WHAT IS DENGUE FEVER?

Dengue Fever is a tropical mosquito-borne disease caused by an individual becoming infected with one of four genotypes of the dengue virus. Overall, a very small percentage of those who are infected show symptoms, as 80% of those infected are asymptomatic. Unfortunately for those who do show symptoms, they generally fall quite ill with the possibility of symptoms being fatal. Once an individual is infected with the virus, the bacteria incubate between 3 to 14 days before the first symptoms appear. Symptoms of dengue fever include: sudden high fever, severe headaches, pain behind the eyes, severe joint and muscle pain, fatigue, nausea, vomiting, skin rash (which appears two to five days after the onset of fever), and possibly mild bleeding (nose bleeds, bleeding gums, and/or easy bruising).

FIGURE 1. SYMPTOMS OF DENGUE

*Dengue hemorrhagic fever, a rare complication characterized by high fever, damage to lymph and blood vessels, bleeding from the nose and gums, enlargement of the liver, and failure of the circulatory system is also possible if an individual is infected with the dengue virus. These symptoms may further progress to massive bleeding, shock, and death. This is called dengue shock syndrome (DSS). Individuals with a weakened immune system or who have previously been infected with dengue are more prone to dengue hemorrhagic fever.

The rate of dengue infections globally has increased thirty fold between 1960 and 2010. This increase is likely due to a high population growth rate, increased urbanization, global warming, and increased international travel. The geographical distribution of dengue infections is concentrated around the equator with 2.5 billion people living in this dengue prone region in turn leading to approximately 70% of infections occurring in Asia and the Pacific. Dengue is the most common viral disease transmitted by mosquitos, with a disease burden of 1,600 per million people.

HOW CAN YOU GET IT?

The virus is transmitted when an Aedes mosquito bites a human, allowing for the virus to permeate the skin and bind to white blood cells. After infection, one's white blood cells respond by producing a number of signaling proteins, such as cytokines and interferon, which in turn are responsible for symptoms such as the fever, the flu-like symptoms and severe pain. Contrary to most other viruses, dengue does not affect babies, young children, and the elderly more than the general population. However, dengue often targets those who are well nourished, of female sex, have a high body mass index (BMI), and have a high viral load (amount of pathogens currently in an individuals body).

WHERE/WHEN CAN YOU GET IT?

Dengue Fever is one of the most common illnesses in tropical regions around the globe, with an estimated 96-million dengue infections occurring throughout equatorial/tropical countries annually. As Aedes mosquitoes live between the latitudes of 35° North and 35° South and below an elevation of 1,000 metres, infection is generally limited to these regions. The Aedes mosquitos typically bite during the day, particularly in the early morning and in the evening, mostly during the rainy/monsoon season or soon after due to an excess of stagnant water.

Dengue is endemic in 110 countries and is most common in:

- The Indian subcontinent
- Southeast Asia
- Southern China
- Taiwan
- The Pacific Islands
- The Caribbean
- Mexico
- Africa
- Central and South America

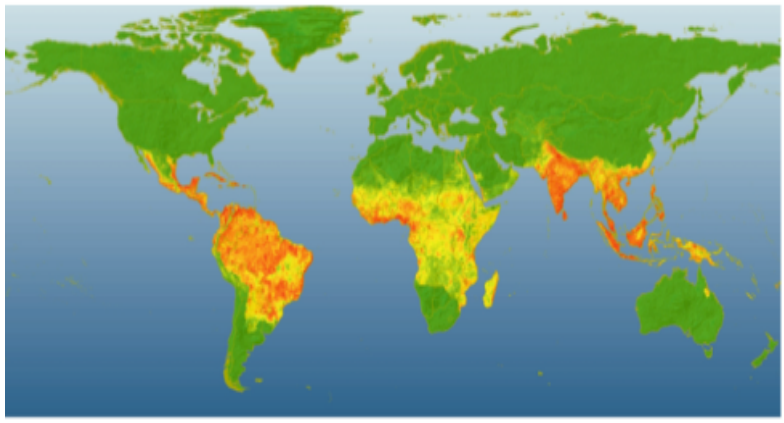


FIGURE 2. GLOBAL DISTRIBUTION OF DENGUE (RANGING FROM LOW/NO OCCURANCE (GREEN) TO HIGH/ENDEMIC OCCURANCE (RED)

HOW CAN YOU PREVENT IT?

Unfortunately there is no vaccine against dengue fever, as the various types of dengue virus make it difficult to develop a universal vaccine. Due to there being no preventative medicine, it is necessary to take various precautions to avoid becoming infected with dengue.

