, sanitation, and hygiene resources and practices in Haiti and elsewhere. The *Assessment of Cholera Knowledge in Rural Haiti (ACKnowledge Rural Haiti)* combines new and revised questions for the knowledge assessment component from a similar post-intervention knowledge assessment conducted in 1993 in Cuba (Conocimientos de la población sobre el cólera – The knowledge of the population about cholera) , and incorporating questions from the *Household Survey on the Right to Water in Port-de-Paix, Haiti* to obtain information about water, sanitation and hygiene resources available to the respondents.
- The medical director of the Les Palmes Health Center and the community health nurse approved administration of the ACKnowledge survey.
- The sampling frame consisted of adult patients seeking primary or urgent care at the Lafond School Satellite Clinic. A combination of convenience sampling and systematic sampling

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was used to recruit respondents. Forty six (46) persons were offered the questionnaire, of which forty four (44) verbally consented to participate, for a 95.7% response rate.

- The mean number of correctly answered cholera knowledge questions was 10 out of 12; 66% of households always treat their drinking water; 59% of households have access to water treatment materials always or often; 87% of households with a toilet or latrine have access to water nearby to wash their hands; 39% of households dispose of solid waste in their yard; 43% of households dispose of waste water in the yard.
- This impact evaluation study provides information about the post-intervention level of cholera knowledge since the implementation of the *Zero Cholera* program, and can be used to compare Lafond to other communities before and after implementing a cholera intervention. One limitation of this study is the lack of pre-intervention data to determine the amount of change resulting from the *Zero Cholera* program. In spite of this, the data collected from *ACKnowledge* still allows for inter-community comparisons to be made, as well as for comparison of hygiene practices between communities while controlling for potential confounders such as education, age, and access to water and sanitation.
- The *ACKnowledge* questionnaire and summary data are provided in appendices.



Brown medical student Greg Elia MD'15 examines a pediatric patient.

After Action Report

Overview

Safer Institute led a successful medical mission to Lafond, Haiti to supplement services provided by the Les Palmes Health Center and conduct public health and IT assessments. Some of the strategies and methods previously planned were modified at the request of the host medical director. As a result, a larger than anticipated patient load was seen, providing some challenging logistics, and leaving the objective to train local residents in first aid and labor/delivery techniques unfulfilled. All other aspects of the mission were a success, and there is an opportunity to fulfill the training objectives at least in part through the community health nurse in Lafond, and possibly in a future medical mission. Highlights of the impact of the medical mission are provided below.

Objectives and Outcomes

1. Increased accessibility of medical care:
 - 700+ medical and optometry patients were treated at the temporary satellite clinic at the Lafond School Satellite Clinic
 - 300+ pairs of prescription glasses and sunglasses were distributed free of charge
 - 50 patients were treated at the Les Palmes Health Center
 - 12 team members were trained on recognition and management of diseases found in Haiti prior to and during deployment
 - 200 patients were referred to the Les Palmes Health Center for follow up to treatment received at the clinic, or to Petit Goave for follow up tests or treatments not available in Les Palmes
 - Team members visited areas of Lafond to visit households, encourage attendance at the clinic, and observe the water and sanitation infrastructure.
2. Increase ability for residents to manage minor wounds and recognize when to seek care
 - Clinicians and medical translators gave discharge instructions that were specific to the patient's chief complaint, but educational in the context of managing acute and chronic health conditions.
 - The previous plan to hold formal first aid training sessions was tabled due to the logistical and time requirements of trying to see the large number of preregistered to be seen at the Lafond School Satellite Clinic.
3. Public health planning and promotion
 - 100 *Gadyen Dlo* water filtration systems were distributed at the Lafond School Satellite Clinic based on needs identified during survey administration, suspicion of diarrheal disease by a clinician, or recommendation of the community health nurse.
 - A meeting was held with the community health nurse, medical students from Quisqueya University, and Safer's public health specialist to discuss the current

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education and prevention program, needs, and ideas. The minutes of the meeting are included as an appendix.

- The *ACKnowledge Rural Haiti* questionnaire collected data on several topics such as water and sanitation resources and practices. Data is summarized in an appendix.
 - *Safer Institute* is currently developing a relationship with the *Association of Haitian Physicians Abroad* and the *Haitian Development Resource Foundation* to provide training to clinical and lay personnel, and to aid in the building of in-country capacity to respond to recurrent disasters. *ConcertAction* remains the primary source of financial, material and logistical support for the Les Palmes Health Center.
 - Safer Institute is currently developing partnerships with organizations such as the Brown University chapter of *Engineers Without Borders* (EWB) to develop low cost sustainable solutions to infrastructure challenges in the Lafond area. Brown EWB is a student led community service organization that has experience working on water projects in the Dominican Republic in rural mountainous settings similar to that of Lafond, Haiti. Both Safer and EWB look forward to working together with the Haiti-based Lafonbelle Foundation to identify and assist with the design, funding, and implementation of sustainable solutions to improve the quality of life in rural Haiti.
 - *Safer Institute* is in the process of writing journal submissions focusing on the various areas addressed during the mission trip, with the hope that other organizations and communities in Haiti will benefit from programs similar to *Zero Cholera*, surveys similar to *ACKnowledge*, and the use of technology in the delivery of medical care and management of personnel and processes.
4. Improve Health Information Systems Infrastructure
- Findings of the health information systems infrastructure assessment were promising. There is electricity at the health center, along with the need and ability to transition to electronic records for at least aggregate periodic reporting. The Information Technology assessment report is being written by Safer Institute's Chief Technology Officer, with the Information Systems plan to follow.
 - Following the release of *Microsoft Windows 8* in early October 2012, *Safer Institute* will ship 2-3 laptops/tablets to the Les Palmes Health Center and the community health nurse to aid in their work, and to facilitate the transition from paper-based to electronic record keeping. *Safer* will also provide the software and framework to collect and report data, and the requisite training to maximize the potential of the health information system being developed.

The people of Les Palmes received the mission team with open arms. The members of the mission team provided care while assessing the community. While there are many needs, *Safer Institute* is in the process of networking to help Les Palmes overcome its challenges.

Appendices

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