Dr. J. Glenn Morris spoke about the importance of research and science education at the state capitol in March, rallying with the Florida Board of Governors and officials from all 12 of Florida’s public universities to support the launch of a statewide initiative advocating the importance of safety, research, and education at Florida’s universities.

Among the speakers, Morris represented both the University of Florida and the importance of research to the future of the state. “Our role is to train the next generation of scientists,” Morris said, “so that they too know how to ask and answer questions about health and disease and the world around us, and are here to deal with the next set of problems which will inevitably arise in our constantly changing world.”

Named the “Safer, Smarter, Stronger” initiative, it was designed to demonstrate the return on investment for each of the State University System’s top priorities. Other speakers included Board of Governors Chair Tom Kuntz, Senator Gary Farmer Jr., University of West Florida Student Veteran Timothy Jones, Florida State University First Generation Student Genevieve Bell, and Vice Chair Ned Lautenbach.

Morris suggested that universities play a significant role in producing the research that will help the world overcome the threat of diseases both known and unknown. “The emergence of infections such as Zika are an unfriendly reminder of why we must continue to invest in research, and pursue the discoveries and inventions that make all of our lives safer and better,” he said.

The speech was part of a larger program emphasizing how investing in mental health counseling, student safety, research, and student access to higher education will help create a “stronger” Florida. “‘Safer, Smarter, Stronger’ is more than just a slogan,” said State University System Chancellor Marshall Criser. “It is a description of what we are accomplishing for our higher education system by working together with the governor, the legislature and the universities. We all know that the strength of Florida’s higher education system is directly tied to the success of our students and the prosperity of our state.”
EPI Visits Haiti

Haiti has endured more than its share of challenges. Its people have been subjected not only to poverty and political upheaval, but also to a seemingly endless procession of natural disasters following one upon the other for more than a decade.

Hurricane Ivan launched the cycle in September 2004, followed quickly by Hurricane Jeanne in which more than 3,000 residents were killed and 300,000 left homeless. Hurricanes Dennis and Wilma victimized the island in 2005.

2008 saw Tropical Storm Fay, Hurricane Gustav, and Ike hammer Haiti, leaving 77 dead, 3,000 homes destroyed and 11,000 heavily damaged.

The horrific earthquake — a magnitude 7.0 — struck January 12, 2010. Accurate casualty figures are elusive but estimates of deaths range from 46,000 to 316,000. A second earthquake of 6.1 magnitudes struck on January 20. This was followed by a massive cholera outbreak that claimed the lives of 3,600, with an additional 340,000 residents requiring hospitalization for cholera. Finally, in November 2010 Hurricane Tomas put an ugly imprimatur on 2010, causing at least 10 deaths and worsening the cholera outbreak.

The ensuing years were less frightful from a natural disaster perspective but 2016 saw Hurricane Matthew hit the island killing 1,300 and leaving more than 35,000 homeless.

In the wake of these destructive events, hundreds of Non-Governmental Organizations sent delegations to Haiti to help alleviate suffering. Many of these sought to help by drilling wells to provide potable water — chronically in short supply on the island but critically unavailable to so many residents especially after the earthquake. Unfortunately, many wells now lie dormant due to pump parts being unavailable or the absence of trained mechanics to work on them. Still other wells while operational are producing foul and tainted water. Consumption of tainted water has exacerbated Haiti’s cholera outbreak and further strained its already over-taxed health provision system.

Indeed, Haiti has suffered much as its people have been ravaged by these events, and by the resultant persistent and frightful effects of cholera and other water-borne diseases.

The cost of these events in terms of human suffering and economic impact is such that outside help is essential to any credible effort at mitigation.

EPI is committed to assisting in the mitigation of this acute public health crisis in Haiti. To this end, EPI will co-host an International Water Summit in November 2017, to include interested parties within Haiti as well as experts from various disciplines, all of which are vital to the development of a cogent plan to arrest and alleviate cholera and other water-borne illness on the island.