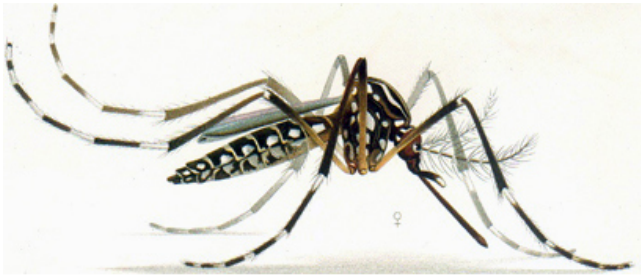
Some ways to prevent Dengue Fever include:

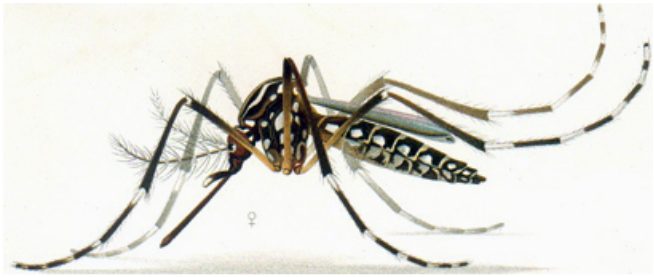
- Staying away from heavily populated residential areas (if possible)
- Using mosquito repellent (even indoors)
- Wearing long-sleeved shirts/pants
- Using air conditioning (if available)
- Ensuring all window and door screens are closed/free of holes
- Using a mosquito net in sleeping areas

*****If you have symptoms of dengue/a fever immediately go to a doctor or hospital***

WHAT DOES IT FEEL LIKE?

On July 28th, 2015, I awoke from a nap noting that my body was starting to get warmer as time progressed. As I was out in the city all day in the Dhaka summer heat, I merely assumed I was dehydrated and was experiencing a form of heat exhaustion. With the hours passing, I continued to get warmer and warmer and began to run a questionable fever. Assuming it could pass overnight, I took the standard two Tylenol and went to sleep. The next morning when I woke up it felt like I was hit by a bus, having it back up and run me over several times.. My head was throbbing, all my muscles and joints ached with extreme pain, I was highly sensitive to any sight or sound, and my body felt like I had been in an oven for hours. Knowing that these were the symptoms of Dengue Fever, I forced myself out of bed and into a rickshaw to go and visit a nearby hospital. While the hospital was close by, Dhaka's traffic made the journey a lot longer than necessary…needless to say, it was highly enjoyable. Once at the hospital I had several conversations in broken English and with some help from a few locals, I arranged an appointment for later that night. After a few hours of sleep, I returned back to the hospital with Jordan, a fellow CAPI intern. In rough shape, unable to keep down any food/water or have the strength to sit in the waiting room, it was finally my turn to see a doctor. The doctor conducted a quick examination and soon after I was diagnosed with Dengue and written a prescription for Paracetamol (a general painkiller). The following days consisted of me drinking/attempting to drink as much water/Gatorade possible, eating at max 5 digestive cookies daily (if I could keep them down), taking my prescribed 3 Paracetamol tablets, and sleeping for countless hours. Each time I woke up hoping to feel better, I was constantly disappointed as the fever/headache/pains were still there. Finally after the fourth day of this regiment, my fever was finally gone and I was starting to feel like I was on the mend. Still feeling extremely weak and unable to keep food down regularly, I moved into Tabitha and Isabelle's (the interns at RMMRU) apartment, as it was in a more quiet location, closer to a hospital, and had all the amenities of home (beds, couches, television, etc.). While in the new apartment, I continued to sleep for days on end and watched numerous English movies from the early 2000s on the English/Bangladeshi Cable Channels. Finally starting to get my energy back, Tabitha and I visited another hospital, as it is often after the symptoms subside the serious complications of Dengue can appear. After being looked after very well by the hospital staff, I went for a blood test to check my platelet and blood protein levels, along with my white blood cell count. Thankfully, my counts were within normal levels and all I needed to do was continue to rest and drink more of liquids. At this point, I was finally starting to get my appetite back and was able to start eating foods easy on my stomach like digestive crackers, bananas, and noodles. Finally, after a few more days of sleep I was finally starting to get my strength back and could finally venture out in the city. Back to normal (and a few pounds lighter), I moved home and set up a mosquito net before going back to work the following day. It has been 3 weeks since my first day with dengue and I still have some muscle pain and get tired easily…as those who have dengue often don't have their complete strength back for approximately a month. I am getting excited for these next days to pass before I have the energy to continue to explore Bangladesh, along with working on my future projects/field projects with BRAC Migration Programme.





REFERENCES:

World Health Organization WHO. (2009). *Dengue Guildelines for Diagnosis, Treatment, Prevention, and Control.* Retrieved from http://www.who.int/tdr/publications/documents/dengue-diagnosis.pdf