

Working in solidarity: The student Anti-Dengue Campaign of 2012

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Abstract

The student Anti-Dengue Campaign (*Dengue Pesquisaje*) of 2012 in Havana, Cuba took place over a 10-week period when classes at the Latin American School of Medicine were suspended starting in January. Students were assigned to designated areas of Havana and oriented to go door-to-door, educating Cubans on the signs and symptoms of dengue and measures of preventing disease transmission. Dengue is a serious illness that can manifest with classic symptoms such as fever, headache, rash, retro-orbital pain, myalgias, and arthralgias or it can lead to hemorrhagic dengue and shock. Incidence over the years has increased due to the introduction of new serotypes, mobility, urbanization and population growth. The Anti-Dengue Campaign encouraged students to work in solidarity with the community and practice the basic principles of primary care, providing them with a special skill set to understanding disease control and epidemiology.

The Cuban medical system is accustomed to adversity and challenges, having provided free health care

for its citizens throughout 50-plus years of economic turmoil. Its continued commitment to the well-being of its citizens is exemplified by the Anti-Dengue Campaign (*Dengue Pesquisaje*) of 2012, during which Cuban and international medical students were mobilized to confront the dengue epidemic gripping the nation. The hard work of these medical students embodies the community-based approach to health care and has provided the students with real public health experience and knowledge that they will apply when they return to their home countries.

After the revolution of 1959 that ousted dictator Fulgencio Batista, the Cuban government began building a centralized health care system that strove to provide “total coverage.” This meant complete geographic, social, and economic coverage, with health care provided free of charge, from the cities to the mountains, to people of any income level, from any stratum of society, and of any sex, race, or ethnicity. The system is based on a strong foundation of primary care whose focus is prevention and community-based care.¹

Cuba’s goal of “total coverage” has had an influential impact even outside of the nation’s own health care system. Beginning in 1960, when it sent medical teams abroad to Chile in the wake of the Valdivia earthquake, the Cuban government has provided medical missions to countries in need, building solidarity with many developing nations.¹ This solidarity was extended to medical education, and in 1999 Cuba began offering full scholarships to study at the Latin American School of Medicine (LASM) in Havana to students from throughout the Americas who are committed to returning to their home countries to work for underserved populations. More than a decade later, LASM has graduat-

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ed thousands of doctors and continues to provide education for students from all over the world, including more than 100 students from the United States currently in the program.² It was these international students, in any of their six years of education, who provided an important force for the Anti-Dengue Campaign of 2012.

Dengue is a viral disease, caused by any of four serotypes (dengue-1 to dengue-4), transmitted via *Aedes aegypti*, a mosquito that predominantly breeds in fresh water near human habitation. It can present as “classic dengue,” also known as “break-bone fever” with symptoms that include fever, headache, rash, retro-orbital pain, myalgias, and arthralgias. A secondary infection with a different serotype from the primary infection is a predisposition to hemorrhagic dengue, which can lead to shock and is associated with a high mortality rate.³ Before 1977, only dengue-2 and dengue-3 serotypes were found in the Western hemisphere and hemorrhagic dengue was rarely, if ever, reported. In 1977, dengue-1 was introduced in Cuba and the first epidemic was reported.⁴ Four years later, dengue-4 was introduced and now, all four serotypes circulate throughout the Caribbean, leading to an increased incidence of disease and severity.⁵ While Cuba has been heavily affected by this disease, it is a widespread problem, transmitted in the tropics, in an area approximately 35 degrees north and 35 degrees south latitude; including Australia, Asia, Africa, the Caribbean, Latin America, and southern portions of the United States.⁶

The Anti-Dengue Campaign of 2012 brought together medical students, physicians, and public health and hygiene specialists to combat the epidemic. The medical school curriculum was suspended during two time periods of increased disease incidence: the first suspension lasted for six weeks during the months of January and February and a second suspension began in mid-September and lasted four weeks, resulting in a total suspension period of 10 weeks. This allowed for complete focus on the epidemic campaign by medical students and professors, both in the community and in the hospital setting.

The goals of the campaign included improved detection and treatment of disease, increased public

education and awareness of dengue, and decreased infestation of *A. aegypti*. Medical students were divided into community and hospital groups. Community-based students were sent in teams out to the neighborhoods of highest incidence, where they conducted door-to-door outreach seven days a week. At each visit, students monitored residents for fever and other symptoms of dengue, searched for and destroyed potential foci of mosquitoes, and talked with residents about how to prevent infection. They also monitored the progress and recovery of patients recently discharged from the hospitalization (criteria for hospitalization include: fever and at least two other symptoms for more than 24 hours without any other likely etiology, signs and symptoms of hemorrhagic dengue, and or co-morbidities that put the patient at risk for complications) and patients quarantined in their homes (who did not fulfill criteria for hospitalization). The hospital-based students monitored patients admitted to the hospital and performed extra on-call shifts to assist the overburdened medical staff.

Working directly in the communities, students had the opportunity to implement their public health skills and think about the patient from a bio-psycho-social perspective on health, which takes into account aspects of health that are strongly emphasized in Cuba's medical school curriculum. As students visited the same patients each day, they saw them in their homes, learning about their daily activities, their social support systems, and the conditions in which they lived. Using this information, they were able to individualize prevention strategies, educational activities, and treatment plans. Over time, they built relationships with the patients, and through these relationships they become more effective health care providers.

Although the Anti-Dengue Campaign was successful in integrating the collaborative efforts and participation of faculty, students, and community members, there were also major challenges students had to confront. Despite intensive daily outreach, they were still not able to screen 100% of the target population due to conflicts in daily schedules. (Visits were completed during the day, which corresponded to work and school hours.) In addition, there were factors that were beyond the scope of the

students' reach, including infrastructure issues such as potholes in the streets that collected water and acted as potential reservoirs for mosquitoes. The realities of limited resources presented another challenge; for example, certain neighborhoods did not have running water every day, because water was being rationed at the level of the aqueduct, leading to people storing water in tanks – which, while a necessity, created other potential foci for mosquitoes.

Aside from the immediate goal of dengue disease reduction, there are many important lessons to be learned from this campaign. Students acquired the skills necessary to organize and accomplish a response to an epidemic, with definite applicability to similar situations in the future. Cuba's effective methods of addressing national situations of urgency may be applied to students' work later on as professionals in their communities.

Students also learned important social skills, such as how to communicate with patients and how to build relationships within a community, imperative to the successful practice of medicine, particularly in primary care. Good medicine is founded on the principles of understanding patients in their entirety, not just throughout the different stages of life but also in the complexity of their relationship to their communities and their surrounding environments. This understanding is formed through daily interactions and conversations with patients and listening to their concerns and questions.

Finally, students learned that personal sacrifice is sometimes necessary in moments of national urgency. Although they gained important practical knowledge of epidemiology and public health, they also sacrificed some aspects of their medical educa-

tion, for example, through reduced hours in their clinical rotations. Most of the students, including all of those from the US, were studying medicine in Cuba under full scholarship from the Cuban government and understood the importance of giving back to a country that had provided them so much.

Despite the complexities and challenges, the 2012 Anti-Dengue Campaign was an excellent learning opportunity for international medical students in Cuba, a unique opportunity to assist during a national emergency. It also clearly demonstrates the importance of the use of a population's most valuable asset, human resources, and the need to prioritize the well-being of a country's citizens. The principles learned through this experience will be important tools for students as they continue their studies and become physicians in their communities.

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