Following up on its December 2016 visit, EPI led a contingent of researchers and academic professionals on a trip to Haiti in March 2017, to lay the groundwork for the November Water Summit.

EPI’s vision is to identify interested parties who might want to join this effort. We are looking for corporate sponsors, academic institutions with a strong research perspective, service clubs that want to be involved in issues related to providing potable water, and individuals who see this endeavor as worthwhile and deserving of support.

For more information on how you can participate in this vital effort, please contact Thomas Lane, EPI Development Office, hthomas.lane@epi.ufl.edu or 352.870.0008.
Most Dengue Infections Transmitted in or Near Home

Study findings could aid in interrupting transmission chains and reducing severe illness

For their study, the researchers genetically sequenced the viruses of 640 dengue infections that occurred in densely populated Bangkok, Thailand, between 1994 and 2010. They then overlaid this information on a map showing where 17,291 people infected with the disease lived. Their results showed that in cases where people lived fewer than 200 meters apart — that is, in the same neighborhood — 60 percent of dengue cases resulted from the same transmission chain, meaning they stemmed from the same mosquito or family of mosquitoes.

In people who were separated by a wider distance of one to five kilometers, just 3 percent of cases came from the same
transmission chain, said the study’s senior author, Derek A.T. Cummings, a professor of biology at UF’s Emerging Pathogens Institute and an adjunct professor at the Bloomberg School.

“Our findings suggest that large urban centers provide a source of dengue genetic diversity that could possibly be dispersed to other areas of the country and world,” Cummings said.

However, in the areas of Bangkok with the highest population density, the researchers found less diversity than expected.

“This suggests that these areas might be where intense competition is occurring between dengue viruses,” Cummings added.

The researchers estimate that 160 separate chains of transmission co-circulate in Bangkok within a “dengue season,” which in Thailand is usually autumn. Across the city, they found that larger populations of people support a larger diversity of dengue viruses.

While the related dengue viruses stay close to home in a single dengue season, the viruses eventually mix across the country by the next season. Despite the eventual cross-country mixing, the researchers say that the virus strains stayed mostly within the borders of the country, and they aren’t entirely sure why.

“We often think that pathogens don’t respect borders,” said study lead author Henrik Salje, PhD, from the Institut Pasteur in Paris, France. “While clearly there is a lot of human mobility between the countries in the region, it does not appear to be enough to connect their dengue epidemics.”

This has important implications for the introduction of dengue vaccines, which are starting to be rolled out, as individual countries will have to rely on their own efforts to control the disease, he said.

Forty percent of the world’s population is at risk of the virus, which is most common in Southeast Asia and the western Pacific islands and has been rapidly increasing in Latin America and the Caribbean. While most of the people who contract dengue survive with few or no symptoms, more than two million annually develop what can be a dangerous hemorrhagic fever, which kills more than 25,000 people each year — mostly children.

The study “Dengue diversity across spatial and temporal scales: Local structure and the effect of host population size” was authored by Henrik Salje, Justin Lessler, Irina Maljkovic Berry, Melanie Melendrez, Timothy Endy, Siripen Kalanayarooj, Atchareeya A-Nuegoonpipat, Sumalee Chanama, Somchai Sangkijporn, Chonticha Klungthong, Butsaya Thaisomboonsuk, Ananda Nisalak, Robert Gibbons, Sopon Iamsirithaworn, Louis Macareo, In-Kyu Yoon, Areerat Sangarsang, Richard Jarman and Derek Cummings. Collaborators were from the Institut Pasteur, Johns Hopkins University, Walter Reed Army Institute of Research, Upstate Medical University of New York, Queen Sirikit National Institute of Child Health, the National Institute of Health of Thailand, the Armed Forces Research Institute of Medical Sciences, the Ministry of Public Health of Thailand, the International Vaccine Institute and the University of Florida. ■

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