Restoring diplomatic relations with Cuba: What it means for American medicine

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An embargo imposed nearly 50 years ago has prevented Cuba and the United States from exchanging medical and technological advances, but scientists say that may be about to change now that the countries have restored diplomatic relations— something many experts believe was a long time coming.

“I testified before the [U.S.] Senate Foreign relations Committee in 2001, and I was asked by Sen. Dodd (D-CT, 1981-2011) about my opinions on the embargo, and I said, ‘As a scientist, I could never imagine doing an experiment for 40 years and it not working.’ And now it’s been over 50,” Mark Rasenick, professor of physiology and biophysics at the University of Illinois, told FoxNews.com.

“It doesn’t matter what your politics are: If you let the embargo go another year, it will have an effect that flies in the face of logic. I think that working together we will make a lot of progress,” said Rasenick, who has traveled to Cuba for numerous international research conferences. The embargo has allowed international meetings but prohibited one-on-one conferences between Cuba and the U.S.

The World Health Organization (WHO) has dubbed Cuba’s health care system as “a model for the world” and praised the country for its strides in medical research. The island has an infant mortality rate of 5 per thousand births and an average life expectancy of about 79 years, according to the World Bank. Those values in the U.S. are 6 and 79 years, respectively. The leading cause of death in Cuba is heart disease— a problem primarily seen in developed nations.

Despite limited medical research funding from the government, Cuban researchers have developed experimental cancer treatments, as well as numerous vaccines— including one for meningitis B that is the most widely used version worldwide.

Researchers in Cuba developed the first meningitis B vaccine in the 1980s during an outbreak on the island, and the vaccine was then distributed in other countries facing outbreaks. Until Novartis developed another meningitis B

vaccine, Bexsero— which was used to treat U.S. students this year during emergency outbreaks at Princeton University and the University of California, Santa Barbara— Cuba's was the only vaccine for this strain available worldwide. In the wake of those outbreaks, the U.S. Food and Drug Administration expedited the approval process for a different vaccine, Trumenba, in October—the first meningitis B vaccine to be licensed in the U.S., according to the U.S. Centers for Disease Control and Prevention (CDC).

While Cuba's cancer treatments have gained international attention due to their sometimes unusual nature— one uses a shark fin— calling any of them a "miracle cure" would be premature, Rasenick said. Effects may be limited to a small number of people, and, though promising, the efficacy of these treatments is unclear thus far.

But other medical discoveries in Cuba have proven successful. An epidermal growth factor receptor system to treat wounds, the use of the compound Heberprot-P to treat pressure ulcers common in diabetics, as well as a host of veterinary vaccines, are among other treatments developed in Cuba that have the potential to hit ground in the U.S., Rasenick noted.

The vaccine and cancer research in Cuba have come out of the Carlos J. Finlay Vaccine and Serum Institute and the Center of Molecular Immunology, respectively. Much of the medical research in the country is concentrated in the west side of Havana, Rasenick said.

According to Mavis Anderson, senior associate at the Latin American Working Group (LAWG), the country has been forced to develop a pharmaceutical industry of its own because of a U.S. rule for strict end-use monitoring of any antibiotic patented in the U.S. That policy has deterred pharmaceutical companies from selling their drugs in Cuba, she said.

"There's been a lot of development in the medical arena in Cuba in the last 50 years, largely out of need," Anderson told FoxNews.com. LAWG is a nonprofit that consists of 65 nongovernmental organizations, and advocates for changes in U.S. policy toward Latin American countries.

Cuba's medical advances are largely attributable to its government, which has prioritized health care, "even as it has limited freedoms and economic prospects of its people," Peter A. Muennig, an associate professor of health policy and management at Columbia University's Mailman School of Public Health, wrote in an email to FoxNews.com.

He said that while the health care systems in the U.S. and Cuba are not comparable, both countries' medical research stands to advance from open relations.

"[Cuba] will be able to modernize their research equipment and begin to generate revenue based upon the technologies that they have and will develop," Muennig said. "Over the long-term, I see a good deal of benefit to both nations, as information and technologies are shared, and human capital flows from Cuba to the U.S. There is a surplus of medical personnel in Cuba and a shortage in the U.S. This will therefore be hugely beneficial to both countries."

Rasenick said Cuba has been hailed worldwide for its development of brain mapping technology. As researchers haven't had access to magnetic resource imaging (MRI) equipment, they have invented an Electroencephalography (EEG) mechanism, outfitted with a bathing cap and electrodes, to measure electrical patterns on the surface of the brain. The device is manufactured in Spain, and Cuba sells it under the brand Neuronic for about $10,000 USD.

"In rural America, where you don't have access to functional MRI (fMRI) imaging, if you had someone with a stroke or a brain injury of some kind, and you wanted to find out what was going on with it, with this inexpensive equipment, you could generate the image and send the info to a more sophisticated center where they could analyze it," Rasenick said.

Edward W. Campion, senior deputy editor and online editor of the New England Journal of Medicine, lauded Cuba's contributions to global medicine in a January 2013 paper published in the journal.

Campion told FoxNews.com that Cuba frequently sends medics to developing nations. The country has provided aid to its neighboring island Haiti— whose residents live 30 fewer years, on average, than people in Cuba— and it has sent more medics to West Africa to help in the fight against Ebola than any other country, the Associated Press

has reported.

“That’s got nothing to do with politics,” Campion said.

Campion added that Cuba has recently focused on genetic technology and studying the genetics of infectious organisms like tuberculosis, an area that “requires communication and interaction with the leaders in the world of science.”

“Medical research and medical teaching depend on communication and learning,” he said. “Isolation is not good for medical care and any kind of scientific research.”