

## Health Dengue Fever: America's Next Health Crisis? Coming Soon: New Commenting Experience

(Jan 19) — Last year, the H1N1 outbreak killed at least 12,500 people worldwide, and billions of dollars were spent on vaccine development and the rush to stymie the virus' spread. At the same time, another global health crisis was expanding with staggering speed but much less attention.

Dengue fever, a mosquito-borne illness once contained to Central America and Southeast Asia, now threatens 2.5 billion people in more than 100 countries. The affected areas include wide swaths of the United State and Haiti, where the illness was already endemic before last week's earthquake.

"The bottom line is that this is a neglected disease," said Dr. Raman Velayudhan, a dengue specialist with the World Health Organization. "No attention means very little donation money, so countries are fending for themselves."

Dengue (pronounced "DENG-ee") was identified and named in the late 18th century. The first modern pandemic was reported in Southeast Asia during the 1950s. Since then, outbreaks have become common in tropical regions. About 40 million cases are diagnosed each year, with 22,000 deaths.

The disease is transmitted via human contact with mosquitoes. Once a person is infected, they can pass the illness to other mosquitoes, or through blood products. An individual may suffer from no more than a fever during his first infection but can become susceptible to more serious symptoms — including circulatory failure — if infected again.

Over the past decade, outbreaks have become more prevalent. The U.S. Centers for Disease Control and Prevention reports that a handful of countries, including Vietnam, Cape Verde, Malaysia and the Philippines, are struggling with outbreaks cur-

rently. Slowly, health officials and environmental agencies have started to warn that dengue infection rates could surge to unprecedented levels.

Regions most susceptible to dengue fever are becoming increasingly common because of globalization and warming climates. Hot, humid environments, combined with rapid urbanization and water shortages, create prime breeding ground for mosquitoes. When water is scarce, people hoard what they can, however they can.

"Open buckets and pools of water, along with hot temperatures, promote mosquito reproduction," Velayudhan said. "In countries struggling with population explosion and irrigation problems, it's even worse."

American tourism in areas like Puerto Rico and Latin America has led to more infected mosquitoes in the U.S. One variety of dengue-carrying mosquito, *Ae. albopictus*, has already been identified in 36 states. Outbreaks in Mexico, where 40,000 dengue fever cases were reported last year, have already been linked to surges in diagnoses among Texans.

"Our outbreaks depend on what's going on south of the border," said Allison Lowery of the Texas Department of State Health Services. In 2005, 25 people were hospitalized, and 16 of them suffered the more dangerous form of the disease, called dengue hemorrhagic fever. The scare in Texas occurred shortly after Mexican authorities reported their own 1,200-person outbreak.

Texas and other at-risk states, including Florida and Arizona, have so far avoided major outbreaks. Lowery credits that to our indoor, air-conditioned lifestyle. "We're inside, less exposed and therefore less susceptible," she said.

The Texas Department of State Health

Services stresses the "Four D's" of prevention:

- Wear DEET, the most common active ingredient in insect repellents.
  - Be wary at dusk and dawn.
  - Dress carefully.
    - Drain standing water.
- So far, these these simple public health advisories have been adequate, but "we do need to be vigilant," Lowery said.

- The state already works with Mexican health officials to share outbreak reports, but because researchers have yet to find an effective vaccination, all-out prevention is nearly impossible once infected mosquitoes populate an area.

- At a national level, studies into the prevention and treatment of dengue are ongoing. Right now, successful care for serious cases depends on hydration and hospitalization. In regions without adequate medical services, that often means the fever is fatal. The death rate during dengue outbreaks can exceed 20 percent in countries with insufficient treatment facilities.

- The National Institutes of Health is a leading advocate for dengue awareness and research. In 2008, two leading NIH researchers published a paper in the *Journal of the American Medical Association*, warning that dengue infection rates could soon explode in the United States. Drs. Anthony Fauci and David Morens called the widespread appearance of dengue in the U.S. "a real possibility" if cur-

rent climactic and globalization trends continued.

- The NIH spearheads more than 60 research programs to combat dengue, including a promising vaccine that's undergoing clinical trials. Also on researchers' radar are modified mosquitoes, whose DNA has been altered to make them "dengue resistant."

- Velayudhan is confident that a successful vaccine is out there, but he warns that "a working, approved vaccine is at least five years away." For now, he advocates for increased public education and health care training — along with the dollars to do it.

- "People will continue to be infected until we train and equip countries effectively," he said. "Right now, though, we simply don't have the resources."

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